



COUNTY OF UNION

DEPARTMENT OF ENGINEERING, PUBLIC WORKS & FACILITIES MANAGEMENT

Joseph J. Policay, Jr., CPWM, Director

**BOARD OF
COUNTY COMMISSIONERS**

KIMBERLY PALMIERI-MOUDED
Chairwoman

LOURDES LEON
Vice-Chairwoman

JAMES E. BAKER, JR.

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MICHÈLE S. DELISFORT

SERGIO GRANADOS

BETTE JANE KOWALSKI

ALEXANDER MIRABELLA

REBECCA WILLIAMS

EDWARD T. OATMAN
County Manager

AMY CRISP WAGNER
Deputy County Manager

BRUCE H. BERGEN, ESQ.
County Counsel

JAMES E. PELLETIERE
Clerk of the Board

RÍCARDO S. MATIAS
PE, CME, CFM
County Engineer
Director, Division of Engineering

DATE: November 14, 2024

FROM: Ricardo S. Matias, PE, CME, CFM 
County Engineer

TO: All Potential Bidders

RE: CLARIFICATION 1
Mattano Park Improvements, City of Elizabeth,
County of Union, New Jersey
BA#50-2024;
Union County Engineering Project #2019-012

This is a response to an inquiry received regarding Bid Bond Forms.

Question 1: The bonding company didn't see a bond form in the project specifications. Can you please confirm with Union County.

Answer 1: The County does not provide a specific Bid Bond Form in the project specifications and does not have a specific requirement for a Bid Form to be completed.

DIVISION OF ENGINEERING

2325 South Avenue

Scotch Plains, NJ 07076

(908)789-3675

fax(908)789-3674

www.ucnj.org

We're Connected to You!



COUNTY OF UNION

DEPARTMENT OF ENGINEERING, PUBLIC WORKS & FACILITIES MANAGEMENT

Joseph J. Policay, Jr., CPWM, Acting Director

MEMORANDUM

BOARD OF
COUNTY COMMISSIONERS

KIMBERLY PALMIERI-MOUEDED
Chairwoman

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Vice-Chairwoman

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Clerk of the Board

RICARDO S. MATIAS
PE, CME, CFM
County Engineer
Director, Division of Engineering

TO: All Potential Bidders

FROM: Ricardo S. Matias, PE, CME, CFM,
County Engineer
Director / Division of Engineering

DATE: November 6, 2024

RE: **ADDENDUM NUMBER 1**
Mattano Park Improvements
City of Elizabeth, County of Union, New Jersey
BA#50-2024;
Union County Engineering Project #2019-012

Bidders of the above-referenced project are hereby notified of the following amendment to the bid plans and specifications issued on October 24, 2024, which are hereby made a part of the Contract Documents.

Contractors shall be responsible for acknowledging receipt of this addendum as part of the bid proposal. Failure to do so may subject the prospective bidder to disqualification.

I. Plan Revisions – Revisions include the Following:

1. Plan Sheet 1 of 2 (Topographic Survey): Revised to depict the correct scale bar.
2. Plan Sheet 2 of 2 (Topographic Survey): Revised to depict the correct scale bar.

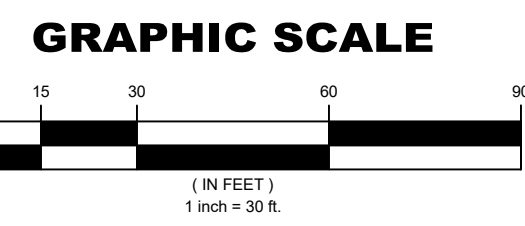
II. Bid Notice Revisions – None

III. Specification Revisions – None

Please note that no further questions will be received, and no further addendums will be issued prior to the bid opening date. Thank you for your involvement in this important project.

Please be sure to complete and submit the standard “Acknowledgement of Addendum” form included in the original bid specifications and submit it with the bid.

DIVISION OF ENGINEERING



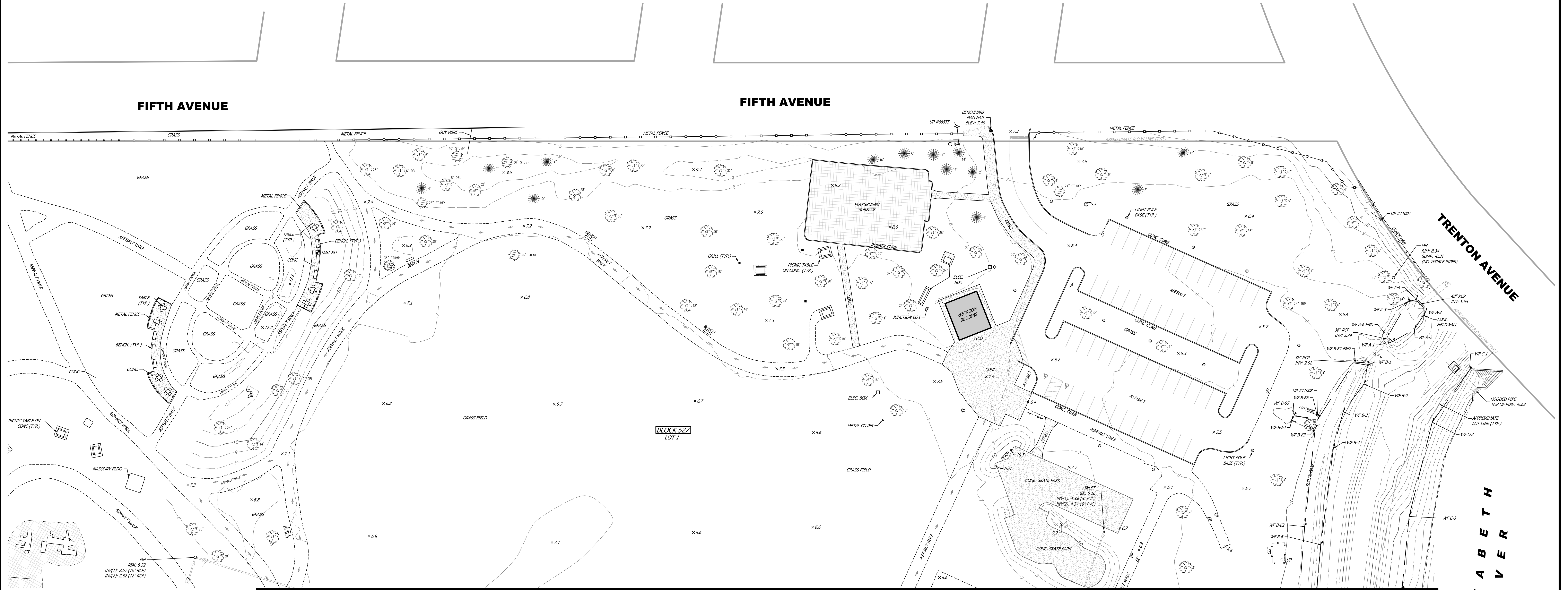
PLAN LEGEND:

	584°33'E		584°33'E (D)		FIRE HYDRANT		CHAIN LINK FENCE
	INLETS		SIGNS		HANDICAPPED SPACE		FINISHED FLOOR(SILL)
	TREES		UTILITY POLE		ELECTRIC MARKOUT		STORM SEWER LINE
	SHRUB		LIGHT POLE		FIBER OPTIC MARKOUT		SANITARY SEWER LINE
	ROOF DRAIN		WATER VALVE		GAS MARKOUT		TELEPHONE MARKOUT
	DEPRESSED CURB		GAS VALVE		OVERHEAD WIRES		WATER MARKOUT
	EDGE OF PAVEMENT		CLEAN-OUT		UNKNOWN CONNECTION		ELECTRIC METER
			UNKNOWN VALVE		MANHOLE		LANDSCAPED AREA

NEW JERSEY CERTIFICATION:
 TO: UNION COUNTY PARK COMMISSION, I CERTIFY THAT I AM A PROFESSIONAL LAND SURVEYOR, LICENSED TO PRACTICE IN THE STATE OF NEW JERSEY, AND THAT THIS MAP OR PLAN IS A RESULT OF A FIELD SURVEY MADE ON JANUARY 8, 2021 AND UPDATED ON JUNE 30, 2023 UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH THE RULES AND REGULATIONS PROMULGATED BY THE STATE BOARD OF ENGINEERS AND LAND SURVEYORS. I DECLARE THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE INFORMATION SHOWN HEREON CORRECTLY REPRESENTS THE CONDITIONS FOUND AT, AND AS OF THE DATE OF THE FIELD SURVEY, EXCEPT SUCH IMPROVEMENTS OR EASEMENTS, IF ANY, BELOW THE SURFACE AND NOT VISIBLE.

SURVEY NOTES:
 1. THIS IS NOT A BOUNDARY SURVEY. THE LOT LINES SHOWN HEREON ARE FOR INFORMATIONAL PURPOSES ONLY.
 2. SUBJECT TO EASEMENTS AND/OR RESTRICTIONS OF RECORD AND RIGHTS OR CLAIMS OF PARTIES IN POSSESSION OF THE SUBJECT LAND OR ADJOINING LANDS AND/OR EASEMENTS OR CLAIMS OF EASEMENTS NOT SHOWN BY THE PUBLIC RECORD.
 3. UNDERGROUND UTILITIES IF DEPICTED ARE BASED ON VISIBLE EVIDENCE. THE LACK OF UTILITY INFORMATION DOES NOT DENY THE EXISTENCE OF SAME. PRIOR TO ANY DESIGN OR CONSTRUCTION THE PROPER UTILITY AGENCIES MUST BE CONTACTED TO VERIFY THE PRESENCE OR ABSENCE OF UTILITIES.

- DELINEATION FOR WETLANDS AND STATE OPEN WATERS HAS BEEN PERFORMED FOR THIS PROJECT BY ENVIRONMENTAL TECHNOLOGY INC. ON MAY 3, 2021. FLAGGING HAS BEEN LOCATED BY NEGLIA ENGINEERING USING SURVEY GRADE INSTRUMENTS.
 - TOXIC WASTES ARE NOT DEPICTED. THE LACK OF TOXIC WASTE INFORMATION DOES NOT DENY THE EXISTENCE OF SAME. SITE REVIEW FOR THE SAME SHOULD BE PURSUED AND APART FROM THIS SURVEY.
 - FENCES & WALLS HAVE BEEN LOCATED AT THE BOTTOM OF THE STRUCTURE, AT THE TIME OF FIELD SURVEY.
 - THE MERIDIAN OF THIS SURVEY IS BASED ON THE NEW JERSEY PLANE COORDINATE SYSTEM NAD83(2011) AS ESTABLISHED USING GPS METHODS AND THE SMARNET NETWORK.
 - ELEVATIONS SHOWN ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AS ESTABLISHED USING GPS METHODS AND THE SMARNET NETWORK.
- REFERENCES:**
 1. LOT AND BLOCK NUMBERS SHOWN HEREON REFER TO THE CITY OF ELIZABETH TAX BOOK 1 PAGE 33.

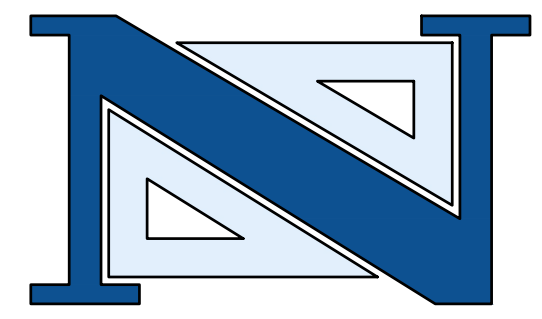


MATCHLINE

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CERTIFICATE OF AUTHORIZATION (N.J.S.A. 45:8-56) 24GA27927000

REVISIONS		DRAWN	DESIGNED	CHECKED
NO.	DATE	DESCRIPTION	DJC	GAV
1	04-16-2021	ADDED ADDITIONAL TOPOGRAPHIC DATA FROM 2021-04-14 FIELD WORK		
2	07-06-2023	ADDED ADDITIONAL TOPOGRAPHIC DATA FROM 2023-06-30 FIELD WORK	RMB	GAV



GARY A. VEENSTRA, P.L.S.
 PROFESSIONAL LAND SURVEYOR
 N.J. LICENSE NO. 24GS03721300

NEGLIA ENGINEERING ASSOCIATES
 34 PARK AVENUE
 TEL: 201-939-8805
 FAX: 201-939-0848
 E-MAIL: NEAG@NEGLIAENGINEERING.COM

MICHAEL J. NEGLIA, P.E., P.L.S., P.P.
 PROFESSIONAL ENGINEER
 N.J. LICENSE NO. 38604

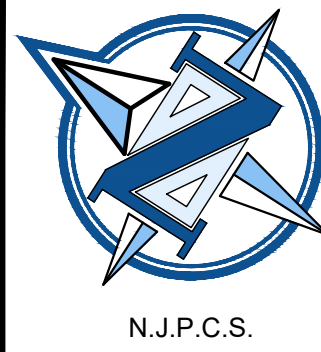
PROFESSIONAL LAND SURVEYOR
 N.J. LICENSE NO. 38604

PROFESSIONAL PLANNER
 N.J. LICENSE NO. 33L00569800

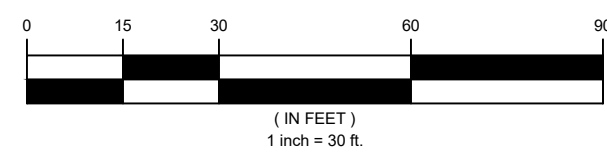
TOPOGRAPHIC SURVEY
MATTANO PARK
PORTION OF BLOCK 527, LOT 1
CITY OF ELIZABETH
UNION COUNTY
NEW JERSEY

PROJECT NO. UNIOCTY20.011
 SHEET NO. 1 OF 2
 DATE: JANUARY 18, 2021

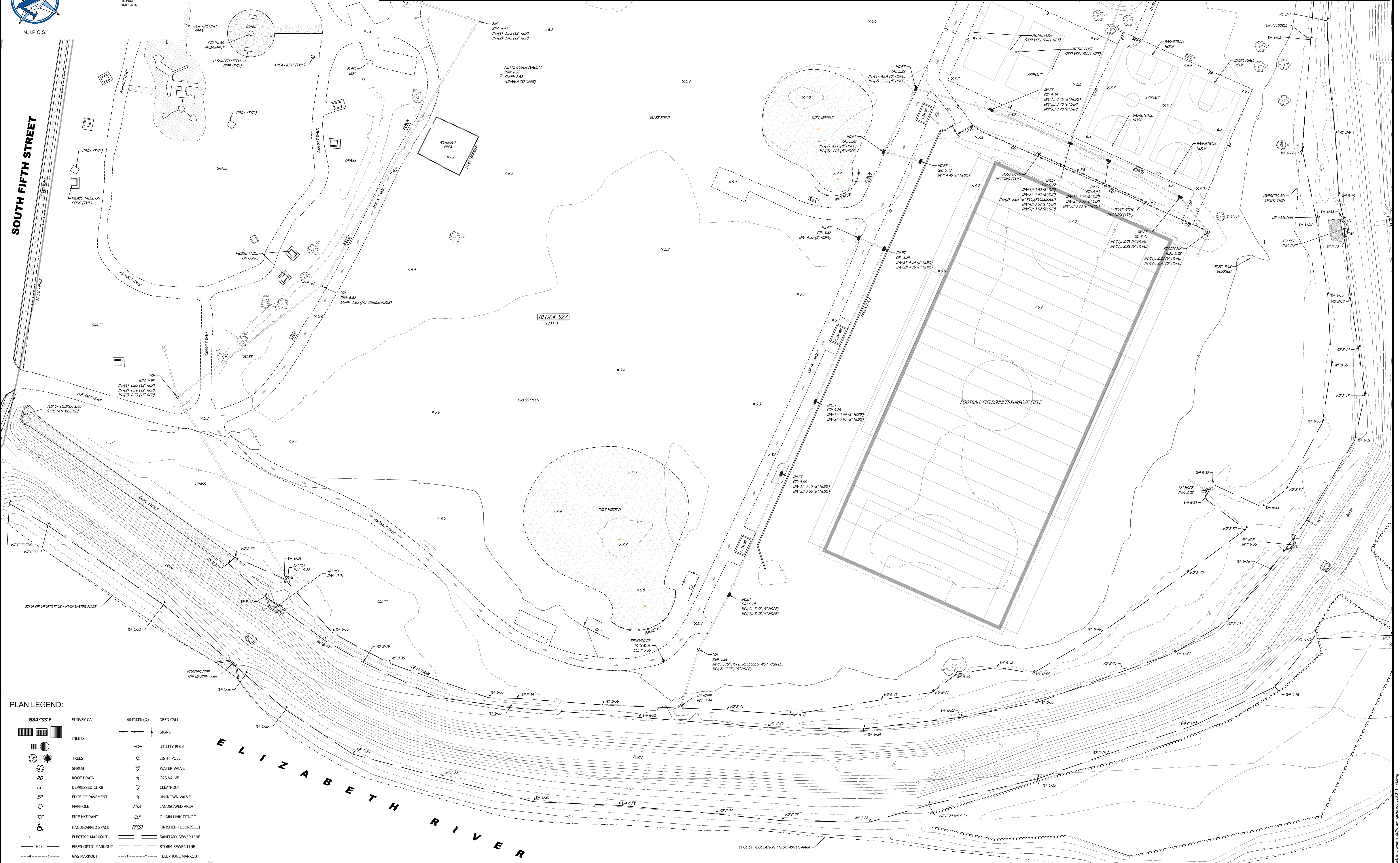
24GA27927000.dwg (2023-07-06 10:00:00 AM) - 1/2



GRAPHIC SCALE



MATCHLINE



PLAN LEGEND:

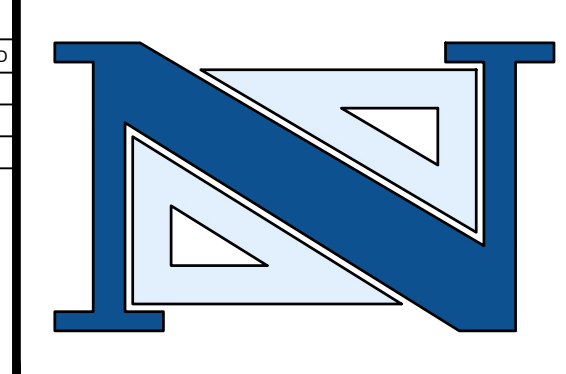
- SB4*33'E SURVEY CALL
SB4*33'E (D) DEED CALL
INLETS
TREES
SHRUB
ROOF DRAIN
DEPRESSED CURB
EP
MAINHOLE
FIRE HYDRANT
HANDICAPPED SPACE
ELECTRIC MARKOUT
FO
GAS MARKOUT
OVERHEAD WIRES
UNKNOWN CONNECTION

- UTILITY POLE
LIGHT POLE
WATER VALVE
GAS VALVE
CLEAN-OUT
UNKNOWN VALVE
LANDSCAPED AREA
CHAIN LINK FENCE
FINISHED FLOOR(SILL)
SANITARY SEWER LINE
STORM SEWER LINE
TELEPHONE MARKOUT
WATER MARKOUT
ELECTRIC METER

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CERTIFICATE OF AUTHORIZATION (N.J.S.A. 45:8-56) 24GA27927000

Table with 4 columns: NO., DATE, DESCRIPTION, DRAWN, DESIGNED, CHECKED. Contains revision history for the site plan.



GARY A. VEENSTRA, P.L.S.
PROFESSIONAL LAND SURVEYOR
N.J. LICENSE NO. 24GS03721300

NEGLIA ENGINEERING ASSOCIATES
MICHAEL J. NEGLIA, P.E., P.L.S., P.P.
PROFESSIONAL ENGINEER
PROFESSIONAL LAND SURVEYOR
PROFESSIONAL PLANNER

TOPOGRAPHIC SURVEY
MATTANO PARK
PORTION OF BLOCK 527, LOT 1
CITY OF ELIZABETH
UNION COUNTY
NEW JERSEY
UNIOCTY20.011
2 OF 2

**SPECIFICATIONS
FOR
Mattano Park Improvements, City of Elizabeth,
County of Union, New Jersey**

BA#50-2024; Union County Engineering Project #2019-012

October 2024

**UNION COUNTY
BOARD OF COUNTY COMMISSIONERS**

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Joseph C. Bodek, Commissioner
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Bette Jane Kowalski, Commissioner
Alexander Mirabella, Commissioner
Rebecca Williams, Commissioner

CLERK OF THE BOARD
James E. Pellettiere, RMC

COUNTY MANAGER
Edward T. Oatman

**DEPARTMENT OF ENGINEERING, PUBLIC WORKS AND
FACILITIES MANAGEMENT**
Joseph J. Policay Jr., CPWM
Acting Director, Department of Engineering, Public Works and
Facilities Management

COUNTY ENGINEER
DIVISION OF ENGINEERING
Ricardo Matias, PE, CME, CFM

Prepared by:
Neglia Engineering Associates
200 Central Avenue, Suite 102
Mountainside, New Jersey 07092

**COUNTY OF UNION
NOTICE TO BIDDERS**

Sealed bids will be received by the assistant director of the Division of Purchasing, or her designee, at the County of Union, New Jersey on **November 19, 2024 at 10:30 a.m.**, prevailing time, in the **3rd Floor Conference Room**, U.C. Administration Building, 10 Elizabethtown Plaza, Elizabeth, New Jersey for:

**Mattano Park Improvements, City of Elizabeth,
County of Union, New Jersey
BA#50-2024; Union County Engineering Project #2019-012**

Bid Packages may be obtained at no charge by registering and downloading at <http://ucnj.org/bid-specs>. Bid Packages may also be obtained in person from the Division of Engineering at 2325 South Avenue, Scotch Plains, New Jersey 07076 between 8:30 a.m. and 4:00 p.m. weekdays upon payment of a non-refundable money order or bank check in the amount of \$275.00 made payable to the County of Union. No Personal / Company checks will be accepted. Requests for mailing of specifications will not be honored. For further information please call 908-789-3675.

The County reserves the right to reject any and all bids and to waive any and all informalities in the bid in accordance with the New Jersey Local Public Contracts Law.

Please note the successful bidder will be required to sign a *PROJECT LABOR AGREEMENT (PLA)* for this project. A form PLA is included in the bid package for your review. Further, take note of all documents referring to the PLA and any action required on same.

Bids shall be submitted in a sealed envelope and clearly marked with the subject of the bid, name and address of the bidder, phone & fax number, and date of the bid opening. Each bid must be delivered to reach the Division of Purchasing prior to the stated time of the opening of the bids. The County will not be responsible for late delivery by the U.S. Mail or any other carrier. If hand delivered, please note that parking and security access at the County Complex may cause delays and bidders should take them into consideration in order to submit a timely bid. **No late bids will be accepted.**

Bidders are required to comply with the requirements of N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27.

MICHELLE HAGOPIAN, ASSISTANT DIRECTOR OF PURCHASING

***Union County Board of County Commissioners
We're Connected to You!***

NB-1

**Mattano Park Improvements, City of Elizabeth, County of Union, New Jersey
BA#50-2024; Union County Engineering Project #2019-012**

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- Consent of Surety
- Bidder Signature Page
- Bidder Disclosure Statement
- Subcontractor Identification Statement: List of Subcontractors
- Subcontractor Identification Certification
- Acknowledgement of Addendum
- Contractor Business Registration Certificate
- Affirmative Action Requirement
- Experience Statement
- Certificate of Bidder Showing Ability to Perform Contract
- Non-Collusion Affidavit
- Contractor Registration Advisement
- Americans with Disabilities Act
- Statement of Bidder’s Qualifications
- Contractor Performance Record
- Affidavit Regarding List of Disbarred, Suspended or Disqualified Bidders
- Prior Negative Experience Questionnaire-Certification
- Contractor’s Certification of Compliance - New Jersey Prevailing Wage Act

Uncompleted Contracts Affidavit
Certificate of Insurance Statement
Collection of Use Tax on Sales to Local Governments Statement
Time of Completion
Disclosure of Investment Activities in Iran
Disclosure of Non-Involvement in Activities in Russia or Belarus
Federal Non-Debarment Certification
Byrd Anti-Lobbying Amendment Certification
Certification regarding lobbying
Disclosure of lobbying activities (LLL Form)

SS - STANDARD SPECIFICATIONS SS-1

INSURANCE AND BONDS AIA DOCUMENT A-101/2017 EXHIBIT A

(Sample form until contract is awarded)

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION AIA DOCUMENT A-201/2017

(Sample form until contract is awarded)

NEW JERSEY PREVAILING WAGE DETERMINATION DOCUMENTS

PROJECT TECHNICAL SPECIFICATIONS

APPENDICES TO TECHNICAL SPECIFICATIONS

PROJECT DRAWINGS

**UNION COUNTY BOARD OF COUNTY COMMISSIONERS
INSTRUCTIONS TO BIDDERS AND FORMS**

DEFINITIONS

Wherever reference is made to the County, Title of Project, Bidder, or Vendor/Contractor they shall be as follows:

OWNER/COUNTY:

Union County Board of County Commissioners
UC Administration Building, 6th Floor
10 Elizabethtown Plaza
Elizabeth, New Jersey 07207

ADDRESS INQUIRIES TO:

Union County Division of Purchasing
UC Administration Building, 3rd Floor
10 Elizabethtown Plaza
Elizabeth, NJ 07207
Attn: Michelle Hagopian, Assistant Director, Division of Purchasing
Telephone: 908-527-4130
Facsimile: 908-558-2548
ucbids@ucnj.org

ADDRESS BIDS AND SUBMIT TO:

Union County Division of Purchasing
UC Administration Building, 3rd Floor
10 Elizabethtown Plaza
Elizabeth, NJ 07207
Attn: Michelle Hagopian, Assistant Director, Division of Purchasing
Telephone: 908-527-4130
Facsimile: 908-558-2548
ucbids@ucnj.org

TITLE OF PROJECT: Mattano Park Improvements, City of Elizabeth, County of Union,
New Jersey; BA#50-2024;
Union County Engineering Project #2019-012

BIDDER: Bidder shall be a single overall contract bidder

COUNTY ENGINEER AND/OR CONSTRUCTION MANAGER (as applicable):

COUNTY ENGINEER:

Ricardo S. Matias, PE, CME, CFM
Union County
Division of Engineering

GENERAL SPECIFICATIONS

1. BID FORM

Bids for this Work will be enclosed in a sealed envelope addressed to the Purchasing Division, County of Union, New Jersey, Union County Administration Building, 10 Elizabethtown Plaza, Elizabeth, New Jersey 07207, with the full name of the Project clearly marked on the outside. Refer to the sheet marked "Notice of Bid (Advertisement)" for the correct name of the Project. Bidders must submit their bids on the attached pricing sheet (Bid Form), in a sealed envelope addressed to the County and bearing on the outside: the name of the Bidder, Bidder's business address, and the title of the Project.

The Division of Purchasing will receive the bids for this Work at the Union County Administration Building, 10 Elizabethtown Plaza, Elizabeth, New Jersey on the date and time noted on the sheet marked "**Notice of Bid (Advertisement)**".

The County will not assume responsibility for bids forwarded by mail. It is the individual's responsibility to see that the bids are presented to the Purchasing Division at the time and at the place designated.

Bids will be accepted only on the Bid Form supplied. Bids on forms other than the original supplied herein will be rejected. The "complete" Bid Documents includes the Bid Bond, Bid Form, Bidder's Checklist, Consent of Surety, Ownership Disclosure Certification, Non-Collusion Affidavit, and any other documents noted in these Instructions to Bidders or Contract Document to be submitted with this Bid.

The bidder will state in the bidding sheet the price per unit of measure for each scheduled Item of Work for which he will agree to carry out the Work, and the Total Bid Price for the construction of the Project.

The prices in the Bid Form shall be typed or written in pen and ink. Erasures or alterations must be initialed by the bidder in ink.

The bidding sheet for this Project may include a fixed amount as a Bid Allowance. If applicable, all bidders are required to add this fixed amount to their base bid and to include this additional amount in their Bid Bond. This sum will be included in the Contract as well as the performance, labor and materials bond. Payment by the County will be made to the Contractor from these funds only upon the completion of extra Work pursuant to a written Change Order(s) signed by the County's Engineer or his designee and the Contractor, prior to the commencement of such Work. Work commenced prior to written approval by the County shall be done at Contactor's risk. Such payment will only be in the amount agreed to by the parties, in writing in the Change Order(s). See Section 37, Change Orders, of these general specifications for further details.

Refer to Bid Document Submission Checklist for all required documents.

In the event there is a discrepancy between the unit price given and the extended total, the unit price will govern. Any discrepancies will be mathematically adjusted.

Insert applicable alternates, if any have been specified, applicable to the Bidder's Work. All alternates MUST be bid upon. Any Bidder's failure to do so will be deemed a material, non-waivable defect and shall render the bid nonresponsive. The Bidder shall clearly designate whether the change in price is an addition or subtraction, by using either a "+" sign or the word "addition", or in the alternative, a "-" sign or the word "minus". If there is no other change in price, the Bidder shall insert "NC" or "No Charge".

When two or more low bids are equal in all respects, awards will be made according to the provisions of N.J.S.A. 40A:11-6.1(d).

Where unit prices have already been established by the Contract Documents, the Bidder agrees that such unit prices shall prevail. All unit prices, whether filled in by the Bidder or established by the Contract Documents, shall become part of the Contract. No bid will be considered or award made, unless applicable unit prices, as required, are filled in.

The County reserves the right to reject any or all bids and also reserves the right to waive any minor informalities or non-material exceptions in the bids.

The County of Union has the right to reject any and all bids from any bidder that is in, or contemplates bankruptcy of any chapter of nature. Said bidder shall notify the County, in writing, of any condition or knowledge of the same.

Conditional bids will not be accepted. Bids may be withdrawn prior to the advertised time for the opening of bids or authorized postponement thereof or in accordance with the provisions of N.J.S.A. 40A:11-23.3 discussed below. Bids received after the advertised time shall not be considered. Bidders shall be solely responsible for premature opening or late delivery of bids not properly marked, addressed, or directed.

2. WITHDRAWAL OF BID DUE TO MISTAKE

N.J.S.A. 40A:11-23.3 authorizes a bidder to request withdrawal of a public works bid due to a mistake on the part of the bidder. A mistake is defined by N.J.S.A. 40A:11-2(42) as a clerical error that is an **unintentional and substantial computational error or an unintentional omission of a substantial quantity of labor, material, or both, from the final bid computation.**

A bidder claiming a mistake under N.J.S.A. 40A:11-23.3 must submit a request for withdrawal, **in writing**, by certified or registered mail to Michele Hagopian, Assistant Director, Division of Purchasing, County of Union, New Jersey, Union County Administration Building, 10 Elizabethtown Plaza, Elizabeth, New Jersey 07207. The bidder must request withdrawal of a bid due to a mistake, as defined by the law, within five business days after the receipt and opening of the bids. Since the bid withdrawal request shall be effective as of the postmark of the certified or registered mailing,

Michele Hagopian, Assistant Director of the Division of Purchasing or his designee may contact all bidders, after bids are opened, to ascertain if any bidders wish to, or already have exercised a request to withdraw their bid pursuant to N.J.S.A. 40A:11-23.3.

A bidder's request to withdraw the bid **shall** contain evidence, including any pertinent documents, demonstrating that a mistake was made. Such documents and relevant written information shall be reviewed and evaluated by the County's designated staff pursuant to the statutory criteria of N.J.S.A. 40A:11-23.3.

The County will not consider any written request for a bid withdrawal for a mistake, as defined by N.J.S.A. 40A:11-2(42), by a bidder in the preparation of a bid proposal unless the postmark of the certified or registered mailing is within the five business days following the opening of bids.

3. QUALIFICATIONS OF BIDDERS AND REQUIRED SUBMISSIONS

The County may make such investigation as it deems necessary to determine the ability of the Bidders to perform the Work, which includes investigation of any and all subcontractors listed with the bid. The Bidder shall furnish any information and data for this purpose as the County may request.

4. INTERPRETATIONS AND ADDENDA

Any explanation desired by a bidder regarding the meaning or interpretation of the Contract Documents must be requested in writing to the Assistant Director, Division of Purchasing at ucbids@ucnj.org with reasonable time allowed for a reply to reach bidders before submission of their bids. Any interpretation or instruction made by the County Engineer will be in the form of an addendum to the Contract Documents or clarification and will be furnished to all prospective bidders. Oral explanations or instructions given before the award of the Contract will not be binding. Bidders are required to bring to the attention of the Assistant Director, Division of Purchasing at ucbids@ucnj.org, the discovery of any apparent ambiguity, inconsistency, error, discrepancy, omission in the Contract Documents for interpretation and correction at least ten (10) working days before opening of bids with the exception of Saturdays, Sundays and holidays.

All Addenda issued through the Office of the Division of Purchasing are amendments to the Contract Documents and shall be considered in preparing bids. Same shall become part of the Contract Documents.

Addenda take precedence over all earlier documents and over each other according to the latest date. Addenda unless themselves interpretive remain subject to interpretation the same as any other document incorporated in the Contract.

Addenda may be issued by the Assistant Director, Division of Purchasing up to seven (7) working days prior to the opening of bids. Failure of any bidder to receive an

addendum shall not relieve such bidder from the obligation imposed by such addendum. Bidders are to keep themselves currently acquainted with the Contract Documents during the entire bidding period and make inquiry on their own initiative as to issuance of any Addenda. Receipts of all Addenda shall be acknowledged on the “*Acknowledgement of Receipt of Changes*” included in the bid package and must be submitted with the bid.

5. OBLIGATION OF BIDDER TO INSPECT SITE AND CONTRACT DOCUMENTS

At the time of the opening of bids, each Bidder will be presumed to have inspected the site(s) and to have read, and be thoroughly familiar with the Contract Documents. The failure or neglect of any Bidder to receive or examine any form, instrument, or document shall in no way relieve any Bidder from any obligation in respect to its bid.

The Bidder shall examine the contents of the Project Manual and the set of Drawings and assure itself that all pages of the Specifications, Drawings, and other Contract Documents are included in the documents obtained for bidding purposes. Should the Specifications, Drawings, and other Contract Documents be incomplete, the Bidder shall notify the County Engineer in writing, who will supply the Bidder with any missing pages of Specifications, Drawings, or other Contract Documents. The lack of such written notification by the Bidder will be construed as evidence that the Specifications, Drawings, or other Contract Documents supplied it for bidding purposes are full and complete and as a waiver of any subsequent claim to the contrary.

6. BID AND PERFORMANCE GUARANTEE

Each bidder must furnish a Bid Bond, Certified Check or Bank Cashier’s Check in the amount of ten percent (10%) of the Bid. Checks shall be drawn to the order of the County of Union, New Jersey, not to exceed \$20,000.

Each bidder must furnish with the bid a certificate from a Surety Company, i.e. Consent of Surety, stating that in the event of the contract being awarded to said bidder, such Surety Company will provide the Contractor with bonds guaranteeing the faithful performance of the Work in accordance with the plans and specifications, and the payment for labor, materials, and all other indebtedness which may accrue on the account of this Work. A Performance, Labor and Materials Bond will be furnished by the Contractor upon an award of Contract, and will be in the amount of 100% of the contract price.

A one-year Maintenance Bond will be required upon acceptance of the Project by the County in the amount as stated in Section 15 of the General Specifications. Bonds

will be written by a firm authorized to issue the bonds under the laws of the State of New Jersey and be in a form acceptable to the County Counsel.

N.J.S.A. 40A:11-1 et seq. allows the prime Contractor to furnish the Performance Security for his Subcontractors. The County of Union requires Performance Security to be furnished by the prime contractor for the entire job in the total amount of the contract.

The County will return all certified checks or cashier's checks after the proposals have been opened, tabulated and reviewed except those of the three (3) bidders lowest responsible bidders. The County will return the checks of these bidders when a contract is awarded to the successful bidder within ten (10) days after the award of the contract.

If the successful bidder refuses or neglects to sign an agreement and furnish the required bonds, the Bid Bond will be held and used by the County to offset any damages for such refusal or neglect.

7. COMMENCEMENT AND COMPLETION

Work will not commence until a Notice to Proceed is received from the County Engineer.

Upon substantial completion of the Project, the Contractor must request a joint inspection with the County Engineer. Upon completion of this inspection, the County Engineer will prepare a list of incomplete or incorrect items (punch list) and have Contractor initial and date same. The Contractor shall rectify all deficiencies noted on the punch list within 30 calendar days of receipt of the list. The County Engineer may approve extensions for extenuating circumstances.

8. BIDDER AFFIDAVIT

All Bidders are required to complete, sign, and submit with their Bid, the attached "Affidavit Regarding List of Debarred, Suspended or Disqualified Bidders". (See form enclosed)

9. LABOR AND MATERIALS

The prices will cover all costs of any nature incident to and growing out of the Work, including all labor, material, equipment, transportation, loss by damage or destruction of the Project, settlement of damages, and for replacement of defective work or materials. *N.J.S.A. 54:32B-1 et seq.* exempts all materials sold to the County of Union from sales or use taxes and should not be included in the prices provided on the Bidding Sheet.

10. INSURANCE REQUIREMENTS

The County of Union requires all contractors to be able to comply with the following insurance requirements. In the event a bid is accepted by the County, the contractor

must accept the applicable insurance requirements, as set forth below, as part of any contract awarded to it by the County.

Contractor shall carry and maintain at all times while the contract is in full force and effect, the following insurance coverage with an insurance company or companies acceptable to the County, with limits not less than those shown below. A Certificate of Insurance shall be filed with the County prior to commencement of any Work indicating the following:

- a) Commercial General Liability (CGL): Coverage for all operations including, but not limited to, contractual, products and completed operations, and personal injury with limits no less than \$5,000,000 per occurrence/\$10,000,000 aggregate. The County of Union, its Board of County Commissioners, officers, employees, agents and servants shall be included as an additional insured. Coverage is provided on a primary and non-contributory basis to the County of Union, et al.
- b) Automobile Liability: Coverage for all owned, non-owned and hired vehicles with limits not less than \$5,000,000 per occurrence, combined single limits (CSL) or its equivalent.
- c) Workers Compensation: As required by the State of New Jersey and Employers Liability with limits not less than \$1,000,000 per accident for bodily injury or disease.
- d) Professional Liability (if design/build): Coverage with limits not less than \$1,000,000 per occurrence or claim, \$2,000,000 aggregate
- e) Contractor's Pollution Legal Liability and/or Asbestos Legal Liability and/or Errors & Omissions (if project involves environmental hazards): Coverage with limits no less than \$1,000,000 per occurrence or claim/\$2,000,000 aggregate.
- f) Builders Risk (for major renovations): During the course of construction utilizing an "All Risk" coverage form with limits equal to the completed value of the project and no coinsurance penalty provisions.

Where applicable, a waiver of subrogation in favor of the County of Union, its Board of County Commissioners, officers, employees, agents, servants and the State of New Jersey is to be included in those policies of insurance where permitted by law.

Notice of Cancellation: Each insurance policy required above shall provide that coverage shall not be canceled, except with notice to the Entity.

Special Risks or Circumstances: The County reserves the right to modify these requirements, including limits, based on the nature of the risk, prior experience, insurer, coverage, or other special circumstances.

11. INDEMNIFICATION REQUIREMENTS

The County of Union requires all bidders to accept the following indemnification requirements in the event the County accepts their bid. The Contract awarded by the County to the successful bidder will contain the following provision:

“To the fullest extent permitted by law the Contractor shall indemnify, defend, and hold harmless the owner and the owner’s consultants, agents, representatives, and employees from and against any and all claims, damages, losses, costs, and expenses, including, but not limited to attorneys’ fees, legal costs and legal expenses arising out of or resulting from the performance of the Contractor’s work under this contract, provided that such claim, damage, loss, cost, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself) caused or alleged to be caused by the negligent acts, negligent omissions, and/or fault of the Contractor, anyone directly or indirectly employed or retained by the Contractor, or anyone for whose acts the Contractor may be liable regardless of whether caused in part by the negligent act or omission of a party indemnified hereunder provided it is not caused by the sole negligence of a party indemnified hereunder. Contractor shall further indemnify and hold harmless the County and the County’s consultants, agents, representative, and employees from and against any and all claims, damages, losses, costs, and expenses, including, but not limited to attorneys’ fees, legal costs and legal expenses, arising out of or resulting from performance of the work, provided that such claim, damage, loss, cost, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself) caused or alleged to be caused by the negligent acts, negligent omissions, and/or fault of the County or the County’s consultants, agents, representatives, or employees and arises out of this project and provided such claim, damage, loss, cost, or expense is not caused by the sole negligence of a party indemnified hereunder.”

12. ROYALTIES AND PATENTS

The Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall hold the County harmless from loss on account thereof.

13. PLANS AND SPECIFICATIONS

In carrying out the Work, the plan(s) and the specifications will be followed by the Contractor. Minor alterations in the plan may be made or permitted by the County Engineer from time to time and, if no additional Work is necessary, there will be no additional charge for carrying out such minor alterations.

The Contractor shall provide the County Engineer a set of reproducible as-built drawings upon completion of the Project. The Contractor shall maintain an updated construction progress plan in the Project field office at all times.

When applicable, The New Jersey Department of Transportation Standard Specifications for Road and Bridge Construction, as amended, and Supplemental Specifications for State Aid Projects, herein after referred to as the "Standard Specifications", are made a part of these specifications and contract for the improvements, and will govern the construction of this Project, the material used and the execution of this Project, except as revised and modified herein. The references to these specifications are given herein for the purpose of aiding in the rapid location of the description of the various items herein specified. The entire Work must be carried on and completed to the satisfaction of the County. The Standard Specifications are amended as follows:

"Any reference to the Commissioner, Department, Department Laboratory, Engineer or Inspector should be redefined to be the County of Union".

14. GUARANTEE AGAINST DEFECTIVE WORK

Prior to final payment being made or before the release of the performance security required by Section 3 above, the Contractor and Surety shall execute and deliver to the County an original Maintenance Bond with an original signature and seal having a penal sum equal to:

- A) One hundred percent (100%) of the final adjusted Contract amount, if such amount is \$50,000.00 or less;
- B) Fifty percent (50%) of the final adjusted Contract amount, if such amount be greater than \$50,000.00 but less than \$250,000.00; and,
- C) Twenty-five percent (25%) of the final adjusted contract amount, if such amount is \$250,000.00 or more.

The Bond and Surety shall be satisfactory to the Union County Counsel. The Surety shall hold a Certificate of Authorization to do business in the State of New Jersey and shall conform to P.L. 1995 c.384, codified as N.J.S.A. 2A:44-143, 144. The Surety Disclosure Statement and Certification required by N.J.S.A. 2A: 44-143, 144, shall be attached to the Bond. Such Maintenance Bond shall remain in full force and effect for a period of one (1) year from the date of Final Completion. Such Maintenance Bond shall also provide that the Contractor and the Surety guarantee to replace for the said period of one (1) year from the date of Final Completion, all Work performed and/or all materials furnished that were not performed or were not furnished in accordance to the terms and performance requirements of the Contract Documents, and will make good any defects thereof which become apparent before the expiration of one (1) year. If, during that period, any part of the Project, in the judgment of the Engineer, is found defective, the

Contractor will repair or replace same within five (5) days of receipt of notice from the County Engineer. If the Contractor refuses or neglects to do such Work in the time specified, the County Engineer may have the Work done by others and the Contractor or his Surety thereof will pay the cost.

The Contractor will furnish the County a Maintenance Bond for a percentage of the final adjusted contract price, as stated above. The one (1) year period will start the day of Final Completion of Project by the County. Final payment is conditional on the receipt of a maintenance bond in a form acceptable to County Counsel.

15. TRAFFIC AND STREET MAINTENANCE

The Work must be started and performed by the Contractor in such a manner as to minimize delays to the traveling public. It must be completed in a timely fashion, with little or no inconvenience to traffic and pedestrians, where such inconvenience may be avoided.

All municipal, county, and state roadways shall remain open to traffic unless otherwise provided for in the technical specifications.

If modified traffic patterns are authorized in order to provide a safe working or traveling environment, the Contractor is responsible for providing all equipment, barrels, cones, signs, and barricades to implement the work zone and detours, unless otherwise specified in the technical specifications. All work zones and detours shall be established in accordance with the technical plans and specifications if provided or in strict compliance with the current version of the Manual for Uniform Traffic Control Devices (MUTCD). The Contractor shall obtain approval for these work zones and detour plans from the Municipal Police or applicable police agency and the Union County Bureau of Traffic Maintenance prior to implementation.

All traffic control plans shall provide for safe movement of vehicular, bicycle, and pedestrian traffic. Particular attention shall be given to requirements of the Americans with Disabilities Act.

No portion of any street or alleyway may be used for the storage of any materials or equipment without the approval of the Municipal Police or other applicable police agency. Sidewalks, gutters, drains, fire hydrants and private drives shall be maintained for their intended use unless specifically approved by the County Engineer.

Upon suspension of Work, at the end of the day or for protracted periods, the Contractor shall remove all rubbish and materials from the Work site to the approved storage/staging location. All road cuts, saw cuts, and trenches that may pose hazard to vehicular, pedestrian, or bicycle traffic, to include handicapped users, shall be filled to the surface of the roadway or sidewalk. At no time will steel plates or settled trenches be

allowed at the daily suspension of Work, unless specifically approved by the County Engineer.

Use of Traffic Control Officers shall be determined by the County in accordance with the provisions of N.J.S.A. 40A:11-23.1(c). If applicable to the Project, the County shall have provided an allowance for same as set forth in the Bid Form.

With respect to pedestrian traffic, the Contractor shall install signs restricting access of the general public and, as necessary, Union County employees to the area of construction. The Contractor shall provide safe access to required areas and place physical barriers to restricted areas. These barriers may range from caution tape to actual barriers, at the direction of the County Engineer.

16. CONTRACTOR'S EMPLOYEES

The Contractor must employ only suitable and competent labor in the Work, and must remove from the Work any incompetent, unsuitable, or disorderly person upon complaint from the County Engineer.

The parties to any contract resulting from this proposal do hereby agree that the provisions of N.J.S.A. 10:2-1 through 10:2-4 (discrimination in employment on public works contracts): 34:11-56.25 et seq. (payment of prevailing rate of wages determined pursuant to N.J.S.A. 34:11-56.30 by the Commissioner), and the Rules and Regulations promulgated pursuant thereto, are hereby made a part of any contract and are binding upon them.

There will be no discrimination against any employee who is employed in the Work to be covered by any contract resulting from this bid because of age, race, creed, color, national origin, ancestry, marital status or sex.

Any person, firm, or corporation violating the provisions of this Section will be deemed and judged a disorderly person.

17. OWNERSHIP DISCLOSURES REQUIRED

Pursuant to P.L. 2016, c. 43, codified as N.J.S.A. 52:25-24.2.no corporation, partnership, or limited liability company shall be awarded any contract nor shall any agreement be entered into for the performance of any work or the furnishing of any materials or supplies the County unless prior to the receipt of the bid or accompanying the bid, of said corporation, said partnership, or said limited liability company there is submitted a statement setting forth the names and addresses of all stockholders in the corporation who own ten percent (10%) or more of its stock, of any class, or of all individual partners in the partnership who own a ten percent (10%) or greater interest therein, or of all members in the limited liability company who own a ten percent (10%) or

greater interest therein, as the case may be. If one or more such stockholder or partner or member is itself a corporation or partnership or limited liability company, the stockholders holding ten percent (10%) or more of that corporation's stock, or the individual partners owning ten percent (10%) or greater interest in that partnership, or the members owning ten percent (10%) or greater interest in that limited liability company, as the case may be, shall also be listed. The disclosure shall be continued until names and addresses of every non corporate stockholder, and individual partner, and member, exceeding the ten percent (10%) ownership criteria has been listed.

To comply with this section, a bidder with any direct or indirect parent entity which is publicly traded may submit the name and address of each publicly traded entity and the name and address of each person that holds a ten percent (10%) or greater beneficial interest in the publicly traded entity as of the last annual filing with the federal Securities and Exchange Commission ("SEC") or the foreign equivalent, and, if there is any person that holds a ten percent (10%) or greater beneficial interest, also shall submit links to the websites containing the last annual filings with the federal SEC or the foreign equivalent and the relevant page numbers of the filings that contain the information on each person that holds a ten percent (10%) or greater beneficial interest.

(See forms attached)

18. NON-COLLUSION AFFIDAVIT

The Bidder shall submit with its bid either the attached completed "Non-Collusion Affidavit" or a statement of non-collusion with verbiage similar to same.

19. EQUAL EMPLOYMENT OPPORTUNITY COMPLIANCES

The successful bidder shall be required to complete and submit an Initial Project Workforce Report, New Jersey Department of Treasury Form AA-201, upon notification of award. Failure to submit this completed form may result in the Contract being terminated.

The successful bidder shall also be required to submit a copy of its Monthly Project Workforce Report, New Jersey Department of Treasury Form AA-202, to the New Jersey Department of Treasury's Division of Public Contracts Equal Employment Opportunity Compliance and to the Board.

20. COMPLIANCE WITH NEW JERSEY PREVAILING WAGE ACT

The County of Union, in order to fulfill the requirements of N.J.S.A. 34:11-56.25 et seq, requires that the following additional conditions be strictly followed. The bidders represent that he is not listed or is not on record in the Office of the Commissioner or the Department of Labor and Workforce Development as one who failed to pay prevailing

wages in accordance with the provisions of this Act. The bidder agrees to the inclusion of a contract provision upon award which specifically requires said Contractor to fully comply with each and all of the requirements of the aforesaid Act as it relates to prevailing rates of wages on public contracts as set forth in the New Jersey Prevailing Wage Act, P.L. 1963, Chapter 150 and P.L. 1974, Chapter 64.

A Copy of the Prevailing Wage Rates is attached for your reference. Applicable rates are those wages and fringe benefit rates in effect on the date the contract is awarded. All predetermined rate increases listed at the time the contract award must also be paid, beginning on the dates specified. Rates may change between the time of issuance of this determination and the award of the public works contract. Therefore, prior to the award of the contract, verification must be made with the Public Contracts section, to insure that the rates contained in this determination are still prevailing.

The Contractor agrees to abide and be bound by each and all of the said statutory provisions with respect to the payment of prevailing rates of wages, and acknowledges that the County reserves the right to terminate the Contractor's (or his subcontractors') right to proceed with the scope of Work, or such portion thereof that relates to the failure to pay prevailing rates of wages. In such event or under the terms of N.J.S.A. 34:11-56.27, the Contractor and his surety will be liable to the County of Union for any excess costs occasioned by such a violation.

The Contractor or subcontractors for this Project will post the Prevailing Wage Rates for each craft and classification involved as determined by the Commissioner of Labor and Industry, including the effective date of any changes thereof, in prominent and easily accessible places at the site of the Work or at such place or places as are used by them to pay workmen their wages.

The County of Union requires a copy of payroll records from the Contractor and subcontractors. Payroll records shall be submitted with each voucher request for payment. Prevailing wage rates may be obtained from the New Jersey Labor, Division of Workplace Standards, Public Contracts Section, (609-292-2259).

In addition to compliance with the New Jersey Prevailing Wage Act, the County requires compliance with procedures established by Resolution No. 2014-0408 adopted by the Union County Board of County Commissioners on May 8, 2014. The resolution is furnished in Section 56 of these General Specifications.

UNION LABOR IS PREFERRED ON ALL COUNTY WORK AND, WHERE NOTED, SUBJECT TO A PROJECT LABOR AGREEMENT TO BE EXECUTED BY THE CONTRACTOR AND CONSTRUCTION MANAGER PRIOR TO COMMENCEMENT OF THE WORK. FAILURE OF ANY CONTRACTOR TO COMPLY WITH THIS PROVISION CONSTITUTES A DEFAULT, RESULTING IN IMMEDIATE STOPPAGE OF THE WORK. ANY LOSSES OR OTHER DAMAGES INCURRED BY OTHER PARTIES AS

A RESULT OF SAID DEFAULT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

The foregoing reference to specific laws will not be deemed to be a limitation of obligation of the Contractor to perform his obligations in full compliance with the provisions and requirements of all federal and state statutes and local ordinances applicable to the Work to be done under the contract.

It is agreed and understood that any contracts and/or orders placed as a result of this proposal will be governed and construed and the rights and obligations of the parties hereto will be determined in accordance with the laws of the State of New Jersey.

Upon completion of the Work, the Contractor will furnish a Certification of Compliance with the New Jersey Prevailing Wage Act. The certificate in a form acceptable to County Counsel is a condition of the final payment. (See form attached)

21. BRAND NAME OR EQUAL

When the Specifications, Forms, and other Contract Documents use “brand name or equivalent” or similar language, the listed brand name shall serve as a reference or point of comparison for the functional or operational characteristic desired for the goods or services being requested. Where a bidder attempts to submit an equivalent product for a brand name, it shall be the responsibility of the bidder to fully describe and document the product to be provided with the bid in order to establish the equivalence claim.

- A. If the Bidder proposes to offer substitute goods as an equal to those specified herein, the bidder shall so indicate with the Bid Proposal. For the purposes of this paragraph, a proposed item shall be considered equal to goods specified herein if:
 - 1. The County, in its sole discretion, determines that: (i) the goods conform substantially, even with deviations, to the brand name goods specified herein; (ii) the goods are equal to or greater than the brand name goods specified herein in terms of quality, durability, functionality, appearance, strength and design; (iii) the goods are capable, at least as well as the brand name goods specified herein, or performing with existing equipment; and (iv) the goods do not cost the County more than the brand name goods specified herein costs the County.

- B. To offer substitute goods as an equal to those specified herein, it is necessary that:

1. The Bidder submits sufficient information with its bid to permit the County to determine that the goods are equivalent to the brand name goods specified herein, including, but not necessarily limited to the brand, catalog number and specifications/data sheets;
 2. The Bidder fully identifies and describes the variations of the goods from the brand name goods specified herein on a separate sheet that is to be submitted with the bid proposal. Bidder's literature WILL NOT suffice in explaining exceptions to these specifications.
 3. The Bidder certifies that the goods (i) are similar in substance to the brand name goods specified, and (ii) are suited to the same use as the item specified;
- C. The County shall be allowed a reasonable time within which to evaluate the Bidder's proposal to offer substitute goods as an equal to those specified herein. The County shall be the sole judge of acceptability. No "or-equal" goods shall be ordered, delivered, assembled, set-up or utilized until the County's evaluation is complete. The County's determination as to equivalency shall be deemed final and absolute.

In the event the Bidder does not provide sufficient supporting documentation with the bid, it will be presumed and required that the brand name goods and services as described in the specifications will be provided.

22. LINES AND GRADES

Normally, horizontal and vertical control points will be provided in the technical specifications. All other surveying will be the responsibility of the Contractor unless otherwise noted.

23. NUMBER OF WORKING DAYS

In accordance with N.J.S.A. 40A:11-17, the Work for the within Project shall be completed as specified on the Time of Completion Form. See form attached

There shall be taken a deduction from the contract price, or any wages paid by the County, to any inspector(s) necessarily employed by it on the Work, for any number of days in excess of the number allowed in the specifications.

24. PROMPT PAYMENT OF CONSTRUCTION CONTRACTS (NJ Prompt Payment Act)

Pursuant to N.J.S.A. 2A:30A-1 et seq., payment to the Contractor, other than for Work done pursuant to a contact allowance, where applicable, shall be processed and paid as follows:

1. All contractor bills shall be either approved for payment, or notice provided as to why the bill or any portion of it will not be approved by the representative(s) of the governing body no later than the public meeting following 20 calendar days of the billing date as defined in the statute.
2. If the billing is approved, said bill shall be paid in the payment cycle following the meeting.

25. STOPPING WORK ON ACCOUNT OF BAD WEATHER

Work must only be performed in weather suitable for the type of construction planned or underway. Extremes in temperature, humidity, precipitation, evaporation, etc. can detrimentally affect the constructed product. Refer to the Standard and Technical Specifications for specific items.

26. ACCESS FOR OTHER CONTRACTORS

The Contractor for this Work will give proper access to other contractors who may be employed upon the Project and must not hinder or delay unnecessarily any Work that may be progressing under other contracts.

27. CONDEMNED MATERIALS AND WORK

Any materials and or part of the Work that may be condemned by the County Engineer will be removed and replaced by the Contractor or otherwise rectified, as may be directed by the County Engineer. No payment will be made upon the Work until such faulty work has been made good as may be directed. In the event the Contractor refuses or neglects to make good such faulty work, he will be deemed to have abandoned the contract and proceedings may be taken against him as provided herein.

28. STORAGE

In the event that it is necessary for the Contractor to stockpile or store materials or equipment on the job site, the Contractor shall inform the County of such necessity and the County may offer available space, if any, for storage of such materials or equipment. The Contractor shall use said space only for such purpose. Any and all materials which may be stored in such space or which may be brought onto the job site at any time by the Contractor will be at the Contractor's sole risk. The County will not be responsible for

loss of or damage to said materials or equipment for any cause whatsoever. The Contractor shall take necessary measures to protect any such storage area and shall be responsible for any and all damages.

29. FINAL CLEAN UP

Upon completion of the Work, the Contractor will remove all equipment, unused materials, rubbish, etc., and will repair, or replace in an a manner acceptable to the County Engineer, all areas that may have been damaged in the prosecution of the Work. Same shall be a condition precedent to final payment. Should said Contractor fail to comply with this requirement, the County shall undertake the clean-up with its own forces and charge the cost of same against the Contractor's contract balance.

30. SUB-LETTING OF WORK

Except for the List of Subcontractors, pursuant to N.J.S.A. 40A:11-16 (See form attached), no portion of the Work will be sublet by the Contractor to any other entities, except with the consent of the County Engineer. A complete list of subcontractors must be submitted to the County Engineer at the preconstruction meeting. If the job does not warrant a preconstruction meeting, the Contractor must submit such list prior to the start of Work.

All Subcontractors will be subject to N.J.S.A. 34:11-56 et al.

N.J.S.A. 40A:11-16 requires the bidder to list in the bid sheets the name or names of all subcontractors involved in the following types of Work: plumbing and gas fitting and all kindred work, steam and hot water heating, ventilating apparatus, steam power plants and kindred work, electrical work, ornamental iron work, and structural steel. In addition, the County may require the identification of specific additional subcontractors. If these trades are expected to be part of the contract, such subcontractors should be listed on the "Subcontractor Identification Statement List of Subcontractors" and Bidder shall certify same on the accompanying sheet titled "Subcontractor Identification Certification". (See forms attached) **Bidder's failure to submit these two forms shall be considered a material defect and result in rejection of Bidder's bid.** Substitutions of any listed subcontractors pursuant to N.J.S.A. 40A:11-16 will not be permitted except with the consent of the County Engineer.

31. SAFETY

The Contractor shall observe all rules and regulations of the Federal, State, and local health officials. Attention is directed to Federal, State, and local laws, rules, and regulations concerning construction safety and health standards. The Contractor shall not require any worker to work in surroundings or under conditions that are unsanitary, hazardous, or dangerous to the worker's health or safety.

The Contractor shall admit to the site, without delay and without the presentation of an inspection warrant, any inspector of OSHA or other legally responsible agency involved in safety and health administration upon presentation of proper credentials.

The Contractor shall make available to the Contractor's employees, subcontractors, the County Engineer, and the public, all information pursuant to OSHA 29 CFR Part 1926.59 of The Hazard Communication Standard 29 CFR 1910.1200, and shall also maintain a file on each job site containing all Material Safety Data Sheets (MSDS) for products in use at the Project. These Material Safety Data Sheets shall be made available to the Engineer upon request.

The Contractor shall at all times conduct the Work to provide for the safety and convenience of the general public and protection of persons and property. The safety provisions of applicable laws, OSHA regulations, building and construction codes, and the rules and regulations of the New Jersey Department of Labor and Workforce Development shall be observed.

32. QUALITY, SAFETY AND PERFORMANCE STANDARDS

All goods and services must be constructed and provided with the highest quality materials and workmanship. It is the intent of these specifications that only equipment equal to, or exceeding, the standard specified will be acceptable in order to protect the safety of the occupants of the Building.

33. MATTERS NOT MENTIONED IN CONTRACT DOCUMENTS

Any Work, material, or method, not specifically described in these specifications, but shown upon the plans of the Work, will be carried out as shown on said plan.

34. PERMITS

The Contractor will obtain all necessary permits required by law and provide the County with necessary approvals prior to commencement of permitted Work.

35. CONTRACTOR TO PROVIDE PROOF OF PAYMENT

Upon the completion of the Work, the Contractor will furnish a General Release as proof that all claims for labor, materials, etc., have been settled by the Contractor. The General Release, in a form acceptable to County Counsel, is a condition of final payment.

36. CHANGE ORDERS

The applicability of change orders and change order procedures shall comply with

N.J.S.A. 40A:11-16.7 and N.J.A.C. 5:30-11.1 et seq., “Change Orders and Open End Contracts”.

37. SUPPLEMENTAL WORK

In case any supplemental work is necessary, it will be performed by the Contractor at a price fixed by agreement between the Contractor and the County Engineer and approved by the County as specified in Section 36. The Contractor will do no supplemental work on any character, for which the Contractor will demand pay, except upon the written order of the County.

38. FORM OF CONTRACT

The Contract will be subject to all statutory provisions on the matter of Public Works, Public Contracts, The Law Against Discrimination, the Laws Governing Affirmative Action and Prevailing Rates of Wages under the laws of New Jersey.

The Agreements shall be executed by both parties not later than twenty-one (21) days from the date of the award by the County (Sundays and holidays excluded); however, such time frame may be extended by agreement of the parties.

39. PROGRESS PAYMENTS

Monthly progress payments will be made based on the value of labor and materials incorporated in the Work and of materials suitably stored at the site. An itemized schedule of values shall be submitted with each Application for Payment.

(Refer to the Owner/Contractor Agreement for Retainage and other conditions pertaining to payment and the application of N.J.S.A. 2A:30A-1 et seq.)

All Applications for Payment shall be accompanied by paid invoices for materials incorporated in the Work and for materials suitably stored at the site, and affidavit(s) by Subcontractors whose Work was included in the next to the last application to the effect such Work and such materials have been paid for.

No payment shall be made without Contractor having provided all submittals set forth in this Section, and the approval of same by the County.

For contracts exceeding \$100,000.00, monthly payments will be made on the Work to the extent of 98% of the value of the Work done which is considered to be retainage.

For contracts less than \$100,000.00, monthly payments will be on the Work to the extent of 90% of the value of the Work done. In lieu of the retainage, the Contractor will, at his option, deposit with the County Counsel negotiable bearer bonds of the State of New Jersey or any political subdivision thereof, equal to the amount otherwise withheld as retainage.

When the Project is completed, the final cost of the Project will be based on actual quantities of authorized Work done under each item scheduled in the bidding sheet and approved Change Orders, if any. The money due to the Contractor as determined by said final certificate after deduction of previous monthly payments on account, will be paid to the Contractor in accordance with the terms of the contract dealing with Prompt Payment, providing, however that before such final payment is made, all outstanding claims against the Contractor must be satisfied. Before final payment is released, the Contractor must furnish: **a)** Maintenance Bond (see Section 6 of these general specifications); **b)** Certification of Compliance, New Jersey Prevailing Wage Act (see Sections 21 and 51); and **c)** General Release (see Section 36) in a form satisfactory to County Counsel; **d)** complete set of as-built plans in the latest AutoCad on compact disc; and **e)** a complete set of in-progress photos in jpg, jpeg, or bmp digital format on a compact disc.

40. INSPECTION

The Work must be done in accordance with the plans and specifications, and will be inspected by the County Engineer. An inspector may be placed upon the Work at any time by the County Engineer to see that the plans, specifications, and instructions of the County Engineer are carried out. In connection herewith, bidders are referred to N.J.S.A. 40A:11-17.

41. DAMAGES

The Contractor will be held responsible for all damages that may occur to Work, or to persons or property by reason of the nature of the Work or from the elements, or by reason of inadequate protection of the Work, or from any carelessness or negligence on his part or on the part of his employees. The County will withhold payments on the Work until all suits or claims for damages sustained on, or by reason of, this Work will have been settled by the Contractor.

The construction and final completion of this Work will be guaranteed by the Contractor. Any damages that may be done to the Work or any part thereof, by the elements or otherwise, during its construction, will be made good by the Contractor.

42. LIQUIDATED DAMAGES

If the Project is not completed within the time specified herein or within such further time as may have been granted by the County Engineer, then the Contractor hereby

agrees to pay to the County as liquidated damages, but not as a penalty, \$1,000.00 per day for each and every calendar day that he is in default on time to complete the Work. The said sum will be deducted from moneys due the Contractor and if the damages exceed this amount, then the Contractor or his Surety Company will pay the excess. These damages may be waived at the option of the County.

43. AFFIRMATIVE ACTION REQUIREMENTS

(REVISED 01/2022)

EXHIBIT B

MANDATORY EQUAL EMPLOYMENT OPPORTUNITY LANGUAGE

N.J.S.A. 10:5-31 et seq. (P.L.1975, c.127)

N.J.A.C. 17:27-1.1 et seq.

CONSTRUCTION CONTRACTS

During the performance of this contract, the contractor agrees as follows:

The contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Except with respect to affectional or sexual orientation and gender identity or expression, the contractor will ensure that equal employment opportunity is afforded to such applicants in recruitment and employment, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Such equal employment opportunity shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Public Agency Compliance Officer setting forth provisions of this nondiscrimination clause.

The contractor or subcontractor, where applicable will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex.

The contractor or subcontractor will send to each labor union, with which it has a collective bargaining agreement, a notice, to be provided by the agency contracting officer, advising the labor

union or workers' representative of the contractor's commitments under this act and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer, pursuant to N.J.S.A. 10:5-31 et seq., as amended and supplemented from time to time and the Americans with Disabilities Act.

When hiring or scheduling workers in each construction trade, the contractor or subcontractor agrees to make good faith efforts to employ minority and women workers in each construction trade consistent with the targeted employment goal prescribed by N.J.A.C. 17:27-7.2; provided, however, that the Dept. of LWD, Construction EEO Monitoring Program, may, in its discretion, exempt a contractor or subcontractor from compliance with the good faith procedures prescribed by the following provisions, A, B, and C, as long as the Dept. of LWD, Construction EEO Monitoring Program is satisfied that the contractor or subcontractor is employing workers provided by a union which provides evidence, in accordance with standards prescribed by the Dept. of LWD, Construction EEO Monitoring Program, that its percentage of active "card carrying" members who are minority and women workers is equal to or greater than the targeted employment goal established in accordance with N.J.A.C. 17:27-7.2. The contractor or subcontractor agrees that a good faith effort shall include compliance with the following procedures:

(A) If the contractor or subcontractor has a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor shall, within three business days of the contract award, seek assurances from the union that it will cooperate with the contractor or subcontractor as it fulfills its affirmative action obligations under this contract and in accordance with the rules promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 et seq., as supplemented and amended from time to time and the Americans with Disabilities Act. If the contractor or subcontractor is unable to obtain said assurances from the construction trade union at least five business days prior to the commencement of construction work, the contractor or subcontractor agrees to afford equal employment opportunities minority and women workers directly, consistent with this chapter. If the contractor's or subcontractor's prior experience with a construction trade union, regardless of whether the union has provided said assurances, indicates a significant possibility that the trade union will not refer sufficient minority and women workers consistent with affording equal employment opportunities as specified in this chapter, the contractor or subcontractor agrees to be prepared to provide such opportunities to minority and women workers directly, consistent with this chapter, by complying with the hiring or scheduling procedures prescribed under (B) below; and the contractor or subcontractor further agrees to take said action immediately if it determines that the union is not referring minority and women workers consistent with the equal employment opportunity goals set forth in this chapter.

(B) If good faith efforts to meet targeted employment goals have not or cannot be met for each construction trade by adhering to the procedures of (A) above, or if the contractor does not have a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor agrees to take the following actions:

(1) To notify the public agency compliance officer, the Dept. of LWD, Construction EEO Monitoring Program, and minority and women referral organizations listed by the Division pursuant to N.J.A.C. 17:27-5.3, of its workforce needs, and request referral of minority and women workers;

(2) To notify any minority and women workers who have been listed with it as awaiting available vacancies;

(3) Prior to commencement of work, to request that the local construction trade union refer minority and women workers to fill job openings, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade;

(4) To leave standing requests for additional referral to minority and women workers with the local construction trade union, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade, the State Training and Employment Service and other approved referral sources in the area;

(5) If it is necessary to lay off some of the workers in a given trade on the construction site, layoffs shall be conducted in compliance with the equal employment opportunity and nondiscrimination standards set forth in this regulation, as well as with applicable Federal and State court decisions;

(6) To adhere to the following procedure when minority and women workers apply or are referred to the contractor or subcontractor:

(i) The contractor or subcontractor shall interview the referred minority or women worker.

(ii) If said individuals have never previously received any document or certification signifying a level of qualification lower than that required in order to perform the work of the construction trade, the contractor or subcontractor shall in good faith determine the qualifications of such individuals. The contractor or subcontractor shall hire or schedule those individuals who satisfy appropriate qualification standards in conformity with the equal employment opportunity and non-discrimination principles set forth in this chapter. However, a contractor or subcontractor shall determine that the individual at least possesses the requisite skills, and

experience recognized by a union, apprentice program or a referral agency, provided the referral agency is acceptable to the Dept. of LWD, Construction EEO Monitoring Program. If necessary, the contractor or subcontractor shall hire or schedule minority and women workers who qualify as trainees pursuant to these rules. All of the requirements, however, are limited by the provisions of (C) below.

(iii) The name of any interested women or minority individual shall be maintained on a waiting list, and shall be considered for employment as described in (i) above, whenever vacancies occur. At the request of the Dept. of LWD, Construction EEO Monitoring Program, the contractor or subcontractor shall provide evidence of its good faith efforts to employ women and minorities from the list to fill vacancies.

(iv) If, for any reason, said contractor or subcontractor determines that a minority individual or a woman is not qualified or if the individual qualifies as an advanced trainee or apprentice, the contractor or subcontractor shall inform the individual in writing of the reasons for the determination, maintain a copy of the determination in its files, and send a copy to the public agency compliance officer and to the Dept. of LWD, Construction EEO Monitoring Program.

(7) To keep a complete and accurate record of all requests made for the referral of workers in any trade covered by the contract, on forms made available by the Dept. of LWD, Construction EEO Monitoring Program and submitted promptly to the Dept. of LWD, Construction EEO Monitoring Program upon request.

(C) The contractor or subcontractor agrees that nothing contained in (B) above shall preclude the contractor or subcontractor from complying with the union hiring hall or apprenticeship policies in any applicable collective bargaining agreement or union hiring hall arrangement, and, where required by custom or agreement, it shall send journeymen and trainees to the union for referral, or to the apprenticeship program for admission, pursuant to such agreement or arrangement. However, where the practices of a union or apprenticeship program will result in the exclusion of minorities and women or the failure to refer minorities and women consistent with the targeted county employment goal, the contractor or subcontractor shall consider for employment persons referred pursuant to (B) above without regard to such agreement or arrangement; provided further, however, that the contractor or subcontractor shall not be required to employ women and minority advanced trainees and trainees in numbers which result in the employment of advanced trainees and trainees as a percentage of the total workforce for the construction trade, which percentage significantly exceeds the apprentice to journey worker ratio specified in the applicable collective bargaining agreement, or in the absence of a collective bargaining

agreement, exceeds the ratio established by practice in the area for said construction trade. Also, the contractor or subcontractor agrees that, in implementing the procedures of (B) above, it shall, where applicable, employ minority and women workers residing within the geographical jurisdiction of the union.

After notification of award, but prior to signing a construction contract, the contractor shall submit to the public agency compliance officer and the Dept. of LWD, Construction EEO Monitoring Program an initial project workforce report (Form AA-201) electronically provided to the public agency by the Dept. of LWD, Construction EEO Monitoring Program, through its website, for distribution to and completion by the contractor, in accordance with N.J.A.C. 17:27-7. The contractor also agrees to submit a copy of the Monthly Project Workforce Report once a month thereafter for the duration of this contract to the Dept. of LWD, Construction EEO Monitoring Program, and to the public agency compliance officer.

The contractor agrees to cooperate with the public agency in the payment of budgeted funds, as is necessary, for on-the-job and/or off-the-job programs for outreach and training of minorities and women. (D) The contractor and its subcontractors shall furnish such reports or other documents to the Dept. of LWD, Construction EEO Monitoring Program as may be requested by the Dept. of LWD, Construction EEO Monitoring Program from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Dept. of LWD, Construction EEO Monitoring Program for conducting a compliance investigation pursuant to N.J.A.C. 17:27-1.1 et seq.

44. INVESTMENT ACTIVITIES IN IRAN

Pursuant to N.J.S.A. 52:32-55 et seq., prohibits State and local public contracts with persons or entities engaging in certain investment activities in energy or finance sectors of Iran.

45. NON-INVOLVEMENT ACTIVITIES IN RUSSIA OR BELARUS

Pursuant to N.J.S.A. 52:32-60.1 et seq., Pursuant to N.J.S.A. 52:32-60.1, et seq. (L. 2022, c. 3) any person or entity (hereinafter "Vendor") that seeks to enter into or renew a contract with a State agency for the provision of goods or services, or the purchase of bonds or other obligations, must complete the certification below indicating whether or not the Vendor is identified on the Office of Foreign Assets Control (OFAC) Specially Designated Nationals and Blocked Persons list, available here:

<https://sanctionssearch.ofac.treas.gov/>. If the Department of the Treasury finds that a Vendor has made a certification in violation of the law, it shall take any action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party.

46. COMPLIANCE WITH THE PUBLIC WORKS CONTRACTOR REGISTRATION ACT - (N.J.S.A. 34:11-56.48 et. seq.)

Pursuant to the above-referenced law, Bidders are required to be registered with the New Jersey Department of Labor and Workforce Development and to possess a current certificate by said Department indicating compliance with the Act prior to the time and date that bids are received. Bidders are notified of this requirement of their compliance. Such certificates or applications shall also be provided for each Subcontractor furnishing plumbing and gas fitting, steam and hot water heating and ventilating apparatus, and all kindred work, steam power plants and kindred work, electrical work, structural steel and ornamental iron work, and such other subcontractors as the specifications require relative to prior identification.

47. UTILITIES

Attention of the bidder is directed to the fact that the approximate locations of known utility structures and facilities that may be encountered within and adjacent to the limits of the Work are shown on the plans and described herein. The accuracy and completeness of this information is not guaranteed by the County Engineer and the bidder is advised to ascertain for himself all the facts concerning the location of these and other utilities.

The Contractor will not proceed with his Work until he has made diligent inquiries of all public utility and municipal officials to determine the exact location of all-underground structures and pipes within the site of the Project. The Contractor will notify utility owners not less than ten (10) days in advance of the time he proposes to perform any Work that will endanger or affect their facilities in compliance with **New Jersey One-Call**. In excavating in any part of the Work, care must be taken not to remove or damage any gas, water, sewer, or other pipe, conduit, or structure, - public or private - without the concurrence of the owner and the County Engineer. The Contractor will, at his own expense, shore up, secure and maintain a continuous flow in such structures, and will keep them in repair until final acceptance of the Work.

When pipes or other structures are encountered or when the removal, relocation or protection of these utilities are necessary in carrying out the Project as planned, the Contractor will cooperate with the owner of said utilities and will permit the owners or their agents access to the site of the Work in order to relocate or protect their facilities and not hinder or delay unnecessarily the Work of the owners in moving same. No extra allowance of payment will be made to the Contractor for the use of any materials, equipment, etc., or for the performance of any Work in connection with the moving of said structures unless the Contractor is specifically ordered by the County Engineer to furnish such materials, equipment, or services. If directed by the County Engineer to do any Work or furnish any materials or equipment, payment will be allowed the Contractor in accordance with the unit prices bid for such Work, or, if such items are not scheduled in the proposal, such Work shall be allowed "Supplemental Work" as provided in Section 39 of these general

specifications. The corporations, companies, agencies or municipalities owning or controlling the utilities, and the name, and telephone numbers are listed in the beginning of the Technical Specifications.

48. MATERIAL COMPLIANCE AND SHOP DRAWINGS

The Contractor will require the manufacturer or supplier to furnish three (3) copies of Certification of Compliance with each delivery of materials, components and manufactured items for the Project. Two (2) copies will be furnished to the County Engineer; one copy will be retained by the Contractor. Certificates of Compliance will contain the following information:

1. Project to which material is consigned;
2. Name of the Contractor to which the material is supplied;
3. Kind of material supplied;
4. Quantity of material represented by the Certificate;
5. Means of identifying the consignment, such as label marking, seal number, etc.;
6. Date and method of shipment;
7. That the material is in conformity with the pertinent specifications stated in the certificate; and
8. Signature of a person having legal authority to bind the supplier.

The Contractor will submit to the County Engineer for his approval five (5) copies of complete and fully detailed shop or working drawings for those items listed in the beginning of the technical specifications.

Each drawing will identify the name of the job, location and Contractor.

All drawings will be approved in accordance with the standard specifications. Refer to the Technical Specifications for specific items.

All materials or articles used in the Work will be of American manufacture, insofar as same are available, in conformance with N.J.S.A. 40A:11-18.

49. PRECONSTRUCTION

In order to provide full coordination of this Project among the parties concerned, the County Engineer will arrange for a preconstruction meeting between the Contractor, County Engineer and other interested parties as soon as possible after the contract is executed. At this meeting the Contractor will present his proposed schedule of Work which shall be subject to review and approval of the County through its designated representatives

50. DISPUTES UNDER THE CONTRACT

A dispute arising under the Contract shall be submitted in writing to the County Engineer with all facts and supporting data. The County Engineer will review the dispute and issue his decision or request additional facts or documentation after which he will render his decision.

In the event the dispute is not then resolved, the matter shall, pursuant to law, be submitted to mediation before being submitted to a court of competent jurisdiction venued in Union County.

The County Engineer will notify the County Counsel when a matter is to be submitted to mediation. The County Counsel will communicate with the parties and inform them of the procedures to be followed in making such a submission.

51. CONTRACTOR BUSINESS REGISTRATION CERTIFICATE

Pursuant to N.J.S.A. 52:32-44, the County of Union is prohibited from entering into a contract with an entity unless the bidder/proposer/contractor, and each subcontractor that is required by law to be named in a bid/proposal/contract has a valid Business Registration Certificate on file with the Division of Revenue and Enterprise Services within the Department of the Treasury.

Prior to contract award or authorization, the contractor shall provide the County of Union with its proof of business registration and that of any named subcontractor(s).

Subcontractors named in a bid or other proposal shall provide proof of business registration to the bidder, who in turn, shall provide it to the County of Union prior to the time a contract, purchase order, or other contracting document is awarded or authorized.

Proof of registration must show that the bidder was in fact registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids. If subcontractors are named on the bid, proof of the business registration for each must be provided prior to the award of a contract. Similarly, to the bidder, the proof must show that each subcontractor was registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids.

During the course of contract performance:

- 1) the contractor shall not enter into a contract with a subcontractor unless the subcontractor first provides the contractor with a valid proof of business registration.

- 2) the contractor shall maintain and submit to the County of Union a list of subcontractors and their addresses that may be updated from time to time.
- 3) the contractor and any subcontractor providing goods or performing services under the contract, and each of their affiliates, shall collect and remit to the Director of the Division of Taxation in the Department of the Treasury, the use tax due pursuant to the Sales and Use Tax Act, (N.J.S.A. 54:32B-1 et seq.) on all sales of tangible personal property delivered into the State. Any questions in this regard can be directed to the Division of Taxation at (609)292-6400. Form NJ-REG can be filed online at <http://www.state.nj.us/treasury/revenue/busregcert.shtml>.

Before final payment is made under the contract, the contractor shall submit to the County of Union a complete and accurate list of all subcontractors used and their addresses.

Pursuant to N.J.S.A. 54:49-4.1, a business organization that fails to provide a copy of a business registration as required, or that provides false business registration information, shall be liable for a penalty of \$25 for each day of violation, not to exceed \$50,000, for each proof of business registration not properly provided under a contract with a contracting agency.

52. PROJECT LABOR AGREEMENT (To be signed where the overall project cost exceeds \$5 Million, irrespective of Phasing)

An Executive Order of Governor James E. McGreevey dated January 17, 2002, requires the use of a Project Labor Agreement in public construction contracts. This Executive Order was codified as N.J.S.A. 52:38-1 et seq. as a result of P.L. 2002, Chapter 44. Contractor must be prepared to abide by the terms of the within Project Labor Agreement, including obtaining the necessary and applicable Letters of Assent from subcontractors (of any tier). Through said Letters of Assent the subcontractors (of any tier) also must be prepared to abide by the terms of the Project Labor Agreement.

Contractor's failure to enter into this Project Labor Agreement shall result in the County's valid refusal to enter into a contract, for the performance of the Work with Contractor and shall constitute a default under the Contract. In addition, Contractor will be required to submit the completed Letters of Assent to the County with the executed Project Labor Agreement. The Project Labor Agreement is to be executed only where the total Project cost is \$5 Million or more, irrespective of Phasing.

PROJECT LABOR AGREEMENT

ARTICLE 1 - PREAMBLE

WHEREAS, as the General Contractor and the Project Management Firm, on behalf of themselves, and reflecting the objectives of the County of Union as Owner, desire to provide for the efficient, safe, quality, and timely completion of (the "Project"), in a manner designed to afford lower reasonable costs to the County of Union, (hereinafter referred to as the "County" or "Owner"), and the public it represents, and the advancement of public policy objectives;

WHEREAS, this Project Labor Agreement will foster the achievement of these goals, inter alia by:

- (1) ensuring a reliable source of skilled and experienced labor;
- (2) standardizing the terms and conditions governing the employment of labor on the Project;
- (3) permitting wide flexibility in work scheduling and shift hours and times from those which otherwise might obtain;
- (4) receiving negotiated adjustments as to work rules and staffing requirements from those which otherwise might obtain;
- (5) providing comprehensive and standardized mechanisms for the settlement of work disputes, including those relating to jurisdiction;
- (6) avoiding the costly delays of potential strikes, slowdowns, walkouts, picketing and other disruptions arising from work disputes, and promote labor harmony and peace for the duration of the Project.
- (7) furthering public policy objectives as to improved employment opportunities for minorities, women, and the economically disadvantaged in the construction industry and expediting the construction process; and

WHEREAS, the signatory Unions desire the stability, security and work opportunities afforded by a Project Labor Agreement; and

WHEREAS, the Parties desire to maximize Project safety conditions for both workers and the public.

NOW, THEREFORE, the Parties enter into this Agreement:

SECTION 1. PARTIES TO THE AGREEMENT

This is a Project Labor Agreement (this "Agreement") entered into by and between (the "GC" or "General Contractor") and (the "PMF" or "Project Management Firm"), and their successors and assigns, for the Project's construction work to be performed on the

property of the County in the State of New Jersey and by the Union County Building and Construction Trades Council, AFL-CIO, on behalf of itself and its affiliates and members, and the signatory Local Unions on behalf of themselves and their members.

ARTICLE 2 - GENERAL CONDITIONS

SECTION 1. DEFINITIONS

Throughout this Agreement, the Union party and the Building Trades Council are referred to singularly and collectively as “the Union(s)” where specific reference is made to “Local Unions” that phrase is sometimes used; the term “Contractor(s)” shall include the General Contractor (“GC”), Project Management Firm (“PMF”), and all signatory contractors, and their subcontractors of whatever tier, engaged in on-site Project construction work within the scope of this Agreement as defined in Article 3; the County of Union is referenced as “Owner”; the Union County Building and Construction Trades Council, AFL-CIO is referenced as the “BTC”, and the work covered by this Agreement (as defined in Article 3) is referred to as the “Project”.

SECTION 2. CONDITIONS FOR AGREEMENT TO BECOME EFFECTIVE

This Agreement shall not become effective unless executed by the BTC and the GC and/or PMF and will remain in effect until the final completion of the Project.

SECTION 3. ENTITIES BOUND & ADMINISTRATION OF AGREEMENT

This Agreement shall be binding on all signatory Unions and the General Contractor and the Project Management Firm and all signatory Contractors performing on-site Project work, including site preparation and staging areas, as defined in Article 3. The Contractors shall include in any subcontract that they let, for performance during the term of this Agreement, a requirement that their subcontractors, of whatever tier, become signatory and bound by this Agreement with respect to subcontracted work performed within the scope of Article 3 and execute the Letter of Assent attached as Schedule B. This Agreement shall be administered by the GC and/or PMF on behalf of all Contractors.

SECTION 4. SUPREMACY CLAUSE

This Agreement, together with the local Collective Bargaining Agreements appended hereto as Schedule A represents the complete understanding of all signatories and supersedes any national agreement, local agreement or other collective bargaining agreement of any type which would otherwise apply to this Project, in whole or in part, except for all work performed under the NTD Articles of Agreement, the National

Stack/Chimney Agreement, the National Cooling Tower Agreement, all instrument calibration work and loop checking shall be performed under the terms of the UA/IBEW Joint National Agreement for Instrument and Control Systems Technicians, and the National Agreement of the International Union of Elevator Constructors, with the exception of Article 7, 9, and 10 of this Agreement, which shall apply to such work. Where a subject covered by the provisions, explicit or implicit, of this Agreement is also covered by a Schedule A, the provisions of this Agreement shall prevail. It is further understood that neither the GC nor any Contractor shall be required to sign any other trade agreement as a condition of performing work on this Project. No practice, understanding or agreement between a Contractor and Local Union, which is not explicitly set forth in this Agreement, shall be binding on this Project unless endorsed in writing by the GC.

SECTION 5. LIABILITY

The liability of any Contractor and the liability of any Union under this Agreement shall be several and not joint. The GC and/or PMF and any Contractor shall not be liable for any violations of this Agreement by any other Contractor and the BTC and Local Unions shall not be liable for any violations of this Agreement by any other Union.

SECTION 6. THE GENERAL CONTRACTOR OR PROJECT MANAGEMENT FIRM

The GC and PMF shall require in its bid specifications for all work within the scope of Article 3 that all successful bidders, and their subcontractors of whatever tier, become bound by, and signatory to, this Agreement. The County is not a party to and shall not be liable in any manner under this Agreement. It is understood that nothing in this Agreement shall be construed as limiting the sole discretion of the County in determining which Contractors shall be awarded contracts for Project work. It is further understood that the County has sole discretion at any time to terminate, delay, or suspend the work, in whole or part, on this Project.

SECTION 7. AVAILABILITY AND APPLICABILITY TO ALL SUCCESSFUL BIDDERS

The Unions agree that this Agreement will be made available to, and will fully apply to any successful bidder for Project work who becomes signatory thereto, without regard to whether that successful bidder performs work at other sites on either a union or non-union basis and without regard to whether employees of such successful bidder are, or are not, members of any unions. This Agreement shall not apply to the work of any Contractor or GC or PMF, which is performed at any location other than the Project site, as defined in Article 3, Section 1.

ARTICLE 3 - SCOPE OF THE AGREEMENT

The Project work covered by this Agreement shall be as defined and limited by the following sections of this Article.

SECTION 1: THE WORK

This Agreement shall apply to all on-site public construction work, including site preparation, demolition and hazardous waste remediation, for the Owner performed on the Project. The scope of work is confined to the on-site Project work contained in the scope of the final construction contract of the General Contractor and/or PMF awarded work on the Project.

SECTION 2. EXCLUDED EMPLOYEES

The following persons are not subject to the provisions of this Agreement, even though performing work on the Project:

A. Superintendents, supervisors (excluding superintendents and general supervisors and forepersons specifically covered by a craft's Schedule A), engineers, inspectors and testers (excluding divers specifically covered by a craft's Schedule A), quality control/assurance personnel, timekeepers, mail carriers, clerks, office workers, messengers, guards, non-manual employees, and all professional, engineering, administrative and management persons;

B. Employees of Owner or any State agency, authority or entity or employees of any municipality or other public employer;

C. Employees and entities engaged in off-site manufacture, modifications, repair, maintenance, assembly, painting, handling or fabrication of project components, materials, equipment or machinery, unless such offsite operations are covered by the New Jersey Prevailing Wage Act (for example, by being dedicated exclusively to the performance of the public works contract or building project and are adjacent to the site of work), or involved in deliveries to and from the Project site, excepting local deliveries of all major construction materials including fill, ready mix concrete and cement, asphalt and other items which are covered by this Agreement. Provided, however, local deliveries of ready mix, concrete, cement and asphalt shall not be contracted except to a subcontractor who pays wages and benefits not less than the economic equivalent of the wages and benefits set forth in Exhibit A.

D. Employees of the GC and/or PMF, excepting those performing manual, on-site construction labor who will be covered by this Agreement;

E. Employees engaged in on-site equipment warranty.

F. Employees engaged in geophysical testing (whether land or water) other than boring for core samples;

G. Employees engaged in laboratory or specialty testing or inspections;

H. Employees engaged in ancillary Project work performed by third parties such as electric utilities, gas utilities, telephone utility companies, and railroads.

SECTION 3. NON-APPLICATION TO CERTAIN ENTITIES

This Agreement shall not apply to the parents, affiliates, subsidiaries, or other joint or sole ventures of any Contractor or of GC and/or PMF, which do not perform work at this Project. It is agreed, for the purposes of this Agreement only, that this Agreement does not have the effect of creating any joint employment, single employer or alter ego status among the Owner, the GC and/or PMF and/or any Contractor. The Agreement shall further not apply to the Owner or any other state or county agency, authority, or other municipal or public entity and nothing contained herein shall be construed to prohibit or restrict the Owner or its employees of any other state authority, agency or entity and its employees from performing on or off-site work related to the Project. As the contracts which comprise the Project work are completed and accepted, the Agreement shall not have further force or effect on such items or areas except where inspections, additions, repairs, modifications, check-out and/or warranty work are assigned in writing (copy to Local Union involved) by the General Contractor and/or Project Management Firm for performance under the terms of this Agreement.

ARTICLE 4 - UNION RECOGNITION AND EMPLOYMENT

SECTION 1. PRE-HIRE RECOGNITION

The Contractors recognize the signatory Unions as the sole and exclusive bargaining representatives of all craft employees who are performing on-site Project work within the scope of this Agreement as defined in Article 3.

SECTION 2. UNION REFERRAL

A. The Contractors agree to hire Project, craft employees covered by this Agreement through the job referral systems and hiring halls (where the referrals meet the qualifications set forth in items 1,2, and 4 subparagraph B) established in the Local Unions' area collective bargaining agreements (attached as Schedule A to this Agreement), subject to the goals of any applicable local ordinances or agreements pertaining to hiring and apprenticeship goals for minorities, women, residents of disadvantaged communities, and local residents. Notwithstanding this, the Contractors shall have sole rights to determine the competency of all referrals; the number of employees required (except with regard to pile driving and cranes); the selection of employees to be laid-off (subject to the applicable procedures in Schedule A for permanent and/or temporary layoffs and except as provided in Article 5, Section 3); and the sole right to reject any applicant referred by a Local Union, subject to the show-up payments required in the applicable Schedule A. In the event that a Local Union is unable to fill any request for qualified employees within a 48-hour period after such requisition is made by the Contractor (Saturdays, Sundays, and holidays excepted), the Contractor may employ qualified applicants from another competent source. In the event that the Local Union does not have a job referral system, the Contractor shall give the Local Union first preference to refer applicants, subject to the other provisions of this Article. The Contractor shall notify the Local Union of the Project, craft employees hired within its jurisdiction from any source other than referral by the Union.

B. A Contractor may request by name, and the Local will honor, referral of persons who have applied to the Local for Project work and who meet the following qualifications as determined by a Committee of 3 designated, respectively, by the applicable Local Union, the GC and/or PMF and a mutually selected third party or, in the absence of agreement, the permanent arbitrator (or designee) designated in Article 7:

- (1) possess any license required by New Jersey law for the Project work to be performed;
- (2) have worked a total of at least 1000 hours in the Construction craft during the prior 3 years;
- (3) were on the Contractor's active payroll for at least 60 out of the 180 calendar days prior to the contract award;
- (4) have demonstrated ability to safely perform the basic function of the applicable trade.

Following the employment of the first employee in each craft under Schedule A or the procedure set forth above in paragraph A, no more than twelve (12%) per centum of the employees covered by this Agreement, per Contractor by craft, shall be hired through the special provisions above which, consistent with N.J.S.A. 52:38-4, permit contractors and subcontractors working on the public works project to retain a percentage of their current workforce (any fraction shall be rounded to the next highest whole number).

C. A certified MBE/WBE contractor may request from the Workforce Coordinator, through the GC and/or PMF, an exception to, and waiver of, the above per centum limitation upon the number of its employees to be hired through the special provision of Section 2.B above. This exception is based upon hardship and demonstration by the contractor that the Project work would be the contractor's only job and that it would be obliged to lay off qualified minority and female employees in its current workforce moving from the last job. The exception and waiver are also conditioned upon the employees meeting the qualifications as set forth in Section 2.B above.

SECTION 3. NON-DISCRIMINATION IN REFERRALS

The Unions represent that their hiring halls and referral systems will be operated in a non-discriminatory manner and in full compliance with all applicable federal, state and local laws and regulations, which require equal employment opportunities. Referrals shall not be affected in any way by the rules, regulations, bylaws, constitutional provisions or any other aspects or obligations of union membership, policies or requirements and shall be subject to such other conditions as are established in this Article. No employment applicant shall be discriminated against by any referral system or hiring hall because of the applicant's union membership, or lack thereof.

SECTION 4. WORKFORCE DIVERSITY

To the extent applicable, the parties hereby agree that each will implement and abide by the requirements of the Owner with regard to workforce diversity. Furthermore, General Contractor, Contractors and the Unions will comply with such affirmative action plan, including but not limited to: (1) the parties will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, sex or any other protected category used by government regulation; (2) the parties will endeavor to include in any solicitations or advertisements for employees or subcontractors, a notice that all qualified applicants will receive consideration for employment, and contractors and subcontractors for work, without regard to age, race, creed, color, national origin, ancestry, marital status, sex or any other protected category used by government regulation; and (3) the parties agree to utilize the best efforts to ensure that minority business enterprises and women-owned business enterprises shall

have the maximum practicable opportunity to provide Construction Work under this Agreement.

The Local Unions agree and support the importance the Owner places on having and maintaining a diverse workforce. The Unions agree to refer any and all Union County resident journeymen and apprentices who are registered on the Out-of-Work list of the local union referral systems at the time of a contractor's request. The Local Unions will cooperate with Contractor requests for residents of Union County, residents of disadvantaged communities, minority or women referrals to meet the requirements of the Owner.

In the event a Union either fails, or is unable, to refer qualified minority or female applicants in percentages equaling Project affirmative action goals as set forth in the Owners bid specifications, the Contractor may employ qualified minority or female applicants from any other available source as Apprentice Equivalents. Apprentice Equivalents will have completed a DOL approved training program, applied to take a construction Apprenticeship test, and will be paid at not less than the applicable equivalent Apprentice rate. With the approval of the Local Administrative Committee ("LAC"), experience in construction related areas may be accepted as meeting the above requirements.

SECTION 5. CROSS AND QUALIFIED REFERRALS

The Unions shall not knowingly refer to a Contractor an employee then employed by another Contractor working under this Agreement. The Local Unions will exert their utmost efforts to recruit sufficient numbers of skilled and qualified craft employees to fulfill the requirements of the Contractor.

SECTION 6. UNION DUES / WORKING ASSESSMENTS

The union security provisions contained in the applicable Schedule A local agreements, shall not apply to the employees covered by this Agreement as for the period of time during which they are performing on-site Project work. No employee shall be discriminated against at the Project site because of the employee's union membership or lack thereof. In the case of unaffiliated employees who have voluntarily executed dues checkoff authorization cards provided in a Schedule A local agreement, the dues payment can be received by the Unions as a working assessment fee.

SECTION 7. CRAFT FOREPERSONS AND GENERAL FOREPERSONS

The selection of craft forepersons and/or general forepersons and the number of forepersons required shall be solely the responsibility of the Contractor except where otherwise provided by specific provisions of an applicable Schedule A. All forepersons

shall take orders exclusively from the designated Contractor representatives. Craft foreperson shall be designated as working forepersons at the request of the Contractor, except when an existing local Collective Bargaining Agreement prohibits a foreperson from working when the craftsperson he is leading exceed a specified number.

ARTICLE 5 - UNION REPRESENTATION

SECTION 1. LOCAL UNION REPRESENTATIVE

Each Local Union representing on-site Project employees shall be entitled to designate in writing (copy to General Contractor involved and/or Project Management Firm) representatives, including the Business Manager, who shall be afforded access to the Project.

SECTION 2. STEWARDS

A. Each Local Union shall have the right to designate a working journey person as a Steward and an alternate, and shall notify the Contractor and GC and/or PMF of the identity of the designated Steward (and alternate) prior to the assumption of such duties. Stewards shall not exercise supervisory functions and will receive the regular rate of pay for their craft classifications. There will be no non-working Stewards on the Project.

B. In addition to their work as an employee, the Steward shall have the right to receive complaints or grievances and to discuss and assist in their adjustment with the Contractor's appropriate supervisor. Each Steward shall be concerned with the employees of the Steward's Contractor and, if applicable, subcontractors of that Contractor, but not with the employees of any other Contractor. The Contractor will not discriminate against the Steward in the proper performance of Union duties.

C. The Stewards shall not have the right to determine when overtime shall be worked, or who shall work overtime, except pursuant to a Schedule A provision providing procedures for the equitable distribution of overtime.

SECTION 3. LAYOFF OF A STEWARD

Contractors agree to notify the appropriate Union 24 hours prior to the layoff of a Steward, except in cases of discipline or discharge for just cause. If a Steward is protected against layoff by a Schedule A, such provisions shall be recognized to the extent the Steward possesses the necessary qualifications to perform the work required. In any case in which a Steward is discharged or disciplined for just cause, the Local Union involved shall be notified immediately by the Contractor.

ARTICLE 6 - MANAGEMENT'S RIGHTS

SECTION 1. RESERVATION OF RIGHTS

Except as expressly limited by a specific provision of this Agreement, Contractors retain full and exclusive authority for the management of their Project operations including, but not limited to: the right to direct the work force, including determination as to the number to be hired and the qualifications therefore; the promotion, transfer, layoff of its employees; or the discipline or discharge for just cause of its employees; the assignment and schedule of work; the promulgation of reasonable Project work rules; and, the requirement, timing and number of employees to be utilized for overtime work. No rules, customs, or practices, which limit or restrict productivity or efficiency of the individual, as determined by the Contractor, GC and/or PMF, and/or joint working efforts with other employees shall be permitted or observed.

SECTION 2. MATERIALS, METHODS & EQUIPMENT

There shall be no limitations or restriction upon the contractors' choice of materials, techniques, methods, technology or design, or, regardless of source or location, upon the use and installation of equipment, machinery, package units, pre-cast, pre-fabricated, pre-finished, or pre-assembled materials, tool, or other labor-saving devices. Contractors may, without restriction, install or use materials, supplies or equipment regardless of their source. The on-site installation or application of such items shall be performed by the craft having jurisdiction over such work; provided, however, it is recognized that other personnel having special qualifications may participate, in a supervisory capacity, in the installation, check-out or testing of specialized or unusual equipment or facilities as designated by the Contractor. Notwithstanding the foregoing statement of contractor rights, prefabrication issues relating to work traditionally performed at the job site shall be governed pursuant to the terms of the applicable Schedule A. There shall be no restrictions as to work, which is performed off-site for the Project, except for 1) offsite operations work covered under the New Jersey Prevailing Wage Act or 2) done in a fabrication center, tool yard, or batch plant dedicated exclusively to the performance of work on the Project, and located adjacent to the "site of work". Where available locally, offsite operations work covered under the New Jersey Prevailing Wage Act shall be performed within the territorial jurisdiction of the local unions signatory to this Agreement.

ARTICLE 7 - WORK STOPPAGES AND LOCKOUTS

SECTION 1. NO STRIKES-NO LOCKOUT

There shall not be strikes, sympathy strikes, picketing, work stoppages, slowdowns, hand billing, demonstrations or other disruptive activity at the Project for any reason by any Union or employee against any Contractor or employer while performing work at the

Project. There shall be no other Union, or concerted or employee activity which disrupts or interferes with the operation of the existing free flow of traffic in the project area. Failure of any Union or employee to cross any picket line established by any union, signatory or non-signatory to this Agreement, or the picket or demonstration line of any other organization, at or in proximity to the Project site is a violation of this Article. There shall be no lockout at the Project by any signatory Contractor. Contractors and Unions shall take all steps necessary to ensure compliance with this Section 1 and to ensure uninterrupted construction and the free flow of traffic in the project area for the duration of this Agreement.

SECTION 2. DISCHARGE FOR VIOLATION

A Contractor may discharge any employee violating Section 1, above, and any such employee will not be eligible thereafter for referral under this Agreement for a period of 100 days.

SECTION 3. NOTIFICATION

If a Contractor contends that any Union has violated this Article, it will notify the appropriate district or area council of the Local Union involved advising of such fact, with copies of the notification to the Local Union and the BTC. The district or area council, and the BTC shall each instruct, order and otherwise use their best efforts to cause the employees, and/or the Local Unions to immediately cease and desist from any violation of this Article. A district or area council, or the BTC complying with these obligations shall not be liable for the unauthorized acts of a Local Union or its members.

SECTION 4. EXPEDITED ARBITRATION

Any Contractor or Union alleging a violation of Section 1 of this Article may utilize the expedited procedure set forth below (in lieu of, or in addition to, any actions at law or equity) that may be brought.

A. A party invoking this procedure shall notify J.J. Pierson, Esq., FCI Arb., The Arbitration Centre, 51 JFK Parkway, First Floor West, Short Hills, New Jersey 07078, telephone number (973) 359-8100, fax number (973) 359-8161, or e-mail jjpierson@jjpierson.com, who shall serve as Arbitrator under this expedited arbitration procedure. In the event that J.J. Pierson is unable to serve, a party invoking this procedure shall notify Louis Verrone, who shall serve as arbitrator under this expedited procedure. Copies of such notification will be simultaneously sent to the alleged violator and, if a Local Union is alleged to be in violation, its International, the GC and/or PMF, and the BTC.

B. The Arbitrator shall thereupon, after notice as to time and place to the Contractor, the GC and/or PMF, the Local Union involved, and the BTC, hold a hearing within 48 hours of receipt of the notice invoking the procedure it is contended that the violation still

exists. The hearing will not, however, be scheduled for less than 24 hours after the notice to the district or area council required by Section 3 above. Hearings shall be held at the jobsite or at the Newark office of the New Jersey State Board of Mediation, as directed by the Arbitrator.

C. All notices pursuant to this Article may be by telephone, telegraph, hand delivery, or fax, confirmed by overnight delivery, to the arbitrator, Contractor or Union involved. The hearing may be held on any day including Saturdays or Sundays. The hearing shall be completed in one session, which shall not exceed 8 hours duration (no more than 4 hours being allowed to either side to present their case, and conduct their cross examination) unless otherwise agreed. A failure of any Union or Contractor to attend the hearing shall not delay the hearing of evidence by those present or the issuance of an award by the Arbitrator.

D. The sole issue at the hearing shall be whether a violation of Section 1, above, occurred. If a violation is found to have occurred, the Arbitrator shall issue a Cease and Desist Award restraining such violation and serve copies on the Contractor and Union involved. The Arbitrator shall have no authority to consider any matter in justification, explanation or mitigation of such violation or to award damages, which issue is reserved solely for court proceedings, if any. The Award shall be issued in writing within 3 hours after the close of the hearing, and may be issued without an Opinion. If any involved party desires an Opinion, one shall be issued within 15 calendar days, but its issuance shall not delay compliance with, or enforcement of, the Award.

E. An Award issued under this procedure may be enforced by any court of competent jurisdiction upon the filing of this Agreement together with the Award. Notice of the filing of such enforcement proceedings shall be given to the Union or Contractor involved. In any court proceeding to obtain a temporary or preliminary order enforcing the arbitrator's Award as issued under this expedited procedure, the involved Union and Contractor waive their right to a hearing and agree that such proceedings may be ex parte, provided notice is given to opposing counsel. Such agreement does not waive any party's right to participate in a hearing for a final court order of enforcement or in any contempt proceeding.

F. Any rights created by statute or law governing arbitration proceedings which are inconsistent with the procedure set forth in this Article, or which interfere with compliance thereto, are hereby waived by the Contractors and Unions to whom they accrue.

G. The fees and expenses of the Arbitrator shall be equally divided between the involved Contractor and Union.

SECTION 5. ARBITRATION OF DISCHARGES FOR VIOLATION

Procedures contained in Article 9 shall not be applicable to any alleged violation of this Article, with the single exception that an employee discharged for violation of Section 1, above, may have recourse to the procedures of Article 9 to determine only if the employee did, in fact, violate the provisions of Section 1 of this Article; but not for the purpose of modifying the discipline imposed where a violation is found to have occurred.

ARTICLE 8. - LOCAL ADMINISTRATIVE COMMITTEE (“LAC”)

SECTION 1. MEETINGS

The Local Administrative Committee (“LAC”) will meet on a regular basis to: 1) Implement and oversee this Agreement’s procedures and initiatives; 2) monitor the effectiveness of this Agreement; and 3) identify opportunities to improve efficiency and work execution.

SECTION 2. COMPOSITION

The LAC will be co-chaired by the President of the Union County Building and Construction Trades Council or his designee, and designated official of the GC and/or PMF. It will be comprised of representatives of the local unions signatory to this Agreement and representatives of the GC and/or PMF and other contractors on the project.

ARTICLE 9 - GRIEVANCE & ARBITRATION PROCEDURE

SECTION 1. PROCEDURE FOR RESOLUTION OF GRIEVANCES

Any question, dispute or claim arising out of, or involving the interpretation or application of this Agreement (other than jurisdictional disputes or alleged violations of Article 7, Section 1) shall be considered a grievance and shall be resolved pursuant to the exclusive procedure of the steps described below; provided, in all cases, that the question, dispute or claim arose during the term of this Agreement.

Step 1:

A. When any employee covered by this Agreement feels aggrieved by a claimed violation of this Agreement, the employee shall, through the Local Union business representative or job steward give notice of the claimed violation to the work site

representative of the involved Contractor. To be timely, such notice of the grievance must be given within 7 calendar days after the act, occurrence, or event giving rise to the grievance, or after the act, occurrence or event became known or should have become known to the Union. The business representative of the Local Union or the job steward and the work site representative of the involved Contractor shall meet and endeavor to adjust the matter within 7 calendar days after timely notice has been given. If they fail to resolve the matter within the prescribed period, the grieving party, may, within 7 calendar days thereafter, pursue Step 2 of the grievance procedure by serving the involved Contractor and the General Contractor and/or Project Management Firm with written copies of the grievance setting forth a description of the claimed violation, the date on which the grievance occurred, the provisions of this Agreement alleged to have been violated. Grievances and disputes settled at Step 1 are non-precedential except as to the specific Local Union, employee and Contractor directly involved, unless the settlement is accepted in writing, by the General Contractor and/or Project Management Firm, as creating a precedent.

B. Should any signatory to this Agreement have a dispute (excepting jurisdictional disputes or alleged violations of Article 7, Section 1) with any other signatory to this Agreement and, if after conferring, a settlement is not reached within 7 calendar days, the dispute shall be reduced to writing and proceed to Step 2 in the same manner as outlined in subparagraph (a) for the adjustment of employee grievances.

Step 2:

The Business Manager or designee of the involved Local Union, together with representatives of the BTC, the involved Contractor, and the General Contractor and/or Project management Firm shall meet in Step 2 within 5 calendar days of the written grievance to arrive at a satisfactory settlement.

Step 3:

A. If the grievance shall have been submitted but not resolved in Step 2, any of the participating Step 2 entities may, within 14 calendar days after the initial Step 2 meeting, submit the grievance in writing (copies to other participants) to J.J. Pierson, Esq., FCI Arb., The Arbitration Centre, 51 JFK Parkway, First Floor West, Short Hills, New Jersey 07078, telephone number (973) 359-8100, fax number (973) 359-8161, who shall act as the Arbitrator under this procedure. In the event that J.J. Pierson is unable to serve, a party invoking this procedure shall notify Louis Verrone, who shall serve as arbitrator under this expedited procedure. The Labor Arbitration Rules of the American Arbitration Association shall govern the conduct of the arbitration hearing, at which all Step 2 participants shall be parties. Hearings shall be held at the jobsite or at the Newark office of the New Jersey State Board of Mediation, as directed by the Arbitrator.

The decision of the Arbitrator shall be final and binding on the involved Contractor, Local Union and employees and the fees and expenses of such arbitration's shall be borne equally by the involved Contractor and Local Union.

B. Failure of the grieving party to adhere to the time limits set forth in this Article shall render the grievance null and void. These time limits may be extended only by written consent of the GC and/or PMF, involved Contractor and involved Local Union at the particular step where the extension is agreed upon. The Arbitrator shall have authority to make decisions only on the issues presented to him and shall not have the authority to change, add to, delete or modify any provision of this Agreement.

SECTION 2. LIMITATION AS TO RETROACTIVITY

No arbitration decision or award may provide retroactivity of any kind exceeding 30 calendar days prior to the date of service of the written grievance on the construction Project Manager and the involved Contractor or Local Union.

SECTION 3. PARTICIPATION BY GENERAL CONTRACTOR AND/OR PROJECT MANAGEMENT FIRM

The General Contractor and/or Project Management Firm shall be notified by the involved Contractor of all actions at Steps 2 and 3 and, at its election, may participate in full in all proceedings at these Steps, including Step 3 arbitration.

ARTICLE 10 - JURISDICTIONAL DISPUTES

SECTION 1. NO DISRUPTIONS

There will be no strikes, sympathy strikes, work stoppages, slowdowns, picketing or other disruptive activity of any kind arising out of any jurisdictional dispute. Pending the resolution of the dispute, the work shall continue uninterrupted and as assigned by the Contractor. No jurisdictional dispute shall excuse a violation of Article 7.

SECTION 2. ASSIGNMENT

A. There shall be a mandatory pre-job markup / assignment meeting prior to the commencement of any work. Attending such meeting shall be designated representatives of the Union signatories to this Agreement, the GC, and the involved Contractors. Best efforts will be made to schedule the pre-job meeting in a timely manner after Notice to Proceed is issued but not later than 30 days prior to the start of the Project.

B. All Project construction work assignments shall be made by the Contractor according to criteria set forth in Section 3, Subsection D 1-3.

C. When a Contractor has made an assignment of work, he shall continue the assignment without alteration unless otherwise directed by an arbitrator or there is agreement between the National or International Unions involved. Claims of a change of original assignment shall be processed in accordance with Article I of the Procedural Rules of the Plan for the Settlement of Jurisdictional Disputes in the Construction Industry ("the Plan").

D. In the event that a Union involved in the change of original assignment dispute is an affiliate of a National or International Union that is not affiliated with the Building and Construction Trades Department and does not wish to process a case through the Plan, the parties shall mutually select one of the following Arbitrators: Arbitrator J.J. Pierson, Arbitrator Paul Greenberg or Arbitrator Richard K. Hanft and submit the dispute directly to the Arbitrator. The selected Arbitrator shall determine whether the case requires a hearing or may be decided upon written submissions. In rendering his determination on whether there has been a change of original assignment, the Arbitrator shall be governed by the following:

1. The contractor who has the responsibility for the performance and installation shall make a specific assignment of the work which is included in his contract to a particular union(s). For instance, if contractor A subcontracts certain work to contractor B, then contractor B shall have the responsibility for making the specific assignments for the work included in his contract. If contractor B, in turn, shall subcontract certain work to contractor C, then contractor C shall have the responsibility for making the specific assignment for the work included in his contract. After work has been so assigned, such assignment will be maintained even though the assigning contractor is replaced and such work is subcontracted to another contractor. It is a violation of the Agreement for the contractor to hold up disputed work or shut down a project because of a jurisdictional dispute.

2. When a contractor has made an assignment of work, he shall continue the assignment without alteration unless otherwise directed by an arbitrator or there is agreement between the National or International Unions involved.

3. Unloading and/or handling of materials to stockpile or storage by a trade for the convenience of the responsible contractor when his employees are not on the job site, or in an emergency situation, shall not be considered to be an original assignment to that trade.

4. Starting of work by a trade without a specific assignment by an authorized representative of the responsible contractor shall not be considered an original assignment to that trade, provided that the responsible contractor, or his authorized representative, promptly, and, in any event, within eight working hours following the start of work, takes positive steps to stop further unauthorized performance of the work by that trade.

SECTION 3. PROCEDURE FOR SETTLEMENT OF DISPUTES

A. Any Union having a jurisdictional dispute with respect to Project work assigned to another Union will submit through its International the dispute in writing to the Administrator of the Plan within 72 hours and send a copy of the letter to the other Union involved, the Contractor involved, the General Contractor, the BTC, and the district or area councils of the unions involved. Upon receipt of a dispute letter from any Union, the Administrator will invoke the procedures set forth in the Plan to resolve the jurisdictional dispute. The jurisdictional dispute letter shall contain the information described in Article IV of the Procedural Rules of the Plan.

B. Within 5 calendar days of receipt of the dispute letter, there shall be a meeting of the General Contractor, the Contractor involved, the Local Unions involved and designees of the BTC and the district or area councils of the Local Unions involved for the purpose of resolving the jurisdictional dispute.

C. In order to expedite the resolution of jurisdictional disputes, the parties have agreed in advance to mutually select one of the following designated Arbitrators: Arbitrator J. J. Pierson, Arbitrator Paul Greenberg or Arbitrator Richard K. Hanft to hear all unresolved jurisdictional disputes arising under this Agreement. All other rules and procedures of the Plan shall be followed. If none of the three Arbitrators is available to hear the dispute within the time limits of the Plan, the Plan's arbitrator selection process shall be utilized to select another arbitrator.

D. In the event that a Union involved in the dispute is an affiliate of a National or International Union that is not affiliated with the Building and Construction Trades Department and does not wish to process a case through the Plan as described in paragraphs A-C above, the parties to the dispute shall mutually select one of the following Arbitrators: Arbitrator J. J. Pierson, Arbitrator Paul Greenberg or Arbitrator Richard K. Hanft to hear the dispute and shall submit the dispute directly to the selected arbitrator. The time limits for submission and processing disputes shall be the same as provided elsewhere in this Section. The selected Arbitrator shall schedule the hearing within seven business days from the date of submission. If he cannot hear the case within the required timeframe, one of the other Arbitrators will be selected to hear the case unless all parties to the dispute agree to waive the seven (7) day time limit. In rendering his decision, the Arbitrator shall determine:

1. First whether a previous agreement of record or applicable agreement, including a disclaimer agreement, between the National and International Unions to the dispute governs;

2. Only if the Arbitrator finds that the dispute is not covered by an appropriate or applicable agreement of record or agreement between the crafts to the dispute, he shall then consider the established trade practice in the industry and prevailing practice in the locality. Where there is a previous decision of record governing the case, the Arbitrator shall give equal weight to such decision of record, unless the prevailing practice in the

locality in the past ten years favors one craft. In that case, the Arbitrator shall base his decision on the prevailing practice in the locality. Except, that if the Arbitrator finds that a craft has improperly obtained the prevailing practice in the locality through raiding, the undercutting of wages or by the use of vertical agreements, the Arbitrator shall rely on the decision of record and established trade practice in the industry rather than the prevailing practice in the locality.

3. Only if none of the above criteria is found to exist, the Arbitrator shall then consider that because efficiency, cost or continuity and good management are essential to the wellbeing of the industry, the interests of the consumer or the past practices of the employer shall not be ignored.

The Arbitrator shall set forth the basis for his decision and shall explain his findings regarding the applicability of the above criteria. If lower-ranked criteria are relied upon, the Arbitrator shall explain why the higher-ranked criteria were not deemed applicable. The Arbitrator's decision shall only apply to the job in dispute.

Each party to the arbitration shall bear its own expense for the arbitration and agrees that the fees and expenses of the Arbitrator shall be borne by the losing party or parties as determined by the Arbitrator.

E. The Arbitrator shall render a short-form decision within 5 days of the hearing based upon the evidence submitted at the hearing, with a written decision to follow within 30 days of the close of hearing.

F. This Jurisdictional Dispute Resolution Procedure will only apply to work performed by Local Unions that represent workers employed on the Project.

G. Any Local Union involved in a jurisdictional dispute on this Project shall continue working in accordance with Section 2 above and without disruption of any kind.

SECTION 4. AWARD

Any award rendered pursuant to this Article and the Plan shall be final and binding on the disputing Local Unions and the involved Constructor on this Project only and may be enforced in accordance with the provisions of Article VII of the Plan. Any award rendered pursuant to the alternate procedures of this Article shall be final and binding on the disputing Local Unions and the involved Contractor on this Project only, and may be enforced in any court of competent jurisdiction. Such award or resolution shall not establish a precedent on any other construction work not covered by this Agreement. In all disputes under this Article, the General Contractor and the involved Contractors shall be considered parties in interest.

SECTION 5. LIMITATIONS

The Arbitrator shall have no authority to assign work to a double crew, that is, to more employees than the minimum required by the Contractor to perform the work involved; nor to assign work to employees who are not qualified to perform the work involved; nor to assign work being performed by non-union employees to union employees. This does not prohibit the establishment, with the agreement of the involved Contractor, of composite crews where more than 1 employee is needed for the job. The aforesaid determinations shall decide only to whom the disputed work belongs.

SECTION 6. NO INTERFERENCE WITH WORK

A. There shall be no interference or interruption of any kind with the work of the Project while any jurisdictional dispute is being resolved. The work shall proceed as assigned by the Contractor until finally resolved under the applicable procedure of this Article. The award shall be confirmed in writing to the involved parties. There shall be no strike, work stoppage or interruption in protest of any such award. Any claims of a violation of this section shall be submitted and processed in accordance with the impediment to job progress provisions of the Plan.

B. In the event a Union alleged to have engaged in an impediment to job progress is an affiliate of a National or International Union that is not affiliated with the Building and Construction Trades Department and does not wish to have the impediment to job progress charge processed through the Plan, the parties to the dispute shall mutually select one of the three Arbitrators designated in this Article to hear the dispute. The selected Arbitrator shall schedule the hearing within two business days from the date of submission. If he cannot hear the case within the required timeframe, one of the other Arbitrators shall be selected by the parties to hear the case unless all parties to the dispute agree to waive the two day time limit. The sole issue at the hearing shall be whether or not a violation of this Section has in fact occurred, and the Arbitrator shall have no authority to consider any matter in justification, explanation or mitigation of such violation or to award damages. The Arbitrator's decision shall be issued in writing within 3 hours after the close of the hearing, and may be issued without an opinion. If any party desires an opinion, one shall be issued within 15 days, but its issuance shall not delay compliance with, or enforcement of, the decision. The Arbitrator may order cessation of the violation of this Section and other appropriate relief, and such decision shall be served on all parties by facsimile upon issuance. Each party to the arbitration shall bear its own expense for the arbitration and agrees that the fees and expenses of the Arbitrator shall be borne by the losing party or parties as determined by the Arbitrator.

ARTICLE 11 - WAGES AND BENEFITS

SECTION 1. CLASSIFICATION AND BASE HOURLY RATE

All employees covered by this Agreement shall be classified in accordance with the work performed and paid the base hourly wage rates for those classifications as specified in the attached Schedules A, as amended during this Agreement. Recognizing, however, that special conditions may exist or occur on the Project, the parties, by mutual agreement may establish rates and/or hours for one or more classifications, which may differ from Schedules A. Parties to such agreements shall be the General Contractor and/or Project Management Firm, the Contractor involved, the involved Local Unions and the BTC.

SECTION 2. EMPLOYEE BENEFIT FUNDS

A. The Contractors agree to pay contributions on behalf of all employees covered by this Agreement to the established employee benefit funds in the amounts designated in the appropriate Schedule A. Bona fide jointly trusted fringe benefit plans established or negotiated through collective bargaining during the life of this Agreement may be added. However, if a defined benefit pension fund covered by the terms and conditions of this Agreement has not adopted the building and construction industry exemption authorized by subsection (b) of Section 4203 of the Employee Retirement Income Security Act of 1974, the Contractor shall not be obligated to hire employees covered by that fund.

B. The Contractor agrees to be bound by the written terms of the legally established Trust Agreements specifying the detailed basis on which payments are to be paid into, and benefits paid out of, such Trust Funds but only with regard to work done on this Project and only for those employees to whom this Agreement requires such benefit Payments.

C. Should any contractor or sub-contractor become delinquent in the payment of contributions to the fringe benefit funds, then the subcontractor at the next higher tier, or upon notice of the delinquency claim from the Union or the Funds, agrees to withhold from the subcontractor such disputed amount from the next advance, or installment payment for work performed and the amount claimed and owed will be paid within thirty (30) days after receipt of the notification by the General Contractor and/or Project Management Firm, if not paid prior to said date by the delinquent contractor/subcontractor.

ARTICLE 12 - HOURS OF WORK, PREMIUM PAYMENTS, SHIFTS AND HOLIDAYS

SECTION 1. WORK WEEK AND WORK DAY

A. The standard work week shall consist of 40 hours of work at straight time rates per one of the following schedules:

1) Five-Day Work Week: Monday-Friday, 5 days, 8 hours plus 1/2 hour unpaid lunch period each day.

B. The Day Shift shall commence between the hours of 6:00 a.m. and 9:00 a.m. and shall end between the hours of 2:30 p.m. and 5:30 p.m. Starting and quitting times shall occur at the employees' place of work as may be designated by the Contractor in accordance with area practice.

C. Notice - Contractors shall provide not less than 5 days prior notice to the Local Union involved as to the work week and work hours schedules to be worked or such lesser notice as may be mutually agreed upon.

SECTION 2. OVERTIME

Overtime pay for hours outside of the standard work week and work day, described in paragraph A above, shall be paid in accordance with the applicable Schedule A. There will be no restriction upon the Contractor's scheduling of overtime or the non-discriminatory designation of employees who shall be worked, except as noted in Article 5, Section 2. There shall be no pyramiding of overtime pay under any circumstances. The Contractor shall have the right to schedule work so as to minimize overtime.

SECTION 3. SHIFTS

A. Flexible Schedules - Scheduling of shift work shall remain flexible in order to meet Project schedules and existing Project conditions including the minimization of interference with traffic. It is not necessary to work a day shift in order to schedule a second shift. Shifts must be worked a minimum of five consecutive work days, must have prior approval of the Construction Project Manager and must be scheduled with not less than five work days' notice to the Local Union.

B. Second/Shift - The second shift (starting between 2 p.m. and 8p.m.) shall consist of 8 hours work (or 10 hours of work) for an equal number of hours pay at the straight time rate plus 15% in lieu of overtime and exclusive of a 1/2 hour unpaid lunch period.

C. Flexible Starting Times – Shift starting times will be adjusted by the Contractor as necessary to fulfill Project requirements subject to the notice requirements of Paragraph A.

D. It is agreed that when project circumstances require a deviation from the above shifts, the involved unions, contractors and the General Contractor and/or Project Management Firm shall adjust the starting times of the above shifts or establish shifts which meet the project requirements. It is agreed that neither party will unreasonably withhold their agreement.

SECTION 4. HOLIDAYS

A. Schedule - There shall be 8 recognized holidays on the Project:

New Year's Day

Labor Day

Presidents Day

Veterans Day

Memorial Day

Thanksgiving Day

Fourth of July

Christmas Day

* Presidential Election Day shall be observed as a holiday in a general election year. Work shall be scheduled on Good Friday pursuant to the craft's Schedule A. Columbus Day and the Friday after Thanksgiving shall be observed as a holiday for Elevator Constructors Local 1 only.

All said holidays shall be observed on the dates designated by New Jersey State Law. In the absence of such designations, they shall be observed on the calendar date except those holidays which occur on Sunday shall be observed on the following Monday. Holidays falling on Saturday are to be observed on the preceding Friday.

B. Payment - Regular holiday pay, if any, and/or premium pay for work performed on such a recognized holiday shall be in accordance with the applicable Schedule A.

C. Exclusivity - No holidays other than those listed in Section 4-A above shall be recognized nor observed.

SECTION 5. REPORTING PAY

A. Employees who report to the work location pursuant to regular schedule and who are not provided with work or whose work is terminated early by a Contractor, for whatever reason, shall receive minimum reporting pay in accordance with the applicable Schedule A.

B. When an employee, who has completed their scheduled shift and left the Project site, is "called back" to perform special work of a casual, incidental or irregular nature, the employee shall receive pay for actual hours worked with a minimum guarantee, as may be required by the applicable Schedule A.

C. When an employee leaves the job or work location of their own volition or is discharged for cause or is not working as a result of the Contractor's invocation of Section 7 below, they shall be paid only for the actual time worked.

D. Except as specifically set forth in this Article there shall be no premiums, bonuses, hazardous duty, high time or other special payments of any kind.

E. There shall be no pay for time not actually worked except as specifically set forth in this Agreement or except where specifically provided in an applicable Schedule A.

SECTION 6. PAYMENT OF WAGES

A. Payday - Payment shall be made by check, drawn on a New Jersey bank with

branches located within commuting distance of the job site. Paychecks shall be issued by the Contractor at the job site by 10 a.m. on Thursdays. In the event that the following Friday is a bank holiday, paychecks shall be issued on Wednesday of that week. Not more than 3 days wages shall be held back in any pay period. Paycheck stubs shall contain the name and business address of the Contractor, together with an itemization of deductions from gross wages.

B. Termination-Employees who are laid-off or discharged for cause shall be paid in full for that which is due them at the time of termination. The Contractors shall also provide the employee with a written statement setting forth the date of lay off or discharge.

SECTION 7. EMERGENCY WORK SUSPENSION

A Contractor or GC and/or PMF may, if considered necessary for the protection of life and /or safety of employees or others, suspend all or a portion of Project work. In such instances, employees will be paid for actual time worked; provided, however, that when a Contractor request that employees remain at the job site available for work, employees will be paid for "stand-by" time at their hourly rate of pay.

SECTION 8. INJURY/DISABILITY

An employee who, after commencing work, suffers a work-related injury or disability while performing work duties, shall receive no less than 8 hours wages for that day. Further, the employee shall be rehired at such time as able to return to duties provided there is still work available on the Project for which the employee is qualified and able to perform.

SECTION 9. TIME KEEPING

A Contractor may utilize brassing or other systems to check employees in and out. Each employee must check in and out. The Contractor will provide adequate facilities for checking in and out in an expeditious manner.

SECTION 10. MEAL PERIOD

A Contractor shall schedule an unpaid period of not more than 1/2 hour duration at the work location between the 3rd and 5th hour of the scheduled shift. A Contractor may, for efficiency of operation, establish a schedule which coordinates the meal periods of two or more crafts. If an employee is required to work through the meal period, the employee shall be compensated in a manner established in the applicable Schedule A.

SECTION 11. BREAK PERIODS

There will be no rest periods, organized coffee breaks or other non-working time established during working hours. Individual coffee containers will be permitted at the employee's work location. Local area practice will prevail for coffee breaks that are not organized.

ARTICLE 13 - APPRENTICES

SECTION 1. RATIOS

Recognizing the need to maintain continuing supportive programs designed to develop adequate numbers of competent workers in the construction industry and to provide craft entry opportunities for minorities, women and economically disadvantaged non-minority males, Contractors will employ apprentices in their respective crafts to perform such work as is within their capabilities and which is customarily performed by the craft in which they are indentured. Contractors may utilize apprentices and such other appropriate classifications as are contained in the applicable Schedule A in a ratio not to exceed the ratio provided in the applicable Schedule A collective bargaining agreements providing prevailing wage and fringe benefits as defined in N.J.S.A. 34:11-56.26(9) for the classification in Union County, New Jersey. Apprentices and such other classifications as are appropriate shall be employed in a manner consistent with the provisions of the appropriate collective bargaining agreement listed in Schedule A.

SECTION 2. DEPARTMENT OF LABOR

To assist the Contractors in attaining a maximum effort on this Project, the Unions agree to work in close cooperation with, and accept monitoring by, the New Jersey State and Federal Departments of Labor to ensure that minorities, women, or economically disadvantaged are afforded opportunities to participate in apprenticeship programs which result in the placement of apprentices on this Project. To further ensure that this Contractor effort is attained, up to 50% of the apprentices placed on this Project should be first year, minority, women or economically disadvantaged apprentices. The Local Unions will cooperate with Contractor request for minority, women or economically disadvantaged referrals to meet this Contractor effort.

SECTION 3. HELMETS TO HARDHATS

The Employers and the Unions recognize a desire to facilitate the entry into the building and construction trades of veterans who are interested in careers in the building and construction industry. The Employers and Unions agree to utilize the services of the Center for Military Recruitment, Assessment and Veterans Employment (hereinafter "Center") and the Center's "Helmets to Hardhats" program to serve as a resource for preliminary orientation, assessment of construction aptitude, referral to apprenticeship programs or hiring halls, counseling and mentoring, support network, employment

opportunities and other needs as identified by the parties.

The Unions and Employers agree to coordinate with the Center to create and maintain an integrated database of veterans interested in working on the Project and of apprenticeship and employment opportunities for the Project. To the extent permitted by law, the Unions will give credit to such veterans for bona fide, provable past experience.

ARTICLE 14 - SAFETY PROTECTION OF PERSON AND PROPERTY

SECTION 1. SAFETY REQUIREMENTS

Each Contractor will ensure that applicable OSHA requirements and other requirements set forth in the contract documents are at all times maintained on the Project and the employees and Unions agree to cooperate fully with these efforts. Employees must perform their work at all times in a safe manner and protect themselves and the property of the Contractor and the Owner from injury or harm. Failure to do so will be grounds for discipline, including discharge.

SECTION 2. CONTRACTOR RULES

Employees covered by this Agreement shall at all times be bound by the reasonable safety, security, and visitor rules as established by the Contractors and the GC and/or PMF for this Project. Such rules will be published and posted in conspicuous places throughout the Project.

SECTION 3. INSPECTIONS

The Contractors and GC and/or PMF retain the right to inspect incoming shipments of equipment, apparatus, machinery, and construction materials of every kind.

ARTICLE 15 - NO DISCRIMINATION

SECTION 1. COOPERATIVE EFFORTS

The Contractors and Unions agree that they will not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin or age in any manner prohibited by law or regulation. It is recognized that special procedures maybe established by Contractors and Local Unions and the New Jersey State Department of Labor for the training and employment of persons who have not previously

qualified to be employed on construction projects of the type covered by this Agreement. The parties to this Agreement will assist in such programs and agree to use their best efforts to ensure that the goals for female and minority employment are met on this Project.

SECTION 2. LANGUAGE OF AGREEMENT

The use of the masculine or feminine gender in this Agreement shall be construed as including both genders.

ARTICLE 16 - GENERAL TERMS

SECTION 1. PROJECT RULES

The Project Management Firm and the Contractors shall establish such reasonable Project rules as are appropriate for the good order of the Project, provided they do not violate the terms of this Agreement. These rules will be explained at the pre-job conference and posted at the Project site and may be amended thereafter as necessary. Failure of an employee to observe these rules and regulations shall be grounds for discipline, including discharge. The fact that no order was posted prohibiting a certain type of misconduct shall not be a defense to an employee disciplined or discharged for such misconduct when the action taken is for cause.

SECTION 2. TOOLS OF THE TRADES

The welding/cutting torch and chain fall are tools of the trade having jurisdiction over the work performed. Employees using these tools shall perform any of the work of the trade. There shall be no restrictions on the emergency use of any tools or equipment by any qualified employee, or on the use of any tools or equipment for the performance of work within the employee's jurisdiction.

SECTION 3. SUPERVISION

Employees shall work under the supervision of the craft foreperson or general foreperson.

SECTION 4. TRAVEL ALLOWANCES

There shall be no payments for travel expenses, travel time, subsistence allowance or other such reimbursements or special pay except as expressly set forth in this Agreement and in Schedule A.

SECTION 5. FULL WORK DAY

Employees shall be at their staging area at the starting time established by the Contractor and shall be returned to their staging area by quitting time after performing their assigned functions under the supervision of the Contractor. The signatories reaffirm their policy of a fair day's work for a fair day's wage.

SECTION 6. COOPERATION

The Project Management Firm and/or General Contractor and the Unions will cooperate in seeking any New Jersey State Department of Labor approvals that may be required for implementation of any terms of this Agreement.

ARTICLE 17 - SAVINGS AND SEPARABILITY

SECTION 1. THIS AGREEMENT

In the event that the application of any provision of this Agreement is enjoined, on either an interlocutory or permanent basis, or otherwise found in violation of law, the provision involved shall be rendered, temporarily or permanently, null and void but the remainder of the Agreement shall remain in full force and effect. In such event, this Agreement shall remain in effect for contracts already bid and awarded or in construction where the Contractor voluntarily accepts this Agreement. The parties to this Agreement will enter into negotiations for a substitute provision in conformity with the law and the intent of the parties for contracts to be let in the future.

SECTION 2. THE BID SPECIFICATIONS

In the event that the General Contractor's and/or Project Management Firm's bid specifications, or other action, requiring that a successful bidder become signatory to this Agreement is enjoined, on either an interlocutory or permanent basis, or otherwise found in violation of law such requirement shall be rendered, temporarily or permanently, null and void but this Agreement shall remain in full force and effect to the extent allowed by law. In such event, this Agreement shall remain in effect for contracts already bid and awarded or in constructions where the Contractor voluntarily accepts this Agreement. The parties will enter into negotiations as to modifications to this Agreement to reflect the court action taken and the intent of the parties for contracts to be let in the future.

SECTION 3. NON-LIABILITY

In the event of an occurrence referenced in Section 1 or Section 2 of this Article, neither

the Owner, the Project Management Firm and/or General Contractor, or any Contractor, or any signatory Union shall be liable, directly or indirectly, for any action taken, or not taken, to comply with any court order, injunction or determination. Project bid specifications will be issued in conformance with court orders in effect and no retroactive payments or other action will be required if the original court determination is ultimately reversed.

SECTION 4. NON-WAIVER

Nothing in this Article shall be construed as waiving the prohibitions of Article 7 as to signatory Contractors and signatory Unions.

ARTICLE 18 - FUTURE CHANGES IN SCHEDULE A AREA CONTRACTS

SECTION 1. CHANGES TO AREA CONTRACTS

A. Schedules A to this Agreement shall continue to full force and effect until the Contractor and/or Union parties to the Area Collective Bargaining Agreements, which are the basis for Schedules A, notify the General Contractor and/or Project Management Firm in writing of the mutually agreed upon changes in provisions of such agreements which are applicable to the Project, and their effective dates.

B. It is agreed that any provisions negotiated into Schedules A collective bargaining agreements will not apply to work on this Project if such provisions are less favorable to this Project than those uniformly required of contractors for construction work normally covered by those agreements; nor shall any provisions be recognized or applied on this Project if it may be construed to apply exclusively, or predominantly, to work covered by this Project Agreement.

C. Any disagreement between signatories to this Agreement over the incorporation into Schedules "A" of provisions agreed upon in the renegotiations of Area Collective Bargaining Agreements shall be resolved in accordance with the procedure set forth in Article 9 of this Agreement.

SECTION 2. LABOR DISPUTES DURING AREA CONTRACT NEGOTIATIONS

The Unions agree that there will be no strikes, work stoppages, sympathy actions, picketing, slowdowns or other disruptive activity or other violations of Article 7 affecting the Project by any Local Union involved in the renegotiations of Area Local Collective Bargaining Agreements nor shall there be any lock-out on the Project affecting a Local Union during the course of such renegotiations.

IN WITNESS WHEREOF the parties have caused this Agreement to be executed and effective as of _____, 202__.

ATTEST:

County of Union

JAMES E. PELLETTIERE, Clerk
Board of County Commissioners

EDWARD T. OATMAN
County Manager

APPROVED AS TO FORM:

BRUCE H. BERGEN, ESQ.
County Counsel

Affirmative Action Compliant

ATTEST:

Union County Building and
Construction Trades Council AFL-
CIO

Corporate Secretary/Notary Public

Authorized Signatory

Print Name

Print Title

ATTEST:

(General Contractor)

Corporate Secretary/Notary Public

Authorized Signatory

Print Name

Print Title

ATTEST:

(Project Management Firm)

Corporate Secretary/Notary Public

Authorized Signatory

Print Name

Print Title

UNION AFFILIATES

SIGNATURES

ASBESTOS WORKER LOCAL 32

BOILER MAKERS LOCAL 28

BRICKLAYERS AND ALLIED
CRAFTS LOCAL 4

CARPENTERS LOCAL 254

DOCKBUILDERS LOCAL 1556

ELECTRICAL WORKERS LOCAL 102

ELECTRICAL WORKERS LOCAL 164
(TELECOM)

ELEVATOR CONSTRUCTORS LOCAL 1

OPERATING ENGINEERS LOCAL 825

IRONWORKERS LOCAL 11

STEAMFITTERS LOCAL 475

LABORERS LOCAL 3

HEAVY CONSTRUCTION
LABORERS LOCAL 472

PAINTERS AND ALLIED TRADES,
DISTRICT COUNCIL 21

PLUMBERS LOCAL 24

RESILIENT FLOORING LOCAL 251

ROOFERS LOCAL 4

SHEET METAL WORKERS LOCAL 22

SHEET METAL WORKERS LOCAL 25

SPRINKLER FITTERS LOCAL 696

TILE/MARBLE/TERRAZO WORKERS
LOCAL 7

TEAMSTERS LOCAL 560

OPERATIVE PLASTERER LOCAL 29

MILLWRIGHTS LOCAL 715

PROJECT LABOR AGREEMENT

TELE-DATA ADDENDUM

The parties hereby agree that all Tele-data work and associated electrical work performed on any of the sites during construction shall be done by employees represented by the signatory unions. For the purpose of this Agreement, Tele-data work shall include, but not limited to, the following: All receiving, placement, installation, operation, testing, inspection, maintenance, repair and service of radio, television, video, data, voice, sound, emergency call, microwave and visual production and reproduction apparatus, equipment and appliances used for domestic, commercial, education and entertainment purposes; all installation and erection of equipment, apparatus or appliance, cables and/or wire, emergency power (batteries) and all directly related work which becomes an integral part of the telecommunication and/or telecommunications related systems repair and service maintenance work of telecommunications systems and devices including, but not limited to, Private Branch Exchanges (PBX-PABX), Key equipment-owned, CCTV, CATV, card access, Systems RS 232 ethernet and/or any local area network system associated with computer installation.

SIGNATORY UNIONS

BY: _____

BY: _____

PROJECT LABOR AGREEMENT

SHEET METAL ADDENDUM

(General Contractor) and (Project Management Firm) agrees that when subcontracting for prefabrication of H.V.A.C. duct and other related sheet metal, such prefabrication shall be subcontracted to fabricators who pay their employees engaged in such fabrication not less than the prevailing wage for comparable sheet metal fabrication as established under agreements between local affiliates of Sheet Metal Workers' International Association and local sheet metal fabricators.

General Contractor and Project Management Firm and the Sheet Metal Workers' International Association agree to work with fabrication shops referenced in the Addendum. This joint effort will be directed at improving fabricators' competitiveness through the application of continuous improvement principles.

(General Contractor)

Sheet Metal Workers'
International Assoc. Local #25

(Project Management Firm)

Sheet Metal Workers' International
Assoc. Local #22

TEAMSTERS LOCAL 560 ADDENDUM

1. Notwithstanding the provisions of Article 11, Section 2 of the Project Labor Agreement, a Contractor who becomes signatory to this Project Labor Agreement who is not already a participating and contributing employer to the pension fund(s) specified in the Exhibit A collective bargaining agreement (currently the Trucking Employees of North Jersey Pension Fund; hereinafter the "TENJ Pension Fund," and the Teamsters Local No. 408 Pension Fund), shall make direct all contributions required by the Exhibit A collective bargaining agreement exclusively to the Trucking Employees of North Jersey Annuity Fund, a defined contribution plan. Any such Contractor shall not participate in nor contribute to the TENJ or Local 408 Pension Funds, and shall have no obligation to the TENJ or Local 408 Pension Funds.

2. Any Contractor who is already participating in and contributing to the TENJ or Local 408 Pension Fund, separately from this Project Labor Agreement, shall pay contributions as provided for in Article 11, Section 2 of this Project Labor Agreement.

Agreed to and accepted this _____ day
of _____, 202__:

For the General Contractor:

For Teamsters Local 560

PROJECT LABOR AGREEMENT

LETTER OF ASSENT

Re: Project Labor Agreement
The Union County Building & Trades Council, AFL-CIO and

dated _____
(the "Agreement")

The undersigned, as a General Contractor and/or Project Management Firm, Contractor(s) or Subcontractor(s) on a Contract which is part of the Construction of the _____ Project in _____, New Jersey (the "Project"), for and in consideration of the award of a Contract to perform work on said Project, and in further consideration of the mutual promises made in the Project Labor Agreement, a copy of which was received and is acknowledged, hereby:

(1) On behalf of itself and all its employees, accepts and agrees to be bound by the terms and conditions of the Project Labor Agreement, together with any and all amendments and supplements now existing or which are later made thereto, and understands that any act of non-compliance with all such terms and conditions will subject the non-complying Contractor or employee(s) to being prohibited from the Project Site until full compliance is obtained.

(2) Certifies that it has no commitments or agreements that would preclude its full compliance with the terms and conditions of said Projects Labor Agreement.

(3) Agrees to secure from any Contractor(s) (as defined in said Project Labor Agreement) which is or becomes a Subcontractor(s) (of any tier), a duly executed Letter of Assent in form identical to this document prior to commencement of any work.

Company Name

By: _____

Contract Number _____

Title: _____

General Contractor _____

Date: _____

cc: (Unions employed by Contractor)

SCHEDULE A

SCHEDULE B

EXHIBIT A

53. BID PROTEST – LEGAL FEES AND COSTS

In the event a Bidder unsuccessfully challenges a Bid Submission by filing an action in a court of law concerning same, said Bidder shall be responsible for payment of reasonable legal costs and fees incurred by the County relating to said protest.

54. AMERICAN GOODS AND PRODUCTS WHERE POSSIBLE

Bidder shall comply with the requirements of N.J.S.A. 40A:11-18 and use only manufactured and farm products of the United States, wherever available, for the Project.

55. NEW JERSEY PAY-TO-PLAY REQUIREMENTS

This Contract is required by law to be publicly advertised for bids. As such, lists of political contributions pursuant to N.J.S.A. 19:44A-1 et seq. are NOT REQUIRED to be provided with the bids.

56. STATEMENT OF EQUIPMENT TO BE USED IN CONSTRUCTION

Pursuant to N.J.S.A. 40A:11-20 entitled Certificate of Bidder Showing Ability to Perform Contract, the County requires a Certification from all bidders submitting a bid showing that the Bidder owns, leases, or controls all necessary equipment required by the Project Plans and Specifications. All bidders shall provide this information at the time of the bid opening using the attached form entitled, "CERTIFICATE OF BIDDER SHOWING ABILITY TO PERFORM CONTRACT".

If the Bidder is not the actual owner of the equipment, it shall state the source from which the equipment will be obtained and shall attach a certificate from the owner or person in control of the equipment demonstrating that the equipment owner has granted the Bidder control of the requisite equipment during such time as may be necessary for completion of the portion of the contract for which the equipment is necessary.

57. NEW JERSEY SALES AND USE TAX REQUIREMENTS,

Contractors are required to comply with the following:

New Jersey Sales and Use Tax Requirements: All contractors with subcontractors, or any of their affiliates, who enter into contracts for the provision of goods or services with or for New Jersey local government entities, are required to collect and remit to the New Jersey Director of Taxation in the Department of the Treasury the use tax due on all of their sales of tangible personal property delivered into the State of New Jersey pursuant to the "Sales and Use Tax Act," (N.J.S.A. 54:32B-1 et seq.), regardless of whether the tangible personal property is intended for a contract with the contracting agency. This tax shall be remitted for the term of the Contract.

For purposes herein “affiliate” shall mean any entity that: (a) directly, indirectly, or constructively controls another entity, (b) is directly, indirectly, or constructively controlled by another entity, or (c) is subject to the control of a common entity. For purposes of the immediately preceding sentence, an entity controls another entity if it owns, directly or indirectly, more than fifty percent (50%) of the ownership interest in that entity. NJSA 52:32-44(g)(3).

58. RESOLUTION NO. 2014-408

WHEREAS, the County of Union recognizes there is a need to ensure that all work on significant public construction and maintenance contracts is performed by responsible, qualified firms that maintain the capacity, expertise, personnel, and other qualifications and resources necessary to successfully perform public contracts in a timely, reliable, and cost-effective manner; and

WHEREAS, in order to effectuate the purpose of selecting responsible contractors for significant public contracts and to protect Union County's capital investments in such contracts prospective contractors and subcontractors should be required to meet pre-established, clearly-defined, minimum standards relating to contractor responsibility, including retirements and criteria concerning qualifications, competency) expertise, adequacy of resources, including equipment, financial and personnel, and satisfactory records regarding past project performance, safety, legal compliance and business integrity; and

WHEREAS, the County has a compelling interest in assuring that its Public Works Projects meet the highest standard of safety and quality; and

WHEREAS, due to the critical impact that skilled construction craft labor has on public works projects, and due to the limited availability of skilled construction craft labor and imminent craft labor skill shortages, it is necessary to require contractors and subcontractors to participate in established, formal apprenticeship training programs for the purpose of both promoting successful project delivery and ensuring future workforce development; and

WHEREAS, an apprenticeship program is a structured system of training designed to prepare individuals for occupations and lifelong careers in skilled trades and crafts by providing a wage-paying job that incorporates extensive workplace and classroom training under the supervision of experienced workers, in preparation for highly skilled occupations; and

WHEREAS, apprenticeship programs are a critical component in public safety, by ensuring that workers on public projects are properly trained, able, competent and capable craftsmen, and provide assurance of compliance with the

County's bid specifications and achieve high quality standards; and

WHEREAS, for an apprenticeship program to be fully effective, the public and private sectors must recognize its value and commit to supporting its mission; and

WHEREAS, Union County has long recognized the value of apprenticeship programs through its support of the Union County Vocational-Technical Schools, which offer training programs to help ensure that Union County will continue to produce a skilled and educated work force in the trade specialties, and thus, strengthen Union County's economy by fostering the development of highly paid trade and craft careers; and

WHEREAS, the use of apprenticeship programs or apprenticeship trained employees on Union County Public Works Projects will serve the dual goal of providing the County with assurance that its public works projects are completed with a well-trained workforce, in a highly skilled and timely fashion, while creating opportunities for careers in the skilled trades and craft industry for County residents; and

WHEREAS, the County of Union also recognizes that it is beneficial to their employees to utilize fair business, employment, and training practices that have a positive impact on local communities affected by such contracts:

NOW, THEREFORE, BE IT RESOLVED by the Board of Chosen Freeholders of the County of Union as follows:

1. The County of Union shall require compliance with the provisions of this Resolution by business entities seeking to provide services to the County of Union as specified herein. The requirements of this Resolution are intended to supplement, not replace, existing contractor qualifications and performance standards or criteria currently required by law, public policy or contracting documents, including but not limited to Union County's DPMC classification and Project Labor Agreement policies
2. All contractors and subcontractors that perform significant work on any public facility or public works project, including construction, alteration, renovation, repair, service, or maintenance work, shall meet the requirements of this Resolution. For purposes of this Resolution, the term "significant work" shall be defined as any work or activity covered under the New Jersey Prevailing Wage Act, N.J.S.A. 34:11-56.25 et seq.
3. All firms engaged in contracts covered by this Resolution shall be qualified responsible contractors or subcontractors that have sufficient

capabilities in all respects to successfully perform contracts on which they are engaged, including the necessary experience, equipment, technical skills and qualifications and organizational, financial and personnel resources. Firms bidding on public contracts shall also be required to have a satisfactory past performance record and a satisfactory record of legal compliance, integrity and business ethics. Compliance with these standards shall be established by compliance with the requirements set forth in paragraph 8 of this Resolution.

4. As a condition of performing work on public works contracts over the public works threshold, the general contractor shall provide certification that he and each subcontractor working on the project shall have at least one (1) employee who has successfully completed the OSHA 10-hour construction safety and health course. As a condition of performing work on public works contracts of \$500,000.00 or more total cost of project, the general contractor shall provide certification that each subcontractor working on the project shall have at least one (1) employee who has successfully completed the OSHA 30-hour construction safety and health course.

5. All contractors and subcontractors that perform significant work on any public facility or public works project shall be required to affirmatively provide evidence of and confirm compliance with proof of participation in an Apprenticeship Program currently registered and approved by the United States Department of Labor ("USDOL"), the New Jersey Department of Labor ("NJDOL") or any state having equal to or higher requirements as either the USDOL or NJDOL apprenticeship programs. Additionally, Apprenticeship Programs shall meet the criteria set forth in Section 8(i) of this Resolution.

6. As a condition of performing work on public works contracts subject to this Resolution, a general contractor seeking award of a contract shall submit a Contractor Responsibility Certification at the time it submits its bid for contract.

7. The Contractor Responsibility Certification shall be completed on a form provided by the Union County Purchasing Department and shall reference the project for which a bid is being submitted by name and contract or project number.

8. In the Contractor Responsibility Certification, general contractors and subcontractors shall certify the following facts regarding their past performance and work history and its current qualifications and performance capabilities:

- a. The firm has all valid, effective licenses, registrations or

certificates required by federal, state, county, or local law, including, but not limited to, licenses, registrations, certificates required to: (1) do business in the designated locale; and (2) perform the contract work it seeks to perform. These shall include, but not be limited to, licenses, registrations or certificates for any type of trade work or specialty work, which the firm proposes to self-perform.

b. The firm meets the bonding requirements for the contract, as required by applicable law or contract specifications and any insurance requirements, as required by applicable law or contract specifications, including general liability insurance, workers compensation insurance and unemployment requirements.

c. The firm has not been debarred by any federal, state or local government agency or authority in the past three (3) years.

d. The firm has not defaulted on any project in the past three (3) years.

e. The firm has not had any type of business, contracting or trade license, registration, or other certification suspended or revoked in the past three (3) years.

f. The firm has not been cited and found guilty for a willful violation of federal or state safety laws in the past three (3) years.

g. The firm and/or its owners have not been convicted of any crime relating to the contracting business by a final decision of a court or government agency in the past three (3) years.

h. The firm will pay all craft employees that it employs on the project the current wage rates and benefits as required under applicable Federal or State prevailing wage laws.

i. The firm participates in an Apprenticeship Program that is currently registered with the USDOL, the NJDOL or any state having equal to or higher requirements as either the USDOL or NJDOL apprenticeship programs, for each craft or trade in which it apprentices. The firm shall provide proof of meeting this qualification standard by submitting appropriate documentation as an attachment to this Certification. The firm shall continue to participate in applicable apprenticeship programs for the full duration of the contract work. The apprenticeship program in which the firm participates shall have graduated at least one (1) enrollee

in each of the past three (3) years.

9. The County of Union may conduct any additional inquiries to verify that the prospective awardee and its subcontractors have the technical qualifications and performance capabilities necessary to successfully perform the contract and that the firms have a sufficient record of legal compliance and business integrity to justify the award of a public contract. In conducting such inquiries, the County of Union may seek relevant information from the firm, its prior clients or customers, its subcontractors or any other relevant source.

10. If any provision of this Resolution shall be held to be invalid or unenforceable by a court of competent jurisdiction, any such holding shall not invalidate any other provisions of this Resolution and all remaining provisions shall remain in full force and effect.

NOW, THEREFORE, BE IT RESOLVED by the Board of Chosen Freeholders of the County of Union that it hereby establishes and adopts the Responsible Contractor Policy, and it hereby authorizes the County Manager to sign any and all documents necessary to make said Policy effective immediately.

59. FEDERAL TERMS

TERMS AND CONDITIONS APPLICABLE TO ALL CONTRACTS/PURCHASES FUNDED, IN WHOLE OR IN PART, BY FEDERAL FUNDS.

The provisions set forth below apply to all contracts funded, in whole or in part, by Federal funds as required by 2 CFR 200.317.

1. CONTRACTING WITH SMALL AND MINORITY BUSINESSES, WOMEN'S BUSINESS ENTERPRISES, AND LABOR SURPLUS AREA FIRMS

Pursuant to 2 CFR 200.321, the State must take all necessary affirmative steps to assure that minority businesses, women's business enterprises, and labor surplus area firms are used when possible. Accordingly, if subawards are to be made the Contractor shall:

- (1) Include qualified small and minority businesses and women's business enterprises on solicitation lists;
- (2) Assure that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
- (3) Divide total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;
- (4) Establish delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's

- business enterprises; and,
- (5) Use the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.

2. DOMESTIC PREFERENCE FOR PROCUREMENTS

Pursuant to 2 CFR 200.322, where appropriate, the State has a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products). If subawards are to be made the Contractor shall include a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products). For purposes of this section:

- (1) "Produced in the United States" means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.
- (2) "Manufactured products" means items and construction materials composed in whole or in part of nonferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.

3. PROCUREMENT OF RECOVERED MATERIALS

Where applicable, in the performance of contract, pursuant to 2 CFR 200.323, the contractor must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$ 10,000 or the value of the quantity acquired during the preceding fiscal year exceeded \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

To the extent that the scope of work or specifications in the contract requires the contractor to provide recovered materials the scope of work or specifications are modified to require that as follows.

- i. In the performance of this contract, the Contractor shall make maximum use of products containing recovered materials that are EPA-designated items unless the product cannot be acquired—
 1. Competitively within a timeframe providing for compliance with the contract performance schedule;

2. Meeting contract performance requirements; or
 3. At a reasonable price.
- ii. Information about this requirement, along with the list of EPA-designated items, is available at EPA's Comprehensive Procurement Guidelines web site, <https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program>.
 - iii. The Contractor also agrees to comply with all other applicable requirements of Section 6002 of the Solid Waste Disposal Act."

4. EQUAL EMPLOYMENT OPPORTUNITY

Except as otherwise provided under 41 CFR Part 60, all contracts that meet the definition of "federally assisted construction contract" in 41 CFR Part 60-1.3 must include the equal opportunity clause provided under 41 CFR 60-1.4(b), in accordance with Executive Order 11246, "Equal Employment Opportunity" (30 FR 12319, 12935, 3 CFR Part, 1964-1965 Comp., p. 339), as amended by Executive Order 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and implementing regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor." See, 2 CFR Part 200, Appendix II, para. C.

During the performance of this contract, the contractor agrees as follows:

- (1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:
Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
- (2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
- (3) The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job

functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.

- (4) The contractor will send to each labor union or representative of workers with which he/she has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- (5) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- (6) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his/her books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- (7) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- (8) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the

interests of the United States.

The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: Provided, That if the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

5. DAVIS-BACON ACT, 40 U.S.C. 3141-3148, AS AMENDED

When required by Federal program legislation, all prime construction contracts in excess of \$2,000 shall be done in compliance with the Davis-Bacon Act (40 U.S.C. 3141- 3144, and 3146-3148) and the requirements of 29 C.F.R. pt. 5 as may be applicable. The contractor shall comply with 40 U.S.C. 3141-3144, and 3146-3148 and the requirements of 29 C.F.R. pt. 5 as applicable. Contractors are required to pay wages to laborers and

mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. Additionally, contractors are required to pay wages not less than once a week. The non-Federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency.

6. COPELAND ANTI-KICKBACK ACT

Where applicable, the Contractor must comply with Copeland "Anti-Kickback" Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States").

- a. Contractor. The Contractor shall comply with 18 U.S.C. § 874, 40 U.S.C. § 3145, and the requirements of 29 C.F.R. pt. 3 as may be applicable, which are incorporated by reference into the OGS centralized contract.
- b. Subcontracts. The Contractor or subcontractor shall insert in any subcontracts the clause above and such other clauses as FEMA may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of these contract clauses.
- c. Breach. A breach of the clauses above may be grounds for termination of the OGS centralized contract, and for debarment as a Contractor and subcontractor as provided in 29 C.F.R. § 5.12.

7. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT, 40 U.S.C. 3701-3708

Where applicable, all contracts awarded by the non-Federal entity in excess of \$ 100,000 that involve the employment of mechanics or laborers must comply with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5).

- (1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

- (2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of \$27 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.
- (3) Withholding for unpaid wages and liquidated damages. The unauthorized user shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.
- (4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

8. RIGHTS TO INVENTIONS MADE UNDER A CONTRACT OR AGREEMENT

If the Federal award meets the definition of "funding agreement" under 37 CFR § 401.2 (a) and the recipient or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that "funding agreement," the recipient or subrecipient must comply with the requirements of 37 CFR Part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," and any implementing regulations issued by the awarding

agency.

9. CLEAN AIR ACT, 42 U.S.C. 7401-7671Q, AND THE FEDERAL WATER POLLUTION CONTROL ACT, 33 U.S.C. 1251-1387, AS AMENDED

Where applicable, Contracts and subgrants of amounts in excess of \$150,000, must comply with the following:

Clean Air Act

1. The contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq.
2. The contractor agrees to report each violation to the Division of Purchase and Property and understands and agrees that the Division of Purchase and Property will, in turn, report each violation as required to assure notification to the Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.
3. The contractor agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with Federal assistance provided by FEMA.

Federal Water Pollution Control Act

1. The contractor agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq.
2. The contractor agrees to report each violation to the Division of Purchase and Property and understands and agrees that the Division of Purchase and Property will, in turn, report each violation as required to assure notification to the Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.
3. The contractor agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with Federal assistance provided by FEMA.

10. DEBARMENT AND SUSPENSION (EXECUTIVE ORDERS 12549 AND 12689)

- (1) This contract is a covered transaction for purposes of 2 C.F.R. pt. 180 and 2 C.F.R. pt. 3000. As such, the contractor is required to verify that none of the contractor's principals (defined at 2 C.F.R. § 180.995) or its affiliates (defined at 2 C.F.R. § 180.905) are excluded (defined at 2 C.F.R. § 180.940) or disqualified (defined at 2 C.F.R. § 180.935).
- (2) The contractor must comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.

- (3) This certification is a material representation of fact relied upon by the State or authorized user. If it is later determined that the contractor did not comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, in addition to remedies available to the State or authorized user, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.
- (4) The bidder or proposer agrees to comply with the requirements of 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

11. BYRD ANTI-LOBBYING AMENDMENT, 31 U.S.C. 1352

Contractors that apply or bid for an award exceeding \$100,000 must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award. Such disclosures are forwarded from tier to tier up to the recipient who in turn will forward the certification(s) to the awarding agency.

12. PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

- (a) Recipients and subrecipients are prohibited from obligating or expending loan or grant funds to:
 - (1) Procure or obtain;
 - (2) Extend or renew a contract to procure or obtain; or
 - (3) Enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in Public Law 115–232, section 889, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).
- (i) For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and

other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).

(ii) Telecommunications or video surveillance services provided by such entities or using such equipment.

(iii) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

13. CONTRACTS FOR MORE THAN THE SIMPLIFIED ACQUISITION THRESHOLD

Contracts for more than the simplified acquisition threshold, which is the inflation adjusted amount determined by the Civilian Agency Acquisition Council and the Defense Acquisition Regulations Council (Councils) as authorized by 41 U.S.C. 1908, must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as appropriate.

14. TERMINATION FOR CONVENIENCE PROVISION

All contracts in excess of \$10,000 must address termination for cause and for convenience by the non-Federal entity including the manner by which it will be effected and the basis for settlement.

15. BONDING REQUIREMENTS

For construction or facility improvement contracts or subcontracts exceeding the Simplified Acquisition Threshold, the Federal awarding agency or pass-through entity may accept the bonding policy and requirements of the non-Federal entity provided that the Federal awarding agency or pass-through entity has made a determination that the Federal interest is adequately protected. If such a determination has not been made, the minimum requirements must be as follows:

(a) A bid guarantee from each bidder equivalent to five percent of the bid price. The "bid guarantee" must consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of the bid, execute such contractual documents as may be required within the time specified.

(b) A performance bond on the part of the contractor for 100 percent of the contract price. A “performance bond” is one executed in connection with a contract to secure fulfillment of all the contractor's requirements under such contract.

(c) A payment bond on the part of the contractor for 100 percent of the contract price. A “payment bond” is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of the work provided for in the contract.

Bidders name _____

EDWARD T. OATMAN
COUNTY MANAGER

MICHELE HAGOPIAN, ASSISTANT DIRECTOR
DIVISION OF PURCHASING

BID DOCUMENT SUBMISSION CHECKLIST

**ALL SIGNATURES AND SEALS SHALL BE ORIGINALS UNLESS OTHERWISE SPECIFIED
BID SHEETS SHOULD NOT BE SUBMITTED DOUBLE SIDED PAGES, (SINGLE SIDE ONLY)**

EACH BIDDER SHOULD COMPLETE THIS FORM AND INITIAL EACH ENTRY.

DATE COMPLETED: _____

**PLEASE SUBMIT BID DOCUMENTS ON SINGLE SIDED PAPER ONLY, WITH THE EXCEPTION OF THE SURETY
AND BID BOND DOCUMENTS.**

**IN ACCORDANCE WITH THE BID SPECIFICATIONS I HAVE REVIEWED, COMPLETED / EXECUTED AND INCLUDED
THE FOLLOWING FORMS:**

_____ Bid Form Page (**Signed, Dated and Bid on all alternatives applicable to the Work**).

_____ Security in the form of:

_____ Bid bond in an amount equal to 10% of the total amount of this bid not to exceed \$20,000.00; or

_____ Certified check or cashier's check in the amount of 10% of this bid not to exceed \$20,000.00

_____ Consent of Surety form signed by a Surety Company if the total amount of your Bid is over \$36,000.00.

If your bid is accepted, the Surety Company that provided the Consent shall be required to furnish a Performance, Labor and Materials Bond in the amount of 100% of the award of the contract.

The County of Union has provided its Consent of Surety form for your use. The use of this form by your Surety Company will expedite the bid review process and eliminate the possibility of having your bid rejected. If, however, you should need to use another form, please use language similar to that used on the Union County form and avoid making any additions or deletions to the Union County form language. In lieu of the Consent of Surety you may submit a Certified Check in the full amount of the bid.

_____ STATEMENT OF BIDDER OWNERSHIP. Pursuant to N.J.S.A. 52:25-24.2, which includes **BOTH** of the following documents:

- Bidder Signature Page
- Bidder Disclosure Statement (**Fill out 2 pages completely**)

_____ SUBCONTRACTOR IDENTIFICATION. Pursuant to N.J.S.A. 40A:11-16, which includes **BOTH** of the following documents:

- Subcontractor Identification Statement: List of Subcontractors (**only for certain types of work**)
- Subcontractor Identification Certification

_____ Acknowledgement of Addendum form: (**This form is to be used only when an addendum has been added to the specifications**).

_____ A copy of the State of New Jersey Department of the Treasury, Division of Revenue, **Business Registration Certificate ("BRC")** should be included with the bids as it must be received by the County prior to the award of the contract. The BRC provided must show that the Bidder was registered at the time of receipt of bids or the bid will be rejected.

_____ A copy of the State of New Jersey Department of the Treasury, Division of Revenue, **Business Registration Certificate (“BRC”)** of all named or listed subcontractors (List of Subcontractors) in a Construction bid should be included with the bid as the BRC(s) must be received by the County prior to the award of the contract. Each subcontractor’s certificate provided must show that the subcontractor was registered at the time of the receipt of bids or the bid will be rejected.

_____ Affirmative Action Requirement

_____ Experience Statement

_____ Certificate of Bidder showing ability to perform Contract

_____ Non-Collusion Affidavit – Fill out completely and notarize

_____ Certificates from New Jersey Department of Labor and Workforce and Workforce Development – Public Works Contractor Registration Act. **(Only for certain types of work)**

_____ Federal Attachments **(If applicable)**

_____ NJDPMC Certificate / Notice of Classification **(If applicable)**

_____ Americans with Disabilities Act

_____ Statement of Bidder’s Qualifications

_____ Contractor Performance Record

_____ Affidavit Regarding List of Debarred, Suspended or Disqualified Bidders

_____ Prior Negative Experience Questionnaire

_____ Contractor’s Certification of Compliance – New Jersey Prevailing Wage Act

_____ Uncompleted Contracts Affidavit **(For Bidder, if applicable) MUST ALSO PROVIDE DPMC FORM 701**

_____ Certificate of Insurance Statement

_____ Collection of Use Tax on Sales to Local Government Statement

_____ Acknowledgement of Project Labor Agreement (PLA)

_____ Time of Completion

_____ Disclosure of Investment Activities in Iran

----- Disclosure of non-involvement activities in Russia or Belarus

_____ Federal Non-Debarment Certification

_____ BYRD Anti-Lobbying Amendment Certification

_____ Certification Regarding Lobbying

_____ Disclosure of Lobbying Activities (LLL Form)

I HAVE TAKEN THE FOLLOWING ACTIONS:

- _____ Visited the site and attended the Pre-Bid Meeting (**Where applicable**)
- _____ Reviewed the Contract Documents (including any permits the County or its professionals may have obtained), Work, Site, Locality, and Local Conditions and Laws and Regulations that in any manner may affect Cost, Progress, Performance or Furnishing of Work.
- _____ Reviewed Bond Requirements
- _____ Provided Proof of Compliance with New Jersey Prevailing Wage Act
- _____ Reviewed Form of Owner/Contractor Agreement and General Conditions to the Contract

NOTE: QUESTIONS PERTAINING TO THIS BID ARE TO BE DIRECTED TO THE DIVISION OF PURCHASING AT ucbids@ucnj.org.

BIDDING DOCUMENTS

The Bidding Documents consist of the following items:

- **ADDENDA, if issued**
- **CLARIFICATIONS, if issued**
- **INSTRUCTION TO BIDDERS**
- **BID FORM**
- **OWNER-CONTRACTOR AGREEMENT (AIA 101) AND GENERAL CONDITIONS (AIA 201)**
- **SPECIFICATIONS: As outlined in the Table of Contents and included in the Project Manual.**
- **DRAWINGS: As per List of Drawings, indicated on the Project Title Sheet.**

BID FORM

I/We have carefully examined the plans, specifications, and advertisement for bid for the

**Mattano Park Improvements, City of Elizabeth,
County of Union, New Jersey
BA#50-2024; Union County Engineering Project #2019-012**

that is on file in the Union County Division of Engineering. I/We have inspected the site of the work and will contract to do all the work and furnish all materials mentioned in said plans and specifications. Work will be accomplished in the manner prescribed therein.

BASE BID ITEMS:

ITEM NO	DESCRIPTION	UNIT	CONTRACT QUANTITY	UNIT PRICE	AMOUNT
1	Mobilization / Demobilization	L.S.	1	\$	\$
2	Site Clearing / Demolition	L.S.	1	\$	\$
3	Maintenance and Protection of Traffic	L.S.	1	\$	\$
4	Construction Layout	L.S.	1	\$	\$
5	Furnish and Install Soil Erosion and Sediment Control Devices	L.S.	1	\$	\$
6	Earthwork	L.S.	1	\$	\$
7	Tree Removal (Over 6" – 12" Diameter)	UNIT	1	\$	\$
8	Tree Removal (Over 12" – 20" Diameter)	UNIT	4	\$	\$
9	Tree Removal (Over 24" – 30" Diameter)	UNIT	3	\$	\$
10	Tree Removal (Over 30" – 48" Diameter)	UNIT	1	\$	\$
11	Test Pits (If and Where Directed)	C.Y.	500	\$	\$
12	Construct 9" x 18" Concrete Vertical Curb	L.F.	1,260	\$	\$
13	Construct 12" x 18" Concrete Curb	L.F.	465	\$	\$
14	Construct 12" x 27" High Concrete Curb	L.F.	25	\$	\$
15	Mountable Concrete Curb	L.F.	40	\$	\$
16	Construct Concrete Sidewalk, 4" Thick	S.Y.	380	\$	\$
17	Construct Concrete Sidewalk, Reinforced, 6" Thick	S.Y.	635	\$	\$
18	Hot Mix Asphalt Surface Course, Mix 9.5M64, 2" Thick	TONS	575	\$	\$
19	Hot Mix Asphalt Base Course, Mix 19M64, 2" Thick	TONS	575	\$	\$
20	Dense-Graded Aggregate Base Course, 6" Thick	S.Y.	4,855	\$	\$
21	Detectable Warning Surface	S.Y.	7	\$	\$
22	Traffic Signs	UNIT	25	\$	\$
23	Traffic Marking Lines, 4"	L.F.	3,350	\$	\$
24	Traffic Marking Lines, 12"	L.F.	15	\$	\$
25	Traffic Markings Symbols	S.F.	900	\$	\$
26	Locking Removable Bollards	UNIT	8	\$	\$
27	Concrete Bumper Block	UNIT	5	\$	\$
28	Furnish and Install Tennis Court Netting System, Complete	UNIT	2	\$	\$
29	Furnish and Install Two Tone Acrylic Tennis Court Coating System	S.Y.	1,445	\$	\$
30	Furnish and Install Tennis Court Striping, Complete	UNIT	2	\$	\$
31	Furnish and Install 135' x 225' Natural Grass Soccer Field Striping, Complete	UNIT	1	\$	\$

32	Furnish and Install Soccer Corner Flags, Set of 4	UNIT	5	\$	\$
33	Furnish and Install 7' x 21' Portable Soccer Goal	UNIT	10	\$	\$
34	Furnish and Install 8' x 24' Portable Soccer Goal	UNIT	4	\$	\$
35	Furnish and Install 5-Row ADA Accessible Bleacher System	UNIT	3	\$	\$
36	Furnish and Install 5-Row Bleacher System	UNIT	3	\$	\$
37	Furnish and Install Player Bench With Shelf, 15' Long	UNIT	6	\$	\$
38	Furnish and Install 4' High, Black Vinyl Coated Chain-Link Fence	L.F.	390	\$	\$
39	Furnish and Install 4' High, Black Vinyl Coated Chain-Link Fence With 16' High Athletic Netting System Mounted Above (Total Height: 20')	L.F.	1,410	\$	\$
40	Furnish and Install 10' High, 1 3/4" Mesh, Black Vinyl Coated Chain-Link Fence	L.F.	465	\$	\$
41	Furnish and Install 4' High, 4' Wide Single-Swing, Black Vinyl Coated Chain-Link Gate	UNIT	2	\$	\$
42	Furnish and Install 4' High, 4' Wide Single-Swing, Black Vinyl Coated Chain-Link Transom Gate With 16' High Athletic Netting System Mounted Above (Total Height: 20')	UNIT	1	\$	\$
43	Furnish and Install 10' High, 4' Wide Single-Swing, Black Vinyl Coated Chain-Link Gate	UNIT	2	\$	\$
44	Furnish and Install 4' High, 12' Wide Double-Swing, Black Vinyl Coated Chain-Link Gate	UNIT	1	\$	\$
45	Furnish and Install 4' High, 12' Wide Double-Swing, Black Vinyl Coated Chain-Link Transom Gate With 16' High Athletic Netting System Mounted Above (Total Height: 20')	UNIT	1	\$	\$
46	Furnish and Install 10' High, 12' Wide Double-Swing, Black Vinyl Coated Chain-Link Gate	UNIT	1	\$	\$
47	Furnish and Install Sports Netting System, 20' Height	L.F.	150	\$	\$
48	Furnish and Install Aluminum Hand Railing	L.F.	60	\$	\$
49	Furnish and Install Pervious Asphalt Pavement System with Stone, and Geotextile Fabric	S.Y.	4,930	\$	\$
50	Furnish and Install Artificial Turf Field Stone Base, Curb, and Geotextile Fabric System	S.Y.	19,395	\$	\$
51	PVC Pipe, 6"	L.F.	170	\$	\$
52	PVC Pipe, Perforated, 8"	L.F.	850	\$	\$
53	HDPE Pipe, 12"	L.F.	340	\$	\$
54	HDPE Pipe, 18"	L.F.	195	\$	\$
55	HDPE Pipe, Perforated, 24"	L.F.	1,160	\$	\$
56	RCP, Class V, 12"	L.F.	260	\$	\$
57	RCP, Class V, 15"	L.F.	590	\$	\$
58	RCP, Class V, 24"	L.F.	20	\$	\$
59	RCP, Class V, 36"	L.F.	35	\$	\$
60	Construct Stormwater Manhole, Standard, Furnish and Install Casting and Cover	UNIT	7	\$	\$
61	Construct Stormwater Manhole (W/ Open Grate), Standard, Furnish and Install Casting and Pedestrian Safe Grate	UNIT	1	\$	\$

62	Construct Stormwater Cleanout	UNIT	7	\$	\$
63	Construct Type 'A' Inlet, Furnish and Install Casting and Bicycle Safe Gate	UNIT	2	\$	\$
64	Construct Type 'B' Inlet, Furnish and Install Casting, N-Eco Curb Piece and Bicycle Safe Gate	UNIT	3	\$	\$
65	Construct Yard Inlet, Furnish and Install Casting and Pedestrian Gate	UNIT	5	\$	\$
66	Construct Outfall Structure with Scour Hole Outlet Protection, Complete	UNIT	2	\$	\$
67	Construct Outlet Control Structure, Complete	UNIT	1	\$	\$
68	Furnish and Install 24-Inch In-Line Stormwater Backflow Preventer	UNIT	1	\$	\$
69	Furnish and Install 36-Inch In-Line Stormwater Backflow Preventer	UNIT	1	\$	\$
70	Reset Sanitary Cleanout	UNIT	1	\$	\$
71	Furnish and Install 1-Inch Water Valve	UNIT	1	\$	\$
72	Furnish and Install 1-Inch Copper Type 'K' Water Line	L.F.	120	\$	\$
73	Furnish and Install Hose Ground Hydrant	UNIT	1	\$	\$
74	Furnish and Install Flagpole with Uplights (Excluding Electrification)	UNIT	1	\$	\$
75	Furnish and Install Pole Mounted Solar LED Perimeter Path Lighting, Complete	UNIT	47	\$	\$
76	Furnish and Install Parking Lot Lighting (Excluding Electrification)	L.S.	1	\$	\$
77	Furnish and Install Sports Lighting System, Complete (Excluding Electrification)	L.S.	1	\$	\$
78	Furnish and Install Electrification of Parking Lot Lighting, Sports Lighting, and Flagpole	L.S.	1	\$	\$
79	Furnish and Install Storage Shed, Complete (If and Where Directed)	L.S.	1	\$	\$
80	Sunset Red Maple, 2 1/2" - 3" Cal. B&B	UNIT	4	\$	\$
81	Black Gym, 2 1/2" -3" Cal. B&B	UNIT	6	\$	\$
82	Swamp White Oak, 2 1/2" -3" Cal. B&B	UNIT	14	\$	\$
83	Cherokee Brave Dogwood, 7'-8' B&B	UNIT	12	\$	\$
84	June Saucer Magnolia, 7'-8' B&B	UNIT	7	\$	\$
85	Thundercloud Flowering Plum, 7'-8' B&B	UNIT	4	\$	\$
86	Pennsylvania Sedge, 2 Gal.	UNIT	48	\$	\$
87	Bright Edge Yucca, 5 Gal.	UNIT	22	\$	\$
88	Topsoil, Hydroseed, and Straw Mulch	S.Y.	26,500	\$	\$
89	Demarcation Layer	S.Y.	48,000	\$	\$
90	Contract Allowance for Testing and Disposal of Unsuitable Soils	ALLOW	1	\$ 650,000.00	\$ 650,000.00
91	Contract Allowance for Site Signage	ALLOW	1	\$ 30,000.00	\$ 30,000.00
92	Final Cleanup / Site Restoration	L.S.	1	\$	\$

Bidders name _____

LUMP SUM BID:

Written

\$ _____
Figures

BID CONTINGENCY: (To be used if and when directed by the County)

Two Hundred Thousand Dollars and Zero Cents

Written

\$200,000.00
Figures

TOTAL LUMP SUM PLUS BID CONTINGENCY AMOUNT:

Written

\$ _____
Figures

NOTE: Bid Contingency may include one-half of one percent of contract amount set aside for local training if and when directed by the County.

CONSENT OF SURETY
TO ACCOMPANY PROPOSAL (BID)

_____ (hereinafter called Surety), organized and existing under the laws of the State of _____ duly authorized and qualified to transact business in the State of New Jersey, in consideration of the sum of One Dollar (\$1.00), lawful money of the United States of America, to it in hand paid, receipt whereof is hereby acknowledged, and in consideration, hereby certifies and agrees that if the contract for which the attached proposal is made be awarded to _____ (hereinafter called Contractor) for the performance of certain work and labor or the supplying of certain materials, or both, as more particularly set forth in said proposal and described for purposes of this instrument as a proposal for _____ to the COUNTY OF UNION and if Contractor shall enter into the contract, Surety will become bound as surety for its faithful performance, labor and material payment and will provide the Contractor with a performance, labor and material payment bond in the full amount of the contract price.

NOTE:
Expiration date
Needed if Annual
Surety

NAME OF INSURANCE COMPANY

ADDRESS: _____

ORIGINAL SIGNATURE
ATTORNEY-IN-FACT FOR INSURANCE CO.

NOTE: PROOF OF AUTHORITY OF OFFICERS OF SURETY COMPANY TO EXECUTE THIS DOCUMENT MUST BE SUBMITTED.

BIDDER SIGNATURE PAGE

THE BIDDER MUST READ THE FOLLOWING INSTRUCTIONS TO COMPLETE THIS PAGE:

- 1. If doing business under a **trade name, partnership or a sole proprietorship**, you must submit the bid under exact title of the trade name, partnership, or proprietorship, and the bid must be signed by either the **owner**, or a **partner** and **witnessed** by a **notary public**.
- 2. If a **Corporation**, the bid must be signed by the **President** or **Vice President** and **witnessed** by a **Corporate Secretary** (corporate title must be exact) and **affix corporate seal**. If a Corporate Secretary does not exist, President or Vice President’s signature shall be witnessed by a Notary Public.
- 3. Other persons **authorized** by **corporate resolution** to execute agreements in its behalf may also sign the bid documents (pages). **Copy of a resolution must accompany the bid**.
- 4. The person who signs this bid form **must also** sign the **Non-Collusion Affidavit**.
- 5. You **cannot** witness your own signature.

NAME OF BIDDER

ADDRESS OF BIDDER

**ORIGINAL SIGNATURE
CORPORATE SECRETARY**

**PRINT NAME AND TITLE
CORPORATE SECRETARY**

TEL: _____
FAX: _____
E-Mail: _____

BY: _____
ORIGINAL SIGNATURE

Corporate Seal

PRINT OR TYPE NAME AND TITLE

WARNING: IF YOU FAIL TO FULLY, ACCURATELY, AND COMPLETELY SUPPLY THE INFORMATION REQUESTED ON THIS PAGE, YOUR BID MAY BE REJECTED.

STATEMENT OF OWNERSHIP DISCLOSURE

N.J.S.A. 52:25-24.2 (P.L. 1977, c.33, as amended by P.L. 2016, c.43)

This statement shall be completed, certified to, and included with all bid and proposal submissions. Failure to submit the required information is cause for automatic rejection of the bid or proposal.

Name of Organization: _____

Organization Address: _____

Part I Check the box that represents the type of business organization:

- Sole Proprietorship (skip Parts II and III, execute certification in Part IV)
- Non-Profit Corporation (skip Parts II and III, execute certification in Part IV)
- For-Profit Corporation (any type) Limited Liability Company (LLC)
- Partnership Limited Partnership Limited Liability Partnership (LLP)
- Other (be specific): _____

Part II

- The list below contains the names and addresses of all stockholders in the corporation who own 10 percent or more of its stock, of any class, or of all individual partners in the partnership who own a 10 percent or greater interest therein, or of all members in the limited liability company who own a 10 percent or greater interest therein, as the case may be. **(COMPLETE THE LIST BELOW IN THIS SECTION)**

OR

- No one stockholder in the corporation owns 10 percent or more of its stock, of any class, or no individual partner in the partnership owns a 10 percent or greater interest therein, or no member in the limited liability company owns a 10 percent or greater interest therein, as the case may be. **(SKIP TO PART IV)**

(Please attach additional sheets if more space is needed):

Name of Individual or Business Entity	Address

Part III DISCLOSURE OF 10% OR GREATER OWNERSHIP IN THE STOCKHOLDERS, PARTNERS OR LLC MEMBERS LISTED IN PART II

If a bidder has a direct or indirect parent entity which is publicly traded, and any person holds a 10 percent or greater beneficial interest in the publicly traded parent entity as of the last annual federal Security and Exchange Commission (SEC) or foreign equivalent filing, ownership disclosure can be met by providing links to the website(s) containing the last annual filing(s) with the federal Securities and Exchange Commission (or foreign equivalent) that contain the name and address of each person holding a 10% or greater beneficial interest in the publicly traded parent entity, along with the relevant page numbers of the filing(s) that contain the information on each such person. **Attach additional sheets if more space is needed.**

Website (URL) containing the last annual SEC (or foreign equivalent) filing	Page #'s

Please list the names and addresses of each stockholder, partner or member owning a 10 percent or greater interest in any corresponding corporation, partnership and/or limited liability company (LLC) listed in Part II **other than for any publicly traded parent entities referenced above.** The disclosure shall be continued until names and addresses of every noncorporate stockholder, and individual partner, and member exceeding the 10 percent ownership criteria established pursuant to N.J.S.A. 52:25-24.2 has been listed. **Attach additional sheets if more space is needed.**

Stockholder/Partner/Member and Corresponding Entity Listed in Part II	Address

Part IV Certification

I, being duly sworn upon my oath, hereby represent that the foregoing information and any attachments thereto to the best of my knowledge are true and complete. I acknowledge: that I am authorized to execute this certification on behalf of the bidder/proposer; that the **County of Union** is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the completion of any contracts with **County of Union** to notify the **County of Union** in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the, permitting the **County of Union** to declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print):		Title:	
Signature:		Date:	

SUBCONTRACTOR IDENTIFICATION STATEMENT
LIST OF SUBCONTRACTORS

This form is ONLY required for plumbing and gas fitting, steam and hot water heating and ventilating apparatus, steam power plants, electrical work, structural steel, ornamental iron work, and any other trades required to be identified by the specifications (including, but not limited, to satisfying any DPMC Classification requirements).

CHECK THIS BOX IF NONE OF THE ABOVE LISTED TRADES OR THOSE REQUIRED TO BE IDENTIFIED IN THE SPECIFICATIONS ARE TO BE USED TO PERFORM THE WORK

In compliance with N.J.S.A. 40A:11-16 and the bid specifications, the undersigned hereby lists the name or names of the following subcontractors:

Company Name: _____

Address: _____

Telephone: _____ Subcontract Amount: \$ _____

Specific Scope of Work Subcontracted: _____

License No. _____

Company Name: _____

Address: _____

Telephone: _____ Subcontract Amount: \$ _____

Specific Scope of Work Subcontracted: _____

License No. _____

Company Name: _____

Address: _____

Telephone: _____ Subcontract Amount: \$ _____

Specific Scope of Work Subcontracted: _____

License No. _____

IF MORE THAN THREE SUBCONTRACTORS, PLEASE COPY THIS SHEET AS NECESSARY AND ATTACH TO THE BID PACKAGE.

(Continued on following page)

SUBCONTRACTOR IDENTIFICATION CERTIFICATION

Note the law does not permit the listing of alternate subcontractors. However, multiple subcontractors for the same trade are permitted to be named provided the bidder meets the following requirements:

- Bidder identifies each subcontractor named for that category;
- Bidder states the scope of work, goods and services (the portion of the work) to be performed by each subcontractor; and
- Bidder provides the price quote provided by each subcontractor.

The bidder is advised that any change of subcontractor(s) from ones listed herein is subject to the County's approval. Change of subcontractor(s) will be approved only if made for good cause and not as a result of an arbitrary purpose.

The undersigned Bidder certifies and declares that the subcontractors listed above shall be used as subcontractors to complete certain portions of the work in this project as set forth in N.J.S.A. 40A: 11-16.

Witness

Date _____

NAME OF BIDDER

ADDRESS

By: _____
ORIGINAL SIGNATURE ONLY

PRINT NAME AND TITLE

CONTRACTOR BUSINESS REGISTRATION CERTIFICATE

Pursuant to N.J.S.A. 52:32-44, the County of Union is prohibited from entering into a contract with an entity unless the bidder/proposer/contractor, and each subcontractor that is required by law to be named in a bid/proposal/contract has a valid Business Registration Certificate on file with the Division of Revenue and Enterprise Services within the Department of the Treasury.

Prior to contract award or authorization, the contractor shall provide the County of Union with its proof of business registration and that of any named subcontractor(s).

Subcontractors named in a bid or other proposal shall provide proof of business registration to the bidder, who in turn, shall provide it to the County of Union prior to the time a contract, purchase order, or other contracting document is awarded or authorized.

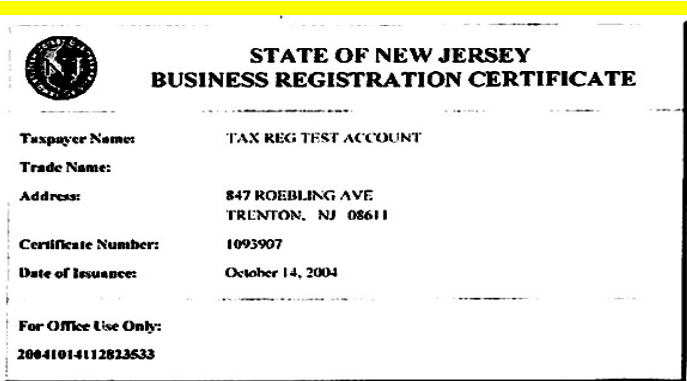
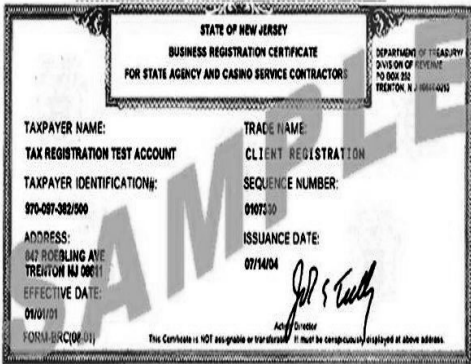
Proof of registration must show that the bidder was in fact registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids. If subcontractors are named on the bid, proof of the business registration for each must be provided prior to the award of a contract. Similarly to the bidder, the proof must show that each subcontractor was registered with the State of New Jersey Department of the Treasury, Division of Revenue and obtained the business registration prior to the receipt of bids.

During the course of contract performance:

- (1) the contractor shall not enter into a contract with a subcontractor unless the subcontractor first provides the contractor with a valid proof of business registration.
- (2) the contractor shall maintain and submit to the County of Union a list of subcontractors and their addresses that may be updated from time to time.
- (3) the contractor and any subcontractor providing goods or performing services under the contract, and each of their affiliates, shall collect and remit to the Director of the Division of Taxation in the Department of the Treasury, the use tax due pursuant to the Sales and Use Tax Act, (N.J.S.A. 54:32B-1 et seq.) on all sales of tangible personal property delivered into the State. Any questions in this regard can be directed to the Division of Taxation at (609)292-6400. Form NJ-REG can be filed online at <http://www.state.nj.us/treasury/revenue/busregcert.shtml>.

Before final payment is made under the contract, the contractor shall submit to the County of Union a complete and accurate list of all subcontractors used and their addresses.

Pursuant to N.J.S.A. 54:49-4.1, a business organization that fails to provide a copy of a business registration as required, or that provides false business registration information, shall be liable for a penalty of \$25 for each day of violation, not to exceed \$50,000, for each proof of business registration not properly provided under a contract with a contracting agency.



AFFIRMATIVE ACTION REQUIREMENT

REQUIRED AFFIRMATIVE ACTION EVIDENCE

General Requirements of P.L. 1975, c. 127: You are hereby put on notice that:

CONSTRUCTION CONTRACTS: The successful contractor must submit within three (3) days of the notice of intent to award or the signing of the contract the initial project manning report (A.A.201). This report should be submitted at the time the signed contract is returned to the County of Union. Attention: *Affirmative Action Officer*.

If the successful contract does not submit the initial project manning report (A.A.201) within the three (3) days from the time the signed contract is returned to the County of Union, the County of Union WILL declare the contractor non-responsive and award the contract to the next lowest responsible bidder.

NAME OF BIDDER

ORIGINAL SIGNATURE

PRINT OR TYPE NAME AND TITLE

DATE THIS FORM IS COMPLETED

EXPERIENCE STATEMENT

I hereby certify that my company has performed the following private or public work, which is relevant to this bid. I further certify that my company has never defaulted under any contract. Should you not sign this form due to prior defaults, please provide details on an attached sheet.

Witness

NAME OF BIDDER

Date

ADDRESS

By: _____
ORIGINAL SIGNATURE ONLY

PRINT NAME AND TITLE

YOU MAY ATTACH ADDITIONAL SHEETS, BUT YOU MUST SIGN AND WITNESS THIS SHEET.

CERTIFICATE OF BIDDER SHOWING ABILITY TO PERFORM CONTRACT

STATE OF NEW JERSEY / _____)
Specify, if Other) SS:
COUNTY OF _____)

I, _____, of the (City, Town, Borough, etc.) of _____
State of _____, of full age, being duly sworn according to law on my oath depose and say that:

I am _____ of the firm of _____, the Bidder making
the proposal for the above named Project ("Contractor"), and that I executed said proposal with full authority to do so; and
that said Contractor, pursuant to N.J.S.A. 40A:11-20, certifies that it owns, leases or controls all the necessary equipment
required by the Plans, Specifications and Advertisements under this Bids are asked for.

If the Bidder is not the actual owner or lessee of any such equipment, then the Bidder shall attach to this Certificate
information identifying the source from which the equipment will be obtained, and such information shall be accompanied
by a certificate from the owner or person in control of the equipment definitively granting to the Bidder the control of the
equipment required during such time as may be necessary for the completion of that portion of the contract.

(Also type or print name of affiant under signature)

By: _____

NON-COLLUSION AFFIDAVIT
(N.J.S.A. 52:34-15)

STATE OF _____)
) SS: _____
COUNTY OF _____)

I _____, of the City of _____, in the County of _____, and the State of _____, of full age, being duly sworn according to law, on my oath depose and say that: I am _____ of the firm of _____, the bidder making the proposal for the above named project, and that I executed the said proposal for the above named project, and that I executed the said proposal with full authority to do so; that said bidder has not, directly or indirectly, entered into any agreement, participation in any collusion, or otherwise taken any action in restraint of free, competitive bidding in connection with the above named project; and that all statements contained in said proposal and in this Affidavit are true and correct, and made with full knowledge that the COUNTY OF UNION, NEW JERSEY relies upon the truth of the statements contained in said proposal and in the statements contained in the affidavit in awarding the contract for the said project.

I further warrant that no person or selling agency has been employed or retained to solicit or secure such contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, except bona fide employees or bonafide established commercial or selling agencies maintained by _____ (N.J.S.A. 52:34-15).

NAME OF BIDDER

ORIGINAL SIGNATURE ONLY

NOTE: The person who signed the bidder signature page for the bidder should sign this form also.

Subscribed and sworn before me
this ____ day of _____, 20 ____.

Notary Public of the State of _____
My commission expires: _____

WARNING: IF YOU FAIL TO FULLY, ACCURATELY, AND COMPLETELY FILL OUT THIS AFFIDAVIT OF NON-COLLUSION, YOUR BID MAY BE REJECTED.

Contractor Registration Advisement
For Public Works Projects

A new law, known as "The Public Works Contractor Registration Act" (P.L. 1999, c.238), became effective April 11, 2000. Under the Act, no contractor/subcontractor will be permitted to bid on or engage in any contract for public work, as defined in Section 2 of P.L. 1963, c.150 (C:34:11-56.26), unless that contractor/subcontractor is registered with the New Jersey Department of Labor and Workforce and Workforce Development. The Act provides that upon registration with the Department, a public works contractor/subcontractor will be issued a certificate by the Department indicating compliance with the Act's requirements. The registration fee has been set at \$300.00 per year. Upon the effective date of the Act, public bodies will be expected to request production of such a certificate from those bidding on or engaging in public works projects.

It is important to note that the term "contractor," is defined in the, Act as, "a person, partnership, association, joint stock company, trust, corporation or other legal business entity or successor thereof who enters into a contract which is subject to the provision of the "New Jersey Prevailing Wage Act," P.L. 1963, c.150 (C.34:11-56.25, et seq.) for the construction, reconstruction, demolition, alteration, repair or maintenance of a public building regularly open to and used by the general public or a public institution, and includes any subcontractor or lower tier subcontractor as defined herein: except that, for the purposes of the act, no pumping station, treatment plant or other facility associated with utility and environmental construction, reconstruction, demolition, alteration, repair or maintenance shall be regarded as a public building regularly open to and used by the general public or a public institution."

Registration forms, copies of the Act, and other relevant information can be obtained by contacting:

Contractor Registration Unit
New Jersey Department of Labor and Workforce and Workforce Development
Division of Wage & Hour Compliance
PO Box 389
Trenton, New Jersey 08625-0389
Telephone: 609-292-9464
Fax: 609-633-8591
E-mail: contreg@dol.state.nj.us

AMERICANS WITH DISABILITIES ACT
EQUAL OPPORTUNITY FOR INDIVIDUALS WITH DISABILITIES

The contractor and the County of Union (hereafter "Owner") do hereby agree that the provisions of Title II of the Americans With Disabilities Act of 1990 (the "Act") (42 US.C. S12101 et seq.), which prohibits discrimination on the basis of disability by public entities in all services, programs and activities provided or made available by public entities, and the rules and regulations promulgated pursuant thereunto, are made a part of this contract. In providing any aid, benefit, or service on behalf of the Owner pursuant to this contract, the contractor agrees that the performance shall be in strict compliance with the Act. In the event the contractor, its agents, servants, employees, or subcontractors violate or are alleged to have violated the Act during the performance of this contract, the contractor shall defend the Owner in any action or administrative proceeding commenced pursuant to this Act. The contractor shall indemnify, protect, and save harmless the Owner, its agents, servants, and employees from and against any and all suits, claims, losses, demands, or damages of whatever kind or nature arising out of or claimed to arise out of the alleged violation. The contractor shall, at its own expense, appear, defend, and pay any and all charges for legal services and any and all costs and other expenses arising from such action or administrative proceeding or incurred in connection therewith. In any and all complaints brought pursuant to the Owner's grievance procedure, the contractor agrees to abide by any decision of the Owner which is rendered pursuant to said grievance procedure. If any action or administrative proceeding results in an award of damages against the Owner, or if the Owner incurs any expense to cure a violation of the ADA which has been brought pursuant to its grievance procedure, the contractor shall satisfy and discharge the same at its own expense.

The Owner shall, as soon as practicable after a claim has been made against it, give written notice thereof to the contractor along with full and complete particulars of the claim. If any action or administrative proceeding is brought against the Owner or any of its agents, servants, and employees, the Owner shall expeditiously forward or have forwarded to the contractor every demand, complaint, notice, summons, pleading, or process received by the Owner or its representatives.

It is expressly agreed and understood that any approval by the Owner of the services provided by the contractor pursuant to this contract will not relieve the contractor of the obligation to comply with the Act and to defend, indemnify, protect, and save harmless the Owner pursuant to this paragraph.

It is further agreed and understood that the Owner assumes no obligation to indemnify or save harmless the contractor, its agents, servants, employees and subcontractors for any claim which may arise out of their performance of this Agreement. Furthermore, the contractor expressly understands and agrees that the provisions of this indemnification clause shall in no way limit the contractor's obligations assumed in this Agreement, nor shall they be construed to relieve the contractor from any liability, nor preclude the Owner from taking any other actions available to it under any other provisions of this Agreement or otherwise at law.

Name _____
(Please print or type)

Signature _____ **Date** _____

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. Questions may be answered on separate attached sheets. The Bidder may submit any additional information it desires.

1. _____
(Name of Bidder)

2. _____
(Permanent Main Office Address)

3. _____
(When Organized)

4. _____
(If a Corporation, where incorporated)

5. Number of years your organization has been engaged in construction or contracting business under present firm or trade name? _____

6. How many years of experience in construction work has your organization had (a) as a general contractor? And/or (b) As a subcontractor? _____

7. Contracts on hand: (Attach a list or table showing gross amounts of each Contract and the appropriate dates of completion) _____

8. General character of work performed by you. _____

9. Have you ever failed to complete any work awarded to you? _____

10. Have you ever defaulted on a Contract? _____ If so, complete details, including where and why?

STATEMENT OF BIDDER’S QUALIFICATIONS - (continued)

11. Has any officer or partner of your organization ever failed to complete a construction contract handled in its own name? If so, state name of individual, name of owner, location and type of project, and reason for the failure to complete. _____

12. List your major equipment available for this Contract.

13. Experience in the construction work similar in importance to this Project.

14. Have you had any material adverse changes from the trades as listed in NJ Notice of Classification within last five (5) years? _____. If so, list prior classification.

15. Background and experience of the principal members of your organization, including the officers.

Individual’s Name	Present Position or Office	Yrs. of Construction Experience	Magnitude & Type of Work	In What Capacity

16. Bank Reference. (Name, Address, Phone, Representative) _____

17. Will you, upon request, fill out a detailed financial Statement? _____

Bidders name _____

18. The undersigned hereby authorizes and requests any person, firm or corporation to furnish any information requested by the proper agency in verification of the responses comprising this Statement of Bidder's Qualifications.

19. Bidder's telephone number, fax number and e-mail address (if applicable).

Phone _____

Fax _____

E-mail _____

Mobile _____

Dated at _____ this _____ day of _____, 20____.

BIDDER (Signature)

BIDDER (Print Name)

Subscribed and sworn to before me
this _____ day of _____, 20__.

(Seal) Notary Public of New Jersey/
Specify Other State
My Commission Expires _____, 20__.

NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.

CONTRACTOR PERFORMANCE RECORD

List all contracts completed by you below or provide separate form.

Name of Owner	Name & Location of Project: Type Of Work	Prime or Sub-Cont.	Engineer or Architect in Charge for Owner	Contract Price (Omit Cost)	Date Completed	Was Time* Extension Necessary	Were Any Penalties Imposed	Were Liens* Claims or Stop Notice Filed

* If answer is YES, provide explanation of details in connection with non-completion of contracts, time extensions, penalties imposed, labor troubles, liens, claims and notices filed against contracts listed in preceding item "Performance Record" on an attached sheet.

NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.

Bidders name _____

CONTRACTOR PERFORMANCE RECORD
CERTIFICATION

The information above is true and complete to the best of my knowledge and belief.

(Name of Organization)

(Signature)

(Title)

Subscribed and sworn to before me
This _____ day of _____, 20____.

(Seal) Notary Public of New Jersey/
Specify Other State
My Commission Expires _____, 20____.

PRIOR NEGATIVE EXPERIENCE QUESTIONNAIRE
(N.J.S.A. 40A:11-4)

1. Within the past ten (10) years, have you been found, through either court adjudication, arbitration, mediation, or other contractually stipulated alternate dispute resolution mechanism, to have: failed to provide or perform goods or services; or failed to complete a contract in a timely manner; or otherwise performed unsatisfactorily under a prior contract with a public entity?

_____ yes _____ no If yes, please provide full, detailed explanation.

2. Within the past ten (10) years, have you defaulted on a contract, thereby requiring a public entity to utilize the services of another contractor to provide the goods or perform the services or to correct or complete the contract?

_____ yes _____ no If yes, please provide full, detailed explanation.

3. Within the past ten (10) years, have you defaulted on a contract, thereby requiring a public entity to look to your surety for completion of the contract or tender of the costs of completion?

_____ yes _____ no If yes, please provide full, detailed explanation.

4. Within the past ten (10) years, have you been debarred or suspended from contracting with any of the agencies or department of the executive branch of the State of New Jersey at the time of the contract award, where the action was based on failure to perform a contract for goods or services with a public entity?

_____ yes _____ no If yes, please provide full, detailed explanation.

PRIOR NEGATIVE EXPERIENCE CERTIFICATION

I hereby certify that the above statements are true and accurate as of this _____ day of _____, 20__.

Name of Contractor

By _____
(Signature of Authorized Representative)

Subscribed and sworn to before me
This _____ day of _____, 20__.

(Seal) Notary Public of New Jersey/
Specify Other State
My Commission Expires _____, 20__.

NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.

TO BE COMPLETED ONLY WHEN FINAL PAYMENT IS REQUESTED

CONTRACTOR'S CERTIFICATION OF COMPLIANCE - NEW JERSEY PREVAILING WAGE ACT

TO: County of Union
Division of Engineering
2325 South Avenue
Scotch Plains, New Jersey 07076

CONTRACT:

PROJECT:

In accordance with the requirements of the New Jersey Prevailing Wage Act, N.J.S.A. 34:11-56 et al *, the undersigned contractor on the public work being performed for:

COUNTY OF UNION

hereby certifies that he/she has complied with the contract requirements regarding the payment of the minimum prevailing wages established under "The New Jersey Prevailing Wage Act" N.J.S.A. 34:11-56 et al.

CONTRACTOR: _____
ADDRESS: _____

BY: _____
ORIGINAL SIGNATURE ONLY

STATE OF NEW JERSEY
COUNTY OF _____

Being by me duly sworn according to law, on his oath deposes and says that _____ is _____ of _____ the above named contractor, and that the facts set forth in the above statement are true.

Subscribed and sworn before me
this ____ day of _____, 20__.

Notary Public: _____
My Commission Expires: _____

* N.J.S.A. 34:11-56.33 requires the contractor and subcontractor to file written statements with the public body in form satisfactory to the Commissioner certifying to the amounts then due and owing from such contractor and subcontractor filing such statement to any and all workmen for wages due on account of the public work, setting forth therein the names of the persons whose wages are unpaid and the amount due to each respectively. Union County will withhold the amount so deducted for the benefit of the workmen whose wages are unpaid as shown by the verified statement filed, and will pay directly to any workman the amount shown by such statement to be due to him for such wages. Such payment shall thereby discharge the obligation of the contractor to the person receiving such payment to the extent of the amount thereof.

UNCOMPLETED CONTRACTS AFFIDAVIT
(To be submitted with DPMC Form 701)

PURSUANT TO N.J.A.C. 17:19-2.13, BIDDER DECLARES THE FOLLOWING WITH RESPECT TO ITS UNCOMPLETED CONTRACTS, ON ALL WORK, FROM WHATEVER SOURCE (PUBLIC AND PRIVATE), BOTH IN NEW JERSEY AND FROM OTHER GOVERNMENTAL JURISDICTIONS

ENTITY	PROJECT TITLE	ORIGINAL CONTRACT AMOUNT	UNCOMPLETED AMOUNT AS OF BID OPENING DATE	NAME AND TELEPHONE NUMBER OF PARTY TO BE CONTACTED FROM ENTITY FOR VERIFICATION

TOTAL AMOUNT OF UNCOMPLETED CONTRACTS \$ _____

Sworn and Subscribed to Before me

This _____ day of _____ 20__

Notary Public

BIDDER:

(Signature)

(Print Name)

NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.

CERTIFICATE OF INSURANCE STATEMENT

The Bidder fully understands the County of Union insurance requirements as stated in the Instructions to Bidders as well as the Owner/Contractor Agreement and agrees to provide all insurance required by these documents prior to the issuance of the Notice to Proceed.

BIDDER (Signature)

BIDDER (Print Name)

NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.

COLLECTION OF USE TAX ON SALES TO LOCAL GOVERNMENTS STATEMENT

The Bidder fully understands the requirements of the use tax on sales to local governments as stated in the General Conditions to the Contract for Construction and the Instructions to Bidders, and agrees at all times to comply with the "Contractor Use Tax Collection Legislation", as defined therein, and the terms relating thereto contained in the Contract Documents.

BIDDER (Signature)

BIDDER (Print Name)

NOTE: FAILURE TO COMPLETE AND SUBMIT THIS DOCUMENT WITH YOUR PROPOSAL MAY RESULT IN A REJECTION OF YOUR BID.

ACKNOWLEDGEMENT OF PROJECT LABOR AGREEMENT
(Projects of \$5 Million or more irrespective of Phasing)

Contractor _____, hereby acknowledges that the
within Project, upon which the undersigned has submitted a Bid Proposal, requires the
execution of a Project Labor Agreement and the utilization of union employees. The
undersigned agrees to execute the PLA and comply with all terms and conditions of
same in the performance of the Work.

Attest:

Contractor: _____

By: _____

TIME OF COMPLETION

The undersigned proposed that if awarded the Contract, the scope of work will be started within ten (10) calendar days and will be substantially completed within **270 calendar days** from the date of the notice to proceed.

I, _____ of _____
NAME (Print or type) COMPANY

Agree to complete work in the time frame specified _____
SIGNATURE

SITE VISIT – GENERAL CONTRACTOR

I, _____ of _____
NAME (Print or type) COMPANY

Visited the site of the work on _____
SIGNATURE

COUNTY OF UNION NEW JERSEY
Division of Purchasing
DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN FORM

Solicitation Number: _____ Vendor/Bidder: _____

PART 1

CERTIFICATION

VENDOR/BIDDER MUST COMPLETE PART 1 BY CHECKING ONE OF THE BOXES

FAILURE TO CHECK ONE OF THE BOXES WILL RENDER THE PROPOSAL NON-RESPONSIVE

Pursuant to Public Law 2012, c. 25, any person or entity that submits a bid or proposal or otherwise proposes to enter into or renew a contract must complete the certification below to attest, under penalty of perjury, that neither the person nor entity, nor any of its parents, subsidiaries, or affiliates, is identified on the State of New Jersey, Department of the Treasury's Chapter 25 list as a person or entity engaged in investment activities in Iran. The Chapter 25 list is found on the Department's website at http://www.nj.gov/treasury/purchase/pdf/Chapter25List.pdf. Vendors/Bidders must review this list prior to completing the below certification. Failure to complete the certification will render a Vendor's/Bidder's proposal non-responsive. If the Director of the Division of Purchase and Property finds a person or entity to be in violation of the law, s/he shall take action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party.

CHECK THE APPROPRIATE BOX

[] A. I certify, pursuant to Public Law 2012, c.25, that neither the Vendor/Bidder listed above nor any of its parents, subsidiaries, or affiliates is listed on the N.J. Department of Treasury's list of entities determined to be engaged in prohibited activities in Iran pursuant to P.L. 2012, c. 25 ("Chapter 25 List"). Disregard Part 2 and complete and sign the Certification below.

OR

[] B. I am unable to certify as above because the Vendor/Bidder and/or one or more of its parents, subsidiaries, or affiliates is listed on the Department's Chapter 25 list. I will provide a detailed, accurate and precise description of the activities in Part 2 below and sign and complete the Certification below. Failure to provide such information will result in the proposal being rendered as non-responsive and appropriate penalties, fines and/or sanctions will be assessed as provided by law.

PART 2

PLEASE PROVIDE ADDITIONAL INFORMATION RELATED TO INVESTMENT ACTIVITIES IN IRAN

If you checked Box "B" above, provide a detailed, accurate and precise description of the activities of the Vendor/Bidder, or one of its parents, subsidiaries or affiliates, engaged in investment activities in Iran by completing the information below.

ENTITY NAME: _____
RELATIONSHIP TO VENDOR/BIDDER: _____
DESCRIPTION OF ACTIVITIES: _____
DURATION OF ENGAGEMENT: _____
ANTICIPATED CESSATION DATE: _____
VENDOR/BIDDER CONTACT NAME: _____
VENDOR/BIDDER CONTACT PHONE#: _____

Attach Additional Sheets If Necessary

CERTIFICATION

I, the undersigned, certify that I am authorized to execute this certification on behalf of the Vendor/Bidder, that the foregoing information and any attachments hereto, to the best of my knowledge are true and complete. I acknowledge that the County of Union, New Jersey is relying on the information contained herein, and that the Vendor/Bidder is under a continuing obligation from the date of this certification through the completion of any contract(s) with the County of Union to notify the County of Union in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification. If I do so, I will be subject to criminal prosecution under the law, and it will constitute a material breach of my agreement(s) with the County of Union, permitting the County of Union to declare any contract(s) resulting from this certification void and unenforceable.

Signature _____ Date _____

Print Name and Title



Bidders name _____

**CERTIFICATION OF NON-INVOLVEMENT IN
PROHIBITED ACTIVITIES IN RUSSIA OR BELARUS**

Pursuant to N.J.S.A. 52:32-60.1, et seq. (L. 2022, c. 3) any person or entity (hereinafter "Vendor") that seeks to enter into or renew a contract with a State agency for the provision of goods or services, or the purchase of bonds or other obligations, must complete the certification below indicating whether or not the Vendor is identified on the Office of Foreign Assets Control (OFAC) Specially Designated Nationals and Blocked Persons list, available here: <https://sanctionssearch.ofac.treas.gov/>. If the Department of the Treasury finds that a Vendor has made a certification in violation of the law, it shall take any action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party.

I, the undersigned, certify that I have read the definition of "Vendor" below, and have reviewed the Office of Foreign Assets Control (OFAC) Specially Designated Nationals and Blocked Persons list, and having done so certify:

(Check the Appropriate Box)



A. That the Vendor is not identified on the OFAC Specially Designated Nationals and Blocked Persons list on account of activity related to Russia and/or Belarus.

OR

B. That I am unable to certify as to "A" above, because the Vendor is identified on the OFAC Specially Designated Nationals and Blocked Persons list on account of activity related to Russia and/or Belarus.

OR

C. That I am unable to certify as to "A" above, because the Vendor is identified on the OFAC Specially Designated Nationals and Blocked Persons list. However, the Vendor is engaged in activity related to Russia and/or Belarus consistent with federal law, regulation, license or exemption. A detailed description of how the Vendor's activity related to Russia and/or Belarus is consistent with federal law is set forth below.

(Attach Additional Sheets If Necessary.)

_____ <u>Signature of Vendor's Authorized Representative</u>	_____ <u>Date</u>
_____ <u>Print Name and Title of Vendor's Authorized Representative</u>	_____ <u>Vendor's FEIN</u>
_____ <u>Vendor's Name</u>	_____ <u>Vendor's Phone Number</u>
_____ <u>Vendor's Address (Street Address)</u>	_____ <u>Vendor's Fax Number</u>
_____ <u>Vendor's Address (City/State/Zip Code)</u>	_____ <u>Vendor's Email Address</u>

i Vendor means: (1) A natural person, corporation, company, limited partnership, limited liability partnership, limited liability company, business association, sole proprietorship, joint venture, partnership, society, trust, or any other nongovernmental entity, organization, or group; (2) Any governmental entity or instrumentality of a government, including a multilateral development institution, as defined in Section 1701(c)(3) of the International Financial Institutions Act, 22 U.S.C. 262r(c)(3); or (3) Any parent, successor, subunit, direct or indirect subsidiary, or any entity under common ownership or control with, any entity described in paragraph (1) or (2).

**CERTIFICATION OF NON-DEBARMENT
FOR FEDERAL GOVERNMENT CONTRACTS**
N.J.S.A. 52:32-44.1 (P.L. 2019, c.406)

This certification shall be completed, certified to, and submitted to the contracting unit prior to contract award, except for emergency contracts where submission is required prior to payment.

PART I: VENDOR INFORMATION	
Individual or Organization Name	
Physical Address of Individual or Organization	
Unique Entity ID (if applicable)	
CAGE/NCAGE Code (if applicable)	
Check the box that represents the type of business organization:	

- Sole Proprietorship (skip Parts III and IV) Non-Profit Corporation (skip Parts III and IV)
- For-Profit Corporation (any type) Limited Liability Company (LLC) Partnership
- Limited Partnership Limited Liability Partnership (LLP)
- Other (be specific): _____

PART II – CERTIFICATION OF NON-DEBARMENT: Individual or Organization			
<p>I hereby certify that the individual or organization listed above in Part I is not debarred by the federal government from contracting with a federal agency. I further acknowledge: that I am authorized to execute this certification on behalf of the above-named organization; that the County of Union is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the date of contract award by the County of Union to notify the County of Union in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the County of Union, permitting the County of Union to declare any contract(s) resulting from this certification void and unenforceable.</p>			
Full Name (Print):		Title:	
Signature:		Date:	

PART III – CERTIFICATION OF NON-DEBARMENT: Individual or Entity Owning Greater than 50 Percent of Organization

Section A (Check the Box that applies)

<input type="checkbox"/>	Below is the name and address of the stockholder in the corporation who owns more than 50 percent of its voting stock, or of the partner in the partnership who owns more than 50 percent interest therein, or of the member of the limited liability company owning more than 50 percent interest therein, as the case may be.
Name of Individual or Organization	
Physical Address	

OR

<input type="checkbox"/>	No one stockholder in the corporation owns more than 50 percent of its voting stock, or no partner in the partnership owns more than 50 percent interest therein, or no member in the limited liability company owns more than 50 percent interest therein, as the case may be.
--------------------------	---

Section B (Skip if no Business entity is listed in Section A above)

<input type="checkbox"/>	Below is the name and address of the stockholder in the corporation who owns more than 50 percent of the voting stock of the organization’s parent entity, or of the partner in the partnership who owns more than 50 percent interest in the organization’s parent entity, or of the member of the limited liability company owning more than 50 percent interest in organization’s parent entity, as the case may be.
Stockholder/Partner/Member Owning Greater Than 50 Percent of Parent Entity	
Physical Address	

OR

<input type="checkbox"/>	No one stockholder in the parent entity corporation owns more than 50 percent of its voting stock, no partner in the parent entity partnership owns more than 50 percent interest therein, or no member in the parent entity limited liability company owns more than 50 percent interest therein, as the case may be.
--------------------------	--

Section C – Part III Certification

I hereby certify that no individual or organization that is debarred by the federal government from contracting with a federal agency owns greater than 50 percent of the **Organization listed above in Part I** or, if applicable, owns greater than 50 percent of a parent entity of **<name of organization>** _____ . I further acknowledge: that I am authorized to execute this certification on behalf of the above-named organization; that the County of Union is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the date of contract award by the County of Union to notify the County of Union in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the County of Union, permitting the County of Union to declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print):		Title:	
Signature:		Date:	

Part IV – CERTIFICATION OF NON-DEBARMENT: Contractor – Controlled Entities

Section A

<input type="checkbox"/>	Below is the name and address of the corporation(s) in which the Organization listed in Part I owns more than 50 percent of voting stock, or of the partnership(s) in which the Organization listed in Part I owns more than 50 percent interest therein, or of the limited liability company or companies in which the Organization listed above in Part I owns more than 50 percent interest therein, as the case may be.
--------------------------	--

Name of Business Entity	Physical Address

Add additional sheets if necessary

OR

<input type="checkbox"/>	The Organization listed above in Part I does not own greater than 50 percent of the voting stock in any corporation and does not own greater than 50 percent interest in any partnership or any limited liability company.
--------------------------	---

Section B (skip if no business entities are listed in Section A of Part IV)			
<input type="checkbox"/>	Below are the names and addresses of any entities in which an entity listed in Part III A owns greater than 50 percent of the voting stock (corporation) or owns greater than 50 percent interest (partnership or limited liability company).		
Name of Business Entity Controlled by Entity Listed in Section A of Part IV		Physical Address	
Add additional Sheets if necessary			
OR			
<input type="checkbox"/>	No entity listed in Part III A owns greater than 50 percent of the voting stock in any corporation or owns greater than 50 percent interest in any partnership or limited liability company.		
Section C – Part IV Certification			
<p>I hereby certify that the Organization listed above in Part I does not own greater than 50 percent of any entity that that is debarred by the federal government from contracting with a federal agency and, if applicable, does not own greater than 50 percent of any entity that in turns owns greater than 50 percent of any entity debarred by the federal government from contracting with a federal agency. I further acknowledge: that I am authorized to execute this certification on behalf of the above-named organization; that the County of Union is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the date of contract award by the County of Union to notify the County of Union in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the County of Union, permitting the County of Union to declare any contract(s) resulting from this certification void and unenforceable.</p>			
Full Name (Print):		Title:	
Signature:		Date:	

BYRD ANTI-LOBBYING AMENDMENT CERTIFICATION
(To be submitted with each bid, proposal or offer exceeding \$100,000)

The undersigned, [Company] _____ certifies, to the best of his or her knowledge, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form - LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The Contractor, [Company] _____, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. § 3801 et seq., apply to this certification and disclosure, if any.

Signature of Contractor's Authorized Representative

Name and Title of Contractor's Authorized Representative

Date

CERTIFICATION REGARDING LOBBYING

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents of all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, United States Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Organization: _____

Street address: _____

City, State, Zip: _____

CERTIFIED BY: (type or print)

TITLE: _____

(signature)

(date)

INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress with a covered Federal action. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a Federal action.
2. Identify the status of the covered Federal action.
3. Identify the appropriate classification of this report. If this is a follow-up report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.
4. Enter the full name, address, city, state and zip code of the reporting entity include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is or expects to be a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
5. If the organization filing the report in item 4 checks "Subawardee," then enter the full name, address, city, state and zip code of the prime Federal recipient. Include Congressional District, if known.
6. Enter the name of the Federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans and loan commitments.
8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number, Invitation for Bid (IFB) number, grant announcement number, the contract, grant, or loan award number, the application/proposal control number assigned by the Federal agency.) Include prefixes, e.g. "RFP-DE-90-001."
9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.
10. A) Enter the full name, address, city, state and zip code of the lobbying registrant under the Lobbying Disclosure Act of 1995 engaged by the reporting entity identified in item 4 to influence the covered Federal action.
B) Enter the full names of the individual(s) performing services, and include full address if different from 10(a). Enter last name, first name and middle initial (MI).
11. The certifying official shall sign and date the form; print his/her name, title, and telephone number.

STANDARD SPECIFICATIONS

The Standard Specifications for Road and Bridge Construction of New Jersey Department of Transportation, 2019 Edition; is added to and/or amended elsewhere herein by the Notice to Contractors (Advertisement), Proposal, Information for Bidders, General Conditions, Supplemental Conditions, Project Plans, and Supplementary Specifications; shall, insofar as technical requirements are involved, govern in the execution of this project.

Such Standard Specifications are made a part of these Specifications by this reference and will not be repeated herein. It is the responsibility of prospective bidders to familiarize themselves with these Standard Specifications, copies of which may be examined at the office of the Engineer and may be obtained, upon payment of the cost thereof, from:

Department of Transportation
State of New Jersey
1035 Parkway Avenue
Trenton, New Jersey 08625

The Notice to Contractors (Advertisement), Proposal, General Conditions, Special Provisions, Project Plans and/or Supplementary Specifications shall govern and prevail in the case of conflict between them and the Standard Specifications.

In these Standard Specifications the words "COMMISSIONER" or "DEPARTMENT" shall refer to and mean the person, persons, body, board or agent legally empowered to enter into contracts and otherwise legally act for the Owner. The word "STATE" shall refer to and mean the professional engineering representative of the Owner as hereinbefore defined and the word "ENGINEER" shall refer to and mean the professional engineering representative of the Owner as hereinbefore defined and the word "INSPECTOR" shall mean the authorized project representative of the Engineer with the authority as hereinbefore defined. The word "LABORATORY" shall mean and refer to the Engineer who may, at his discretion, and with the consent of the Owner, employ qualified technical personnel or testing laboratories to assist him in fulfilling the duties normally assigned to the "LABORATORY" in these Standard Specifications.

When reference is made herein to the bulletins, standards, specifications, publications or requirements of the American Association of State Highway Official (AASHO), the American Concrete Institute (ACI), the American Society of Civil Engineers (ASCE) or similar national or regional societies, associations, institutes or organizations; the requirements of the bulletins, specifications, publications or requirements referred to shall be considered a part of these Specifications by such reference and shall not be repeated herein but shall have the same import and be as binding as if herein set forth in full.



STATE OF NEW JERSEY
Department of Labor and Workforce Development
Division of Wage and Hour Compliance - Public Contracts Section
PO Box 389
Trenton, NJ 08625-0389

PREVAILING WAGE RATE DETERMINATION

The New Jersey Prevailing Wage Act (N.J.S.A. 34:11-56.25 et seq.) requires that the Department of Labor and Workforce Development establish and enforce a prevailing wage level for workers engaged in public works in order to safeguard their efficiency and general well being and to protect them as well as their employers from the effects of serious and unfair competition.

Prevailing wage rates are wage and fringe benefit rates based on the collective bargaining agreements established for a particular craft or trade in the locality in which the public work is performed. In New Jersey, these rates vary by county and by the type of work performed.

Applicable prevailing wage rates are those wages and fringe benefits in effect on the date the contract is awarded. All pre-determined rate increases listed at the time the contract is awarded must also be paid, beginning on the dates specified. Rates that have expired will remain in effect until new rates are posted.

Prevailing Wage Rate

The prevailing wage rate for each craft will list the effective date of the rate and the following information:

W = Wage Rate per Hour **B** = Fringe Benefit Rate per Hour* **T** = Total Rate per Hour

* Fringe benefits are an integral part of the prevailing wage rate. Employers not providing such benefits must pay the fringe benefit amount directly to the employee each payday. Employers providing benefits worth less than the fringe benefit amount must pay the balance directly to the employee each payday.

Unless otherwise stated in the Prevailing Wage Rate Determination, the fringe benefit rate for overtime hours remains at the straight time rate.

When the Overtime Notes in the Prevailing Wage Rate Determination state that the overtime rates are "inclusive of benefits," the benefit rate is increased by the same factor as the wage rate (i.e. multiplied by 1.5 for time and one-half, multiplied by 2 for double time, etc.).

Apprentice Rate Schedule

An "apprentice" is an individual who is registered with the United States Department of Labor - Office of Apprenticeship and enrolled in a certified apprenticeship program during the period in which they are working on the public works project.

The apprentice wage rate is a percentage of the journeyman wage rate, unless otherwise indicated. The apprentice benefit rate is the full journeyman benefit rate, unless otherwise indicated.

If there is no apprentice rate schedule listed, the individual must be paid at least the journeyman rate even if that individual is in a certified apprentice program for that trade.

If there is no ratio of apprentices to journeymen listed for a particular craft, then the ratio shall be one (1) apprentice to every four (4) journeymen.

Comments/Notes

For each craft listed there will be comments/notes that cover the definition of the regular workday, shift differentials, overtime, recognized holidays, and any other relevant information.

Public Works Contractor Registration

The Public Works Contractor Registration Act (N.J.S.A. 34:11-56.48, et seq.) requires that **all** contractors, subcontractors, or lower tier subcontractors who are working on or who bid on public works projects register with the Department of Labor and Workforce Development. Applications are available at www.nj.gov/labor (click on Wage & Hour and then go to Registration & Permits).

Pursuant to N.J.S.A. 34:11-56.51:

No contractor shall bid on any contract for public work as defined in section 2 of P.L.1963, c. 150 (C.34:11-56.26) unless the contractor is registered pursuant to this act. No contractor shall list a subcontractor in a bid proposal for the contract unless the subcontractor is registered pursuant to P.L.1999, c.238 (C.34:11-56.48 et seq.) at the time the bid is made. No contractor or subcontractor, including a subcontractor not listed in the bid proposal, shall engage in the performance of any public work subject to the contract, unless the contractor or subcontractor is registered pursuant to that act.

Snow Plowing

Snow plowing contracts are not subject to the New Jersey Prevailing Wage Act or the Public Works Contractor Registration Act.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Air Conditioning & Refrigeration - Service and Repair

PREVAILING WAGE RATE

	03/01/24
Journeyman (Mechanic)	W45.23 B30.03 T75.26

Craft: Air Conditioning & Refrigeration - Service and Repair

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
As Shown	1st Year	2nd Year	3rd Year	4th Year	5th Year	Wage = %	of Jnymn	Wage		
Wage and Bene	40%	50%	60%	70%	80%	Bene = %	of Jnymn	Bene		

Ratio of Apprentices to Journeymen - 1:4

Craft: Air Conditioning & Refrigeration - Service and Repair

COMMENTS/NOTES

THESE RATES MAY BE USED FOR THE FOLLOWING:

- Service/Repair/Maintenance Work to EXISTING facilities.
- Replacement or Installation of air conditioning and refrigeration equipment when the combined tonnage does not exceed 15 tons for refrigeration, or 25 tons for air conditioning.
- Replacement or Installation of "packaged" or "unitary" rooftop-type units when the combined tonnage of the units does not exceed 75 tons.

NOTE: These rates may NOT be used for any work in new construction (including work on new additions).

The regular workday shall consist of 8 hours, starting between 6:00 AM and 10:00 AM, Monday through Friday.

SHIFT DIFFERENTIALS:

- The second and third shifts shall be paid an additional 15% of the hourly rate.
- All shifts must run for a minimum of 5 consecutive days.

OVERTIME:

Hours worked in excess of 8 per day or before or after the regular workday, that are not shift work, and all hours on Saturday shall be paid at time and one-half the hourly rate, inclusive of benefits. All hours on Sunday and holidays shall be paid at double the hourly rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Boilermaker PREVAILING WAGE RATE

	01/12/24
Foreman	W54.11 B47.08 T101.19
General Foreman	W56.11 B48.14 T104.25
Journeyman	W49.11 B45.31 T94.42

Craft: Boilermaker APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
1000 Hours	65%	70%	75%	80%	85%	90%	95%			
Benefit =	38.33	39.30	40.32	41.31	42.32	43.32	44.30			

Ratio of Apprentices to Journeymen - *

* 1 apprentice will be allowed for the first 5 journeymen, 1 apprentice for the next 10 journeymen and 1 apprentice for each succeeding 20 journeymen up to a maximum of 5 apprentices per contractor on any one job.

Craft: Boilermaker COMMENTS/NOTES

HIGH WORK: All apprentices working on the erection, repair, or dismantling of smoke stacks, standpipes, or water towers shall be paid the Journeyman rate.

The regular workday shall consist of 8 hours, between 8:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:

- The second shift shall work 7 1/2 hours and receive 8 hours pay, at a rate equal to the regular hourly rate plus 10%.
- The third shift shall work 7 hours and receive 8 hours pay, at a rate equal to the regular hourly rate plus 20%.
- For "Municipal Water Works" projects only, the following shall apply: Two, four day, 10 hour shifts may be worked at straight time Monday through Thursday. The day shift shall work four days, at 10 hours, for 10 hours pay. The second shift shall work four days, at nine and a half hours, for 10 hours pay, plus 10% the hourly rate for new work and .25 cents on repair work. Friday may be used as a make-up day at straight time, due to weather conditions, holiday or any other circumstances beyond the employer's control.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays (except Labor Day) shall be paid at double the hourly rate. All hours on Labor Day shall be paid at four times the hourly rate.
- If any other craft employed by the same contractor, or a subcontractor thereof, receives double time in lieu of time and one-half, then the Boilermaker shall receive double time in lieu of time and one-half.
- For "Municipal Water Works" projects only, the following shall apply: Four 10 hour days may be worked Monday through Thursday at straight time. Friday may be used as a make-up day for a day lost to inclement weather, holiday or other conditions beyond the control of the employer. Overtime shall be paid for any hours that exceed 10 hours per day or 40 hours per week.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

RECOGNIZED HOLIDAYS: New Year's Day, Washington's Birthday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Boilermaker - Minor Repairs

PREVAILING WAGE RATE

	01/12/24
Foreman	W35.88 B17.89 T53.77
General Foreman	W36.38 B17.89 T54.27
Mechanic	W34.38 B17.89 T52.27

Craft: Boilermaker - Minor Repairs

COMMENTS/NOTES

NOTE: These rates apply to MINOR REPAIR WORK ONLY (repair work in the field for which the contract amount does not exceed \$125,000.00), for boilers that do not produce electric or are not used in the heating of petroleum products.

OVERTIME:

Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays (except Labor Day) shall be paid at double the hourly rate. All hours on Labor Day shall be paid at four times the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Washington's Birthday, Good Friday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Thanksgiving Day, day after Thanksgiving, Christmas Day. Saturday holidays observed the preceding Friday, Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Bricklayer, Stone Mason

PREVAILING WAGE RATE

	05/09/24
Deputy Foreman	W51.60 B37.68 T89.28
Foreman	W56.35 B37.68 T94.03
Journeyman	W48.60 B37.68 T86.28

Craft: Bricklayer, Stone Mason

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	40%	50%	55%	60%	65%	70%	75%	80%		
6 Months										
Benefits	5.61	6.88	7.50	8.13	28.95	30.86	32.78	34.67		

Ratio of Apprentices to Journeymen - 1:5

Craft: Bricklayer, Stone Mason

COMMENTS/NOTES

The regular workday shall consist of 8 hours, between 6:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:

- When a 2 shift schedule (including a day shift) is established, the first, or day shift, shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis, and receive the regular rate plus 10%, inclusive of benefits.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular hourly rate, the second shift shall receive the regular rate plus 10%, inclusive of benefits, and the third shift shall receive the regular rate plus 15%, inclusive of benefits.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis. The second shift shall receive the regular rate plus 10%, inclusive of benefits, and the third shift shall receive the regular rate plus 15%, inclusive of benefits.
- When an irregular shift must be established, this shift shall receive the regular rate plus 10%, inclusive of benefits.

OVERTIME:

- The first 2 hours in excess of 8 per day, or before or after the regular workday that are not shift work, Monday through Friday, shall be paid at time and one-half the regular rate, inclusive of benefits. Any additional overtime shall be paid at double the regular rate, inclusive of benefits. The first 10 hours on Saturday shall be paid at time and one-half the regular rate, inclusive of benefits. Any additional overtime shall be paid at double the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.
- Saturday may be used as a make-up day for hours lost to inclement weather.
- When Bricklayers/Stone Masons work on Saturday with Laborers, and no other crafts are working on the project for the day, benefits may be paid at straight time. If other crafts are present, the applicable overtime rate for benefits shall be paid.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Carpenter PREVAILING WAGE RATE

	05/09/24
Foreman	W64.41 B38.73 T103.14
Journeyman	W56.01 B33.76 T89.77

Craft: Carpenter APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
Yearly	40%	55%	65%	80%	90%					
Benefit	59.25% of	Appren	tice	Wage	for all	intervals	+ \$0.57			

Ratio of Apprentices to Journeymen - 1:3

For Solar installation- all work on solar projects that fall under the jurisdiction of the carpenters, and does not require an electrician, the ratio of Apprentices to Journeymen shall be 1:1.

Craft: Carpenter COMMENTS/NOTES

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES REGISTERED AS OF 5-1-19:

INTERVAL PERIOD AND RATES
 Yearly 40% 55% 65% 80%
 Benefits 59.25% of apprentice wage rate for all intervals + \$0.57

FOREMAN REQUIREMENTS:

- When there are 2 or more Carpenters on a job, 1 shall be designated as a Foreman.
- When there are 21 or more Carpenters on a job, 2 shall be designated as Foremen.

The regular workday shall consist of 8 hours, starting between 6:00 AM and 9:00 AM.

SHIFT DIFFERENTIALS:

- When a 2 shift schedule (including a day shift) is established, the day shift shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis, and receive the regular rate plus 10%, inclusive of benefits.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular hourly rate, the second shift shall receive the regular rate plus 10% and the third shift shall receive the regular rate plus 15%, inclusive of benefits.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis. The second shift shall receive the regular rate plus 10% and the third shift shall receive the regular rate plus 15%, inclusive of benefits.
- When an irregular shift must be established, this shift shall receive the regular rate plus 15%, inclusive of benefits.
- All time worked before and after a regularly established shift shall be paid at the applicable overtime rate. When a portion of the regularly established shift works into Saturday, Sunday or a holiday, that time worked shall be paid at the established shift rate.

OVERTIME:

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

- All hours in excess of 8 per day, or before or after an established shift that are not shift work, and all hours on Saturdays shall be paid at time and one-half the hourly rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the hourly rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for a day lost due to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans' Day may be substituted for the day after Thanksgiving.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Carpenter - Resilient Flooring

PREVAILING WAGE RATE

	05/01/24
Foreman	W64.41 B38.64 T103.05
Journeyman	W56.01 B33.67 T89.68

Craft: Carpenter - Resilient Flooring

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
Yearly	40%	55%	65%	80%	90%					
Benefit	59.25%	of	Appren	tice	Wage	for all	intervals	+ \$0.48		
					Rate					

Ratio of Apprentices to Journeymen - *

* 1 apprentice shall be allowed to every 2 journeymen or major fraction thereof. No more than 3 apprentices on any one job or project.

Craft: Carpenter - Resilient Flooring

COMMENTS/NOTES

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES REGISTERED AS OF 5-1-19:

INTERVAL PERIOD AND RATES
 Yearly 40% 55% 65% 80%
 Benefits 59.25% of apprentice wage rate for all intervals + \$0.48.

FOREMAN REQUIREMENTS:

- On any job where there are 4 or more Carpenters of Resilient Flooring, 1 must be designated a Foreman.

FOR SYNTHETIC TURF INSTALLATION ONLY:

- The rate shall be 90% of the wage and benefit rate.

The regular workday consists of 8 hours, starting between 6:00 AM and 9:00 AM.

SHIFT DIFFERENTIALS:

- When a 2 shift schedule (including a day shift) is established, the day shift, shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis, and receive the regular wage rate plus 10%.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular wage rate, the second shift shall receive the regular wage rate plus 10% and the third shift shall receive the regular wage rate plus 15%.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis. The second shift shall receive the regular wage rate plus 10% and the third shift shall receive the regular wage rate plus 15%.
- When an irregular shift must be established, this shift shall receive the regular rate plus 15%, inclusive of benefits.

OVERTIME:

- Hours in excess of 8 per day or 40 per week, or before or after the regular workday, Monday through Friday, shall be paid at time and one-half the wage rate. Saturday may be used as a make-up day, at straight time, up to 8 hours, for hours lost to reasons beyond the control of the employer, up to a total of 40 hours per week; hours in excess of 8 on Saturday shall

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

then be paid at time and one-half the wage rate. If Saturday is not a make-up day, all hours on Saturday shall be paid at time and one-half the wage rate. All hours on Sundays and holidays shall be paid at double the wage rate.

- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for hours lost to reasons beyond the control of the employer. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the wage rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday. Veterans' Day may be substituted for the day after Thanksgiving.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Carpenter-Residential Construction

PREVAILING WAGE RATE

	05/09/24
Foreman	W54.29 B11.99 T66.28
Journeyman	W47.21 B11.14 T58.35

Craft: Carpenter-Residential Construction

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
Yearly	40%	55%	65%	80%						
Benefit	12% of	Appren	tice	wage rate	for all	intervals	+ \$5.48			

Ratio of Apprentices to Journeymen - 1:3

Craft: Carpenter-Residential Construction

COMMENTS/NOTES

FOREMAN REQUIREMENTS:

- When there are 2 or more Carpenters on a job, 1 shall be designated as a Foreman.
- When there are 21 or more Carpenters on a job, 2 shall be designated as Foremen.

The regular workday shall consist of 8 hours, starting between 6:00 AM and 9:00 AM.

RESIDENTIAL CONSTRUCTION:

All residential construction (excluding commercial buildings and institutional housing), no more than four (4) floors in height above grade consisting of those projects involving the construction, alteration, or repair of town houses or row houses, single family homes, mobile homes, multi-family homes, mixed-use buildings that include commercial space on the first floor or below grade, and apartment buildings.

SHIFT DIFFERENTIALS:

- When a 2 shift schedule (including a day shift) is established, the day shift shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis, and receive the regular rate plus 10%, inclusive of benefits.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular hourly rate, the second shift shall receive the regular rate plus 10% and the third shift shall receive the regular rate plus 15%, inclusive of benefits.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis. The second shift shall receive the regular rate plus 10% and the third shift shall receive the regular rate plus 15%, inclusive of benefits.
- When an irregular shift must be established, this shift shall receive the regular rate plus 15%, inclusive of benefits.

OVERTIME:

- All hours in excess of 8 per day, or before or after an established shift that are not shift work, and all hours on Saturdays shall be paid at time and one-half the hourly rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the hourly rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for a

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

day lost due to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans' Day may be substituted for the day after Thanksgiving.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Cement Mason

PREVAILING WAGE RATE

See "Bricklayer, Stone Mason" Rates

Craft: Cement Mason

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									

Ratio of Apprentices to Journeymen - 1:4

Craft: Cement Mason

COMMENTS/NOTES

See "Bricklayer, Stone Mason" Rates

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Commercial Painter

PREVAILING WAGE RATE

	05/29/24
Foreman	W48.90 B30.71 T79.61
General Foreman	W53.34 B30.71 T84.05
Journeyman	W44.45 B30.71 T75.16

Craft: Commercial Painter

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	40%	45%	55%	65%	70%	75%	80%	80%		
6 Months										
Benefits	9.40	9.40	11.90	11.90	13.00	13.00	15.90	15.90		

Ratio of Apprentices to Journeymen - 1:4

Craft: Commercial Painter

COMMENTS/NOTES

* Commercial Painters perform work on all commercial structures such as offices, schools, hotels, shopping malls, restaurants, condominiums, etc.

Spraying, sandblasting, lead abatement work on commercial buildings, work performed above 3 stories or 30 feet in height, or using swing scaffolds requires an additional 10% of the wage rate.

FOREMEN REQUIREMENTS:

- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

OVERTIME:

- Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular rate.
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.
- Four 10-hour days may be worked, at straight time, Monday through Friday.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, General Election Day,

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Veterans' Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Dockbuilder/Pile Driver

PREVAILING WAGE RATE

	05/01/24
Foreman	W60.93 B52.74 T113.67
Foreman (Concrete Form Work)	W59.82 B39.39 T99.21
Journeyman	W52.98 B52.74 T105.72
Journeyman (Concrete Form Work)	W52.02 B39.39 T91.41

Craft: Dockbuilder/Pile Driver

APPRENTICE RATE SCHEDULE

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									
Yearly	21.19	26.49	34.44	42.38						
Benefits	34.70	for all	intervals							

Ratio of Apprentices to Journeymen - *

* When there are 4 or fewer Dockbuilders/Pile Drivers on a job, no more than 1 may be an apprentice. When there are 5 or more Dockbuilders/Pile Drivers, there may be 1 apprentice for every 5 Dockbuilders/Pile Drivers.

Craft: Dockbuilder/Pile Driver

COMMENTS/NOTES

APPRENTICE RATE SCHEDULE FOR CONCRETE FORM WORK ONLY:

INTERVAL	PERIOD AND RATES			
Yearly	20.81	26.01	33.81	41.62
Benefits	26.73	for all	intervals	

CREOSOTE HANDLING:

When handling creosote products on land piling, floating marine construction, and construction of wharves, the worker shall receive an additional \$0.25 per hour.

HAZARDOUS WASTE WORK:

- Hazardous waste removal work on a state or federally designated hazardous waste site where Level A, B, or C personal protection is required: an additional 20% of the hourly rate, per hour.
- Hazardous waste removal work in Level D, or where personal protection is not required: an additional \$1.00 per hour.

CERTIFIED WELDER: When required on the job by the project owner, a Certified Welder shall receive an additional \$1.00 per hour.

FOREMAN REQUIREMENTS:

The first Dockbuilder/Pile Driver on the job shall be designated a Foreman.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

SHIFT DIFFERENTIAL:

- When a 2 shift schedule (including a day shift) is established, the day shift shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis and receive an additional 113% of the wage rate.
- When a three shift schedule is established, all three shifts shall be established on an 8 hour basis, but the second and third shifts shall receive an additional 113% of the wage rate.
- Benefits on shift work shall be paid at the straight-time rate.

OVERTIME:

Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Presidential Election Day, Thanksgiving Day, Christmas Day. Veterans' Day may be switched with the day after Thanksgiving.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Drywall Finisher

PREVAILING WAGE RATE

	05/29/24
Foreman	W47.75 B31.11 T78.86
General Foreman	W49.92 B31.11 T81.03
Journeyman	W43.41 B31.11 T74.52

Craft: Drywall Finisher

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	40%	50%		60%	70%		80%	90%		
6 Months										
Benefits	Intervals	1 to 2 =	11.90	Intervals	3 to 4 =	15.03	Intervals	5 to 6 =	18.84	

Ratio of Apprentices to Journeymen - 1:4

Craft: Drywall Finisher

COMMENTS/NOTES

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.
- When 3 shifts are worked, the second shift shall receive 8 hours pay for 7.5 hours of work, and the third shift shall receive 8 hours pay for 7 hours of work.
- Shift work must run for a minimum of 5 consecutive workdays.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.

RECOGNIZED HOLIDAYS: New Year's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Electrician

PREVAILING WAGE RATE

	06/03/24
Cable Splicer	W69.72 B44.96 T114.68
Foreman (11-20 Journeymen)	W74.15 B47.84 T121.99
Foreman (1-3 Journeymen)	W69.72 B44.96 T114.68
Foreman (4-10 Journeymen)	W72.89 B47.02 T119.91
General Foreman (21-30 Journeymen)	W76.06 B49.06 T125.12
General Foreman (31-60 Journeymen)	W82.39 B53.15 T135.54
General Foreman (61+ Journeymen)	W83.66 B53.97 T137.63
Journeyman	W63.38 B40.89 T104.27
Sub-Foreman	W72.25 B46.61 T118.86

Craft: Electrician

APPRENTICE RATE SCHEDULE

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									
	Yearly	40%	49%	58%	68%	80%		of Jour	neyman	Wage
Benefit	40%	49%	58%	68%	80%		of Jour	neyman	Benefit	Rate

Ratio of Apprentices to Journeymen - 2:3

Craft: Electrician

COMMENTS/NOTES

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

THESE RATES ALSO APPLY TO THE FOLLOWING:

- All burglar and fire alarm work.
- All fiber optic work.
- Teledata work in new construction.
- Teledata work involving 16 Voice/Data Lines or more.

The regular workday shall be 8 hours, between 8:00 AM and 4:30 PM.

FOREMAN REQUIREMENTS:

- 1 to 3 Journeymen- 1 must be a Foreman (Foreman/1-3 Journeymen rate).
- 4 to 10 Journeymen- 1 must be a Foreman (Foreman/4-10 Journeymen rate).
- 11 to 20 Journeymen- 1 must be Foreman (Foreman/11-20 Journeymen rate) and 1 must be a Sub-Foreman.
- 21 to 30 Journeymen- 1 must be a General Foreman (General Foreman/21-30 Journeymen rate) and 2 must be a Sub-Foreman.
- 31 to 40 Journeymen- 1 must be a General Foreman (General Foreman/31-40 Journeymen rate) and 3 must be a Sub-Foreman.
- 41 to 50 Journeymen- 1 must be a General Foreman (General Foreman/31-60 Journeymen rate) and 4 must be a Sub-Foreman.
- 51 to 60 Journeymen- 1 must be a General Foreman (General Foreman/31-60 Journeymen rate) and 5 must be a Sub-Foreman.
- 61+ Journeymen- 1 must be a General Foreman (General Foreman/61+ Journeymen rate) and 6 must be a Sub-Foreman.

SHIFT DIFFERENTIALS:

- Shift work must run for a minimum of 5 consecutive workdays.
- 2nd Shift (4:30 PM to 12:30 AM) shall receive 8 hours pay for 7.5 hours work + an additional 10% of the regular rate, per hour, inclusive of benefits.
- 3rd Shift (12:30 AM to 8:00 AM) shall receive 8 hours pay for 7 hours work + an additional 15% of the regular rate, per hour, inclusive of benefits.

OVERTIME:

Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, and all hours on Saturdays, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Electrician - Teledata (15 Voice/Data Lines & Less)

PREVAILING WAGE RATE

	12/04/23	12/02/24
Journeyman Technician (1-2 Workers on Job)	W47.08 B27.78 T74.86	W48.21 B28.45 T76.66
Master Tech/General Foreman (26 + Workers on Job)	W61.20 B36.12 T97.32	W62.67 B36.99 T99.66
Senior Technician/Lead Foreman (16-25 Workers on Job)	W56.03 B33.05 T89.08	W57.37 B33.86 T91.23
Technician A/Foreman (9-15 Workers on Job)	W53.67 B31.67 T85.34	W54.96 B32.43 T87.39
Technician B/Working Foreman (4-8 Workers on Job)	W51.32 B30.28 T81.60	W52.55 B31.01 T83.56
Technician C/Foreman (3 Workers on Job)	W48.96 B28.89 T77.85	W50.14 B29.59 T79.73

Craft: Electrician - Teledata (15 Voice/Data Lines & Less)

APPRENTICE RATE SCHEDULE

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									
6 Months	35%	35%	40%	43%	48%	54%	61%	67%	74%	81%
Benefits	7.45	7.45	8.51	9.15	10.22	11.49	12.98	14.26	15.76	17.24

Ratio of Apprentices to Journeymen - 2:3

Craft: Electrician - Teledata (15 Voice/Data Lines & Less)

COMMENTS/NOTES

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES ENTERING PROGRAM AFTER 11-28-22:

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									
6 Months	35%	35%	40%	43%	48%	54%	61%	67%	74%	81%
Benefits	7.67	7.67	8.76	9.43	10.52	11.84	13.38	14.69	16.22	17.76

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES ENTERING PROGRAM AFTER 12-4-23:

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									
6 Months	35%	35%	40%	43%	48%	54%	61%	67%	74%	81%
Benefits	7.88	7.88	9.00	9.68	10.80	12.15	13.73	15.09	16.66	18.23

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES ENTERING PROGRAM AFTER 12-2-24:

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

INTERVAL	PERIOD AND RATES									
6 Months	35%	35%	40%	43%	48%	54%	61%	67%	74%	81%
Benefits	8.07	8.07	9.22	9.91	11.07	12.45	14.06	15.44	17.06	18.68

NOTES:

- These rates are for service, maintenance, moves, and/or changes affecting 15 Voice/Data (teledata) lines or less. These rates may NOT be used for any teledata work in new construction (including additions) or any fiber optic work.
- The number of Teledata workers on the jobsite is the determining factor for which Foreman category applies .

The regular workday shall be 8 hours, between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:

- Shift work must run for a minimum of 5 consecutive workdays.
- 2nd Shift (4:30 PM to 12:30 AM) shall receive 8 hours pay for 7.5 hours work + an additional 10% of the regular rate, per hour, inclusive of benefits.
- 3rd Shift (12:30 AM to 8:00 AM) shall receive 8 hours pay for 7 hours work + an additional 15% of the regular rate, per hour, inclusive of benefits.

OVERTIME:

Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, that are not shift work, and the first 10 hours on Saturday, shall be paid at time and one-half the regular rate, inclusive of benefits. Hours in excess of 10 on Saturday and all hours on Sunday and holidays shall be paid at double the regular rate, inclusive of benefits.

- Four 10-hour days may be worked Monday through Friday, between the hours of 7:00 AM and 5:30 PM. A make-up day may be used for a day not being worked during the four 10-hour day schedule if a holiday occurs during the week or for any other conditions that prevent an employee from working the four 10-hour day schedule.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday. Saturday holidays will be observed the preceding Friday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Electrician - Teledata (16 Instruments & More)

PREVAILING WAGE RATE

See "Electrician" Rates

Craft: Electrician - Teledata (16 Instruments & More)

COMMENTS/NOTES

See ELECTRICIAN Rates

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Electrician- Outside Commercial

PREVAILING WAGE RATE

	06/03/24
Cable Splicer	W70.04 B44.66 T114.70
Certified Welder	W66.86 B42.62 T109.48
Equipment Operator	W63.67 B40.60 T104.27
Foreman (11-20 Journeymen workers on job)	W74.50 B47.50 T122.00
Foreman (1-3 Journeymen workers on job)	W70.04 B44.66 T114.70
Foreman (4-10 Journeymen workers on job)	W73.23 B46.70 T119.93
General Foreman (21-30 Journeymen workers on job)	W76.41 B48.71 T125.12
General Foreman (31-60 Journeymen workers on job)	W82.78 B52.76 T135.54
General Foreman (61+ Journeymen workers on job)	W84.05 B53.58 T137.63
Groundman	W38.21 B24.35 T62.56
Journeyman Lineman/Technician	W63.67 B40.60 T104.27
Sub-Foreman	W72.59 B46.27 T118.86

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Electrician- Outside Commercial

APPRENTICE RATE SCHEDULE

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									
1000 Hours	60%	65%	70%	75%	80%	85%	90%			
Benefits	61.75% of	Journey	man	wage	+	\$.01				

Craft: Electrician- Outside Commercial

COMMENTS/NOTES

APPRENTICE RATE SCHEDULE AS OF 5-29-23:

Interval Period and Rates
 1000 Hours 60% 65% 70% 75% 80% 85% 90%
 Benefits 62.75% of the Journeyman wage + \$.01

APPRENTICE RATE SCHEDULE AS OF 6-3-24:

Interval Period and Rates
 1000 Hours 60% 65% 70% 75% 80% 85% 90%
 Benefits 63.75% of the Journeyman wage + \$.01

* FOR UTILITY WORK PLEASE SEE STATEWIDE RATES

The regular worday shall be 8 hours, between 8:00 AM and 4:30 PM.

FOREMAN REQUIREMENTS:

- 1 to 3 Journeymen- 1 must be a Foreman (Foreman/1-3 Journeymen rate).
- 4 to 10 Journeymen- 1 must be a Foreman (Foreman/4-10 Journeymen rate).
- 11 to 20 Journeymen- 1 must be Foreman (Foreman/11-20 Journeymen rate) and 1 must be a Sub-Foreman.
- 21 to 30 Journeymen- 1 must be a General Foreman (General Foreman/21-30 Journeymen rate) and 2 must be a Sub-Foreman.
- 31 to 40 Journeymen- 1 must be a General Foreman (General Foreman/31-40 Journeymen rate) and 3 must be a Sub-Foreman.
- 41 to 50 Journeymen- 1 must be a General Foreman (General Foreman/31-60 Journeymen rate) and 4 must be a Sub-Foreman.
- 51 to 60 Journeymen- 1 must be a General Foreman (General Foreman/31-60 Journeymen rate) and 5 must be a Sub-Foreman.
- 61+ Journeymen- 1 must be a General Foreman (General Foreman/61+ Journeymen rate) and 6 must be a Sub-Foreman.

SHIFT DIFFERENTIALS:

- Shift work must run for a minimum of 5 consecutive workdays.
- 2nd Shift (4:30 PM to 12:30 AM): 8 hrs. pay for 7.5 hrs. work + an additional 10% of the regular rate, inclusive of benefits.
- 3rd Shift (12:30 AM to 8:00 AM): 8 hrs. pay for 7 hrs. work + an additional 15% of the regular rate per hour, inclusive benefits.

OVERTIME:

Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, and all hours on Saturdays, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS:

New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day,

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Thanksgiving Day and Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Electrician-Utility Work (North)

PREVAILING WAGE RATE

Rates are located in the "Statewide" rate package

Craft: Electrician-Utility Work (North)

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
* 6 Months	60%	65%	70%	75%	80%	85%	90%			
Benefits	69% of	Appren	tice	Wage	Rate	for all	intervals			

Craft: Electrician-Utility Work (North)

COMMENTS/NOTES

Electrician-Utility Work (North) rates are located in the "Statewide" rate package.

* The apprentice wage rate is paid at the percentage of the Journeyman Lineman wage rate located in the "Statewide" rate package.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Electrician-Utility Work (South)

PREVAILING WAGE RATE

Rates are located in the "Statewide" rate package

Craft: Electrician-Utility Work (South)

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
6 Months	32.52	35.23	37.94	40.65	43.36	46.07	48.78			
Benefits	28.97	30.65	32.31	33.98	35.69	37.36	39.02			

Craft: Electrician-Utility Work (South)

COMMENTS/NOTES

Electrician-Utility Work (South) rates are located in the "Statewide" rate package.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Elevator Constructor

PREVAILING WAGE RATE

	03/29/23
Journeyman	W77.49 B45.23 T122.72

Craft: Elevator Constructor

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
Yearly	34.60	42.62	50.37	58.12						
Benefits	35.56	36.49	38.02	39.55						

Ratio of Apprentices to Journeymen - 1:1

Craft: Elevator Constructor

COMMENTS/NOTES

The regular workday shall consist of either 7 or 8 hours to be established at the beginning of the project, between 7:00 AM and 4:30 PM.

OVERTIME:

For all hours worked before or after the regular workday, Monday through Friday, and all hours on Saturday and Sunday, shall be paid at double the hourly rate. Holiday pay is one days wages (8 hours) plus double the hourly rate for all hours worked.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Saturday holidays shall be observed on the previous Friday and Sunday holidays shall be observed on the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Elevator Modernization & Service

PREVAILING WAGE RATE

	03/29/23
Journeyman	W60.89 B44.07 T104.96

Craft: Elevator Modernization & Service

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
Yearly	34.60	33.49	39.58	45.67						
Benefits	35.50	36.07	37.52	38.97						

Ratio of Apprentices to Journeymen - 1:1

Craft: Elevator Modernization & Service

COMMENTS/NOTES

MODERNIZATION (addition, replacement, refurbishing, relocation, or changes in design or appearance, of elevator equipment in existing buildings):

- The regular workday consists of 8 hours, between 7:00 AM and 4:30 PM.

- Overtime:

Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturday and Sunday shall be paid at time and one-half the hourly rate. Holiday pay is one days wages (8 hours) plus time and one-half the hourly rate for all hours worked.

SERVICE (repair or replacement of parts for the purpose of maintaining elevator equipment in good operating condition):

- The regular workday consists of 8 hours, between 6:00 AM and 6:00 PM.

- Overtime:

Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturday shall be paid at time and one-half the hourly rate. All hours on Sunday and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS (Modernization and Service): New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Saturday holidays shall be observed on the previous Friday and Sunday holidays shall be observed on the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Glazier PREVAILING WAGE RATE

	05/09/24
* Leadman	W53.43 B31.98 T85.41
Foreman	W55.43 B32.22 T87.65
General Foreman	W57.43 B32.47 T89.90
Journeyman	W51.43 B31.74 T83.17

Craft: Glazier APPRENTICE RATE SCHEDULE

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									
6 Months	46%	46%	55%	55%	61%	61%	70%	70%		
Benefits	12.44	12.44	14.76	14.76	18.16	18.16	19.79	19.79		

Ratio of Apprentices to Journeymen - 1:4

Craft: Glazier COMMENTS/NOTES

Hazard/Height Pay: +\$1.00 per hour

* When there are three (3) men working on a jobsite for three (3) days or longer, 1 Journeyman may be designated as a Leadman for the duration of the job, provided he has his OSHA certification.

FOREMAN REQUIREMENTS:

- When there are 4 or more Glaziers on a job, 1 must be designated a Foreman.
- When there are 15 or more Glaziers on a job, 1 must be designated a General Foreman.

The regular workday shall consist of 8 hours, between 7:00 AM and 5:30 PM, Monday to Friday.

SHIFT DIFFERENTIALS:

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.
- When 3 shifts are worked, the second shift shall receive 8 hours pay for 7.5 hours of work, and the third shift shall receive 8 hours pay for 7 hours of work.

OVERTIME:

Hours in excess of 8 per day, or before or after the regular workday Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

rate.

RECOGNIZED HOLIDAYS: New Year's Day, Memorial Day, July 4th, Labor Day, General Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Heat & Frost Insulator

PREVAILING WAGE RATE

	09/19/23
Foreman	W60.97 B37.97 T98.94
General Foreman	W63.31 B39.08 T102.39
Journeyman	W58.69 B37.41 T96.10

Craft: Heat & Frost Insulator

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
Yearly	27.51	32.64	39.31	45.91						
Benefits	21.73	25.78	28.63	31.61						

Ratio of Apprentices to Journeymen - 1:3

Craft: Heat & Frost Insulator

COMMENTS/NOTES

NOTE: These rates apply to the installing of insulation on hot and cold mechanical systems.

The regular workday shall be 8 hours between 7:00 AM and 3:30 PM. In addition, the regular workday may also be 8 hours between 6:00 AM and 2:30 PM.

SHIFT DIFFERENTIAL:

- Shift work must run for a minimum of 5 consecutive workdays.
- Second Shift shall work 7.5 hours and receive 8 hours pay, at the regular rate, plus 25% per hour.
- Third Shift shall work 7 hours and receive 8 hours pay, at the regular rate, plus 30% per hour.

OVERTIME:

The first 2 hours in excess of 8 per day, hours outside of the regular workday Monday through Friday that are not shift work, and the first 10 hours on Saturday, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours in excess of 10 per day, and all hours on Sunday and holidays (except Labor Day) shall be paid at double the regular rate, inclusive of benefits. All hours on Labor Day shall be paid at triple the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Presidential Election Day, Thanksgiving Day and Christmas Day. Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Heat & Frost Insulator - Asbestos Worker

PREVAILING WAGE RATE

	09/19/23
Asbestos Helper	W36.89
Abatement	B24.92
	T61.81

Craft: Heat & Frost Insulator - Asbestos Worker

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	SEE	HEAT &	FROST	INSULAT OR						

Ratio of Apprentices to Journeymen - 1:3

Craft: Heat & Frost Insulator - Asbestos Worker

COMMENTS/NOTES

NOTE: These rates apply only to the removal of insulation materials/asbestos from mechanical systems, including containment erection and demolition, and placing material in appropriate containers.

The regular workday shall be 8 hours between 7:00 AM and 3:30 PM. In addition, the regular workday may also be 8 hours between 6:00 AM and 2:30 PM.

SHIFT DIFFERENTIALS:

- Shift work must run for a minimum of 5 consecutive workdays.
- The second shift shall work 7.5 hours and receive 8 hours pay at the regular rate, plus 25% per hour.
- The third shift shall work 7 hours and receive 8 hours pay at the regular rate, plus 30% per hour.

OVERTIME: The first 2 hours in excess of 8 per day, hours outside of the regular workday Monday through Friday that are not shift work, and the first 10 hours on Saturday, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours in excess of 10 per day, and all hours on Sunday and holidays (except Labor Day) shall be paid at double the regular rate, inclusive of benefits. All hours on Labor Day shall be paid at triple the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Presidential Election Day, Thanksgiving Day and Christmas Day. Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Industrial Painter- Bridges

PREVAILING WAGE RATE

	03/21/24	02/01/25	02/01/26
Foreman	W64.29 B35.91 T100.20	W0.00 B0.00 T102.20	W0.00 B0.00 T104.20
General Foreman	W66.79 B35.91 T102.70	W0.00 B0.00 T104.70	W0.00 B0.00 T106.70
Journeyman	W59.29 B35.91 T95.20	W0.00 B0.00 T97.20	W0.00 B0.00 T99.20

Craft: Industrial Painter- Bridges

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	50%	70%	90%							
6 Months										
Benefits	14.10	21.26	27.88							

Ratio of Apprentices to Journeymen - 1:3

Craft: Industrial Painter- Bridges

COMMENTS/NOTES

* Industrial Painters perform work on all industrial structures, such as bridges.

These rates apply to: All bridges that span waterways, roadways, railways and canyons. All tunnels, overpasses, viaducts and all appurtenances.

FOREMEN REQUIREMENTS:

- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays and Sundays shall be paid at time and one-half the regular rate. All hours on holidays shall be paid at double the regular rate, except Veterans Day, which shall be paid at time and one-half the regular rate.
- During a regular work week schedule, Saturday may be used as a make-up day lost to inclement weather, paid at the regular rate.
- Four 10-hour days may be worked, at the regular rate, Monday through Thursday. When the four 10-hour day schedule is used, the 11th and 12th hours shall be paid at time and one-half the regular rate. After the 12th hour, a worker shall be paid at double the regular rate. Friday may be used as a make-up day lost to inclement weather, paid at the regular rate.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Industrial Painter- Structural Steel

PREVAILING WAGE RATE

	03/21/24	02/01/25	02/01/26
Foreman	W53.03 B33.56 T86.59	W0.00 B0.00 T88.59	W0.00 B0.00 T90.59
General Foreman	W55.53 B33.56 T89.09	W0.00 B0.00 T91.09	W0.00 B0.00 T93.09
Journeyman	W48.03 B33.56 T81.59	W0.00 B0.00 T83.59	W0.00 B0.00 T85.59

Craft: Industrial Painter- Structural Steel

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	SEE	INDUST	RIAL	PAINTER	BRIDGES					

Ratio of Apprentices to Journeymen - 1:3

Craft: Industrial Painter- Structural Steel

COMMENTS/NOTES

* Industrial Painters perform work on all industrial structures, such as water tanks, waste water facilities, refineries, any structural steel work, etc.

These rates apply to: All work in power plants (any aspect). On steeples, on dams, on hangers, transformers, substations, on all open steel, in refineries, tank farms, water/sewerage treatment facilities and on pipelines.

FOREMEN REQUIREMENTS:

- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays and Sundays shall be paid at time and one-half the regular rate. All hours on holidays shall be paid at double the regular rate, except for Veterans Day, which shall be paid at time and one-half the regular rate.
- During the regular work week schedule, Saturday may be used to make-up a day lost to inclement weather, paid at the regular rate.
- Four 10-hour days may be worked, at the regular rate, Monday through Thursday. When the four 10-hour day schedule is used, the 11th and 12th hours shall be paid at time and one-half the regular rate. After the 12th hour, a worker shall be paid at double the regular rate. Friday may be used as a make-up day lost to inclement weather, paid at the regular rate.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Industrial Painter- Water Tanks

PREVAILING WAGE RATE

	03/21/24	02/01/25	02/01/26
Foreman	W54.08 B33.21 T87.29	W0.00 B0.00 T89.29	W0.00 B0.00 T91.29
General Foreman	W56.58 B33.21 T89.79	W0.00 B0.00 T91.79	W0.00 B0.00 T93.79
Journeyman	W49.08 B33.21 T82.29	W0.00 B0.00 T84.29	W0.00 B0.00 T86.29

Craft: Industrial Painter- Water Tanks

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	50%	70%	90%							
6 Months										
Benefits	14.10	21.26	27.88							

Ratio of Apprentices to Journeymen - 1:3

Craft: Industrial Painter- Water Tanks

COMMENTS/NOTES

* Industrial Painters perform work on all industrial structures, such as water tanks, waste water facilities, refineries, any structural steel work, etc.

These rates apply to: All new and repaint water tanks (interior and exterior).

FOREMEN REQUIREMENTS:

- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays and Sundays shall be paid at time and one-half the regular rate. All hours on holidays shall be paid at double the regular rate, except Veterans Day, which shall be paid at time and one-half the regular rate.
- During a regular work week schedule, Saturday may be used to make-up a day lost to inclement weather, paid at the regular rate.
- Four 10-hour days may be worked, at the regular rate, Monday through Thursday. When the four 10-hour day schedule is used, the 11th and 12th hours shall be paid at time and one-half the regular rate. After the 12th hour, a worker shall be paid at double the regular rate. Friday may be used as a make-up day lost to inclement weather, paid at the regular rate.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Ironworker PREVAILING WAGE RATE

	07/03/24
Rod /Fence Foreman	W53.29 B50.87 T104.16
Rod/Fence Journeyman	W48.44 B50.87 T99.31
Structural Foreman	W55.82 B50.87 T106.69
Structural Journeyman	W50.74 B50.87 T101.61

Craft: Ironworker APPRENTICE RATE SCHEDULE

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									
6 Months	50%	60%		Yearly	70%	80%	90%			
Benefits	same as	journeyma n	amount							

Ratio of Apprentices to Journeymen - 1:4

Craft: Ironworker COMMENTS/NOTES

HAZARDOUS WASTE WORK: On hazardous waste removal work on a state or federally designated hazardous waste site where the Ironworker is required to wear Level A,B, or C personal protection: + \$3.00 per hour

The regular workday consists of 8 hours between 6:00 AM and 4:30 PM.

FOREMAN REQUIREMENTS:

When there are 2 or more Ironworkers on a job, 1 shall be designated a Foreman.

SHIFT DIFFERENTIALS:

- When a 2 shift schedule is established, the first, or day shift , shall be established on an 8 hour basis .The second shift shall be established on an 8 hour basis, and receive the regular rate plus 15%.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular hourly rate, the second shift shall receive the regular rate plus 15%, and the third shift shall receive the regular rate plus 20%.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis.
- When an irregular shift is established for the Ironworker (Structural) classification, the rate shall be paid at time and one-half the regular rate, inclusive of benefits. When an irregular shift is established for the Rod/Fence classification, the shift shall be established on an 8 hour basis and receive the regular rate, plus 20%.

OVERTIME:

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

- All hours in excess of 8 per day, or before or after an established shift that are not shift work, and all hours on Saturday, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sunday and holidays shall be paid at double the hourly rate, inclusive of benefits. Saturday may be used as a make-up day for a day lost to inclement weather. If Saturday is not a make-up day, all hours on Saturday shall be paid at time and one-half the hourly rate, inclusive of benefits.

- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Laborer - Asbestos & Hazardous Waste Removal

PREVAILING WAGE RATE

	08/21/24
Foreman	W45.88 B26.21 T72.09
Journeyman (Handler)	W40.78 B26.21 T66.99

Craft: Laborer - Asbestos & Hazardous Waste Removal

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
Yearly	22.47	28.55	32.62	36.70						
Benefits	22.31	for	all	intervals						

Ratio of Apprentices to Journeymen - *

* Ratio of apprentices to journeymen shall not be more than one apprentice for the first journeyman and no more than (1) apprentice for each additional three (3) journeymen.

Craft: Laborer - Asbestos & Hazardous Waste Removal

COMMENTS/NOTES

NOTE: These rates apply to work in connection with Asbestos, Radiation, Hazardous Waste, Lead, Chemical, Biological, Mold Remediation and Abatement.

The regular workday shall be 8 hours.

OVERTIME:

- Hours in excess of 8 per day, Monday through Saturday, and all hours on Sunday and holidays shall be paid at time and one-half the regular rate.
- Benefits on ALL overtime hours shall be paid at straight time.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Easter, Memorial Day, July 4th, Labor Day, Veterans Day, Thanksgiving Day, Christmas Day. (Holidays start at 12:00 am).

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Laborer - Building

PREVAILING WAGE RATE

	08/28/24
Class A Journeyman	W39.25 B33.17 T72.42
Class B Journeyman	W38.25 B33.17 T71.42
Class C Journeyman	W32.51 B33.17 T65.68
Foreman	W44.16 B33.17 T77.33
General Foreman	W49.06 B33.17 T82.23

Craft: Laborer - Building

APPRENTICE RATE SCHEDULE

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									
	60%	70%	80%	90%	of Class B	wage rate				
Benefit	29.92	29.92	29.92	29.92						

Ratio of Apprentices to Journeymen - *

* Ratio of apprentices to journeymen shall not be more than one apprentice for the first journeyman and no more than (1) apprentice for each additional three (3) journeymen.

Craft: Laborer - Building

COMMENTS/NOTES

CLASS A: Specialist laborer including mason tender or concrete pour crew; scaffold builder (scaffolds up to 14 feet in height); operator of forklifts, Bobcats (or equivalent machinery), jack hammers, tampers, motorized tampers and compactors, vibrators, street cleaning machines, hydro demolition equipment, riding motor buggies, conveyors, burners; and nozzle men on gunite work.

CLASS B: Basic laborer - includes all laborer work not listed in Class A or Class C.

CLASS C: Janitorial-type light clean-up work associated with the TURNOVER of a project, or part of a project, to the owner. All other clean-up work is Class B.

The regular workday shall be 8 hours between 6:00 AM and 6:00 PM.

SHIFT DIFFERENTIALS:

- Shift work must run for a minimum of 5 consecutive workdays.
- When a 2-shift schedule is worked, including a day shift, both shifts shall be established on the basis of 8 hours pay for 8 hours worked. The second shift shall receive the regular rate plus an additional 10%.
- When a 3-shift schedule is worked, the day shift shall be established on the basis of 8 hours pay for 8 hours worked, the second shift shall be established on the basis of 8 hours pay for 7.5 hours worked, and the third shift shall be established

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

on the basis of 8 hours pay for 7 hours worked. The day shift shall receive the regular rate, the second shift shall receive the regular rate plus an additional 10%, and the third shift shall receive the regular rate plus an additional 15%.

- When a second or third shift is worked with no day shift, the second or third shift shall be established on the basis of 8 hours pay for 8 hours worked. The second shift shall receive the regular rate plus an additional 10%, and the third shift shall receive the regular rate plus an additional 15%.

- When an irregular shift must be established this shift shall receive the regular rate plus an additional 10%.

OVERTIME:

- Hours in excess of 8 per day, or outside the regular workday that are not shift work, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate. Saturday may be used as a make-up day (paid at straight time) for a day lost to inclement weather, or for a holiday that is observed during the work week, Monday through Friday. All hours on Sundays and holidays shall be paid at double the regular rate.

- Four 10-hour days may be worked Monday to Thursday, at straight time, with Friday used a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the regular rate.

- Benefits on ALL overtime hours shall be paid at time and one-half.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Laborer - Heavy & General

PREVAILING WAGE RATE

Rates are located in the
"Statewide" rate package

Craft: Laborer - Heavy & General

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
1000 Hours	60%	70%	80%	90%						
Benefit	25.08	for	all	intervals						

Ratio of Apprentices to Journeymen - *

* No more than 1 apprentice for the first journeyman and no more than 1 apprentice for each additional 3 journeymen.

As of 3-1-25, benefits shall be 26.13.

As of 3-1-26, benefits shall be 27.13.

Craft: Laborer - Heavy & General

COMMENTS/NOTES

Heavy & General Laborer rates are located in the "Statewide" rate package.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Laborer-Residential and Modular Construction

PREVAILING WAGE RATE

	04/01/23
* Skilled Tradesman (only applies to Modular Construction)	W27.90 B5.45 T33.35
Foreman (person directing crew, regardless of his skill classification)	W31.90 B5.45 T37.35
Laborer (for single family and stand-alone duplex owned by single owner)	W17.85 B2.95 T20.80
Residential and Modular Construction Laborer	W23.90 B5.45 T29.35

Craft: Laborer-Residential and Modular Construction

APPRENTICE RATE SCHEDULE

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									
	As shown	800 hours	600 hours	600 hours						
wage & benefits	70%	80%	90%							

Ratio of Apprentices to Journeymen-

One (1) apprentice shall be allowed for the first journeyman on site and no more than one (1) additional apprentice for each additional three (3) journeymen on site.

Craft: Laborer-Residential and Modular Construction

COMMENTS/NOTES

* SKILLED TRADESMAN- any worker doing work not typically done by a Building Laborer. Some examples are installing interior doors, sheet rock, hooking up appliances, installing light fixtures, installing railing systems, etc. Please note where local building codes require that certain work be performed under the supervision of a licensed tradesman (i.e. Plumber, Electrician, etc.) Laborers shall work under such supervision.

RESIDENTIAL CONSTRUCTION- All residential construction (not commercial), single-family, stand-alone duplex houses, townhouses and multi-family buildings of not more than four (4) floors. Each housing unit must be fully and independently functional; each housing unit must have its own kitchen and bathroom. The definition includes all incidental items such as site work, parking areas, utilities, streets and sidewalks. Please note the construction must be Residential in nature. A First Floor at or below grade may contain commercial space not to exceed 50% square footage of the floor; at least 50% of the First Floor must contain living accommodations or related nonresidential uses (e.g. laundry space, recreation/hobby rooms, and/or corridor space). Basement stories below grade used for storage, parking, mechanical systems/equipment, etc., are considered basement stories which are not used in determining the building's height. An attic is an unfinished space located immediately below the roof. Such space is not used in determining a building's height even if used for storage purposes. In addition, barracks and dormitories are not considered residential projects.

MODULAR RESIDENTIAL CONSTRUCTION- all aspects of modular residential construction (not commercial) at the site of installation of structures of no more than four (4) stories, including all excavation and site preparation, footings and

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

foundation systems whether poured on-site or prefabricated, all underground waterproofing, underground utilities, concrete slabs, sidewalks, driveways, paving, hardscape and landscaping. Please note the construction must be Residential as defined above. All work performed by the Set Crew (the crew of workers who set the modular boxes on the foundation), including the rigging, setting, attaching and assembly of all modules and structural members, preparation of the foundation to accept modules, such as sill plates, connection of all in-module and under-module connections including, but not limited to, plumbing, electrical, HVAC, fire suppression, CATS, telephone, television/internet, and fiber optic, the building or installation of any porches or decks regardless of material or method of construction, the on-site installation of, or completion of any roof system, doors, windows and fenestrations, including flashing, gutter and soffit systems, waterproofing, insulation and interior and exterior trim work, and painting. Please note that modular construction does not include on-site stick built construction, tip up construction or panel built construction.

The regular workday shall be 8 hours between 6:00 AM and 6:00 PM.

OVERTIME:

Hours worked in excess of 8 per day/40 per week, Monday through Saturday, and all hours worked on Sunday and holidays shall be paid at time and one-half the hourly rate.

RECOGNIZED HOILDAYS:

New Year's Day, Martin Luther King Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Operating Engineer - Field Engineer

PREVAILING WAGE RATE

Rates are located in the
"Statewide" rate package

Craft: Operating Engineer - Field Engineer

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
Yearly	70%	75%	of Rod/	Chainman	Wage					
Yearly			80%	90%	Transit/	Instrument	man	Wage		

Ratio of Apprentices to Journeymen - *

* No more than 1 Field Engineer Apprentice per Survey Crew.

Craft: Operating Engineer - Field Engineer

COMMENTS/NOTES

Operating Engineer - Field Engineer rates are located in the "Statewide" rate package.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Painter - Line Striping

PREVAILING WAGE RATE

	12/01/23
Apprentice (1st year)	W29.89 B15.70 T45.59
Apprentice (2nd year)	W34.10 B26.65 T60.75
Foreman (Charge Person)	W43.10 B27.43 T70.53
Journeyman 1 (at least 1 year of working exp. as a journeyman)	W38.33 B27.43 T65.76
Journeyman 2 (at least 2 years of working exp. as a journeyman)	W42.10 B27.43 T69.53

Craft: Painter - Line Striping

APPRENTICE RATE SCHEDULE

<u>INTERVAL</u>	<u>PERIOD AND RATES</u>									

Ratio of Apprentices to Journeymen - 1:1

Craft: Painter - Line Striping

COMMENTS/NOTES

OVERTIME:

Hours in excess of 8 per day, Monday through Saturday, and all hours on Sundays and holidays shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans Day, Thanksgiving Day and Christmas Day. Veterans Day may be substituted for the day after Thanksgiving.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Paperhanger PREVAILING WAGE RATE

	05/29/24
Foreman	W53.79 B30.71 T84.50
Journeyman	W48.90 B30.71 T79.61

Craft: Paperhanger APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
	SEE	COMME	CIAL	PAINTER						
		R								

Craft: Paperhanger COMMENTS/NOTES

FOREMEN REQUIREMENTS:

- When there are 4 or more Paperhangers on a job, 1 shall be designated a Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:

- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular rate.
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.
- Four 10-hour days may be worked, at straight time, Monday through Friday.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, General Election Day, Veterans Day, Thanksgiving Day, Christmas Day

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

hours on Sundays and holidays shall be paid at double time, inclusive of benefits.

NOTE: Maintenance work is work to repair, restore, or improve the efficiency of existing facilities. This does NOT apply to ANY new construction.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays are observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Plasterer PREVAILING WAGE RATE

See Bricklayer, Stone Mason Rates

Craft: Plasterer COMMENTS/NOTES

See BRICKLAYER, STONE MASON Rates

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Plumber PREVAILING WAGE RATE

	05/01/24
Foreman	W65.33 B43.22 T108.55
General Foreman	W69.56 B43.22 T112.78
Journeyman	W60.49 B43.22 T103.71

Craft: Plumber APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
Yearly	30%	45%	55%	65%	75%					
Benefits	18.23	24.72	27.02	29.31	31.60					

Ratio of Apprentices to Journeymen - *

* Employers may employ 1 apprentice on any job where 1 or 2 journeymen are employed. Thereafter, 1 apprentice may be employed for every 4 journeymen.

Craft: Plumber COMMENTS/NOTES

FOREMAN REQUIREMENTS:

- On any job having 2 or more Plumbers, 1 must be designated a Foreman.
- On any job having 9 or more Plumbers, 2 shall be designated as Foremen.

The regular workday shall consist of 8 hours between 7:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:

- Shift work must continue for a minimum of 5 consecutive workdays.
- When two shifts are worked, the second shift shall work 7.5 hours and receive 8 hours pay, at a rate equal to the hourly rate plus 10%, inclusive of benefits.
- When a third shift is worked, the third shift shall work 7 hours and receive 8 hours pay, at a rate equal to the hourly rate plus 15%, inclusive of benefits.

OVERTIME:

- All hours in excess of 8 per day, or before or after the regular workday that are not shift work, Monday through Friday, and all hours on Saturday, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sunday and holidays, shall be paid at double the hourly rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for a day lost due to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Roofer PREVAILING WAGE RATE

	06/01/24
Foreman	W47.52 B32.34 T79.86
Journeyman	W44.52 B32.34 T76.86

Craft: Roofer APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
6 Months	17.80	22.26	26.71	28.94	31.16	33.39	35.62	40.07		
Benefits	2.19	2.19	28.34	28.34	28.34	28.34	28.34	28.34		

Ratio of Apprentices to Journeymen - *

- * A) For roofing jobs that are of the 1 or single ply nature: 1:2 or fraction thereof
- B) For roofing jobs on new built up roofs: 1:3 or fraction thereof
- C) For roofing jobs that are of a tear-off nature: 1:2 or fraction thereof
- D) For roofing jobs {not requiring complete removal of existing systems, installation done over existing roof}: 1:3 or fraction thereof

Craft: Roofer COMMENTS/NOTES

Pitch: +.50 per hour

Mop Man: +.30 per hour

The regular workday consists of 8 hours between 8:00 AM and 4:30 PM.

OVERTIME:

Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturdays, Sundays, and holidays shall be paid at time and one-half the regular rate.

RECOGNIZED HOLIDAYS: New Year's Day, Good Friday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Sheet Metal Sign Installation

PREVAILING WAGE RATE

	04/17/24
Foreman	W44.19 B43.87 T88.06
Journeyman	W41.69 B43.87 T85.56

Craft: Sheet Metal Sign Installation

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
1000 hours	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%
Benefits	14.62	16.66	18.72	20.79	23.33	25.43	27.52	29.62	31.73	33.82

Ratio of Apprentices to Journeymen - 1:3

Craft: Sheet Metal Sign Installation

COMMENTS/NOTES

FOREMAN REQUIREMENT:

When there are 6 or more Sheet Metal Sign Installers on a job, 1 shall be designated a Foreman.

The regular workday consists of 8 hours, between 7:00 AM and 3:30 PM.

OVERTIME:

Hours before or after the regular workday, Monday through Friday, and all hours worked on Saturday shall be paid at time and one-half the hourly rate. All hours on Sunday and holidays shall be paid at double the hourly rate.

Four(4) 10 hour days may be worked, Monday through Friday, at straight time, for projects lasting at least one week in duration. The fifth day may be used as a make-up day at straight time for a day lost due to inclement weather. However, if the fifth day is not a make-up day, all hours worked will be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Saturday holidays observed the preceding Friday, Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Sheet Metal Worker

PREVAILING WAGE RATE

	06/13/24
Foreman	W61.90 B50.32 T112.22
General Foreman	W62.90 B50.32 T113.22
Journeyman	W57.90 B50.32 T108.22

Craft: Sheet Metal Worker

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
Yearly	45%	48%	52%	65%	of	Journey	man	Wage	Rate	
Benefit	45%	48%	52%	65%	of	Journey	man	Benefit	Rate	

Ratio of Apprentices to Journeymen - 1:4

Craft: Sheet Metal Worker

COMMENTS/NOTES

FOREMAN REQUIREMENTS:

- When there are 2 or more Sheet Metal Workers on a project, 1 must be designated a Foreman.
- When there are 17 or more Sheet Metal Workers on a project, 1 must be designated a General Foreman.
- When there is only 1 Sheet Metal Worker (1 Journeyman) on a project, he/she shall receive \$1.00 more than the regular Journeyman's rate.

The regular workday is 8 hours between 7:00 AM and 4:30 PM.

SHIFT DIFFERENTIAL:

- 2nd Shift (3:30 PM - 12:00 AM) : +17% of regular hourly rate
- Shift work must run for a minimum of 5 consecutive workdays.

OVERTIME:

- Hours in excess of 8 per day, or before or after the regular workday, that are not shift work, and the first 10 hours on Saturdays shall be paid at time and one-half of the regular rate, inclusive of benefits. Hours in excess of 10 per day on Saturday, and all hours on Sundays and holidays shall be at double the regular rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday through Friday, at straight time, with hours in excess of 10 per day, and hours in excess of 40 per week paid at the overtime rates listed above.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Sprinkler Fitter

PREVAILING WAGE RATE

	07/01/24
Foreman	W73.06 B39.71 T112.77
General Foreman	W76.79 B39.71 T116.50
Journeyman	W68.56 B39.71 T108.27

Craft: Sprinkler Fitter

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
1000 Hours									80%	85%
Benefits							Intervals	9 to 10	Jourymn	Ben.

Craft: Sprinkler Fitter

COMMENTS/NOTES

Apprentice rate schedule for those apprentices registered as of 7-1-13:

Interval Period and Rates
 1000 Hrs. 25% 30% 40% 45% 55% 60% 70% 75% 85% 90%
 Ben. 14.31 14.31 29.86 29.86 29.86 29.86 Intervals 7-10 Journey. Ben.

Apprentice rate schedule for those apprentices registered as of 7-1-22:

Interval Period and Rates
 1000 Hrs. 30% 35% 40% 45% 50% 55% 60% 70% 85% 95%
 Ben. 14.31 14.31 29.86 29.86 29.86 29.86 Intervals 7-10 Journey. Ben.

APPRENTICE RATE SCHEDULES AS OF 7-1-24:

Apprentice rate schedule for those apprentices registered as of 7-1-13:

Interval Period and Rates
 1000 Hrs. 25% 30% 40% 45% 55% 60% 70% 75% 85% 90%
 Ben. 14.41 14.41 30.71 30.71 30.71 30.71 Intervals 7-10 Journey. Ben.

Apprentice rate schedule for those apprentices registered as of 7-1-22:

Interval Period and Rates
 1000 Hrs. 30% 35% 40% 45% 50% 55% 60% 70% 85% 95%
 Ben. 14.41 14.41 30.71 30.71 30.71 30.71 Intervals 7-10 Journey. Ben.

The regular workday consists of 8 consecutive hours between 6:00 AM and 4:30 PM.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

FOREMAN REQUIREMENTS:

- The first Sprinkler Fitter on the job must be designated a Foreman.
- On any job having 12 or more Sprinkler Fitters, one must be designated a General Foreman.

SHIFT DIFFERENTIALS:

- Shift work must run for a minimum of 2 consecutive workdays.
- 2nd and 3rd shift shall receive an additional 15% of the regular rate, per hour.
- Any "off hours" shift starting at 8:00 PM or later shall receive an additional 25% of the regular rate, per hour.

OVERTIME:

The first 2 hours in excess of 8 per day, after the regular workday that are not shift work, Monday through Friday, shall be paid at time and one-half the regular rate. Hours worked in excess of 10 per day, Monday through Friday, and all hours on Saturday, Sunday and holidays, shall be paid double the regular rate.

Four 10 hour days may be worked, Monday through Friday, at straight-time.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Tile Setter - Ceramic

PREVAILING WAGE RATE

	06/03/24
Finisher	W49.08 B32.98 T82.06
Setter	W63.91 B36.26 T100.17

Craft: Tile Setter - Ceramic

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
750 Hours	35%	40%	50%	55%	60%	65%	70%	75%	80%	90%

Ratio of Apprentices to Journeymen - 1:4

Craft: Tile Setter - Ceramic

COMMENTS/NOTES

OVERTIME:

Hours in excess of 7 per day, and the first 10 hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Saturdays after 10 hours shall be paid double the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day, Christmas Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Tile Setter - Marble

PREVAILING WAGE RATE

	07/01/24
Tile Setter	W63.92 B40.20 T104.12

Craft: Tile Setter - Marble

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
750 Hours	40%	60%	65%	70%	75%	85%	95%			
Benefits	Interval 1	thru 5 =	75% of	jyrm. ben	rate	Interval 6	thru 7 =	full jyrm	benefit	rate

Ratio of Apprentices to Journeymen - 1:4

Craft: Tile Setter - Marble

COMMENTS/NOTES

OVERTIME:

Hours in excess of 7 per day, Monday through Friday, and the first 7 hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. Hours in excess of 7 on Saturdays, and all hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Tile Setter - Mosaic & Terrazzo

PREVAILING WAGE RATE

	07/01/24
Grinder or Assistant	W59.37 B41.48 T100.85
Mechanic	W60.98 B41.49 T102.47
Terrazzo Resinous Worker	W50.76 B33.86 T84.62

Craft: Tile Setter - Mosaic & Terrazzo

APPRENTICE RATE SCHEDULE

INTERVAL	PERIOD AND RATES									
1500 Hours	35%	45%	60%	70%	80%	90%				

Ratio of Apprentices to Journeymen - 1:5

Craft: Tile Setter - Mosaic & Terrazzo

COMMENTS/NOTES

The regular workday consists of 7 hours, between 8:00 AM and 3:30 PM.

OVERTIME:

- Hours in excess of 7 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Good Friday, Monday after Easter, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Sunday holidays observed the following Monday.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Truck Driver

PREVAILING WAGE RATE

	05/01/24
Bucket, Utility, Pick-up, Fuel Delivery trucks	W45.41 B43.28 T88.69
Dump truck, Asphalt Distributor, Tack Spreader	W45.41 B43.28 T88.69
Euclid-type vehicles (large, off-road equipment)	W45.51 B43.28 T88.79
Helper on Asphalt Distributor truck	W45.41 B43.28 T88.69
Low Boy Driver	W47.01 B43.28 T90.29
Slurry Seal, Seeding/Fertilizing/ Mulching truck	W45.41 B43.28 T88.69
Straight 3-axle truck	W45.41 B43.28 T88.69
Tractor Trailer (all types)	W45.51 B43.28 T88.79
Vacuum or Vac-All truck (entire unit)	W45.41 B43.28 T88.69
Winch Trailer	W45.61 B43.28 T88.89

Craft: Truck Driver

COMMENTS/NOTES

BLENDED RATE:

When a truck driver is performing work on the site and also serving as a material delivery driver, the driver shall be paid a "blended rate" which shall be 80% of the above-listed wage rates, plus the full benefit rate. This rate shall be used when the driver "round robins" for a minimum of 6 hours during the work day.

HAZARDOUS WASTE REMOVAL:

- On hazardous waste removal work on a State designated hazardous waste site where the driver is in direct contact with hazardous materials and when personal protective equipment is required for respiratory, skin, and eye protection, the driver shall receive an additional \$3.00 per hour (with or without protective gear).
- A hazardous waste related certified worker at a designated hazardous waste site who is not working in a zone requiring level A, B or C personal protection shall receive an additional \$1.00 per hour.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

TRUCK FOREMAN: \$.75 cents per hour above regular rate. Overtime shall be increased accordingly.

The regular workday shall be 8 hours, starting between 6:00 AM and 8:00 AM.

SHIFT DIFFERENTIAL:

- Shifts starting at 4:00 PM (2nd Shift): + \$3.00 per hour.
- Shifts starting at 12:00 AM (midnight/3rd Shift): time and one-half the hourly rate.
- Shifts starting at a time other than from 6:00 AM to 8:00 AM, when such hours are mandated by the project owner: + \$3.00 per hour.

OVERTIME:

- Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, that are not shift work, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Employees may work four 10-hour days at straight time, Monday through Thursday, with Friday used as a make-up day for a lost day. If Friday is not a make-up day, then all hours on Friday shall be paid at time and one-half the hourly rate.
- Benefits on overtime shall be \$40.03.
- As of 5-1-23, benefits on overtime shall be \$41.53.
- As of 5-1-24, benefits on overtime shall be \$43.03.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day (Decoration Day), July 4th, Labor Day, Veterans Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday. The day after Thanksgiving may be substituted for Veteran's Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Truck Driver-Material Delivery Driver

PREVAILING WAGE RATE

	05/01/24
Driver	W37.62 B43.28 T80.90

Craft: Truck Driver-Material Delivery Driver

COMMENTS/NOTES

BLENDED RATE:

When a truck driver is performing work on the site and also serving as a material delivery driver, the driver shall be paid a "blended rate". See the "Truck Driver" craft for the blended rates.

Truck Foreman/Shop Steward: +\$0.25 per hour

SHIFT DIFFERENTIALS:

- 2nd Shift shall receive an additional \$0.50 per hour
- 3rd Shift shall receive time and one-half the hourly rate.

OVERTIME:

- Hours in excess of 8 per day, or before or after the regular workday that are not shift work, Monday through Friday, and all hours on Saturday shall be paid at time and one-half the hourly rate. All hours on Sunday and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day (Decoration Day), July 4th, Labor Day, Veterans Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday. The day after Thanksgiving may be substituted for Veterans Day.

**NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION**

County - UNION

Craft: Welder PREVAILING WAGE RATE

Welder

Craft: Welder COMMENTS/NOTES

Welders rate is the same as the craft to which the welding is incidental .

STATEWIDE RATES

OPERATING ENGINEERS **Rates Expiration Date :**

{For apprentice rates refer to "Operating Engineers" apprentice rates in any county rate package}

The regular workday consists of 8 hours, Monday to Friday, between 6:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:

- Shift work must be established for 5 consecutive workdays.
- Any work started outside of the allowed start time, 6:00 AM to 9:00 AM, except for * tidal work, shall be considered an irregular shift and paid at straight time, plus 15% for the first eight hours, inclusive of benefits.
- * FOR TIDAL WORK- a contractor can start their job according to tide schedules (tide schedules are the various high and low tides related to this work), providing the eight hour shift is completed between the hours of 5:00 AM and 6:30 PM.
- All time worked in excess of an established shift (an established shift is a shift that is determined at the time of the bid) shall be paid at the applicable overtime rate. When a portion of an established shift works into Saturday, Sunday or a holiday, that time worked shall be paid at the established shift rate.
- When working with other trades who receive a higher irregular shift differential, these employees shall also receive the higher differential rate.

OVERTIME:

- Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, that are not shift work, and all hours on Saturday shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sunday and holidays shall be paid at double the regular rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with all hours on Friday paid at time and one-half the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. When all trades on a particular job site agree, the day after Thanksgiving may be substituted for Veterans Day.

For projects bid after April 1, 2020, on hazardous waste removal work of any kind, including a state or federally designated site, where the operating engineer is required to wear level A, B, or C personal protection, the operating engineer shall receive an hourly wage rate of his regular hourly wage plus \$5.00 per hour.

- An operating engineer working at a hazardous waste removal project or site at a task requiring hazardous waste related certification, but who is not working in a zone requiring level A, B, or C personal protection, shall receive an hourly wage rate of his regular rate plus \$1.00 per hour.

OPERATING ENGINEERS **Rates Expiration Date :**

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
58.88	39.15	98.03	100.53

CLASSIFICATIONS:

A-Frame

Backhoe (combination)

Boom Attachment on loaders (Except pipehook)

Boring & Drilling Machine

Brush Chopper, Brush Shredder, Tree Shredder, Tree Shearer

Bulldozer, finish grade

Cableway

Carryall

Concrete Pump

Concrete Pumping System (Pumpcrete & similar types)

Conveyor, 125 feet or longer

Drill Doctor (Duties include dust collector and maintenance)

Front End Loader (2 cu. yds. but less than 5 cu. yds.)

Grader, finish

Groove Cutting Machine (ride-on type)

Heater Planer

Hoist: Outside Material Tower Hoist (all types including steam, gas, diesel, electric, air hydraulic, single and double drum, concrete, brick shaft caisson, snorkle roof, and other similar types, Except Chicago-boom type) * receives an additional \$1.00 per hour on 100 ft. up to 199 ft. total height, and an additional \$2.00 per hour on 200 ft. and over total height.

Hydraulic Crane (10 tons & under)

Hydraulic Dredge

Hydro-Axe

Hydro-Blaster

OPERATING ENGINEERS **Rates Expiration Date :**

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
58.88	39.15	98.03	100.53

CLASSIFICATIONS:

Jack (screw, air hydraulic, power-operated unit, or console type, Except hand jack or pile load test type)

Log Skidder

Pan

Paver, concrete

Plate & Frame Filter Press

Pumpcrete (unit type)

Pumpcrete, Squeezecrete, or Concrete Pumping machine (regardless of size)

Scraper

Side Boom

Straddle Carrier (Ross and similar types)

Whiphammer

Winch Truck (hoisting)

OPERATING ENGINEERS **Rates Expiration Date :**

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
56.97	39.15	96.12	98.62

CLASSIFICATIONS:

- Asphalt Curbing Machine
- Asphalt Plant Engineer
- Asphalt Spreader
- Autograde Curb Trimmer & Sidewalk Shoulder Slipform (CMI & similar types)
- Autograde Curecrete Machine (CMI & similar types)
- Autograde Tube Finisher & Texturing Machine (CMI & similar types)
- Bar Bending Machines (Power)
- Batcher, Batching Plant, & Crusher [On Site]
- Belt Conveyor System
- Boom-Type Skimmer Machine
- Bridge Deck Finisher
- Bulldozer (all sizes)
- Captain (Power Boats)
- Car Dumper (railroad)
- Compressor & Blower unit for loading/unloading of concrete, cement, fly ash, or similar type materials (used independently or truck-mounted)
- Compressor (2 or 3 battery)
- Concrete Breaking Machine
- Concrete Cleaning/Decontamination Machine
- Concrete Finishing Machine
- Concrete Saw or Cutter (ride-on type)
- Concrete Spreader (Hetzl, Rexomatic & similar types)
- Concrete Vibrator

OPERATING ENGINEERS **Rates Expiration Date :**

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
56.97	39.15	96.12	98.62

CLASSIFICATIONS:

- Conveyors - under 125 feet
- Crane Signalman
- Crushing Machine
- Directional Boring Machine
- Ditching Machine - Small (Ditchwitch, Vermeer or similar types)
- Dope Pot - Mechanical (with or without pump)
- Dumpster
- Elevator
- Fireman
- Fork Lift (Economobile, Lull & similar types)
- Front End Loader (1 cu. yd. and over but less than 2 cu. yds.)
- Generator (2 or 3 battery)
- Giraffe Grinder
- Goldhofer/Hydraulic Jacking Trailer
- Grader & Motor Patrols
- Grout Pump
- Gunnite Machine (Excluding nozzle)
- Hammer - Vibratory (in conjunction with generator)
- Heavy Equipment Robotics - Operator/Technician
- Hoist (roof, tigger, aerial platform hoist, house car)
- Hopper
- Hopper Doors (power operated)
- Ladder (motorized)

OPERATING ENGINEERS **Rates Expiration Date :**

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
56.97	39.15	96.12	98.62

CLASSIFICATIONS:

Laddervator

Locomotive (Dinky-type)

Maintenance Utility Man

Master Environmental Maintenance Technician

Mechanic

Mixer (Except paving mixers)

Pavement Breaker (truck-mounted or small self-propelled ride-on type)

Pavement Breaker - maintenance of compressor or hydraulic unit

Pipe Bending Machine (power)

Pitch Pump

Plaster Pump (regardless of size)

Post Hole Digger (post pounder, auger)

Rod Bending Machines

Roller (black top)

Scale (power)

Seamen Pulverizing Mixer

Shoulder Widener

Silo

Skimmer Machine (boom type)

Steel Cutting Machine (service & maintenance)

Tamrock Drill

Tractor

Transfer Machines

OPERATING ENGINEERS **Rates Expiration Date :**

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
56.97	39.15	96.12	98.62

CLASSIFICATIONS:

Tug Captains

Tug Master (Power Boats)

Ultra High Pressure Waterjet Cutting Tool System -
Operator/Maintenance Technician

Vacuum Blasting Machine - Operator/Maintenance Technician

Vibrating Plant (used with unloading)

Welder & Repair Mechanic

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
51.63	39.15	90.78	93.28

CLASSIFICATIONS:

Assistant Engineer/Oiler

Driller's Helper

Field Engineer - Transit man or Instrument man

Maintenance Apprentice (Deckhand)

Maintenance Apprentice (Oiler)

Mechanic's Helper

Off Road Back Dump

Tire Repair & Maintenance

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
49.05	39.15	88.20	90.70

CLASSIFICATIONS:

Field Engineer - Rodman or Chainman

TERRITORY
ENTIRE STATE

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

OPERATING ENGINEERS Rates Expiration Date :

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
59.21	39.15	98.36	100.86

CLASSIFICATIONS:

Lead Engineer, Foreman Engineer, Safety Engineer (minimum)

OPERATING ENGINEERS **Rates Expiration Date :**

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
60.47	39.15	99.62	102.12

CLASSIFICATIONS:

- Autograde Pavement Profiler (CMI & similar types)
- Autograde Pavement Profiler - Recycle Type (CMI & similar types)
- Autograde Placer/Trimmer/Spreader Combination (CMI & similar types)
- Autograde Slipform Paver (CMI & similar types)
- Backhoe (Excavator)
- Central Power Plant
- Concrete Paving Machine
- Cranes, Derricks, Pile Drivers (all types), under 100 tons with a boom (including jib and/or leads) under 100 ft.
- Draglines
- Drill, Bauer, AMI and similar types
- Drillmaster, Quarrymaster
- Drillmaster/Quarrymaster (down-the-hole drill), rotary drill, self-propelled hydraulic drill, self-powered drill
- Elevator Grader
- Field Engineer-Chief of Party
- Front End Loader (5 cu. yards or larger)
- Gradall
- Grader, Rago
- Helicopter Co-Pilot
- Helicopter Communications Engineer
- Juntann Pile Driver
- Locomotive (large)
- Mucking Machine

OPERATING ENGINEERS **Rates Expiration Date :**

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
60.47	39.15	99.62	102.12

CLASSIFICATIONS:

Pavement & Concrete Breaker (Superhammer & Hoe Ram)

Pile Driver

Prentice Truck

Roadway Surface Grinder

Scooper (loader & shovel)

Shovel (Excavator)

Trackhoe (Excavator)

Tree Chopper with boom

Trenching Machine (cable plow)

Tunnel Boring Machine

Vacuum Truck

OPERATING ENGINEERS **Rates Expiration Date :**

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
55.34	39.15	94.49	96.99

CLASSIFICATIONS:

- Chipper
- Compressor (single)
- Concrete Spreader (small type)
- Conveyor Loader (Except elevator graders)
- Engines, Large Diesel (1620 HP) & Staging Pump
- Farm Tractor
- Fertilizing Equipment (operation & maintenance)
- Fine Grade Machine (small type)
- Form Line Grader (small type)
- Front End Loader (under 1 cubic yard)
- Generator (single)
- Grease, Gas, Fuel, & Oil Supply Trucks
- Heaters (Nelson or other type)
- Lights - portable generating light plant
- Mixer, Concrete (small)
- Mulching Equipment (operation & maintenance)
- Power Broom or Sweeper
- Pump (diesel engine & hydraulic - regardless of power)
- Pump (larger than 2 inch suction, including submersible pumps)
- Road Finishing Machine (small type)
- Roller - grade, fill, or stone base
- Seeding Equipment (operation & maintenance)
- Sprinkler & Water Pump Trucks

OPERATING ENGINEERS **Rates Expiration Date :**

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
55.34	39.15	94.49	96.99

CLASSIFICATIONS:

Steam Generator or Boiler

Stone Spreader

Tamping Machine (vibrating ride-on type)

Temporary Heating Plant (Nelson or other type, including propane, natural gas, and flow-type units)

Water or Sprinkler Truck

Welding Machine (gas, diesel, or electric convertor, of any type)

Welding System - Multiple (rectifier transformer type)

Wellpoint Systems (including installation by bull gang and maintenance)

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
62.29	39.15	101.44	103.94

CLASSIFICATIONS:

Helicopter Pilot/Engineer

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
66.97	39.15	106.12	108.62

CLASSIFICATIONS:

Cranes, Derricks, Pile Driver (all types), 100 tons and over and TOWER CRANE with boom (including jib and/or leads) 140 ft. and over

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
65.97	39.15	105.12	107.62

CLASSIFICATIONS:

Cranes, Derricks, Pile Driver (all types), 100 tons and over and TOWER CRANE with boom (including jib and/or leads) from 100 ft. to 139 ft.

OPERATING ENGINEERS **Rates Expiration Date :**

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
62.47	39.15	101.62	104.12

CLASSIFICATIONS:

Cranes, Derricks, Pile Driver (all types) , under 100 tons with a boom (including jib and/or leads) 140 ft. and over

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
64.97	39.15	104.12	106.62

CLASSIFICATIONS:

Cranes, Derricks, Pile Driver (all types), 100 tons and over and TOWER CRANE with a boom (including jib and/or leads) under 100 ft.

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
61.47	39.15	100.62	103.12

CLASSIFICATIONS:

Cranes, Derricks, Pile Driver (all types), under 100 tons with a boom (including jib and/or leads) from 100 ft. to 139 ft.

STRUCTURAL STEEL ERECTION **Rates Expiration Date :**

{For apprentice rates refer to "Operating Engineers" apprentice rates in any county rate package}

The regular workday consists of 8 hours, Monday to Friday, between 6:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:

- Shift work must be established for 5 consecutive workdays.
- Any work started outside of the allowed start time, 6:00 AM to 9:00 AM, except for * tidal work, shall be considered an irregular shift and paid at straight time, plus 15% for the first eight hours, inclusive of benefits.
- * FOR TIDAL WORK- a contractor can start their job according to tide schedules (tide schedules are the various high and low tides related to this work), providing the eight hour shift is completed between the hours of 5:00 AM and 6:30 PM.
- All time worked in excess of an established shift (an established shift is a shift that is determined at the time of the bid) shall be paid at the applicable overtime rate. When a portion of an established shift works into Saturday, Sunday or a holiday, that time worked shall be paid at the established shift rate.
- When working with other trades who receive a higher irregular shift differential, these employees shall also receive the higher differential rate.

OVERTIME:

- Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, that are not shift work, and all hours on Saturday shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sunday and holidays shall be paid at double the regular rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with all hours on Friday paid at time and one-half the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. When all trades on a particular job site agree, the day after Thanksgiving may be substituted for Veterans Day.

For projects bid after April 1, 2020, on hazardous waste removal work of any kind, including a state or federally designated site, where the operating engineer is required to wear level A, B, or C personal protection, the operating engineer shall receive an hourly wage rate of his regular hourly wage plus \$5.00 per hour.

- An operating engineer working at a hazardous waste removal project or site at a task requiring hazardous waste related certification, but who is not working in a zone requiring level A, B, or C personal protection, shall receive an hourly wage rate of his regular rate plus \$1.00 per hour.

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
64.10	39.15	103.25	105.75

CLASSIFICATIONS:

Helicopter Co-Pilot & Communications Engineer

TERRITORY
ENTIRE STATE

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

STRUCTURAL STEEL ERECTION Rates Expiration Date :

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
60.04	39.15	99.19	101.69

CLASSIFICATIONS:

A-Frame

Cherry Picker -10 tons or less (Over 10 tons use crane rate)

Hoist (all types Except Chicago-boom)

Jack (screw, air hydraulic, power-operated unit or console type, Except hand jack or pile load test type)

Side Boom

Straddle Carrier

STRUCTURAL STEEL ERECTION **Rates Expiration Date :**

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
57.38	39.15	96.53	99.03

CLASSIFICATIONS:

- Aerial Platform Used On Hoists
- Apprentice Engineer/Oiler with Compressor or Welding Machine
- Captain (Power Boats)
- Compressor (2 or 3 in battery)
- Concrete Cleaning/Decontamination Machine Operator
- Conveyor or Tugger Hoist
- Directional Boring Machine
- Elevator or House Car
- Fireman
- Forklift
- Generator (2 or 3)
- Heavy Equipment Robotics, Operator/Technician
- Maintenance Utility Man
- Master Environmental Maintenance Technician
- Tug Master (Power Boats)
- Ultra High Pressure Waterjet Cutting Tool System Operator/Maintenance Technician
- Vacuum Blasting Machine Operator/Maintenance Technician
- Welding Machines, Gas or Electric Converters on any type-2 or 3 in battery including diesels

STRUCTURAL STEEL ERECTION **Rates Expiration Date :**

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
55.85	39.15	95.00	97.50

CLASSIFICATIONS:

Compressor (Single)

Generators

Welding Machines, Gas, Diesel, Or Electric Converters of any type-single

Welding System, Multiple (Rectifier Transformer Type)

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
52.09	39.15	91.24	93.74

CLASSIFICATIONS:

Assistant Engineer/Oiler

Drillers Helper

Field Engineer - Transit/Instrument Man

Maintenance Apprentice (Deckhand)

Maintenance Apprentice (Oiler)

Off Road Back Dump

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
59.66	39.15	98.81	101.31

CLASSIFICATIONS:

Lead Engineer, Foreman Engineer, Safety Engineer (Minimum)

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
49.05	39.15	88.20	90.70

CLASSIFICATIONS:

Field Engineer - Rodman or Chainman

STRUCTURAL STEEL ERECTION **Rates Expiration Date :**

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
60.80	39.15	99.95	102.45

CLASSIFICATIONS:

Field Engineer-Chief of Party

Vacuum Truck

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
68.99	39.15	108.14	110.64

CLASSIFICATIONS:

Cranes (all cranes, land or floating with booms, including jib, 140 ft. and over, above ground). Derricks (all derricks, land, floating or Chicago Boom type with booms including jib, 140 ft. and over, above ground), and Pile Drivers (all types) 100 tons and over and Tower Cranes.

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
67.33	39.15	106.48	108.98

CLASSIFICATIONS:

Cranes (all cranes, land or floating with booms including jib, less than 140 ft. above ground), Derricks (all derricks, land, floating or Chicago Boom type with booms including jib, less than 140 ft. above ground), Pile Drivers (all types), 100 tons and over and Tower Crane.

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
64.49	39.15	103.64	106.14

CLASSIFICATIONS:

Cranes (all cranes, land or floating with booms including jib, 140 ft. and over, above ground), Derricks (all derricks, land, floating or Chicago Boom type with booms including jib, 140 ft. and over, above ground), Pile Drivers (all types), under 100 tons.

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
62.83	39.15	101.98	104.48

CLASSIFICATIONS:

Cranes (all cranes, land or floating with booms including jib, less than 140 ft. above ground), Derricks (all derricks, land, floating or Chicago Boom type with booms including jib, less than 140 ft. above ground), Pile Drivers (all types), under 100 tons.

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STRUCTURAL STEEL ERECTION Rates Expiration Date :

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
64.49	39.15	103.64	106.14

CLASSIFICATIONS:

Helicopter Pilot & Engineer

TEST BORING PRELIMINARY TO CONSTRUCTION-SOUTH/WEST **Rates Expiration Date :**

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:

Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Hunterdon, Mercer, Monmouth, Ocean, Salem, Sussex, Warren

The regular workday consists of 8 hours, Monday to Friday, between 6:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:

- Shift work must be established for 5 consecutive workdays.
- Any work started outside of the allowed start time, 6:00 AM to 9:00 AM, except for * tidal work, shall be considered an irregular shift and paid at straight time, plus 15% for the first eight hours, inclusive of benefits.
- * FOR TIDAL WORK- a contractor can start their job according to tide schedules (tide schedules are the various high and low tides related to this work), providing the eight hour shift is completed between the hours of 5:00 AM and 6:30 PM.
- All time worked in excess of an established shift (an established shift is a shift that is determined at the time of the bid) shall be paid at the applicable overtime rate. When a portion of an established shift works into Saturday, Sunday or a holiday, that time worked shall be paid at the established shift rate.
- When working with other trades who receive a higher irregular shift differential, these employees shall also receive the higher differential rate.

OVERTIME:

- Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, that are not shift work, and all hours on Saturday shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sunday and holidays shall be paid at double the regular rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with all hours on Friday paid at time and one-half the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. When all trades on a particular job site agree, the day after Thanksgiving may be substituted for Veterans Day.

For projects bid after April 1, 2020, on hazardous waste removal work of any kind, including a state or federally designated site, where the operating engineer is required to wear level A, B, or C personal protection, the operating engineer shall receive an hourly wage rate of his regular hourly wage plus \$5.00 per hour.

- An operating engineer working at a hazardous waste removal project or site at a task requiring hazardous waste related certification, but who is not working in a zone requiring level A, B, or C personal protection, shall receive an hourly wage rate of his regular rate plus \$1.00 per hour.

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
60.47	39.15	99.62	102.12

CLASSIFICATIONS:

Driller

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
53.63	39.15	92.78	95.28

CLASSIFICATIONS:

Driller's Helper

FREE AIR TUNNEL JOBS **Rates Expiration Date :**

{For apprentice rates refer to "Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

SHIFT DIFFERENTIALS:

- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional \$3.00 per hour.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

Hazardous Waste Work:

- where Level A, B, or C protection is required: + \$5.00/hr
- other Hazardous Waste site: + \$1.00/hr

Traffic Control Coordinator: When either of the work classifications found below are working as a Traffic Control Coordinator they are to receive \$.75 above their current rate of pay.

Effective Dates:

	04/17/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
65.06	37.33	102.39	106.26	109.94

CLASSIFICATIONS:

Walking Boss & Superintendent

Effective Dates:

	04/17/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
64.69	37.33	102.02	105.88	109.57

CLASSIFICATIONS:

Heading Foreman, Shaft Foreman, Rod Foreman, Electrician Foreman, Rigging Foreman

FREE AIR TUNNEL JOBS **Rates Expiration Date :**

Effective Dates:

	04/17/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
64.06	37.33	101.39	105.26	108.94

CLASSIFICATIONS:

Iron Foreman, Caulking Foreman, Form Foreman, Cement Finishing Foreman, Concrete Foreman, Track Foreman, Cleanup Foreman, Grout Foreman

Effective Dates:

	04/17/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
67.19	37.33	104.52	108.38	112.07

CLASSIFICATIONS:

Blaster

Effective Dates:

	04/17/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
63.38	37.33	100.71	104.57	108.26

CLASSIFICATIONS:

Top Labor Foreman

Effective Dates:

	04/17/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
62.94	37.33	100.27	104.13	107.82

CLASSIFICATIONS:

Skilled Men (including Caulker, Powder Carrier, all other skilled men)

Skilled Men (including Miner, Drill Runner, Iron Man, Conveyor Man, Manintenance Man, Safety Miner, Rigger, Block Layer, Cement Finisher, Tod Man)

Effective Dates:

	04/17/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
62.75	37.33	100.08	103.94	107.63

CLASSIFICATIONS:

Semi-Skilled Men (including Bell or Signal Man Top or Bottom, Form Worker & Mover, Concrete Worker, Shaft Man, Tunnel Laborer, Caulker's Helper, all other semi-skilled)

Semi-Skilled Men (including Miner's Helper, Chuck Tender, Track Man, Nipper, Brake Man, Derail Man, Cable Man, Hose Man, Gravel Man, Form Man)

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NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
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FREE AIR TUNNEL JOBS Rates Expiration Date :

Effective Dates:

	04/17/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
62.25	37.33	99.58	103.44	107.13

CLASSIFICATIONS:

All Others (including Powder Watchman, Change House Attendant, Top Laborer)

DRILL FOR GROUND WATER SUPPLY **Rates Expiration Date :**

The well driller and/or helper may perform all work relative to the construction, finishing, and servicing of wells, pumps and borings for ground water supply. The present methods of well drilling entailing as they do, many diverse job operations calling for drilling, pump discharge, piping, and the operation of various types of related power equipment, shall all be within the job duties and functions of the well driller and/or helper. In the event that an extension of work should occur beyond water well drilling functions, into the field of general construction work, such extension of work would come under the appropriate rates listed elsewhere in this wage determination.

- For Work Hours, Shift Differentials, Overtime Rates, and Recognized Holidays see the "Operating Engineers" section of this wage determination.

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
59.22	39.15	98.37	100.87

CLASSIFICATIONS:

Driller

Effective Dates:

07/01/2024			07/01/2025
Rate	Fringe	Total	Total
52.38	39.15	91.53	94.03

CLASSIFICATIONS:

Driller's Helper

OPERATING ENGINEERS MARINE-DREDGING **Rates Expiration Date :**

NOTE: These wage rates only apply to dredging and other marine construction activities occurring in navigable waters and their tributaries.

Boat crews carrying explosive material (dynamite, pourfex, and other similar materials) shall be paid at 120% of the hourly wage rate for hours engaged in handling of said materials. Employees required to possess a Hazardous Material Certification as a condition of employment shall be compensated at 120% of the hourly wage rate.

OVERTIME:

Hours in excess of 40 per week, and all hours on Saturdays and Sundays, shall be paid at time and one-half the hourly rate. All hours on holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Martin Luther King Day, Good Friday, Memorial Day, July 4th, Labor Day, Veterans Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

Effective Dates:

10/01/2023

Rate	Fringe	Total
45.26	15.22	60.48

CLASSIFICATIONS:

Lead Dredgerman, Operator, Leverman

Licensed Tug Operator (over 1000 HP)

Effective Dates:

10/01/2023

Rate	Fringe	Total
39.14	14.79	53.93

CLASSIFICATIONS:

Derrick Operator, Spider/Spill Barge Operator

Engineer, Electrician, Chief Welder, Chief Mate

Fill Placer, Operator II

Licensed Boat Operator

Maintenance Engineer

Effective Dates:

10/01/2023

Rate	Fringe	Total
36.84	14.63	51.47

CLASSIFICATIONS:

Certified Welder

OPERATING ENGINEERS MARINE-DREDGING **Rates Expiration Date :**

Effective Dates:

10/01/2023

Rate	Fringe	Total
35.83	14.31	50.14

CLASSIFICATIONS:

Mate, Drag Barge Operator, Steward, Assistant Fill Placer

Welder

Effective Dates:

10/01/2023

Rate	Fringe	Total
34.68	14.23	48.91

CLASSIFICATIONS:

Boat Operator

Effective Dates:

10/01/2023

Rate	Fringe	Total
28.81	13.82	42.63

CLASSIFICATIONS:

Shoreman, Deckhand, Rodman, Scowman

Effective Dates:

10/01/2023

Rate	Fringe	Total
40.33	14.87	55.20

CLASSIFICATIONS:

Crane Operator

MICROSURFACING/SLURRY SEAL Rates Expiration Date :

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:

Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Ocean, Salem

IN ALL OTHER COUNTIES use the Heavy and General Laborers - North "Slurry Seal Laborer" rates.

SHIFT DIFFERENTIALS:

Any shift starting at 3:30 PM or later shall receive an additional \$0.35/hr

OVERTIME:

Hours in excess of 8 per day or 40 per week shall be paid at time and one-half the hourly rate. All hours on holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Washington's Birthday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

Effective Dates:

03/01/2017

Rate	Fringe	Total
36.50	21.27	57.77

CLASSIFICATIONS:

Foreman

Effective Dates:

03/01/2017

Rate	Fringe	Total
33.80	21.27	55.07

CLASSIFICATIONS:

Box man

Effective Dates:

03/01/2017

Rate	Fringe	Total
31.75	21.27	53.02

CLASSIFICATIONS:

Microsurface/Slurry Preparation

Effective Dates:

03/01/2017

Rate	Fringe	Total
31.75	21.27	53.02

CLASSIFICATIONS:

Squeegee man

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MICROSURFACING/SLURRY SEAL Rates Expiration Date :

Effective Dates:

03/01/2017

Rate	Fringe	Total
30.30	21.27	51.57

CLASSIFICATIONS:

Cleaner, Taper

ASPHALT LABORERS - SOUTH **Rates Expiration Date :**

"THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY: Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Ocean, Salem

{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

SHIFT DIFFERENTIALS:

- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional \$3.00 per hour.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

Hazardous Waste Work:

- where Level A, B, or C protection is required: + \$5.00/hr
- other Hazardous Waste site: + \$1.00/hr

FOR TIDE WORK (pertains to tidal water): A contractor can start their job according to tide schedules (tide schedules are the various high and low tides related to this work) providing the eight (8) hour shift is completed between the hours of 5:00 AM and 6:30 PM.

Effective Dates:

	03/21/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
53.55	37.33	90.88	94.33	97.58

CLASSIFICATIONS:

Paving Foreman

Effective Dates:

	03/21/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
50.10	37.33	87.43	90.88	94.13

CLASSIFICATIONS:

Head Raker

Effective Dates:

	03/21/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
50.25	37.33	87.58	91.03	94.28

CLASSIFICATIONS:

Screedman

ASPHALT LABORERS - SOUTH **Rates Expiration Date :**

Effective Dates:

03/21/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
49.70	37.33	87.03	90.48	93.73

CLASSIFICATIONS:

Tampers, Smoothers, Kettlemen,
Painters, Shovelers, Roller Boys

Effective Dates:

03/21/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
49.80	37.33	87.13	90.58	93.83

CLASSIFICATIONS:

Milling Controller

Effective Dates:

03/21/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
50.00	37.33	87.33	90.78	94.03

CLASSIFICATIONS:

Traffic Control Coordinator

Effective Dates:

03/21/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
49.95	37.33	87.28	90.73	93.98

CLASSIFICATIONS:

Raker, Luteman

TEST BORING PRELIMINARY TO CONSTRUCTION-NORTH Rates Expiration Date :

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:
Bergen, Essex, Hudson, Middlesex, Morris, Passaic, Somerset, Union

SHIFT DIFFERENTIAL:

Employees on a shift other than between the hours of 8:00 AM and 5:00 PM shall receive an additional \$2.00 per hour.

OVERTIME:

Hours in excess of 8 per day, Monday through Friday, and all hours on Saturday shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular rate.

RECOGNIZED HOLIDAYS: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day, and Christmas Day. Sunday holidays observed the following Monday.

Hazardous Waste Pay (for Levels A, B, and C): an additional 15% of the hourly rate, per hour.

A newly hired Helper with no experience in the industry shall be paid as follows:

- 1st year on the job - 70% of Helper wage rate
- 2nd year on the job - 80% of Helper wage rate
- 3rd year on the job - 90% of Helper wage rate
- All helpers receive full fringe benefit rate.

Effective Dates:

12/01/2023

Rate	Fringe	Total
36.28	33.49	69.77

CLASSIFICATIONS:

Helper (4th year helper)

Effective Dates:

12/01/2023

Rate	Fringe	Total
46.25	33.49	79.74

CLASSIFICATIONS:

Driller

Effective Dates:

12/01/2023

Rate	Fringe	Total
52.66	33.49	86.15

CLASSIFICATIONS:

Foreman

HEAVY & GENERAL LABORERS - NORTH **Rates Expiration Date :**

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:

Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Passaic, Somerset, Sussex, Union, Warren

{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

SHIFT DIFFERENTIALS:

- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional \$3.00 per hour.

FOR TIDE WORK (pertains to tidal water): A contractor can start their job according to tide schedules (tide schedules are the various high and low tides related to this work) providing the eight (8) hour shift is completed between the hours of 5:00 AM and 6:30 PM.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

Hazardous Waste Work:

- where Level A, B, or C protection is required: + \$5.00/hr
- other Hazardous Waste site: + \$1.00/hr

Effective Dates:

	04/17/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
49.30	37.33	86.63	90.08	93.33

CLASSIFICATIONS:

"D" Rate:

basic, landscape, asphalt, slurry seal, or railroad track laborer; utility meter installer; flagman; salamander tender; pitman; dumpman; rakers or tampers on cold patch work; wrappers or coaters of pipe; waterproofer; timberman; wagon drill or drill master helper; powder carrier; magazine tender; signal man; power buggy operator; tree cutter; operator of basic power tools

Effective Dates:

	04/17/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
50.00	37.33	87.33	90.78	94.03

CLASSIFICATIONS:

"C" Rate:

pipe layer; laser man; conduit or duct line layer; operator of jack hammer, chipping hammer, pavement breaker, concrete cutter, asphalt cutter, sheet hammer, or walk-behind saw cutter; sandblaster; acetylene cutting or burning; wagon drill, directional drill, or hydraulic drill operator; drill master; core driller; asphalt raker or lute man

HEAVY & GENERAL LABORERS - NORTH **Rates Expiration Date :**

Effective Dates:

	04/17/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
50.25	37.33	87.58	91.03	94.28

CLASSIFICATIONS:

"B" Rate:

concrete finisher; setter of brick or stone pavers; stone cutter; form setter; manhole, catch basin, or inlet builder; asphalt screedman; rammer; hardscaping; gunite nozzle man

Effective Dates:

	04/17/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
53.80	37.33	91.13	94.58	97.83

CLASSIFICATIONS:

"A" Rate:

blaster

Effective Dates:

	04/17/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
53.55	37.33	90.88	94.33	97.58

CLASSIFICATIONS:

"FOREMAN" Rate:

labor foreman, asphalt foreman, drill foreman, pipe foreman, grade foreman, finisher foreman, concrete foreman

Effective Dates:

	04/17/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
54.55	37.33	91.88	95.33	98.58

CLASSIFICATIONS:

"GENERAL FOREMAN" Rate

Effective Dates:

	04/17/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
50.75	37.33	88.08	91.53	94.78

CLASSIFICATIONS:

TRAFFIC CONTROL COORDINATOR Rate

HEAVY & GENERAL LABORERS - SOUTH **Rates Expiration Date :**

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:

Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Ocean, Salem

{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

SHIFT DIFFERENTIALS:

- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional \$3.00 per hour.

FOR TIDE WORK (pertains to tidal water): A contractor can start their job according to tide schedules (tide schedules are the various high and low tides related to this work) providing the eight (8) hour shift is completed between the hours of 5:00 AM and 6:30 PM.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

Hazardous Waste Work:

- where Level A, B, or C protection is required: + \$5.00/hr
- other Hazardous Waste site: + \$1.00/hr

Effective Dates:

	03/21/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
49.30	37.33	86.63	90.08	93.33

CLASSIFICATIONS:

basic, landscape, or railroad track laborer; utility meter installer; flagman; salamander tender; pitman; dumpman; rakers or tampers on cold patch work; wrappers or coaters of pipe; waterproofers; tree cutter, timberman

Effective Dates:

	03/21/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
49.30	37.33	86.63	90.08	93.33

CLASSIFICATIONS:

wagon drill or drill master helper; powder carrier; magazine tender; signal man

HEAVY & GENERAL LABORERS - SOUTH **Rates Expiration Date :**

Effective Dates:

03/21/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
50.00	37.33	87.33	90.78	94.03

CLASSIFICATIONS:

pipe layer; laser man; conduit or duct line layer; operator of jack hammer, chipping hammer, pavement breaker, concrete cutter, asphalt cutter, sheet hammer, or walk-behind saw cutter; sandblaster; acetylene cutting or burning

Effective Dates:

03/21/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
50.00	37.33	87.33	90.78	94.03

CLASSIFICATIONS:

wagon or directional drill operator; drill master

Effective Dates:

03/21/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
53.80	37.33	91.13	94.58	97.83

CLASSIFICATIONS:

blaster

Effective Dates:

03/21/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
53.55	37.33	90.88	94.33	97.58

CLASSIFICATIONS:

labor foreman, drill foreman, pipe foreman, grade foreman, finisher foreman, concrete foreman

Effective Dates:

03/21/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
54.55	37.33	91.88	95.33	98.58

CLASSIFICATIONS:

general foreman

TERRITORY
ENTIRE STATE

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

HEAVY & GENERAL LABORERS - SOUTH Rates Expiration Date :

Effective Dates:

03/21/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
50.25	37.33	87.58	91.03	94.28

CLASSIFICATIONS:

concrete finisher; setter of brick or stone pavers; stone cutter; form setter; manhole, catch basin, or inlet builder; rammer; gunite nozzle man

PIPELINE - MAINLINE TRANSMISSION Rates Expiration Date :

These rates apply to the following: welding on Transportation Mainline pipe lines (cross-country pipe lines, or any segments thereof, transporting coal, gas, oil, water or other transportable materials, vapors or liquids, including portions of such pipe lines within private property boundaries up to the final metering station or connection - the point where a valve, consumer connection, or town border station divides mainline transmission lines or higher pressure lateral and branch lines from lower pressure distribution systems).

PER DIEM PAYMENT:

In addition to the total wage rate paid for each craft, the following per diem (per day) amounts must also be paid - Pipeline Journeyman: \$80.50; Pipeline Journeyman Welder: \$140.50; and Pipeline Helper: \$64.50. Note: in order to receive the per diem payment an employee must work a minimum of 8 hours in a 24 hour period.

NOTES:

- Journeymen employed as "stringer bead" welders and journeymen who are regularly employed as "hot-pass" welders shall receive \$1.00 per hour more than other journeymen.
- Welders running "stringer bead" or "hot-pass" on "cutouts" or "tie-ins" on a production basis shall be paid \$1.00 per hour above the journeymen rate.
- Whenever a welder helper is employed using a power buffer or power grinder immediately behind the stringer bead and/or hot-pass welders, and the pipe gang is set on a production basis, the helper shall be paid \$2.00 per hour above the helper rate.
- If back welding is performed inside a pipe under either or both of the following conditions, the welder engaged in the welding will receive \$3.00 per hour above the regular rate for the job only for the days on which such back welding is performed:
 - The employer elects, as a regular procedure, to back weld each line-up. This condition is not intended to apply to occasional back welding performed by the pipe gang to repair a bead, to rectify a "high-lo" condition or wall thickness, etc.
 - A welder is required to back weld a completed weld behind the firing line.
- If the welder helper is required to go inside the pipe for the purpose of brushing, buffing and grinding the weld, they shall receive a wage rate \$1.00 per hour above the regular helper rate for the days involved.
- Welders working on "hot work" shall be paid \$2.00 per hour above the regular rate for each day engaged in such work. "Hot work" is defined as work on lines in service where there is the danger of fire or explosion.

The regular workday shall be 8 hours, between 8:00 AM and 4:30 PM.

OVERTIME:

Hours in excess of 8 per day, and all hours on Sundays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on holidays shall be paid at double the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, July 4th, Labor Day, Thanksgiving Day, and Christmas Day. Sunday holidays observed the following Monday.

Effective Dates:

06/13/2024

Rate	Fringe	Total
57.34	35.90	93.24

CLASSIFICATIONS:

Pipeline Journeyman Welder

TERRITORY
ENTIRE STATE

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

PIPELINE - MAINLINE TRANSMISSION Rates Expiration Date :

Effective Dates:

06/13/2024

Rate	Fringe	Total
57.34	35.90	93.24

CLASSIFICATIONS:

Pipeline Journeyman

Effective Dates:

06/13/2024

Rate	Fringe	Total
33.84	25.02	58.86

CLASSIFICATIONS:

Pipeline Helper

PIPELINE - GAS DISTRIBUTION **Rates Expiration Date :**

These rates apply to the following: welding on gas line distribution systems (that portion of the gas distribution system placed in streets, roads, subways, tunnels, viaducts, highways and easements which serves the users of gas).

SHIFT DIFFERENTIALS:

An "irregular" shift may start any time from 5:00 PM to 12:00 AM, Monday through Friday, and shall receive an additional 15% of the regular rate per hour, inclusive of benefits.

OVERTIME:

Hours in excess of forty per week, and all hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day, and Christmas Day. Sunday holidays observed the following Monday.

Effective Dates:

11/01/2023

Rate	Fringe	Total
64.70	31.84	96.54

CLASSIFICATIONS:

Pipeline Journeyman Welder

Effective Dates:

11/01/2023

Rate	Fringe	Total
64.70	31.84	96.54

CLASSIFICATIONS:

Pipeline Journeyman

Effective Dates:

11/01/2023

Rate	Fringe	Total
41.00	23.56	64.56

CLASSIFICATIONS:

Pipeline Helper

ASPHALT LABORERS- NORTH **Rates Expiration Date :**

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:

Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Passaic, Somerset, Sussex, Union, Warren

{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

SHIFT DIFFERENTIALS:

- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional \$3.00 per hour.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

Hazardous Waste Work:

- where Level A, B, or C protection is required: + \$5.00/hr
- other Hazardous Waste site: + \$1.00/hr

FOR TIDE WORK (pertains to tidal water): A contractor can start their job according to tide schedules (tide schedules are the various high and low tides related to this work) providing the eight (8) hour shift is completed between the hours of 5:00 AM and 6:30 PM.

Effective Dates:

	04/17/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
53.55	37.33	90.88	94.33	97.58

CLASSIFICATIONS:

Asphalt Foreman

Effective Dates:

	04/17/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
50.25	37.33	87.58	91.03	94.28

CLASSIFICATIONS:

Asphalt Screedman

Effective Dates:

	04/17/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
50.00	37.33	87.33	90.78	94.03

CLASSIFICATIONS:

Asphalt Raker or Lute Man

TERRITORY
ENTIRE STATE

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

ASPHALT LABORERS- NORTH Rates Expiration Date :

Effective Dates:

04/17/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
49.30	37.33	86.63	90.08	93.33

CLASSIFICATIONS:

Asphalt Laborer

ELECTRICIAN- UTILITY WORK (NORTH) **Rates Expiration Date :**

Electrician-Utility Work (North)

(For apprentice rates refer to Electrician-Utility Work (North) in any county rate package).

These rates apply to work contracted for by the following utility companies:

Public Service Electric & Gas Co. of NJ, GPU Energy, Borough of Madison Electric Department, Sussex Rural Electric Cooperative, Rockland Utilities, and Butler Municipal Electric Co.

These rates do not apply to work on substations or switching stations.

For Utility work contracted for by a utility company other than those listed above or those listed under "Electrician-Utility Work (South), see the "Outside Commercial Rates" for the county in which the jobsite is located.

* FOR OUTSIDE COMMERCIAL RATES PLEASE SEE COUNTY RATES

The regular workday is 8 hours, between 6:00 AM and 6:00 PM.

FOR EMERGENCY WORK ONLY: (emergency work is defined as work caused by storm, catastrophe, act of god, and circumstances beyond the control of the employer)-all hours of work shall be paid at double the hourly rate.

SHIFT DIFFERENTIALS:

Shift work must run for a minimum of 5 consecutive workdays.

2nd shift (between the hours of 4:30 PM and 1:00 AM): 8 hours of work + 17.3% of the regular rate, inclusive of benefits.

3rd shift (between the hours of 12:30 AM and 9:00 AM): 8 hours of work + 31.4% of the regular rate per hour, inclusive of benefits.

OVERTIME:

Hours in excess of 8 per day, or before or after the regular workday Monday through Friday, that is not shift work, and all hours on Saturday shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the hourly rate, inclusive of benefits.

Four 10-hour days may worked, at straight time, between 6:00 AM and 6:00 PM, Monday through Thursday.

RECOGNIZED HOLIDAYS:

New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day and Christmas Day, or day on which they are legally observed.

Effective Dates:

	12/03/2023		12/01/2024
Rate	Fringe	Total	Total
62.94	43.42	106.36	109.56

CLASSIFICATIONS:

Chief Lineman

Effective Dates:

	12/03/2023		12/01/2024
Rate	Fringe	Total	Total
59.38	40.97	100.35	103.36

CLASSIFICATIONS:

Journeyman Lineman

TERRITORY
ENTIRE STATE

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

ELECTRICIAN- UTILITY WORK (NORTH) Rates Expiration Date :

Effective Dates:

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
59.38	40.97	100.35	103.36

CLASSIFICATIONS:

Special License Operator

Effective Dates:

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
58.79	40.56	99.35	102.32

CLASSIFICATIONS:

Transit Man

Effective Dates:

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
57.00	39.33	96.33	99.21

CLASSIFICATIONS:

Line Equipment Operator

Effective Dates:

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
49.88	34.41	84.29	86.81

CLASSIFICATIONS:

Dynamite Man

Effective Dates:

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
74.23	51.21	125.44	129.20

CLASSIFICATIONS:

General Foreman

Effective Dates:

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
68.29	47.12	115.41	118.85

CLASSIFICATIONS:

Assistant General Foreman

ELECTRICIAN- UTILITY WORK (NORTH) **Rates Expiration Date :**

Effective Dates:

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
66.51	45.89	112.40	115.76

CLASSIFICATIONS:

Line Foreman

Effective Dates:

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
48.10	33.18	81.28	83.72

CLASSIFICATIONS:

Street Light Mechanical Leader

Effective Dates:

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
45.72	31.54	77.26	79.58

CLASSIFICATIONS:

Groundman Winch Operator

Effective Dates:

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
45.72	31.54	77.26	79.58

CLASSIFICATIONS:

Groundman Truck Operator

Effective Dates:

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
45.13	31.13	76.26	78.55

CLASSIFICATIONS:

Street Light Mechanic

Effective Dates:

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
45.13	31.13	76.26	78.55

CLASSIFICATIONS:

Line Equipment Mechanic

ELECTRICIAN- UTILITY WORK (NORTH) **Rates Expiration Date :**

Effective Dates:

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
38.60	26.63	65.23	67.17

CLASSIFICATIONS:

Groundman 2nd Year

Effective Dates:

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
35.63	24.58	60.21	62.02

CLASSIFICATIONS:

Groundman 1st Year

Effective Dates:

12/03/2023			12/01/2024
Rate	Fringe	Total	Total
58.79	40.56	99.35	102.32

CLASSIFICATIONS:

Line Equipment Foreman

ELECTRICIAN- UTILITY WORK (SOUTH) **Rates Expiration Date :**

Electrician-Utility Work (South)

(For apprentice rates refer to Electrician-Utility Work (South) in any county rate package).

These rates apply to work contracted for by the following utility company:

Atlantic City Electric.

These rates do not apply to work on substations or switching stations.

For utility work contracted for by a utility company other than the one listed above or those listed under "Electrician-Utility Work (North), see the "Outside Commercial Rates" for the county in which the jobsite is located.

* FOR OUTSIDE COMMERCIAL RATES PLEASE SEE COUNTY RATES

The regular workday is 8 hours, between 7:00 AM and 4:30 PM.

FOR EMERGENCY WORK ONLY: (emergency work is defined as work caused by storm, catastrophe, act of god, and circumstances beyond the control of the employer)- all hours of work shall be paid at double the hourly rate.

SHIFT DIFFERENTIALS:

Shift work must run for a minimum of 5 consecutive workdays.

When two (2) or three (3) shifts are worked the following shall apply:

1st shift (between the hours of 8:00 AM and 4:30 PM)

2nd shift (between the hours of 4:30 PM and 12:30 AM): 8 hours of work + 10% of the regular rate of pay for 7.5 hours worked.

3rd shift (between the hours of 12:30 AM and 8:00 AM): 8 hours of work + 15% of the regular rate of pay for 7 hours worked.

OVERTIME:

Hours in excess of 8 per day, or before or after the regular workday Monday through Friday, that is not shift work, and all hours on Saturday shall be paid at time and one-half the regular rate. All hours on Sundays and Holidays shall be paid double the hourly rate.

Four 10-hour days may be worked, at straight time, between 6:00 AM and 6:00 PM, Monday through Thursday with Friday used as a make-up day.

RECOGNIZED HOLIDAYS:

New Year's Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day and Christmas Day or on days celebrated.

WORKING RULES:

There shall be a Foreman in charge of each work crew. No crews are to exceed twelve (12) men, including Foremen.

There shall be a General Foreman designated for transmission work when three (3) or more crews are on the same job and for distribution work where there are more than twenty (20) employees on site.

A small job crew shall consist of five (5) or less employees, one (1) of the Journeyman Linemen in the crew shall be designated as a Small Job Foreman.

Work performed from ladders and/or mechanical lift equipment shall be the work of Linemen and/or Apprentices.

On new construction, fitting and framing poles, towers or structures may be done by Journeymen and/or Apprentices. Groundmen may assist, but may not perform any work which would be performed by Linemen if assembled in the air.

There shall be a Journeyman Lineman in each pole setting, erection, grounding, wire and cable-pulling crew of more than three (3) men.

Effective Dates:

12/03/2023

Rate	Fringe	Total
69.38	57.15	126.53

CLASSIFICATIONS:

General Foreman

ELECTRICIAN- UTILITY WORK (SOUTH) **Rates Expiration Date :**

Effective Dates:

12/03/2023

Rate	Fringe	Total
61.79	52.45	114.24

CLASSIFICATIONS:

Foreman

Effective Dates:

12/03/2023

Rate	Fringe	Total
58.54	50.46	109.00

CLASSIFICATIONS:

Small Job Foreman

Effective Dates:

12/03/2023

Rate	Fringe	Total
54.20	47.78	101.98

CLASSIFICATIONS:

Heavy Equipment Operator

Effective Dates:

12/03/2023

Rate	Fringe	Total
54.20	47.78	101.98

CLASSIFICATIONS:

Cable Splicer

Effective Dates:

12/03/2023

Rate	Fringe	Total
54.20	47.78	101.98

CLASSIFICATIONS:

Journeyman Lineman

Effective Dates:

12/03/2023

Rate	Fringe	Total
54.20	47.78	101.98

CLASSIFICATIONS:

Journeyman Welder

ELECTRICIAN- UTILITY WORK (SOUTH) Rates Expiration Date :

Effective Dates:

12/03/2023

Rate	Fringe	Total
54.20	47.78	101.98

CLASSIFICATIONS:

Journeyman Painter

Effective Dates:

12/03/2023

Rate	Fringe	Total
43.36	41.09	84.45

CLASSIFICATIONS:

Light Equipment Operator

Effective Dates:

12/03/2023

Rate	Fringe	Total
37.94	37.71	75.65

CLASSIFICATIONS:

Groundman Truck Driver

Effective Dates:

12/03/2023

Rate	Fringe	Total
35.23	36.05	71.28

CLASSIFICATIONS:

Groundman 3rd Year

Effective Dates:

12/03/2023

Rate	Fringe	Total
32.52	34.37	66.89

CLASSIFICATIONS:

Groundman 2nd Year

Effective Dates:

12/03/2023

Rate	Fringe	Total
29.81	32.69	62.50

CLASSIFICATIONS:

Groundman 1st Year

TERRITORY
ENTIRE STATE

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

ELECTRICIAN- UTILITY WORK (SOUTH) Rates Expiration Date :

Effective Dates:

12/03/2023

Rate	Fringe	Total
23.85	29.03	52.88

CLASSIFICATIONS:

Flagman

HEAVY & GENERAL LABORERS- NEW TRANS HUDSON TUNNELS Rates Expiration Date :

****THESE RATES APPLY TO CONSTRUCTION ON NEW TRANS HUDSON TUNNELS ONLY****

{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

SHIFT DIFFERENTIALS:

- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional \$3.00 per hour.

OVERTIME:

- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

Hazardous Waste Work:

- where Level A, B, or C protection is required: + \$5.00/hr
- other Hazardous Waste site: + \$1.00/hr

Traffic Control Coordinator: When either of the work classifications found below are working as a Traffic Control Coordinator they are to receive \$.75 above their current rate of pay.

Effective Dates:

	04/17/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
78.08	37.33	115.41	119.68	123.81

CLASSIFICATIONS:

Walking Boss & Superintendent

Effective Dates:

	04/17/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
77.63	37.33	114.96	119.23	123.36

CLASSIFICATIONS:

Heading Foreman, Shaft Foreman, Rod Foreman, Electrical Foreman, Rigging Foreman

HEAVY & GENERAL LABORERS- NEW TRANS HUDSON TUNNELS **Rates Expiration Date :**

Effective Dates:

	04/17/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
76.88	37.33	114.21	118.48	122.61

CLASSIFICATIONS:

Iron Foreman, Caulking Foreman, Form Foreman, Cement Finishing Foreman, Concrete Foreman, Track Foreman, Clean-up Foreman, Grout Foreman

Effective Dates:

	04/17/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
80.63	37.33	117.96	122.23	126.36

CLASSIFICATIONS:

Blaster

Effective Dates:

	04/17/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
76.05	37.33	113.38	117.66	121.78

CLASSIFICATIONS:

Top Labor Foreman

Effective Dates:

	04/17/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
75.53	37.33	112.86	117.13	121.26

CLASSIFICATIONS:

Skilled Men (including Caulker, Powder Carrier, all other skilled men)

Skilled Men (including Miner, Drill Runner, Iron Man, Conveyor Man, Maintenance Man, Safety Miner, Rigger, Block Layer, Cement Finisher, Rod Man)

Effective Dates:

	04/17/2024		03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
75.30	37.33	112.63	116.91	121.03

CLASSIFICATIONS:

Semi-Skilled Men (including Bell or Signal Man top or bottom, Form Worker & Mover, Concrete Worker, Shaft Man, Tunnel Laborer, Caulker's Helper, all other semi-skilled)

Semi-Skilled Men (including Miner's Helper, Chuck Tender, Track Man, Nipper, Brake Man, Derail Man, Cable Man, Hose Man, Gravel Man, Form Man)

TERRITORY
ENTIRE STATE

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

HEAVY & GENERAL LABORERS- NEW TRANS HUDSON TUNNELS Rates Expiration Date :

Effective Dates:

04/17/2024			03/01/2025	03/01/2026
Rate	Fringe	Total	Total	Total
74.70	37.33	112.03	116.31	120.43

CLASSIFICATIONS:

All others (including Powder Watchman, Change House Attendant, Top Laborer, Job Steward)

TECHNICAL SPECIFICATIONS

This project shall be governed by the “New Jersey Department of Transportation, Standard Specifications for Road and Bridge Construction, 2019” using U.S. Customary English Units except as noted in the following specification.

Payment descriptions within the following specifications prevail over the “New Jersey Department of Transportation Standard Specifications for Road and Bridge Construction 2019.”

All unit prices shall be in accordance with the Bidder’s Proposal. Any unit prices not included in the Bidder’s Proposals shall be assumed distributed across all unit prices.

Any references in this specification to a specific product line or proprietary item, it is understood that the specification refers to that product or an approved equal. The lack of the phrase “or approved equal” does not imply that the specified product is the only product that will be allowed. However, it will be the successful bidder’s burden to prove that an alternate product meets the specification called for.

Should there be a conflict between the plans and specifications, the items shall govern in the following order.

- Addendums to the bid to include changes to the plans
- Technical Specifications
- Plans

MATTANO PARK IMPROVEMENTS
BA#50 - 2024; UNION COUNTY ENGINEERING PROJECT NO. 2019-012

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SECTION 011100 – CONTRACT ALLOWANCE

PART 1 – GENERAL

1.1 ALLOWANCE FOR SITE SIGNAGE

A. The work shall include the furnishing and installation of the interpretive signage detailing the history and significance of Mattano Park and the Olmsted Brothers' design to be displayed in a publicly accessible area. The final design of this sign must be reviewed and approved by HPO prior to installation. Neglia is in the process of obtaining approval, detail of said signage will be provided to installation. The signage shall include a colorful panel mounted on a pedestal or wall and the content shall incorporate historic photographs as well as text regarding the historic significance of the park and its role within the larger Union County Park system. The location, content, size, and text of the signage shall be submitted to the HPO for review and approval prior to fabrication. The sign shall be installed, and verification of installation shall be provided within three (3) months of project completion.

B. Submittal Requirements

The Contractor shall provide all invoices from labor, subcontractors and material to the Engineer for his review and approval. The Contractor shall not be reimbursed under the allowance for any work which he/she has not demonstrated is part of the work authorized by the Engineer.

The Contractor shall not proceed with the work associated with the cash allowance until all costs associated with the work have been authorized in writing by the Engineer.

PART 2 – PRODUCTS – Not Applicable.

PART 3 – EXECUTION – Not Applicable.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

A. Payment for the Contract Allowance will be made for the quantity as above determined, at the allowance bid for the item **CONTRACT ALLOWANCE FOR SITE SINGAGE**, in the Proposal, which price shall include the cost of the sign board, posts, hardware and accessories, mounting installation, all labor, material, and all else necessary therefore and incidental thereto for completion of operations as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 012110 – TESTING & DISPOSAL OF UNSUITABLE SOILS

PART 1 – GENERAL

1.1 DESCRIPTION

- A. This work shall consist of excavating, temporary stockpiling, and disposing of all materials excavated, inclusive of any volatile organic compounds, that are unsuitable for backfill as set forth at NJAC 7:14A-2.13 and at the discretion of the engineer and not considered to be solid waste pursuant to NJAC 7:26-1.6.
 - a. Stockpile locations will be chosen by the owner for the project within the City of Elizabeth.
 - b. The boundary of the stockpile area shall be clearly marked by hay bales, silt fencing or another appropriate method. Where fill is to be stored in excess of 10 days, a suitable means of protecting excavated material from wind and water erosion shall be employed. Erosion control methods may include one or more of the following: mulching, sprinkling, silt fencing, hay bailing and stone covering.
 - c. Excess excavated material which is not considered to be solid waste pursuant to NJAC 7:26-1.6 shall be removed from the site and disposed of it at an approved site in accordance with the following:
 - i. Disposal sites selected by the contractor shall be approved by the project sponsor prior to their use. The project sponsor, may, at its discretion, conduct periodic inspection of disposal sites to ensure compliance with the requirements of this subsection during the off-site disposal operation.
 - ii. The disposal of excess excavated material in wetlands, vernal habitats, stream corridors and floodplains is strictly prohibited, even if the permission of the property owner is obtained. The contractor shall be responsible to remove any fill improperly placed by the contractor at the contractor's expense and restore the area impacted.
 - iii. If excess excavated material is placed on private property, a hold harmless release in favor of the project sponsor shall be obtained from the property owner, to be obtained by the Contractor.

PART 2 – PRODUCTS – Not Applicable.

PART 3 – EXECUTION – Not Applicable.

PART 4 – QUANTITY & PAYMENT

4.1 QUANTITY AND PAYMENT

- A. Payment for Testing & Disposal of Unsuitable Soils (Where Directed) shall be made on a reimbursement for all work within the allowance price given for item **CONTRACT ALLOWANCE FOR TESTING AND DISPOSAL OF UNSUITABLE SOILS** in the Proposal which

price shall include the cost of excavating, temporary stockpiling, testing, and disposing of all materials excavated that are unsuitable for backfill as set forth at NJAC 7:14A-2.13 and at the discretion of the engineer and not considered to be solid waste pursuant to NJAC 7:26-1.6., any and all materials, all labor and equipment and all else necessary and incidental thereto.

All work must be ordered by the Engineer to qualify for payment. This item is intended to be utilized to compensate the contractor for the unknown soil testing, stockpile, storage and disposal not specified, but necessary to complete the work not called for or shown on the plans.

The contractor will be paid from the allowance based on a mutually agreeable price between the contractor and the Engineer prior to commencing modifications for those items as ordered by the Engineer in writing.

Nothing herein shall constitute a guarantee that the contractor is entitled to payment of the full allowance. If no work is done under this item, the full amount shall not be paid by the owner to the Contractor. To qualify for payment, work must be ordered by the Engineer in writing. Contractor shall submit a price for said work for review by engineer prior to proceeding.

END OF SECTION

SECTION 013220 – SUBMITTALS

PART 1 – GENERAL

1.1 DESCRIPTION

- A. This section specifies the general methods and requirements of submissions applicable to the following work-related submittals: Shop Drawings, Product Data, and Samples.
- B. Shop Drawings:
 - 1. Shop drawings as specified in individual work sections include, but are not necessarily limited to, data such as fabrication and drawings, scheduled information, setting diagrams, actual shopwork manufacturing instructions, custom templates, coordination of drawings, individual system or equipment inspection and test reports including performance curves and certifications, as applicable to the Work.
 - 2. All shop drawings submitted by subcontractors for approval shall be sent directly to the Contractor for preliminary checking. The Contractor shall be responsible for their submission at the proper time so as to prevent delays in delivery of materials.
 - 3. The Contractor shall check all subcontractor's shop drawings regarding measurements, size of members, materials and details to satisfy himself that they conform to the intent of the Contract Drawings and Specifications. Drawings found to be inaccurate or otherwise in error shall be returned to the subcontractors for correction before submission thereof.
 - 4. All details on shop drawings submitted for approval shall show clearly the elevations of the various parts to the main members and lines of the structure and where correct fabrications of the work depends upon field measurements, such measurements shall be made and noted on the drawings before being submitted for approval.
- C. Product Data:
 - 1. As specified in individual sections, include but are not necessarily limited to standard prepared data for manufactured products (sometimes referred to as catalog data), such as the manufacturer's product specifications and installation instructions and manufacturer's printed statements of compliances and applicability, catalog cuts, product photographs, production or quality control inspection and test reports and certifications, mill reports, product operating and maintenance instructions and recommend spare parts listing, and printed product warranties, as applicable to the Work.
- D. Samples:
 - 1. Samples specified in individual sections include but are not necessarily limited to physical examples of the work, such as sections of manufactured or fabricated work, of pattern swatches and as applicable to the Work.
- E. Contractor's Responsibilities:

1. The Contractor shall review shop drawings, product data and samples prior to submission to determine and verify the following: Field measurements, field construction criteria, catalog numbers and similar data, and conformance with the specifications.
2. Each shop drawing, working drawing, sample and catalog submitted by the Contractor shall have affixed to it the following Certification Statement, signed by the Contractor: "Certification Statement: By this submittal, I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data and I have checked and coordinated each item with other applicable approved shop drawings and all Contract requirements."
3. Notify the Owner in writing, at the time of submittal, of any deviations in the submittals from the requirements of the contract documents.
4. No portion of the work requiring a shop drawing, working drawing, sample or catalog data shall be started nor shall any materials be fabricated or installed prior to the approval or qualified approval of such item. Fabrication performed, materials purchased or on-site construction accomplished which does not conform to approved shop drawings and data shall be at the Contractor's risk. The Owner will not be liable for any expense or delay due to corrections or remedies required to accomplish conformity.
5. Project work, materials, fabrication and installation shall confirm with approved shop drawings, working drawings, applicable samples and catalog data.

F. Submission Requirements:

1. Make submittals promptly in accordance with approved schedule and in such sequence as to cause no delay in the Work or in the work of any other Contractor.
2. Number of submittals required:
 - a. Shop Drawings – submit three (3) copies.
 - b. Product Data – submit three (3) copies.
 - c. Samples – submit the number stated in the respective Specification Section.
3. Submittals shall contain:
 - a. The date of submission and the dates of any previous submissions.
 - b. The project title and number.
 - c. Contractor identification.
 - d. The names of the Contractor, Supplier and Manufacturer.
 - e. Identification of the product, with the specification section number.
 - f. Field dimensions, clearly identified as such.
 - g. Relation to adjacent or critical features of the Work or materials.
 - h. Applicable standards, such as ASTM or Federal Specification numbers.

- i. Identification of deviations from Contract Documents.
- j. Identification of revisions or resubmittals.
- k. A 5-inch by 4-inch blank space for Contractor and Engineer Stamp.

G. Resubmission Requirements:

1. Make any corrections or changes in the submittals required by the Engineer and resubmit until approved.
2. Shop Drawings and Product Data:
 - a. Revise initial drawings or data and resubmit as specified for the initial submittal.
 - b. Indicate any changes which have been made other than those requested by the Engineer.
3. Samples: submit new samples as required for initial submittal.

H. Distribution:

1. Distribute reproductions of approved shop drawings and copies of approved product data and samples, where required, to the job site file and elsewhere as directed by the Engineer. Number of copies shall be as directed by the Engineer but shall be a of three (3) copies.

I. General Procedure for Submittals:

1. Coordination of Submittal Times – Prepare and transmit each submittal sufficiently in advance of performing the related work or other applicable activities, or within the time specified in the individual work sections of the Specifications, so that the installation will not be delayed by processing times including disapproval and resubmittal (if required), coordination with other submittals, testing, purchasing, fabricating, delivery and similar sequenced activities. No extension of time will be authorized because of the Contractor's failure to transmit submittals sufficiently in advance of the work.
2. Workmanship Bonds – Where specific units of work require the issuance of a bond or similar provision, as a means of assuring the Owner that certain possible failures of the work to perform as represented will be rectified at someone else's expense, submit fully executed bond backed by a surety company acceptable to the Owner and in the principal amount indicated. Include information sheet for the Owner's maintenance/operating personnel outlining proper procedures in case of failure or other instances which might affect the validity of the bond; list names, addresses and telephone numbers for the Owner's emergency and follow-up in connection with the implementation of each bond.

PART 2 – PRODUCTS – Not Applicable.

PART 3 – EXECUTION – Not Applicable.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. No specific payment shall be made for the above item. The cost of the above described work shall be included in the overall price bid for the various applicable items in the Proposal.

END OF SECTION

SECTION 013233 – PRE-CONSTRUCTION PHOTOGRAPHS

PART 1 – GENERAL

1.1 DESCRIPTION

- A. The Contractor shall furnish photographs, taken by a professional photographer acceptable to the Engineer, to show the condition of the site prior to construction, as well as to show the progress of the work.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Prints of pre-construction and construction photographs shall be 3 inch by 5-inch size, mounted on cardboard and provided with reinforced 1inch wide flap, punched with 2 holes for binding, spaced 4 ¼ inches apart. The binding flap shall be located along the 8-inch dimension, and at the lower right hand corner on the front. The title shall include the name of the photographer, name of the project, contract number, station or other description, direction of view and date the picture was taken. The photographs shall also be numbered consecutively. Negatives of all photographs shall be furnished to the Engineer.

PART 3 – EXECUTION

3.1 METHODS OF PHOTOGRAPHS

- A. Pre-construction photographs shall be taken where directed by the Engineer to especially note the character of all easements and the condition of any structures, lawns, trees, streets, sidewalks, etc., which might be damaged, and shall average at least one photograph for each 50 feet of street or easement in the contract. The Engineer shall be provided with one matte print of each photograph. A minimum of thirty-six construction photographs shall be taken each month at regular intervals while the work is in progress. Photographs shall be taken at such times and at such locations as may be determined by the Engineer. One matte print of each picture taken during the month shall be submitted to the Engineer at the time of submitting the periodic estimate for progress payment.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. No specific payment shall be made for the above item. The cost of the above described work shall be included in the overall price bid on the project.
- B. Contractors are advised that damage claims by property owners, which cannot be disputed by pre-construction photographs, will be required to restore the claimed

damage. Therefore, pre-construction photos will be required and furnished to the engineer. Separate payment will not be made for pre-construction photos and shall be included in the various bid items.

- C. Should the Contractor fail to take pre-construction photos, any property damage complaints received will be repaired by the contractor at no cost to the owner.

END OF SECTION

SECTION 014126 – REGULATORY PERMITS

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Portions of the project site are located within areas regulated by the New Jersey Department of Environmental Protection (“NJDEP”). Neglia Group has obtained the required Land Use permits from the NJDEP to construct the improvements shown on the Contract Documents. In addition, Neglia Group has obtained from the Somerset-Union County Soil Conservation District. Copies of said approvals are provided prior within Appendix A of these specifications.
- B. The Contractor shall not exceed the approved limits of disturbance shown on the plans. If the Contractor requires additional area in which to construct the proposed improvements, NJDEP Land Use and Somerset-Union County Soil Conservation District re-approval will be required, the cost of which shall be borne by the Contractor, at no additional expense to the Union County, the Owner or Neglia Group.

PART 2 – PRODUCTS – Not Applicable

PART 3 – EXECUTION

3.1 ADDITIONAL REGULATORY PERMITS REQUIRED

- A. The Contractor shall not exceed the approved limits of disturbance shown on the plans. If the Contractor requires additional area in which to construct the proposed improvements, NJDEP Land Use Permit and Somerset-Union Soil Conservation District re-approval will be required. The cost of obtaining any required NJDEP Land Use Permit or Somerset-Union Soil Conservation District re-approval shall be borne solely by the Contractor, at no additional expense to the Union County, the Owner or Neglia Group.

END OF SECTION

SECTION 015526 – MAINTENANCE AND PROTECTION OF TRAFFIC

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Under this Contract this item shall mean that the Contractor shall provide for the safe passage of vehicles and pedestrians for safe ingress and egress to properties abutting the limits of construction, including but not limited to the use of flagmen, cones, barrels, etc., in any and all areas where contractor deems it necessary. The portions outside the limits of construction which are open to traffic shall be kept in pre-construction conditions to allow for the safe passage of vehicular and pedestrian traffic.
- B. This item shall also include the maintenance and protection of off-site traffic (e.g. roadways, sidewalks, curbs, etc.) and shall include any and all materials necessary to provide for this passage, and that the Contractor shall abide to all of the rules and regulations as set forth in Section 110 - Traffic Control of the applicable New Jersey State Highway Department Standard Specifications as amended in the Standard Specifications of this project.
- C. The Contractor may utilize outside agencies (e.g. Security Company) to maintain traffic. Any outside agencies must be certified with the County of Union.
- D. The Contractor is responsible for all maintenance, safety and protection of traffic until the project is complete and turned over to the project Owner. The Contractor shall hold harmless the County of Union and its representatives, project construction managers and Neglia Group for any safety incidents during the project construction period.
- E. For work occurring within the Fifth Avenue right-of-way, a uniformed police officer(s) will be required for traffic control.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. All maintenance and protection of traffic shall be performed with devices per the NJDOT and/or MUTCD.

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

- A. Contractor shall perform all maintenance and protection of traffic in accordance with all NJDOT and MUTCD requirements.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. Payment for Maintenance and Protection of Traffic will be made on a lump sum basis at the price bid for the items **MAINTENANCE AND PROTECTION OF TRAFFIC** within the Proposal, which price shall include the cost of any and all materials, all labor and equipment, and all else necessary therefore and incidental thereto for completion of operations as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 017113 – MOBILIZATION / DEMOBILIZATION

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Mobilization / demobilization shall consist of the cost of initiating the contract, including preparatory work and operations, necessary for the movement of personnel, equipment, supplies and incidentals to the Project site, and other work performed or costs incurred prior to beginning work and completing work. In any case of inconsistencies with the N.J.A.C. 7:14-2.9, the NJ Administrative Code shall govern.

PART 2 – PRODUCTS – Not Applicable

PART 3 – EXECUTION – Not Applicable

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. Payment for mobilization / demobilization will be made on a lump sum basis, which price shall include the cost of initiating the contract, regardless of the fact that the Contractor may have, for any reason, shut down his work on the Project or moved equipment away from the Project and back again, in accordance with Standard Specifications Section.

Payment will be made in accordance with the following schedule:

- When 5% of the work is completed - 25% of the amount bid for mobilization or 2.5% of the Total Contract Price, whichever is less, will be paid;
- When 10% of the work is completed - 50% of the amount bid for mobilization or 5% of the Total Contract Price, whichever is less, will be paid;
- When 15% of the work is completed – 75% of the amount bid for mobilization or 7.5% of the Total Contract Price, whichever is less, will be paid;
- When 20% of the work is completed – 100% of the amount bid for mobilization or 10% of the Total Contract Price, whichever is less, will be paid upon completion of all work on the project, payment for the amount bid for mobilization in excess of 10% of the Total Contract Price will be made.
- The percentage of work completed shall be the total of payments earned compared to the Total Contract Price. The total of payments earned excludes the amount paid for this item and the amount paid for materials furnished but not incorporated into the work in accordance with Subsection 109.06, as shown on the monthly estimates of the approximate quantities of work done, prepared in accordance with Subsection 109.05.

The lump sum price bid for mobilization / demobilization is limited to the following maximum amounts

Original Contract Amount
(Including Mobilization)

For More Than	To and Including	Maximum Amount for Item of Mobilization
\$0	\$100,000	\$3,000
\$100,000	\$500,000	\$15,000
\$500,000	\$1,000,000	\$30,000
\$1,000,000	\$2,000,000	\$60,000
\$2,000,000	\$3,000,000	\$90,000
\$3,000,000	\$4,000,000	\$120,000
\$4,000,000	\$5,000,000	\$125,000
\$5,000,000	\$6,000,000	\$150,000
\$6,000,000	\$7,000,000	\$175,000
\$7,000,000	\$10,000,000	\$200,000
\$10,000,000		2.5% of amount bid

- B. Payment for Mobilization/Demobilization will be made on a lump sum basis at the price bid for the item **MOBILIZATION / DEMOBILIZATION** in the Proposal which price shall include the cost of any and all materials, all labor and equipment and all else necessary and incidental thereto for completion of operations as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 017123 – CONSTRUCTION LAYOUT

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Under this item the Contractor shall provide all work required in connection with the layout for construction of the project, using the control points and data furnished by the project Licensed Surveyor.
- B. All work shall be constructed according to the lines and grades shown and approved. At the site, the Owner's Engineer will lay-out and mark upon the ground a base line and bench mark, from which the Contractor shall be responsible for staking/laying out the construction lines, in accordance with N.J.A.C. 7:14-2.5. For sewers, the Engineer will lay out and mark suitable number of control points and bench marks, averaging about one every 500 feet. The Contractor shall employ the services of a land surveyor, licensed to practice in this state, for laying out the work, including setting of key or principal stakes, markers and levels, and preparation of cut sheets, if required, on a form approved by the Engineer.

PART 2 – PRODUCTS – Not Applicable

PART 3 – EXECUTION

3.1 METHOD OF STAKEOUT

- A. The Contractor shall submit all necessary computations to establish the exact position of all the work from the control points furnished by the project Licensed Surveyor, along with construction grade sheets, prepared by a licensed land surveyor hired by the Contractor, to Neglia Group for approval prior to the start of construction.
- B. The Contractor shall maintain the line and grade stakes furnished by the project Surveyor for his use in staking out the work. If such control points are damaged, lost, displaced or removed, they shall be reset or replaced at a charge to the Contractor for the actual cost of the work.
- C. The Contractor shall be responsible for maintaining the points he has established. Any error or apparent discrepancies found in the plans or specifications shall be called to the attention of Neglia Group in writing for interpretation prior to proceeding with the work.
- D. Should any inconsistencies arise during layout by the Contractor's surveyor, Neglia Group must be advised prior to construction. Any downtime costs incurred by the contractor due to inconsistencies will not be absorbed by Neglia Group.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. The quantity of Construction Layout, for which payment will be made, will be on a lump sum basis for the item **CONSTRUCTION LAYOUT** in the Proposal, which prices shall include the furnishing of all materials, labor, equipment and all else necessary therefore for completion of operations as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 017329 – SAWCUTTING

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Sawcutting shall consist of the cutting of sidewalks, concrete, driveways, curbs and pavements of whatever nature in order to maintain a clean finished look when matching into existing areas of concrete and asphalt where directed Neglia Group.

PART 2 – PRODUCTS – Not Applicable

PART 3 – EXECUTION

3.1 MATERIALS - METHODS OF CONSTRUCTION

- A. Concrete or bituminous surfaces shall be cut through the entire pavement thickness in a straight, neat line using diamond-tipped blades with water, as approved by Neglia Group.

***PLEASE NOTE THAT JACK-HAMMERED OR BROKEN EDGES WILL NOT BE ACCEPTED UNDER ANY CIRCUMSTANCES.**

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. No specific payment will be made for sawcutting and the cost thereof shall be included in the prices bid for the various items within the bid proposal.

END OF SECTION

SECTION 017423 – FINAL CLEANUP / SITE RESTORATION

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Under this item the Contractor shall restore the work site and access area to its original condition including, but not limited to signage, existing monuments, fences, hedges, re-grading, seeding, landscape areas, trees, drainage structures and castings, repair of driveways, relocation of park benches, (both bituminous and concrete) sidewalks, roadways, curbs, cleaning and removal of stockpiles and equipment, any underground electrical conduit servicing lighting and all else not specifically covered elsewhere in these specifications.

PART 2 – PRODUCTS

2.1 MATERIALS

NJDOT 2019 Standard Specifications

- A. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements as well as the following documents:
- New Jersey Department of Environmental Protection (NJDEP) Site Remediation Program (SRP) – Fill Material Guidance for SRP Sites;
 - NJDEP SRP – Historic Fill Material Technical Guidance;
 - NJDEP – Solid and Hazardous Waste Management Program – Guidance for Characterization of Concrete and Clean Material for Recycling; and
 - Site-specific Health and Safety Program (HASP), prepared by the LSRP.
- B. The Contractor shall identify the location and address of the disposal facility. Under no circumstances will any material be exported or imported from the Site without direct approval from Neglia and/or LSRP.

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

- A. The site shall be returned to its original condition. Fences shall be reinstalled with posts in concrete footings in accordance with the plans and specifications herein. Hedges shall be reinstalled where possible or replaced in kind and in the same locations as existing. Lawn areas disturbed by Contractor's activities shall be re-graded, seeded and mulched as specified by Neglia Group.

- B. All pavement and sidewalks, where construction fence was previously located, shall be repaired. Cleaning shall include hand-brooming of sidewalk and pavement areas. Adjacent structures shall be cleaned, as necessary, by a method approved by Neglia Group and/or County Engineers. Sidewalks shall be replaced with concrete walk in evenly-sized slabs, saw-cut where necessary, only to the extent damaged by the construction. Both concrete and bituminous concrete shall be repaired as specified by Neglia Group and/or County Union, saw-cut where necessary, only to the extent damaged by the construction. All construction equipment and stockpiles shall be removed from the site and disposed of by the Contractor in a suitable and timely manner.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. The quantity of Final Cleanup / Site Restoration for which payment will be made will be on a lump sum basis for the item **FINAL CLEANUP / SITE RESTORATION** in the Proposal, which price shall include the cost of any and all materials, labor and equipment and all else necessary and incidental thereto for completion operations as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 022400 – DEMARCATION BARRIER

PART 1 – GENERAL

1.1 DESCRIPTION

- A. This item shall include the furnishing and installation of a demarcation barrier in accordance with the New Jersey Department of Environmental Protection Site Remediation Program Presumptive and Alternative Remedy Technical Guidance, latest edition.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Geotextile Fabric: Geotextile fabric shall be Mirafi Geotextile Fabric – HP270, as manufactured by Tencate Mirafi, Mirafi HP270, approved or equal.

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

- A. The demarcation barrier shall be installed as a visible boundary marker between certified clean material and historic fill on site. Installation shall be as indicated on the Drawings and specifications and as directed by the Engineer.

- B. Demarcation Barrier Required:

Location	Type
Landscape areas – as per construction plans and as directed by the LSRP ⁽¹⁾	Geotextile fabric
Pavement and concrete areas – as per construction plans and as directed by the LSRP	Geotextile fabric
Lighting fixture foundations – as construction plans and as directed by the LSRP	Geotextile fabric
Drainage pipe and structures – as per construction plans and as directed by the LSRP	Geotextile fabric

- (1) One (1) foot of clean fill is required within all lawn and landscape areas and within the clean fill areas, as per the construction plans and as directed by the LSRP.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. Payment for demarcation barrier will be made for the quantity measured in square yards at the price bid for the item **DEMARCATIION LAYER** in the Proposal which price shall include any and all materials, installation and all labor and equipment, and all else necessary and incidental thereto for completion of operations as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 023219 – TEST PITS

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Test pits shall include the excavation of surface and subsurface materials for the location of subsurface utilities and backfill of all earth, rock, boulders, brick and removal of all materials encountered and all incidental work to the satisfaction of the engineer, and shall also include the restoration of all hardscape areas in accordance with the construction documents.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Borrow material required for backfill of test pits shall conform to applicable Sections of the 2019 NJDOT Standard Specifications. The Contractor shall provide Neglia Group with certification attesting that said material is free of contaminants and suitable for this application. The soil shall be smooth, soft and free of depressions, clods, mounds, stones, or other debris as approved by Neglia Group.
- B. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements as well as the following documents:
 - New Jersey Department of Environmental Protection (NJDEP) Site Remediation Program (SRP) – Fill Material Guidance for SRP Sites;
 - NJDEP SRP – Historic Fill Material Technical Guidance;
 - NJDEP – Solid and Hazardous Waste Management Program – Guidance for Characterization of Concrete and Clean Material for Recycling; and
 - Site-specific Health and Safety Program (HASP), prepared by the LSRP.
- C. The Contractor shall identify the location and address of the disposal facility. Under no circumstances will any material be exported or imported from the Site without direct approval from Neglia and/or LSRP.

PART 3 – EXECUTION

3.1 METHOD OF CONSTRUCTION

- A. Prior to the excavation of Test Pits, all existing on-site and off-site subsurface items (e.g. utilities, drainage, conveyance networks, tunnels) shall be located which may be affected by or interfere with the proposed construction. Test pits shall be backfilled in accordance with Section 202 - Excavation in the 2019 New Jersey Department of Transportation Standard Specifications.

- B. When backfilling the test pit, the soil shall be placed uniformly in layers not to exceed 12 inches loose thickness. Each layer shall be compacted to 95% density in accordance with the NJDOT 2019 Standard Specifications.
- C. The contractor shall make provisions to implement approved dust control measures while performing this work so as not to impact surrounding residences. Should the contractor fail to implement these measures, he will be responsible to power-wash all structures, at no additional cost to the owner.
- D. Excavated areas are to be restored in-kind with existing conditions.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. The quantity of test pits for which payment will be made will be on a per cubic yard basis for the item **TEST PITS (IF AND WHERE DIRECTED)** in the Proposal, which shall cover the cost of excavation, backfill, and restoration, whether temporary or permanent in nature furnishing all materials, labor and equipment necessary to construct the Test Pits, as shown on the Plans or as directed by the Engineer.

END OF SECTION

SECTION 024113 – SITE CLEARING / DEMOLITION

PART 1 – GENERAL

1.1 DESCRIPTION

- A. **Prior to demo, a site meeting is required with Engineer/County/Contractor to determine utility demo limits of formal scope.**
- B. Under this item the Contractor shall remove and dispose of all fences, concrete pads, concrete foundations, clay mounds, clay, utility poles, asphalt, bleachers, benches, drainage structures, flagpoles, gates, boulders, drainage pipes, curb, sidewalk, grass, tree roots/stumps, shrubs, hedges, brush, stumps, roots, topsoil, dirt, stones, and all debris; the removal of which is required for carrying out the work of this project, shall be removed. Contractor shall perform test pits to locate any uncertainties in existing utilities to determine if these structures interfere or affect the proposed construction. Any tree less than 6" for removal shall be paid under this item.
- C. The Contractor shall remove and dispose of pipes, inlets, manholes, reinforced concrete pavement, bituminous pavement, concrete and bituminous sidewalk, and curb, as necessary for the proposed construction. Contractor shall remove and reset street and road signs, not otherwise paid for; remove and reset any monuments, shrubs and fences; remove and reset to grade manhole and catch basin frames, fire hydrants, guide rail, gas and water valves; and complete all other removals and relocations required for the work and not specifically covered elsewhere for payment.
- D. This item shall include a perimeter eight (8) foot minimum height chain link construction fence, construction signage and gates provided by the Contractor. The temporary gates on-site for construction shall remain locked and secured during non-working hours. The temporary fence shall remain on-site until all project work is complete or as directed by Engineer.
- E. The Contractors are advised to make a site visit, check the existing site conditions, and determine the detail scope of work for the site clearing before the bidding of this project.
- F. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements as well as the following documents:
- New Jersey Department of Environmental Protection (NJDEP) Site Remediation Program (SRP) – Fill Material Guidance for SRP Sites;
 - NJDEP SRP – Historic Fill Material Technical Guidance;
 - NJDEP – Solid and Hazardous Waste Management Program – Guidance for Characterization of Concrete and Clean Material for Recycling; and
 - Site-specific Health and Safety Program (HASP), prepared by the LSRP.

- G. The Contractor shall identify the location and address of the disposal facility. Under no circumstances will any material be exported or imported from the Site without direct approval from Neglia and/or LSRP.

PART 2 – PRODUCTS – Not Applicable

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

- A. The lights, signs, inlets, sidewalk, pavement, bollards, curb, slabs, runways, posts, fence, and excavation unclassified shall be disposed of off-site at no additional cost to the Owner or Owner’s Representatives in accordance with all client, local, state, and federal solid waste removal regulations.
- B. Trees and shrubs removed by the Contractor shall be cut and the roots and stumps, to be removed by grubbing, shall be refilled with suitable material which shall be solidly compacted so as to make the surface at these points conform to the adjoining grade. No trees shall be cut outside the specified limits without permission of Neglia Group.
- C. Street and road signs shall be removed carefully and shall be reset at the exact locations and in the manner required by the public authorities having jurisdiction, thereof. Site signs along with their foundations and any electrical components shall be removed in their entirety and shall be submitted to the owner unless owner requests complete disposal off-site.
- D. Manhole frames, catch basin frames, fire hydrants, guide rail, gas valves, water valves, and other structures shall be removed and carefully reset to match proposed grades, unless otherwise indicated to be removed.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. The quantity of Site Clearing for which payment will be made will be a lump sum basis covering all work of **SITE CLEARING / DEMOLITION** in the Proposal, including but not limited to the work specified above. Such price shall include removal of debris, disposal of materials, removal of any tree with less than 6”, installation of a temporary construction fence, and all else necessary therefore and incidental thereto for completion of operations as specified herein and as shown on the plans or as directed by the Engineer.
- B. The Contractor shall abide by all of the rules and regulations as set forth in Section 201 – Clearing Site of the 2019 NJDOT State Standard Specifications and the respective amendments.

END OF SECTION

SECTION 033000 – CAST-IN-PLACE CONCRETE

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies cast-in place concrete, including formwork, footings, walls, reinforcement, concrete materials, mix design, placement procedures, and finishes.
- B. Related Sections include: Section 310000 "Earthwork" for backfill.

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of fly ash, ground granulated blast-furnace slag, and silica fume.

1.4 SUBMITTALS

- A. Product Data: For each type of manufactured material and product indicated.
- B. Concrete Design Mixes: For each concrete mix, submit laboratory test reports for concrete materials and concrete mix design on the Concrete Mix Design Submittal Form attached to the end of this section. Each mix design shall be accompanied by either a standard deviation analysis or trial mixture analysis backup in accordance with ACI 318(08) section 5.3. Include alternate mix designs when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.
- C. Steel Reinforcement Shop Drawings: Submit for review shop drawings for all concrete work showing reinforcement, details of fabrication, bending, and placement, prepared according to ACI 315, "Details and Detailing of Concrete Reinforcement", and as shown on the drawings. Include material, grade, bar schedules, stirrup spacing, bent bar diagrams, arrangement, and supports of concrete reinforcement. Include special reinforcement required for openings through concrete structures.
- D. Material Certificates and/or Material Test Reports: Submit material certificates signed by manufacturers certifying that; or submit material test reports from a qualified testing agency indicating and interpreting test results showing that; each of the following items complies with requirements:
 - 1. Cementitious materials and aggregates.
 - 2. Steel reinforcement and reinforcement accessories.
 - 3. Admixtures.

4. Waterstops.
 5. Bonding agents.
 6. Adhesives.
 7. Repair materials.
- E. Concrete Delivery Tickets: Submit concrete delivery tickets to the field testing agency for each truckload discharged and used in the work, indicating project identification name and number, date, mix type, mix time, quantity, amount of water introduced, and admixtures used.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.
1. Manufacturer must be certified according to the National Ready Mixed Concrete Association's Certification of Ready Mixed Concrete Production Facilities.
- B. Field Testing Agency Qualifications: An independent testing agency, acceptable to Engineer, qualified according to ASTM C 1077 and ASTM E 329 to conduct the testing indicated, as documented according to ASTM E 548.
1. Personnel conducting field tests shall be qualified as ACI Concrete Field-Testing Technician, Grade 1 (minimum), according to ACI CP-1.
- C. All admixtures and coatings shall comply with the requirements of the local and state codes regarding Volatile Organic Substances.
- D. Codes and Standards: Comply with the latest edition of the following, unless more stringent provisions are indicated:
1. AC301, "Specification for Structural Concrete."
 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
 3. ACI 318, "Building Code Requirements for Structural Concrete."
 4. ACI 347R, "Recommended Practice for Concrete Formwork."
 5. Concrete Reinforcing Steel Institute (CRSI), "Manual of Standard Practice."
 6. ASTM C94, "Specification for Ready-Mixed Concrete."
 7. ASTM C618, Standard Specification for Fly Ash and Raw or Calcined Natural Pozzolan for Uses as a Mineral Admixture in Portland Cement Concrete.
 8. ASTM C311, Standard Methods of Sampling and Testing Fly Ash and Natural Pozzolans for Use as a Mineral Admixture in Portland Cement Concrete.
 9. ASTM C989, Ground Granulated Blast-Furnace Slag for Use in Concrete Mortars.

10. Standard Practice ACI 226.R1, Ground Granulated Blast-Furnace Slag as a Cementitious Constituent in Concrete.

11. ACI 303.1, "Specifications for Cast-in-Place Engineered Concrete"

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle steel reinforcement to prevent bending and damage.
- B. Deliver materials to site at such intervals to insure uninterrupted progress of work.
- C. Store materials to permit easy access for inspection and identification. Keep reinforcing steel under cover and off the ground using supports. Protect reinforcing steel from rusting, oil, grease or distortion. The Contractor shall be responsible for any demurrage charges due to failure to unload or store material properly. Do not store materials on the structure in a manner that might cause distortion or damage to the members of the supporting structures. Store grout under cover in unopened bags.
- D. Protection: Use all means necessary to protect the materials of this section before, during, and after installation and to protect the installed work and materials of all other trades.
- E. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Owner.

PART 2 – PRODUCTS

2.1 FORM-FACING MATERIALS

- A. Provide form material with sufficient thickness to withstand pressure of newly placed concrete without objectionable bow or deflection.
- B. Forms for Smooth Exposed Finished Concrete: New Form-facing panels that will provide continuous, straight, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints. Plywood grain ghosting on finish surfaces exposed to view is not acceptable.
 - 1. Plywood, metal, or other approved panel materials.
 - 2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
 - a. B-B (Concrete Form), Class 1, or better, mill oiled and edge sealed.
- C. Forms for Unexposed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
- D. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch (19 by 19 mm), minimum.

- E. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces. Selected form-release agent shall provide concrete surface as required.
 - 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- F. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
 - 1. Furnish units that will leave no corrodible metal closer than 1 inch (25 mm) to the plane of the exposed concrete surface.
 - 2. Furnish ties that, when removed, will leave holes not larger than 1 inch (25 mm) in diameter in concrete surface.
 - 3. Furnish ties with integral water-barrier plates to walls indicated to receive damp proofing or waterproofing.

2.2 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A615/A 615M, Grade 60, deformed.
- B. Plain-Steel Welded Wire Reinforcement: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.
- C. Tie Wire: No 16 American Wire Gage or heavier, black annealed.

2.3 REINFORCEMENT ACCESSORIES

- A. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete or fiber-reinforced concrete of greater compressive strength than concrete, and as follows:
 - 1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected or CRSI Class 2 stainless-steel bar supports.
- B. Joint Dowel Bars: Plain-steel bars, ASTM A 615/A 615M, Grade 60. Cut bars true to length with ends square and free of burrs.

2.4 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, non-air-entraining. All cement shall be one brand, type and color and meet with the Engineer's approval. All cement shall be from the same source.
 - 1. Provide cement of the following types: Type I/II

2. The cement shall not contain any ingredients as shown by cement mill certificates which would cause more than 3 percent air to be entrained in the concrete when cement is used in the concrete mix.
 3. Cement shall be stored in such a manner as to prevent deterioration or intrusion of foreign matter.
 4. No foreign cement (non-domestic cement) shall be permitted in concrete.
 5. Brand of cement shall not be changed during progress of job unless approved in writing by Engineer.
- B. Fine Aggregate: Fine aggregate shall be clean and washed, natural siliceous sand, consisting of hard, strong, durable, uncoated particles, and shall conform to the requirements of ASTM C-33. Fine aggregate shall not contain deleterious substances, including materials that are deleteriously reactive with the alkalies in the cement.
- C. Normal-Weight Coarse Aggregate: Coarse aggregate for stone concrete shall consist of clean, hard, uncoated, strong, durable gravel, or crushed stone, and shall conform to the requirements of ASTM C33, class; Severe weathering region, but not less than 4S. Provide aggregate from a single source for exposed concrete. Provide uniformly graded aggregate and the maximum size of coarse aggregate shall not exceed one-fifth of minimum dimension between forms of member for which concrete is to be used, three-fourths of minimum clear spacing between reinforcing bars or 1 inch, whichever is smaller.
- D. Water: Clean, potable, free from all organic materials, strong acids or alkalies, and complying with ASTM C 94.
- E. Silica Fume: ASTM C 1240, amorphous silica.
- F. Fly Ash: ASTM C 618, Class F.
- G. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.

2.5 ADMIXTURES

- A. General: No admixture shall be used in concrete unless specified herein, except with the permission of the Engineer. No changes of admixtures shall be made after design mix approval. Contractor shall provide the services (including any expenses) of the admixture manufacturer's representative to assure proper use of admixtures.
1. Prohibited Admixtures: Only the specified non-corrosive, non-chloride, noncorrosive accelerator shall be used. Calcium chloride, thiocyanates, or admixtures containing more than 0.05 percent chloride ions are not permitted.
 2. Certification: Written conformance to the above-mentioned requirements and the chloride ion content of the admixture is required from the admixture manufacturer prior to mix design review by the Engineer.

- B. Air-Entraining Admixture: ASTM C260, certified by manufacturer to be compatible with other required admixtures.
1. Products:
 - a. "Air-Mix" or "AEA-92"; Euclid Chemical Company
 - b. "Sika Aer"; Sika Corporation
 - c. "MB AE 90" or "Micro-Air"; Master Builders
 - d. "Daravair – 1000" or "Darex II"; W.R. Grace & Co.
 - e. Or approved equal
- C. Water-Reducing Admixture: ASTM C494, Type A, and containing not more than 0.05 percent chloride ions.
1. Water-Reducing Admixture: ASTM C494, Type A, and containing not more than 0.05 percent chloride ions.
 - a. "WRDA with Hycol"; W.R. Grace & Co.
 - b. "Eucon WR-75" or "Eucon WR-89"; Euclid Chemical Company
 - c. "Plastocrete 161"; Sika Chemical Corporation
 - d. "Polyheed 997" or "Pozzolith 220-N"; Master Builders
 - e. Or approved equal
- D. High-Range Water-Reducing Admixture (Super Plasticizer): ASTM C494, Type F or Type G and containing not more than 0.05 percent chloride ions.
1. Products: Subject to compliance with requirements, provide one of the following:
 - a. "Sikament – 300"; Sika Chemical Corporation
 - b. "Eucon 37"; Euclid Chemical Company
 - c. "Daracem-100" or "WRDA-19"; W.R. Grace & Co.
 - d. "Rheobuild 1000"; Master Builders
 - e. Or approved equal
- E. Water-Reducing, Non-Corrosive, Non-Chloride Accelerator Admixture: ASTM C494, Type C or E, and containing not more than 0.05 percent chloride ions. The admixture manufacturer must have long-term non-corrosive test data from an independent testing laboratory (of at least a year's duration) using an acceptable accelerated corrosion test method such as that using electrical potential measures.
1. Products: Subject to compliance with requirements, provide one of the following:
 - a. "Accelguard 80"; Euclid Chemical Company
 - b. "Polarset"; W.R. Grace & Co.
 - c. "Pozzutec 20" or "Pozzolith NC-534"; Master Builders

- d. "Plastocrete 161FL"; Sika Chemical Corporation
 - e. Or approved equal
- F. Water-Reducing, Retarding Admixture: ASTM C 494, Type D, and containing not more than 0.05 percent chloride ions.
- 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. "Eucon Retarder 75"; Euclid Chemical Company
 - b. "Daratard 17"; W.R. Grace & Co.
 - c. "Plastocrete 161R"; Sika Chemical Co.
 - d. "Pozzolith 122R"; Master Builders
 - e. Or approved equal

2.6 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) dry.
- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- D. Water: Potable.
- E. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- F. Reglets: Where resilient or elastomeric sheet flashing or bituminous membranes are terminated in reglets, provide reglets of not less than 26 gage galvanized sheet steel. Fill reglet or cover face opening to prevent intrusion of concrete or debris.
- G. Reveals and Chamfer Strips: Polyvinyl chloride, wood, metal or rubber of sizes and at locations indicated.

2.7 WATERSTOPS

- A. Self-Expanding Rubber Strip Waterstops: Manufactured rectangular or trapezoidal strip, bentonite-free hydrophilic polymer modified chloroprene rubber, for adhesive bonding to concrete, 3/8 by 3/4 inch (10 by 19 mm).
 - 1. Products: Subject to compliance with requirements, provide the following:
 - a. Adeka Ultra Seal/OCM, Inc.; Adeka Ultra Seal.
 - b. Greenstreak; Hydrotite

- c. Vinylex Corp.; Swellseal
- d. Or approved equal

2.8 REPAIR MATERIALS

- A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch (3.2 mm) and that can be feathered at edges to match adjacent floor elevations.
 - 1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
 - 2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
 - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3 to 6 mm) or coarse sand as recommended by underlayment manufacturer.
 - 4. Compressive Strength: Not less than 4100 psi (29 MPa) at 28 days when tested according to ASTM C 109/C 109M.

2.9 CONCRETE MIXES

- A. Prepare design mixes for each type and strength of concrete determined by either laboratory trial mix or field test data bases, as follows:
 - 1. Proportion normal-weight concrete according to ACI 211.1 and ACI 301.
- B. Use a qualified independent testing agency for preparing and reporting proposed mix designs for the laboratory trial mix basis.
- C. Submit mix designs for each mix required for use on this project. Each mix design shall be accompanied by a complete standard deviation analysis or trial mixture data and analysis. The mix shall be submitted on the mix design submittal form at the end of this specification section.
- D. Design mixes to provide concrete with the following properties, as indicated on the drawings and schedules.
 - 1. Foundations and structure not in direct contact with storm water: 4500 psi 28-day compressive strength: Minimum cement content: 600 lbs/cu.yd. Maximum Water/Cement Ratio: 0.44.
 - 2. All stormwater structures and pile caps in direct contact with storm water: 5000 psi 28-day compressive strength: Minimum cementitious content: 630 lbs/cu.yd, Maximum Water/Cement Ratio: 0.40. Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows: Combined Fly Ash, or Pozzolans, and Ground Granulated Blast-Furnace Slag: 50 percent with fly ash or pozzolans not exceeding 25 percent. Mix shall contain Fly Ash and/or Ground Granulated Blast-Furnace Slag.

- E. Air Content: All concrete exposed to freezing and thawing, deicer chemicals and/or required to be watertight or subjected to hydraulic pressure or soil shall have an air content of 4.5% to 7.5%.
- F. Limit water-soluble, chloride-ion content in hardened concrete to 0.10 percent by weight of cement.
- G. Admixtures: Use admixtures according to manufacturer's written instructions.
 - 1. Use water-reducing admixture or high-range water-reducing admixture (superplasticizer) in concrete, for placement and workability in all concrete.
 - 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
 - 3. Use high-range water-reducing admixture (superplasticizer) in all mixes.
 - 4. Use corrosion-inhibiting admixture in concrete mixes where indicated.
- H. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:
 - 1. Reinforced foundation systems: Not less than 1" and not more than 4".
 - 2. Concrete containing HRWR admixture (superplasticizer): Between 5" and 9" after addition of HRWR to site-verified 2"-3" slump concrete. Other concrete: Not less than 1" nor more than 4".
- I. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant: Revisions to the mix design shall be made at no cost to the Owner and shall be subject to the Engineer's approval. Laboratory test data for revised mix design and strength results must be submitted to and approved by Engineer before being used in work.

2.10 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.11 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94 and ASTM C 1116 and as herein specified, and furnish batch ticket information.
 - 1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.
 - 2. Delete the reference for allowing additional water to be added to the batch for material with insufficient slump. Addition of water to the batch will not be permitted.

3. Provide batch ticket for each batch discharged and used in work, indicating project identification name and number, date, mix type, mix time, quantity, and amount of water introduced, cement content and admixture used.
4. Project-Site Mixing: Project-Site Mixing shall not be permitted without approval from the engineer.

PART 3 – EXECUTION

3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until concrete structure can support such loads.
- B. The design and engineering of formwork, as well as its construction, shall be the responsibility of the Contractor. It shall be the Contractor's total responsibility to insure safety to workmen, public and for the total structure at all times. The Contractor shall be responsible to use firm unyielding supports and provide adjustable devices for setting, wedging, and lending the finished forms in correct alignment and position with all work in conformity with governing building code requirements and these specifications. The Contractor shall be responsible to pay for all costs connected with design of this work (forms, shores, etc.), checking same and certification to Engineer and Building Department. Such form design shall be performed by a professional engineer licensed in the state of the project and experienced in such form design. When the load on the shores exceeds 150 pounds per square foot, or power buggies are used, the Contractor shall certify that the form, shore, and bracing design has been checked and approved by a professional engineer licensed in the state of the project with at least five (5) years experience and installation of this work has been done in conformity with the approved design. The design, tolerance of finished lines and camber to compensate for deflection due to weight of fresh concrete shall conform to ACI-347, "Guide to Formwork for Concrete." Construct forms to slopes, lines and dimensions shown, plumb and straight and sufficiently tight to prevent leakage, securely brace and shore forms to prevent displacement and to safely support construction loads. Provide access openings for cleaning and inspecting forms and reinforcing.
- C. Forms, shores, reshores and bracing shall be designed and installed to withstand all vibrations of the concrete when placing same and carry all dead and live loads to which they are subjected.
- D. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- E. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual, as follows:

1. Class A, 1/8 inch for all exposed concrete work.
 2. Class B, ¼ inch for all other concrete.
- F. Construct forms tight enough to prevent loss of concrete mortar.
- G. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical. Kerf wood inserts for forming keyways, reglets, recesses, and the like, for easy removal.
1. Do not use rust-stained steel form-facing material.
- H. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- I. Chamfer exterior corners and edges of permanently exposed concrete as shown on drawings.
- J. Form openings, chases, offsets, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- K. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- L. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- M. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.
- N. Coat steel forms with a non-staining, rust-preventative form oil or otherwise protect against rusting. Rust-stained steel formwork is not acceptable.
- O. Do not allow excess form-coating material to accumulate in forms or to come into contact with in-place concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.

3.2 REMOVING AND RESUING FORMS

- A. General: Formwork, for sides of beams, walls, columns, and similar parts of the Work, that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 24 hours after placing concrete provided concrete is hard enough to not be damaged by form-removal operations and provided curing and protection operations are maintained.

- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Engineer.

3.3 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
 - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials.
- C. Bars with kinks or bends not required shall not be used. The reinforcement shall not be bent or straightened in a manner which would injure the material. The heating of reinforcement for bending or straightening will not be permitted.
- D. Bends or hooks unless otherwise shown or required shall be cold formed around pins. Hooks shall be ACI Standard.
- E. Reinforcing steel shall be fabricated to the shapes and dimensions shown. Reinforcing steel shall not be spliced at point of maximum stress. Laps shall be wire-tied and not less than 40 diameters, unless otherwise shown. Splices in adjacent bars shall be staggered. Except as otherwise indicated, reinforcing details, the number, type and spacing of supports and minimum concrete covering over steel shall conform to ACI 318.
- F. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
 - 1. Shop- or field-weld reinforcement according to AWS D1.4, where indicated.
- G. After substantial delay in the work previously started, reinforcing steel shall be inspected and cleaned free from mortar prior to proceeding with the work.
- H. No concrete placement shall be allowed when, in Engineer's opinion, insufficient time is provided to review and correct misplaced reinforcing steel.
- I. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- J. Install welded wire fabric in longest practicable lengths on bar supports spaced to minimize sagging (four feet maximum spacing). Lap edges and ends of adjoining sheets at least two mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.4 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Engineer.
 - 1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated.
 - 2. Form from bulkhead forms with keys, unless otherwise indicated. Embed keys at least 1-1/2 inches (38 mm) into concrete.
 - 3. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
 - 4. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
 - 5. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Placement of concrete shall be at such rate that surface of concrete not carried to joint levels will not have attained initial set before additional concrete is placed thereon. The Contractor shall have a means at hand to bring any placement to an emergency construction joint; provide proper shear key and/or dowels, roughening of surface application to form as herein stated if an interruption in the supply of concrete or inclement weather makes such a procedure necessary.

3.5 CONVEYING CONCRETE

- A. Concrete shall be conveyed from the mixer to the forms as quickly as possible by methods which will prevent segregation and loss of materials.
- B. Delivery carts or buggies where used shall be kept on temporary runaways built over the construction. Runaway supports shall not bear upon reinforcing steel or fresh concrete.
- C. Conveyors and pumps shall be capable of expeditiously placing concrete at the rate most advantageous to good workmanship.
- D. Except as otherwise specifically approved by the Engineer, placing equipment requiring changes in the concrete materials or design mix for efficient operation shall not be used.
- E. Pumps shall be operated and maintained so that a continuous stream of concrete is delivered into the forms without air pockets, segregation or changes in slump. The initial charging slurry shall be wasted. When pumping is completed; concrete to be used remaining in the pipeline shall be ejected without contamination of concrete or segregation of ingredients. After each operation, equipment shall be thoroughly cleaned

and the flushing water shall be wasted outside the forms. Pump lines shall have a minimum diameter of 5".

- F. Pumps, piping, and other conveying equipment so constructed to allow contact of concrete with aluminum during conveying and pumping shall not be used.
- G. All pumped concrete shall contain the specified high range water reducing admixture (superplasticizer).

3.6 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work.
- B. Before placing concrete, all debris, water and ice shall be removed from the spaces to be occupied by the concrete. Forms shall be treated as previously described and the reinforcement cleaned of ice or other coatings.
- C. Do not add water to concrete during delivery, at Project site, or during placement, unless approved by Engineer.
- D. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation.
- E. Deposit concrete in forms in horizontal layers no deeper than 24 inches (600 mm) and in a manner to avoid inclined construction joints. Place each layer while preceding layer is still plastic, to avoid cold joints.
 - 1. Consolidate concrete by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners. Use equipment and procedures for consolidation of concrete in accordance with ACI 309 "Guide for Consolidation of Concrete".
 - 2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the vibrator. Place vibrators to rapidly penetrate placed layer and at least 6 inches (150 mm) into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mix constituents to segregate.
- F. Unless otherwise provided, concrete footings and foundations shall be placed directly on undisturbed or structurally compacted backfill surfaces that are thoroughly moistened

but not muddy at time concrete is placed. There shall be no free water present at footing bottoms between time of final excavation to grade and concrete placement.

- G. Where established bottoms of footings for bearing as shown on drawings have not been maintained or have been disturbed, all loose material shall be removed to good bottom and the footings may be placed at the lower level with increase in length of vertical reinforcement required to reach the lowered footing or a plain concrete pad may be placed up to the former level of bottom of footing.
- H. Placing of concrete in supported elements shall not be started until the concrete previously placed in walls and columns is no longer plastic.
- I. Concrete shall not be allowed to drop freely where reinforcing will cause segregation nor shall it be dropped freely more than ten (10) feet for concrete containing the high range water reducing admixture (superplasticizer) or five (5) feet for other concrete.
- J. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
- K. It shall be the Contractor's complete responsibility to place and maintain concrete at the specified minimum internal temperature of at least 50° F, for as long as necessary to assure proper strength for safety, stripping and obtaining design strengths with non-excessive deflections. Cold weather requirements regarding class of protection, time period of heat, enclosures, coverings, etc., shall be as required to accomplish the above. When atmospheric temperatures are predicted to fall below 30 deg F, the Contractor shall obtain approval to pour from Engineer. Class of concrete protection and Contractor's ability to meet all Specification requirements shall determine approval or non-approval.
 - 1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
 - 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 - 3. Only the specified non-corrosive non-chloride accelerator shall be used. Calcium chloride, thiocyanates or admixtures containing more than 0.05% chloride ions are not permitted.
 - 4. Heating Methods: All methods proposed for heating materials, and protecting the concrete shall be subject to approval by the Engineer. Concrete shall never be heated over 90 deg F will any overheating which would produce a flash set be permitted.
- L. Hot-Weather Placement: When hot weather conditions exist that would seriously impair the quality and strength of concrete, place concrete according to recommendations in ACI 305R and as follows:
 - 1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control

temperature, provided water equivalent of ice is calculated to total amount of mixing water.

2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.
4. Use water-reducing retarding admixture (Type D) when required by high temperatures, low humidity, or other adverse placing conditions.
5. When high temperatures, low humidity and dry winds create conditions suitable for plastic cracking, the evaporation retarder may be required to be applied by spraying one or more times during the finishing operation.

3.7 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: For formed concrete surfaces not exposed-to-view in the finished work. As-cast concrete texture imparted by form-facing material with tie holes and defective areas repaired and patched. Remove fins and other projections exceeding ACI 347R limits for class of surface specified.
- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defective areas with fins or other projections completely removed and smoothed.
 1. Apply to concrete surfaces exposed to public view or to be covered with a coating or covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, painting or similar system.
- C. Smooth Rubbed Finish: Apply smooth rubbed finish to concrete at all locations where concrete repairs are exposed to view, and at areas where the exposed concrete finishes are discolored or otherwise unacceptable to the Engineer. Smooth rubbed finish is to be applied to concrete which has received smooth form finish treatment, not later than one day after form removal.
 1. Smooth-Rubbed Finish - Moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
- D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.8 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete Work.

3.9 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and with recommendations in ACI 305R for hot-weather protection during curing.
- B. Formed Surfaces: Cure formed concrete surfaces. If forms remain during curing period, moist cure after loosening forms.
- C. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
 - 1. Moisture Curing: Keep
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.

3.10 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Engineer. Remove and replace concrete that cannot be repaired and patched to Engineer's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 (1.2-mm) sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
- D. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch (13 mm) in any dimension in solid concrete but not less than 1 inch (25 mm) in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar on bonding agent. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
- E. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding

color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.

- F. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Engineer.
- G. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch (0.25 mm) wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
- H. After concrete has cured at least 14 days, correct high areas by grinding.
- I. Repair defective areas, except random cracks and single holes 1 inch (25 mm) or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least 3/4 inch (19 mm) clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mix as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
- J. Repair random cracks and single holes 1 inch (25 mm) or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar on bonding agent. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- K. All structural repairs shall be made with prior approval of the Engineer as to method and procedure, using the specified epoxy adhesive, epoxy mortar or a low shrinkage structural repair mortar. Where epoxy injection procedures must be used, an approved low viscosity epoxy made by the manufacturers previously specified shall be used.
- L. Repair materials and installation not specified above may be used, subject to Engineer's approval.

3.11 FIELD QUALITY CONTROL

- A. Except as otherwise indicated on drawings or specified herein, all work under this Section shall conform to applicable requirements of the local Building Code and regulations of all governmental authorities having jurisdiction and applicable State Code and ACI Code 318.
- B. The Owner will employ an inspection engineer and a testing agency to perform inspection and tests of concrete as hereinafter required and to submit reports.
- C. Inspection engineer shall be an engineer, trained and specializing in the field of structural engineering, and be under the direct supervision of the Field Inspection Professional Engineer. The Field Inspection Professional Engineer shall be legally licensed to practice

in jurisdiction where Project is located (preferably the project's consulting engineer) and who is experienced in providing field inspection services. The inspection engineer shall perform the following services:

1. Inspect concrete reinforcement for quantity, size, type, spacing, and placement.
 2. Inspect formwork for ties, finishes and general tightness of joints. Contractor remains responsible for the design, construction and bracing of formwork.
 3. Inspect concrete accessories for quantity, size, manufacture, type, spacing, and placement.
 4. Inspect method of placing, vibration, and curing of concrete.
 5. Supervise the activities of the testing agency.
- D. Testing agency shall be an independent testing agency, acceptable to Engineer, qualified according to ASTM C 1077 and ASTM E 329 to conduct the testing indicated, as documented according to ASTM E 548. Personnel conducting field tests shall be qualified as an ACI Concrete Field Testing Technician, Grade 1(minimum), according to ACI CP-1. Sampling and testing for quality control shall be performed as specified in this article.
- E. Inspection and testing at the concrete plant shall be performed to observe the facilities, materials, and batching operations to insure the quality of the concrete.
- F. Field Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
1. Testing Frequency:
 - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mix, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 2. Slump: ASTM C 143; one test for each concrete load at point of discharge and one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mix. Perform additional tests when concrete consistency appears to change.
 3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; ASTM C 173, volumetric method, for structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mix.
 4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F (4.4 deg C) and below and when 80 deg F (27 deg C) and above, and one test for each composite sample.
 5. Unit Weight: ASTM C 567, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mix.
 6. Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one set of five standard cylinder specimens for each composite sample. Field-cured specimens

below may be required to verify adequacy of curing and protection of concrete or to verify strength for removal of shoring and reshoring in multistory construction.

- a. Cast and field cure one set of four standard cylinder specimens for each composite sample when required to verify strength for removal of shoring and reshoring in multistory construction.
7. Compressive-Strength Tests: ASTM C 39; test two laboratory-cured specimens at 7 days, two at 28 days and hold one specimen in reserve for later testing if required.
 - a. Test two field-cured specimens at 7 days and two at 28 days.
 - b. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at age indicated.
- G. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
 - H. Strength of each concrete mix will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi (3.4 MPa).
 - I. Test results shall be reported in writing to Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing agency, concrete type, class and mix number, location of concrete batch in Work, design compressive strength at 28 days, concrete mix proportions and materials, slump, air content, temperature, unit weight, compressive breaking strength, and type of break for both 7-and 28-day tests. 28 day reports will contain corresponding 7 day tests for the same concrete batch. Reports of non-conforming concrete shall be printed on colored paper.
 - J. Field inspection reports made by the inspecting engineer shall be reported in writing to Engineer and Contractor within 24 hours of inspection. Informal reports shall be given to the Contractor, with reports made available to the Engineer, at the time of the inspection. Reports of non-conforming concrete work shall be printed on colored paper.
 - K. Contractor's Cooperation for Test Specimens: The Contractor shall cooperate in the making of tests, furnishing the concrete for test cylinders; also, suitable storage space at the job site where test specimens can be cast and left undisturbed until removed by the testing and inspection agency for testing.
 - L. Contractor shall make use of test results and inspection reports as provided by the inspecting engineer and testing agency to regulate his controls of concrete operation inclusive of making, transporting, placing, curing and protecting such concrete, all at his own responsibility. Contractor shall conform to all governing Code requirements,

approved drawings and Specifications and use good, safe methods of construction at all times.

- M. If the results of tests and/or inspections indicate the concrete and/or steel reinforcement or construction techniques do not meet the requirements as set forth on the drawings or in these Specifications and as determined by Engineer, or is otherwise unsatisfactory to Owner and/or Engineer due to inadequate batching, placing, curing or protection as they determine, Contractor shall proceed as directed by Engineer. Any additional costs resulting from re-testing, load testing, replacement of concrete and/or damage to the work of other trades, inclusive of Engineer's costs for the investigation, field work, etc., shall be borne by Contractor. If, during the installation of the work, it is determined by Engineer that requirements of these Specifications have not been adhered to by either test results, observation of Engineer or his Consultants during inspections, then any investigation and/or tests as may be directed by Engineer to verify concrete requirements as related to drawings and Specifications shall be performed at Contractor's expense no matter whether final results meet or do not meet Specification requirements.
- N. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Engineer but will not be used as sole basis for approval or rejection of concrete.
- O. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Engineer. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42 or by other methods as directed by Engineer.
- P. Report Copies and Timing: Immediately after tests or inspection have been made, and in no case later than seven (7) days after tests or inspection have been made, copies of all test and inspection reports shall be furnished as follows:
 - 1. One (1) copy to the Engineer
 - 2. One (1) copy to the Contractor
 - 3. One (1) copy to the Owner
 - 4. One (1) copy to the Concrete Producer
- Q. Deficiency Reports: All reports which identify deficiencies shall be printed on a unique colored sheet and shall be issued no later than one (1) day after the tests have been made.

3.12 CONCRETE MIX DESIGN SUBMITTAL FORM

- A. Submit the following form for each type of concrete specified.

CONCRETE MIX DESIGN SUBMITTAL FORM:
(one for each required mix design)

PROJECT: _____ CITY: _____

GENERAL CONTRACTOR: _____

MIX DESIGN NO.: _____ CONCRETE GRADE: _____

USE (Footings, Columns, etc.) _____

Mix Design Preparation: Based on

Standard Deviation Analysis: ___ or Trial Mix Test Data: _____

DESIGN CHARACTERISTICS:

DENSITY: _____pcf; STRENGTH _____psi (28 days); Slump _____In. (before adding superplasticizer);
SLUMP _____in. (after adding superplasticizer); AGGREGATES: (SIZE; TYPE; SOURCE; SPECIFICATION)

COARSE: _____

FINE: _____

OTHER MATERIALS: PRODUCT – MANUFACTURER (SOURCE)

CEMENT: Type: _____:
(OTHER) _____:

ADMIXTURES: Water Reducer: _____
Air Entraining: _____
HRWR (superplasticizer): _____
Non-Corrosive Accelerator: _____

RATIOS

MIX PROPORTIONS (per cy)

Water** _____ lb WEIGHT ABSOLUTE VOL. Cement _____ lb =
(lbs.) (cu. ft.)

Total Agg. _____ lb = _____% FINE* CEMENT: _____ Fine Agg. _____ lb

AGGREGATE: _____

SPECIFIC GRAVITIES

COARSE*
Fine Agg. _____ AGGREGATE: _____ Coarse
Agg. _____

WATER:**: _____

ADMIXTURES (per 100# cement)

HRWR _____ oz. AIR: _____
N-C Accelerator _____ oz. W.R. _____ oz. OTHER: _____

A.E. _____ oz.

_____ oz. TOTALS: _____

*Saturated surface dry weights

**Includes free water contained on aggregates

STANDARD DEVIATION ANALYSIS:

No. of Test Cylinders Evaluated: _____ Standard Deviation: _____

Mix Designs Proportioned to Achieve $f'_{cr} = f'_c + 1200$ psi (use 1400 psi over design when f'_c exceeds 5,000 psi).

$$f'_{cr} = f'_c + 1.34s \quad \text{or} \quad f'_{cr} = f'_c + 2.33s - 500$$

TRIAL MIXTURE TEST DATA:

Age (days)	Mix #1 (comp. str.)	Mix #2 (comp. str.)	Mix #3 (comp. str.)	(comp. str.)
7	_____	_____	_____	_____
7	_____	_____	_____	_____
28	_____	_____	_____	_____
28	_____	_____	_____	_____
28 day avg	_____	_____	_____	_____

Slump = ____in Air Content = ____%

Unit Wet Wt. = ____pcf Unit Dry Wt., = ____pcf

Mix Design Proportioned to Achieve: $f'_c + 1200$ psi

Initial Slump = __in; Final Slump = __in; Air Content = __%

Unit Wet Wt. = ____pcf; Unit Dry Wt. = ____pcf

REMARKS:

NOTE: Fill in all blank spaces. Use -0- (Zero) or N/A (Not Applicable). See "Design and Control of Concrete Mixtures," 13th Edition by Portland Cement Association, for assistance in filling out this form.

Submitted by:

Ready Mix Supplier:

Name _____

Address _____

Phone Number _____

Date _____

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. No specific payment shall be made for the above item. The cost of the above described work shall be included in the overall price bid for the applicable items in the Proposal which price shall include the cost of excavation, earthwork, concrete, reinforcement, dense graded aggregate, walls, materials, foundations, railings, labor and equipment, and all else necessary and incidental thereto for a complete system as specified herein and as shown on the plans or as directed by the Engineer. Any other bid item relative to the utilization of cast-in-place concrete shall be paid under the respective bid item as indicated on the plans or specifications, under the same terms and conditions.

END OF SECTION

SECTION 055213 – HANDRAIL

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Stair and ramp guardrails.

1.2 REFERENCES

- A. ANSI A1264.1 - Safety Requirements for Workplace Floor and Wall Openings, Stairs, and Railing Systems.
- B. ASTM B 211 - Standard Specification for Aluminum and Aluminum-Alloy Bar, Rod, Wire.
- C. ASTM B 247 - Standard Specification for Aluminum and Aluminum Die Forgings, Hand Forgings and rolled Ring Forgings.
- D. ASTM B 429 - Standard Specification for Aluminum-Alloy Extruded Structural Pipe and Tube.
- E. ASTM E 935 - Standard Test Methods for Permanent Metal Railing Systems and Rails for Buildings.

1.3 DESIGN / PERFORMANCE REQUIREMENTS

- A. Comply with requirements of building authorities having jurisdiction in Project location and the following:
 - 1. Handrail Standard: ANSI A1264.1
 - 2. Occupational Safety and Health Administration - 29 CFR 1910.23 - Guarding floor and wall openings.
- B. Structural Performance: Engineer, fabricate, and install handrails, guardrails, and railing systems to withstand, when tested per ASTM E 935, loadings required by applicable building and safety codes but not less than the following:
 - 1. Design Loads: Design to the following requirements. Concentrated and uniform loading need not be applied simultaneously.
 - 2. Uniform load: 50 pounds per foot (74.3 kg/m) applied at the top in any direction.
 - 3. Concentrated load: 200 pounds (90.6 kg) applied at the top in any direction.

1.4 SUBMITTALS

- A. Submit under provisions of Section 013220 – Submittals.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Details of material and construction.

- 3. Storage and handling requirements and recommendations.
- 4. Installation methods and requirements.
- C. Shop Drawings: Submit shop drawings for fabrication and installation of pipe and tube railings. Include plans, elevations and detail sections. Indicate materials, methods, finishes and types of joinery, fasteners, anchorages and accessory items.
- D. Load Tests: Submit test results from ASTM E 935 conducted on the manufacturer's supplied system indicating compliance with required structural loading.
- E. Selection Samples: For each finish product specified, two complete sets of color charts representing manufacturer's full range of available colors and patterns.
- F. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- G. Closeout Submittals: Provide manufacturer's maintenance instructions that include recommendations for periodic cleaning and maintenance of all components.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum 3 years documented experience producing systems specified in this section.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened, properly labeled, original packaging until ready for installation.
- B. Store components to avoid damage from moisture, abrasion, and other construction activities.
- C. Keep handling to a minimum. Exercise caution to avoid damage to factory applied finishes.

1.7 SEQUENCING

- A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- B. Field Measurements: Take measurements of actual dimensions where necessary for fit without gaps. Indicate measurements on shop drawings.

PRODUCTS

1.9 MANUFACTURERS

A. Manufacturer: Superior Aluminum Products, Inc.; 555 E. Main St., P. O. Box 430, Russia, OH 45363. Phone: 937-526-4065. Fax: 937-526-3904. Email: infor@superioraluminum.com. Web: www.superioraluminum.com.

1. Product: Series 5P Aluminum Pipe Picket Railing

B. Or approved equal.

1.10 HORIZONTAL PIPE RAILINGS

A. Pipe Picket Railing Series 5P: 1-1/2 inch Schedule 40 (3.81 cm) pipe with 1.9 inch (4.83 cm) outside diameter run between posts and utilizes concealed fasteners. Pickets are 3/4 inch (1.9 cm) round pipe spaced at 4.5 inch (11.43 cm) on center and run between the top and bottom rail utilizing concealed fasteners. Neither horizontal or vertical components shall be fastened via welding. Top rail shall be continuous through the full length of the system.

B. Horizontal Pipe Rail

1. Pipe: 1-1/2 inch (3.81 cm) Schedule 40 pipe with 1.9 inch (4.83 cm) outside diameter runs between posts and utilizes concealed fasteners.

2. Top rail shall be continuous through the full length of the system.

C. Round posts

1. Post: 1-1/2 inch Schedule 40 pipe (3.81 cm) with 1.9 inch (4.83 cm) outside diameter with reinforcement rebar inserts

D. Vertical Pickets

1. Pipe: 3/4 inch (1.9 cm) round pipe outside diameter runs between top pipe rail and bottom pipe rail utilizing a tight-in-fit

E. Height:

1. Commercial: 42 inches (106.68 cm)

F. Design

1. As indicated on the Drawing

G. Component Parts:

1. Provide all connecting components and fittings as required.

H. Base: Size to fit the posts specified

1. Cover Flange for Embedded Posts

1.11 Hand Rail: Series 5H Mounted Hand Rail:

A. Pipe: 1-1/2 inch (3.81 cm) Schedule 40 pipe with 1.9 inch (4.83 cm) outside diameter.

B. Handrail to run continuously throughout the whole length of handrail system.

- C. Mount to wall, railing, or other structure by utilizing mounting plates.
- D. No components shall be fastened via welding.
- E. Handrail will be installed at a height of 34 – 38 inches above ramp surface.
- F. Clearance of a minimum 1 ½” shall exist between the wall or post surface and the handrail.
- G. Top and bottoms of handrail sections that stop at a landing, the handrail shall extend 12 in horizontally beyond the top riser and 12 in. horizontally beyond the bottom tread.
- H. Handrail shall be continuous, without interruption by newel posts or other obstructions.
- I. Handrails shall return to a wall, guard or walking surface

1.12 RAILING MATERIALS

- A. Rail, Post and Pickets: Aluminum extrusions; alloy and temper 6063-T4 or 6063-T6 for rail, posts, and pickets.
 - 1. Pipe: ASTM B 429.
- B. Base Flanges, Anchors, and railing accessories: ASTM B 247.
 - 1. Bases cast from manufacturer’s standard A-356-T6, 535, or 713 aluminum alloys or solid extruded 6063 aluminum alloy stock.
 - 2. Base flanges and railing accessories cast from manufacturer’s standard 319, A-356, A-356-T6, 535, or 713 aluminum alloys.
 - 3. Anchorages: Provide anchorage for fastening and complying with applicable Federal standards. All fasteners used in the system shall be aluminum or stainless steel.
- C. Fasteners: Provide anchorage for fastening and complying with applicable Federal standards. Fasteners used in the system shall be aluminum or stainless steel.
- D. Grout: Non-shrink Portland cement-based hydraulic grout, mixed and applied in accordance with manufacturer's instructions; gypsum-based material is not acceptable. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and recommended by manufacturer for exterior use.

1.13 FINISH

- A. Standard Painted Architectural Coating (AAMA 2603):
 - 1. White
 - 2. Black
 - 3. Dark Bronze
 - 4. Sandstone
 - 5. Almond

6. Custom colors as selected.
- B. Satin Anodized Finish:
1. 15 Minute: Architectural Clear Anodic Coating, AA-M12-C22-A21
 2. 60 Minute: Architectural Class I, AA-M12-C21-A41
 3. 60 Minute Brushed: Architectural Class I, AA-M35-C22-A41

1.14 FABRICATION

- A. Tolerances: Verify dimensions on site prior to shop fabrication for proper connection to building structure or substrate.
- B. Components or railing sections shall be fabricated to exact measurements specified through Drawings and field dimensions.
- C. Components or railing sections shall be fabricated at the manufacturing facility in largest practical site delivery sizes.
- D. Pipe cuts shall be square and accurate for minimum joint-gap. Cuts shall be clean and free of chamfer, from deburring, nicks and burrs.
- E. Railings angled horizontally, machine castings to proper angle.
- F. Fabricate railing system to meet step railing requirements; riser and tread dimensions of the steps.
- G. Posts grouted in concrete to have one nominal 1/4 inch (6.0 mm) nominal diameter weep hole, 1/2 inch (12.0 mm) nominal above post collar, in the plane of the rail
- H. Provide components required for anchorage of framing. Fabricate anchors and related components of material and finish as required, or as specifically noted.

1.15 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared. Fully review the supporting structure and substrate to verify a structurally sound base for anchoring railing system.
- B. If substrate preparation is the responsibility of another installer, notify Engineer of unsatisfactory preparation before proceeding.

1.16 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Ensure that adjacent surfaces, structures, and finishes are protected from damage by construction activities of this section.
- C. Use wood blocks and padding to prevent damage to railing members and fittings during erection.

- D. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

1.17 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install components plumb and inline, accurately fitted, free of distortion or defects and securely anchored to building structure and/or substrate.
- C. Provide grounds, clips, backing materials, adhesives, brackets, anchors, and accessories necessary for a complete installation.
- D. Expansion Bolt Mounting: Anchor through base plates to concrete substrate.
- E. Sleeve Mounting:
 - 1. Arrange for casting of sleeves or core drill into concrete to provide holes for railing uprights.
 - 2. After setting, fill holes with hydraulic grout; brace members until grout is cured.
- F. Connect railing components in accordance with manufacturer's instructions applicable to the specified system. Tighten all fasteners so that completed railing is rigid and free of play at joints and component attachments.
- G. Expansion Joints: Provide expansion joints for continuous spans in excess of 40 feet (12.0 m). Construct joints by deleting structural adhesive from one end of the spliced joint so that it is free to move in or out of the pipe. If a joint is provided every 30 feet (9.0 m), the width of the gap should allow 1/8 inch (3.0 mm) expansion for each 40 degrees F (22 degrees C) of expected temperature rise.

1.18 ERECTION TOLERANCES

- A. Install railings plumb and level, securely fastened, with vertical members plumb.
 - 1. Maximum variation from plumb: 1/4 inch (6.0 mm).
 - 2. Maximum misalignment from true position: 1/4 inch (6.0 mm).
 - 3. Maximum misalignment between adjacent separated members: 1/8 inch (3.0 mm).

1.19 CLEANING

- A. Remove dust or other foreign matter from component surfaces; clean finishes in accordance with AAMA 609 and AAMA 610-02.

1.20 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. The quantity of handrail for which payment will be made will be the quantity actually constructed, in linear feet, in accordance with the Plans or as directed by the Engineer.
- B. Payment for handrail will be made on a per linear foot basis for the item **FURNISH AND INSTALL ALUMINIUM HAND RAILING** in the Proposal, which price shall include the furnishing of all materials, labor and equipment and all else necessary to construct the handrail, as shown on the Plans, or as directed by the Engineer.

END OF SECTION

SECTION 101453 – TRAFFIC SIGNS

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Traffic Signs shall include furnishing and installing the Traffic Control Signage as shown on the plans and details.
- B. Refer to detail sheets for details of the installation of the environmental infrastructure project signage and any other supporting signs as required.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Construction Materials: All traffic signs must conform in face design and construction to specifications found in the Manual on Uniform Traffic Control Devices, USDOT, Federal Highway Administration. Regulatory, warning, informational, and wayfinding signs shall be fabricated of flat aluminum sheets and shall be covered with Diamond Grade Reflective Sheeting, Series 4000 Type XI designation per ASTM.
- B. Posts: Galvanized steel.

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

- A. Erect signs in their designated locations, as indicated and in accordance with the approved shop drawings and the applicable requirements of Section 619 of the NJDOT Standard Specifications.
- B. Protect surfaces and finishes from abrasion and other damage during handling and installation.
- C. Replace damaged or faulty signs.
- D. Final locations of sign placement shall be approved by Neglia Group.

PART 4 – METHOD OF PAYMENT

4.1 QUANTITY AND PAYMENT

- A. The quantity of Traffic Signs, for which payment will be made, will be on a per unit basis for the item **TRAFFIC SIGNS** in the Proposal, which price shall include the cost of the sign itself, steel post, footing or embedment construction, all associated hardware and appurtenances, removing existing excavation and disposal of excess materials, subgrade material, all materials, labor, equipment, including all portions required below grade, and all else necessary therefore and incidental thereto for completion of operations as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 107500 – FLAGPOLES

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Under this item, the Contractor shall furnish and erect, where shown on the Contract Drawings, a cone tapered aluminum flag pole, complete with all standard fittings, uprights and appurtenances, manufactured by Baartol Company Inc., Kenton, Ohio, or approved equal. One (1) Flagpole shall be ground set forty (40') total feet above ground. Outside butt diameter shall be eight (8") inches. Outside top diameter shall be three and a half (3.5") inches, and ground tube length shall be four feet (4') min. Contractor shall design-build the electrical system feeding this item and shall provide a working system in accordance with local codes and the National Electric Code (NEC). In addition, this item shall include the cost of the American Flag and installation.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Pole:
 - 1. Aluminum – 6063T6 alloy, seamless.
- B. Type of Taper:
 - 1. Cone tapered.
- C. Classifications:
 - 1. Ground set pole, embedded.
 - 2. Cone Tapered aluminum tube flagpole.
- D. Dimensions:
 - 1. Overall Length: 44'-0" (as shown on Contract Drawings)
 - 2. Butt Diameter: 8"
 - 3. Top Diameter: 3½"
 - 4. Wall Thickness: 0.188"
- E. Finish:
 - 1. Aluminum flagpole shall have a mechanical satin finish. (Same as Baartol's "Lustratex" finish, or approved equal).
- F. Fittings:
 - 1. Finial ball shall be Gold Anodized. Size to match pole butt diameter.

2. Truck-cast aluminum internal halyard system.

G. Halyards:

1. Stainless steel cable with vinyl or neoprene covered weight.
2. Internally mounted direct drive winch with control stops to hold flag in any position on the pole.
3. Removable winch crank.
4. Flush mounted winch access door with cylinder lock.

H. Foundation:

1. Concrete foundation diameter shall be at least thirty (30") inches at the top and twenty four (24") inches at the bottom. Pole shall be set in foundation at least four (4') feet deep.
2. 16 gauge corrugated galvanized steel tube.
3. Foundation Sleeve Plate – Square steel plate. 3/16" min. thickness, welded to bottom of foundation sleeve.
4. Centering Wedges – Internal steel wedges, 1/8" min. thickness, welded to support plate for centering of flagpole.
5. Ground Spike – 3/4" steel spike, welded to bottom of foundation sleeve plate. Minimum length below concrete foundation to be twice the footing thickness below foundation sleeve plate.
6. Foundation Support Plate – Steel plate, 6" square by 3/16" min. thickness, welded to ground spike at base of concrete foundation.
7. Contractor shall provide signed and sealed drawings of each foundation and submit them to the Engineer for review prior to installation.

I. Flash Collar:

1. Metal – Same as pole shaft.
2. Design flash collar spun as supplied by Baartol Co., Inc. (or approved equal)

J. Light Fixtures:

1. Provide three (3) 6" Diameter x 18", 150 watt "Tunnel" Up-Lights mounted in the ground with rock guard. Finish to match flagpole. Model No. 01500620, or approved equal.
2. Provide 3" x 4" hand hole under flash collar for electrical access.
3. Installation by electrical Contractor.
4. Contractor to provide two (2) spare bulbs.
5. Fixtures shall be factory installed.

6. Contractor to provide dusk/dawn controls for flag light.

K. Flag:

1. Installation of (1) American Flag, sizing minimum 6' x 10' or as recommended by the manufacturer. The Contractor shall remove and preserve the flags on the existing flagpole at the site location for future reuse. The contractor shall note that the flagpole must be able to accommodate 2 flags (as currently existing on site).

PART 3 – EXECUTION

3.1 EXECUTION

A. Shipping:

1. Packaging – Flagpole to be packed in recommended fashion to assure protection during transit.
2. Number of sections – Poles up to 38'-6" can be shipped in one piece by motor carrier.

B. Handling & Storage:

1. Aluminum flagpoles, if stored in original packaging for extended periods can become stained due to adverse chemical reactions between aluminum and packaging materials. When poles are to be stored on site for extended periods, all wrapping materials should be removed and the pole stored bare in a dry place off the ground.

C. Installation:

1. Flagpole to be installed by an experienced erection crew.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. Quantity and Payment for flagpoles will be made for the flagpole units actually furnished and installed in accordance with the Construction Documents at the unit price bid for the item **FURNISH AND INSTALL FLAGPOLE WITH UPLIGHTS (EXCLUDING ELECTRIFICATION)** in the Proposal, which price shall cover the cost of the American Flag and installation, all labor, tools, equipment and materials, and all else necessary therefore and incidental thereto for complete system, as specified herein and as shown on the plans or as directed by the Engineer.
- B. Payment for the provision of a complete and working site electrical system will be on a lump sum basis for the item **FURNISH AND INSTALL ELECTRIFICATION OF PARKING LOT LIGHTING, SPORTS LIGHTING, AND FLAGPOLE** in the Proposal, which the price shall include the cost of the excavation, disposal of excess materials, subgrade material, all mounting hardware, all conduit (including all fittings, appurtenances, materials, labor and

equipment required for conduit installation/construction), bolt patterns, meters, pole-mounted transformers, pullboxes, wiring, poles, fixtures, bulbs and all materials, labor, equipment, including all portions required, and all else necessary therefore and incidental thereto for a complete and working site electrical system as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 116810 – STORAGE SHED

PART 1 – GENERAL

1.1 SUMMARY

- A. This item shall consist of the furnishing and complete installation of the proposed storage shed, with all necessary conduits, fittings, wiring, panels as required for complete installation. Location to be coordinated with the County of Union in the field during construction.

1.2 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company experienced in design and manufacture of shelters of the type specified, and having the following:
 - 1. Three references of similar shelters completed within the past year.
- B. Perform the work in accordance with applicable federal, State, and local building and safety codes and regulations.

1.3 SUBMITTALS

- A. Minimum 3 sets of shop drawings, showing all details of construction, including concrete pad sizes, reinforcement, and locations.
- B. Selection Samples: For each finish product specified, color charts representing manufacturer's full range of available colors.
- C. Warranty
 - 1. Provide roofing manufacturer's lifetime warranty.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Shed shall be 12'x20', Cape Cod style timber shed with t1-11 siding, asphalt shingles and gable vents as manufactured by: Amish Mike, 480 Rt. 46., Hackettstown, NJ 07840 or approved equal.
- B. Shed shall have a 9' wide x 8' high standard overhead garage door on the short side of the shed and a standard 5' double door on the long side of the shed.
- C. Shed shall have two (2) power outlets and lighting (interior lights and exterior security lights). Conduit and any & all required electrical components for proper installation of storage shed. Contractor shall be responsible to inspect and locate appropriate on-site power supply for the storage shed.

- D. Contractor shall include in the price bid for this item Approx. 775 linear feet of conduit and wiring of suitable size with one spare conduit. Contractor shall provide a shop drawing detailing conduit installation from the power source to the proposed shed. Drawing shall include, but not be limited to, main service connection to off-site area(s), coordination with PSE&G, primary service conduits, connections, and terminations for a complete electrical system for the Storage Shed.
- E. Shed shall be installed on 6" Thick, Reinforced Concrete Pad. Location of Storage Shed to be coordinated with the County of Union.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. All equipment shall be installed as recommended with manufacturer's written directions, and as indicated on the drawings.
- B. All construction must meet the minimum requirements of the NEC, PSE&G as well as local codes.

PART 4 – METHOD OF PAYMENT

4.1 QUANTITY AND PAYMENT

- A. The quantity of Storage Shed, for which payment will be made, will be on a lump sum basis for the item **FURNISH AND INSTALL STORAGE SHED, COMPLETE (IF AND WHERE DIRECTED)** in the Proposal, which prices shall cover, the cost of foundations, poles, conduit, wiring, pullboxes, pile support systems, power source all labor, tools, equipment and materials, and all else necessary therefore and incidental thereto for a complete system as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 116830 – EXTERIOR ATHLETIC EQUIPMENT

PART 1 – GENERAL

1.1 DESCRIPTION

- A. This item shall include all labor, material and equipment to furnish and complete the installation of exterior athletic equipment as identified herein and on the Drawings, including all material, labor, equipment and hardware, in accordance with the manufacturer's installation specifications. It shall include the transportation and/or delivery of the equipment, the disposal of any surplus materials, as required and other work as herein described.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Soccer Corner Marker Flags: Soccer corner flags shall be the KWIKGOAL, Model #SG6B1404, as distributed by Sportsfield Specialties, Inc., or approved equal.
1. High impact PVC construction.
 2. Finish: White.
 3. 12" diameter, high density, UV resistant rubber, stackable bases.
- B. 7' X 21' Soccer Goal: Portable soccer goal shall be the Model #CC21S as manufactured by JAYPRO SPORTS or approved equal at 7-foot-high, 21-foot-wide, with 4 standard wheels per goal.
- C. 8' X 24' Soccer Goal: Portable soccer goal shall be the Model #CC24S as manufactured by JAYPRO SPORTS or approved equal at 8-foot-high, 24-foot-wide, with 4 standard wheels per goal.
- D. All Tennis Equipment will be manufactured by:

EDWARDS SPORTS PRODUCTS

and provided by

SPORTS EDGE

295 Murdock Road

Troutman, NC 28166

1-800-334-6057

OR APPROVED EQUAL

HARDCOURT TENNIS POSTS:

- Classic Round Posts Model # SE1234404, semi-permanent post
- Round 3 inch OD round, 11 gauge steel post, powder coated green OR black
- Stainless steel internal worm gear winch

- Removable winch handle
- Welded lacing rods for securing the net to post
- GROUND SLEEVE – Model #SE1234473 – steel ground sleeves for pots
- With post adjusting anchor

TENNIS NETS:

- Tournament Deluxe Tennis Net
- Model # SE1162462
- Constructed of 3.5mm braided black polyethylene netting
- 42 feet long X 42 inches high

CENTER ANCHOR:

- Tennis Center Strap Anchor, Model # SE1234466
- All Aluminum construction

TENNIS NET CENTER STRAP:

- Model # SE1158267

PART 3 – EXECUTION

3.1 INSTALLATION OF ATHLETIC FIELD EQUIPMENT

- A. All athletic field equipment shall be installed as recommended with manufacturer's written directions, included with product, as indicated on the drawings or as directed by the Engineer.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. Quantity and Payment for Exterior Athletic Equipment will be made for the exterior athletic equipment units actually furnished and installed in accordance with the Construction Documents at the unit price bid for the item **FURNISH AND INSTALL SOCCER CORNER FLAGS, SET OF 4; FURNISH AND INSTALL 7' X 21' PORTABLE SOCCER GOAL; FURNISH AND INSTALL 8' X 24' PORTABLE SOCCER GOAL;** and **FURNISH AND INSTALL TENNIS COURT NETTING SYSTEM, COMPLETE** within the Proposal, where the prices bid for the items shall cover the cost of all labor, tools, equipment and materials, and all else necessary therefore and incidental thereto for complete systems as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 116833 – PLAYER BENCHES AND SPECTATOR BLEACHERS

PART 1 – GENERAL

1.1 DESCRIPTION

- A. This item shall include all labor, material and equipment for furnishing and the complete installation of Spectator Bleachers and Player Benches, including all hardware, in accordance with the manufacturer's installation specifications. It shall include the transportation and/or delivery of the equipment, the disposal of any surplus materials, as required and other work as herein described.

PART 2 – PRODUCTS

2.1 PRODUCTS

- A. Permanent Spectator Bleachers:
 - a. 5 Row Bleacher: Model No. BD-U0521CR, as manufactured by Belson Outdoors, 627 Amersale Drive, Naperville, IL 60563 or approved equal;
 - b. Each bleacher system shall seat a minimum of 70 spectators.
 - c. 5 Row ADA Accessible Bleacher: Model No. BD-U0521CR, as manufactured by Belson Outdoors, 627 Amersale Drive, Naperville, IL 60563 or approved equal;
 - d. Each bleacher system shall seat a minimum of 50 spectators (including 2 ADA seats).
- B. Portable Bench with Back and Shelf
 - a. 15' Long Player Bench with Shelf: Model No. BE-DGS02600, as manufactured by National Recreation Systems, Inc. P.O. Box 11487 Fort Wayne, In 46858-1487, or approved equal.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. All athletic field equipment shall be installed as recommended with manufacturer's written directions, included with product or found at www.belson.com, www.anthem-sports.com, or approved equals, and as indicated on the drawings.
- B. Each permanent bleacher shall be installed on a 6-inch thick, reinforced concrete pad (see construction details).
- C. The Contractor shall submit shop drawings of all field equipment and amenities to the County for approval.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. Quantity and Payment for Spectator Bleachers will be made for the bleacher units actually furnished and permanently installed in accordance with the Plans or as directed by the engineer at the unit price bid for the item **FURNISH AND INSTALL PLAYER BENCH WITH SHELF, 15' LONG** and **FURNISH AND INSTALL 5-ROW ADA ACCESSIBLE BLEACHER SYSTEM;** and **FURNISH AND INSTALL 5-ROW BLEACHER SYSTEM** in the Proposal which prices shall cover the cost of all labor, tools, foundations, equipment and materials, and all else necessary therefore and incidental thereto for a complete system as specified herein and as shown on the plans or as directed by the Engineer. Payment for the reinforced concrete pad associated with the Spectator Bleachers will be made on a square yardage basis for the item **CONSTRUCT CONCRETE SIDEWALK, 6" THICK, REINFORCED** in the Proposal.

END OF SECTION

SECTION 221119 – GROUND HYDRANT

PART 1 – GENERAL

1.1 DESCRIPTION

- A. This item shall include all labor, material and equipment for furnishing and the complete installation of the Ground Hydrant, including all hardware, in accordance with the manufacturer's installation specifications. It shall include the transportation and/or delivery of the equipment, the disposal of any surplus materials, as required and other work as herein described. Location of Hose Ground Hydrant to be coordinated with the County of Union.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Ground Hydrant:
 - a. Ground Hydrant: Model No. Z1360XL, manufactured by Zurn Industries, LLC., 1801 Pittsburgh Avenue, Erie, PA. 16502 Toll Free (855) 663-976, website: www.zurn.com or approved equal.

2.2 MATERIALS

- A. Encased, lead-free, non-freeze Ground Hydrant for flush with ground or finish floor installation. Hydrant features galvanized steel casing, bronze and stainless steel interior components, bronze seat and replaceable seat washer, non-turning operating rod, and free-floating compression closure valve with $\frac{3}{4}$ " or 1" inlet connection with $\frac{1}{4}$ " tapped drainage port on housing, and $\frac{3}{4}$ " or 1" male hose connection. Hydrant furnished with plain bronze box and locking hinged, scoriated cover stamped "WATER" and includes operating key.
 - 1. Hydrant Head – low-lead bronze
 - 2. Operating Road – stainless steel
 - 3. Interior Components – low-lead bronze and stainless steel
 - 4. O-rings – NBR
 - 5. Hydrant Casing – galvanized steel
 - 6. Valve Housing – low-lead bronze
 - 7. Hydrant Box – plain bronze
- B. Sizing (Depth of Bury) Feet
 - 1. 2'
 - 2. 3'
 - 3. 4'

4. 5'
5. 6'
6. 7'
7. 8'
8. 9'
9. 10'

Size of bury depth to be determined/coordinated on field.

C. Sizing (Inlet Connection Size) Inches

1. $\frac{3}{4}$ "
2. 1"

Size of Inlet Connection to be determined/coordinated on field.

D. Sizing (Hose Connection Size) Inches

1. $\frac{3}{4}$ "
2. 1"

Size of Hose Connection to be determined/coordinated on field.

E. Suffix Options:

1. Heavy Duty Cover

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Examination areas to receive ZURN Z1360XL Lead-Free, Non-Freeze Ground Hydrant, Notify project engineer of conditions that would adversely affect installation or subsequent use. Do not proceed with installation until unsatisfactory conditions are corrected.

3.2 INSTALLATION

- A. Install ZURN Z1360XL Lead-Free, Non-Freeze Ground Hydrant in accordance with manufacturer's instructions provided in the manner deemed acceptable by the on-site Project Engineer / Manager.

3.3 PROTECTION

- A. Protect installed ZURN Z1360XL Lead-Free, Non-Freeze Ground Hydrant from damage prior to, during, and post construction.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. The quantity of Ground Hydrant, for which payment will be made will be on a per unit basis under the paid item **FURNISH AND INSTALL HOSE GROUND HYDRANT** in the Proposal which prices shall cover the cost of all labor, equipment and materials, and all else necessary therefore and incidental thereto for a complete system as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 260519 – LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:

1. Building wires and cables rated 600 V and less.
2. Connectors, splices, and terminations rated 600 V and less.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

PART 2 – PRODUCTS

2.1 CONDUCTORS AND CABLES

- A. Aluminum and Copper Conductors: Comply with NEMA WC 70/ICEA S-95-658.
- B. Conductor Insulation: Comply with NEMA WC 70/ICEA S-95-658 for Type THHN-2-THWN-2, Type XHHW-2 and Type SO.
- C. Multiconductor Cable: Comply with NEMA WC 70/ICEA S-95-658 for metal-clad cable, Type MC nonmetallic-sheathed cable, Type NM, Type SO and Type SER with ground wire.

2.2 CONNECTORS AND SPLICES

- A. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

2.3 SYSTEM DESCRIPTION

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with NFPA 70.

PART 3 – EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders: Copper for feeders smaller than No. 4 AWG; copper or aluminum for feeders No. 4 AWG and larger. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger, except VFC cable, which shall be extra flexible stranded.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

- A. Service Entrance: Type XHHW-2, single conductors in raceway.
- B. Exposed Feeders: Type THHN-2-THWN-2, single conductors in raceway Type XHHW-2 and single conductors in raceway.
- C. Feeders Concealed in Ceilings, Walls, Partitions: Type THHN-2-THWN-2, single conductors in raceway Metal-clad cable and Type MC.
- D. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-2-THWN-2, single conductors in raceway and Type XHHW-2, single conductors in raceway.
- E. Feeders Concealed to Apartment Panels: Service entrance cable Type SER, three conductor with bare ground.
- F. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-2-THWN-2, single conductors in raceway, Metal-clad cable, Type MC and Nonmetallic-sheathed cable, Type NM.
- G. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-2-THWN-2, single conductors in raceway.
- H. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

- A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.
- B. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.
- C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

- D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips that will not damage cables or raceway.
- E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
- F. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."

3.4 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.
- B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
 - 1. Use oxide inhibitor in each splice, termination, and tap for aluminum conductors.
- C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches of slack.

3.5 IDENTIFICATION

- A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."
- B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor

3.6 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.7 FIRESTOPPING

- A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Section 078413 "Penetration Firestopping."

3.8 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:

1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors for compliance with requirements.
 2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
 3. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each splice in conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner. Correct deficiencies determined during the scan.
 - a. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each splice 11 months after date of Substantial Completion.
 - b. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
 - c. Record of Infrared Scanning: Prepare a certified report that identifies splices checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.
- B. Test and Inspection Reports: Prepare a written report to record the following:
1. Procedures used.
 2. Results that comply with requirements.
 3. Results that do not comply with requirements and corrective action taken to achieve compliance with requirements.
- C. Cables will be considered defective if they do not pass tests and inspections.

PART 4 – METHOD OF PAYMENT

4.1 QUANTITY AND PAYMENT

- A. No specific payment will be made for low-voltage electrical power conductors and cables and the cost thereof shall be included within the lump sum bid item **FURNISH AND INSTALL ELECTRIFICATION OF PARKING LOT LIGHTING, SPORTS LIGHTING, AND FLAGPOLE** in the Proposal, which price shall include the cost of all materials, labor and equipment and all else necessary therefore and incidental thereto for a complete and working electrical system as specified herein and as shown on the plans and specifications or as directed by the engineer.

END OF SECTION

SECTION 260523 – CONTROL-VOLTAGE ELECTRICAL POWER CABLES

PART 1 – GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. UTP cabling.
 - 2. RS-232 cabling.
 - 3. RS-485 cabling.
 - 4. Low-voltage control cabling.
 - 5. Control-circuit conductors.
 - 6. Identification products.

1.2 DEFINITIONS

- A. Low Voltage: As defined in NFPA 70 for circuits and equipment operating at less than 50 V or for remote-control and signaling power-limited circuits.
- B. Open Cabling: Passing telecommunications cabling through open space (e.g., between the studs of a wall cavity).

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Field quality-control reports.
- C. Maintenance data.

1.4 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Member company of an NRTL.
- B. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: 25 or less.
 - 2. Smoke-Developed Index: 50 or less.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Test cables upon receipt at Project site.
- B. Test each pair of UTP cable for open and short circuits.

PART 2 – PRODUCTS

2.1 PATHWAYS

- A. Support of Open Cabling: NRTL labeled for support of Category 6 cabling, designed to prevent degradation of cable performance and pinch points that could damage cable.
 - 1. Support brackets with cable tie slots for fastening cable ties to brackets.
 - 2. Lacing bars, spools, J-hooks, and D-rings.
 - 3. Straps and other devices.
- B. Conduit and Boxes: Comply with requirements in Division 26 Section "Raceway and Boxes for Electrical Systems."
 - 1. Outlet boxes shall be no smaller than 2 inches wide, 3 inches high, and 2-1/2 inches deep.

2.2 BACKBOARDS

- A. Description: Plywood 3/4 by 48 by 96 inches. Comply with requirements for plywood backing panels in Division 06 Section "Rough Carpentry."

2.3 UTP CABLE

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Belden CDT Inc.; Electronics Division.
 - 2. Berk-Tek; a Nexans company.
 - 3. CommScope, Inc.
 - 4. Draka USA.
 - 5. Genesis Cable Products; Honeywell International, Inc.
 - 6. KRONE Incorporated.
 - 7. Mohawk; a division of Belden CDT.
 - 8. Nordex/CDT; a subsidiary of Cable Design Technologies.

9. Superior Essex Inc.
 10. SYSTIMAX Solutions; a CommScope, Inc. brand.
 11. 3M.
 12. Tyco Electronics/AMP Netconnect; Tyco International Ltd.
 13. Or approved equal.
- B. Description: 100-ohm, four-pair UTP.
1. Comply with ICEA S-90-661 for mechanical properties.
 2. Comply with TIA/EIA-568-B.1 for performance specifications.
 3. Comply with TIA/EIA-568-B.2, Category 6.
 4. Listed and labeled by an NRTL acceptable to authorities having jurisdiction as complying with UL 444 and NFPA 70 for the following types:
 - a. Communications, Plenum Rated: Type CMP, complying with NFPA 262.
 - b. Communications, Riser Rated: Type CMR, complying with UL 1666.
 - c. Communications, Limited Purpose: Type CMX.
 - d. Multipurpose, Plenum Rated: Type MPP, complying with NFPA 262.
 - e. Multipurpose, Riser Rated: Type MPR, complying with UL 1666.

2.4 UTP CABLE HARDWARE

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. American Technology Systems Industries, Inc.
 2. Dynacom Corporation.
 3. Hubbell Premise Wiring.
 4. KRONE Incorporated.
 5. Leviton Voice & Data Division.
 6. Molex Premise Networks; a division of Molex, Inc.
 7. Nordex/CDT; a subsidiary of Cable Design Technologies.
 8. Panduit Corp.
 9. Siemon Co. (The).
 10. Tyco Electronics/AMP Netconnect; Tyco International Ltd.

- B. UTP Cable Connecting Hardware: IDC type, using modules designed for punch-down caps or tools. Cables shall be terminated with connecting hardware of the same category or higher.
- C. Connecting Blocks: 110 style for Category 6. Provide blocks for the number of cables terminated on the block, plus 25 percent spare; integral with connector bodies, including plugs and jacks where indicated.

2.5 RS-232 CABLE

- A. Standard Cable: NFPA 70, Type CM.
 - 1. Paired, two pairs, No. 22 AWG, stranded (7x30) tinned-copper conductors.
 - 2. Polypropylene insulation.
 - 3. Individual aluminum foil-polyester tape shielded pairs with 100 percent shield coverage.
 - 4. PVC jacket.
 - 5. Pairs are cabled on common axis with No. 24 AWG, stranded (7x32) tinned-copper drain wire.
 - 6. Flame Resistance: Comply with UL 1581.
- B. Plenum-Rated Cable: NFPA 70, Type CMP.
 - 1. Paired, two pairs, No. 22 AWG, stranded (7x30) tinned-copper conductors.
 - 2. Plastic insulation.
 - 3. Individual aluminum foil-polyester tape shielded pairs with 100 percent shield coverage.
 - 4. Plastic jacket.
 - 5. Pairs are cabled on common axis with No. 24 AWG, stranded (7x32) tinned-copper drain wire.
 - 6. Flame Resistance: Comply with NFPA 262.

2.6 RS-485 CABLE

- A. Plenum-Rated Cable: NFPA 70, Type CMP.
 - 1. Paired, two pairs, No. 22 AWG, stranded (7x30) tinned-copper conductors.
 - 2. Fluorinated ethylene propylene insulation.
 - 3. Unshielded.
 - 4. Fluorinated ethylene propylene jacket.
 - 5. Flame Resistance: NFPA 262, Flame Test.

2.7 LOW-VOLTAGE CONTROL CABLE

- A. Plenum-Rated, Paired Cable: NFPA 70, Type CMP.
 - 1. One pair, twisted, No. 16 AWG, stranded (19x29) tinned-copper conductors.
 - 2. PVC insulation.
 - 3. Unshielded.
 - 4. PVC jacket.
 - 5. Flame Resistance: Comply with NFPA 262.
- B. Plenum-Rated, Paired Cable: NFPA 70, Type CMP.
 - 1. One pair, twisted, No. 18 AWG, stranded (19x30) tinned-copper conductors.
 - 2. Fluorinated ethylene propylene insulation.
 - 3. Unshielded.
 - 4. Plastic jacket.
 - 5. Flame Resistance: NFPA 262, Flame Test.

2.8 CONTROL-CIRCUIT CONDUCTORS

- A. Class 1 Control Circuits: Stranded copper, Type THHN-THWN, in raceway, complying with UL 83 and UL 44.
- B. Class 2 Control Circuits: Stranded copper, Type THHN-THWN, in raceway power-limited cable, concealed in building finishes, complying with UL 83 and UL 44.
- C. Class 3 Remote-Control and Signal Circuits: Stranded copper, Type TW or Type TF, complying with UL 83.

2.9 IDENTIFICATION PRODUCTS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Brady Corporation.
 - 2. HellermannTyton.
 - 3. Kroy LLC.
 - 4. Panduit Corp.
 - 5. Or approved equal.

- B. Comply with UL 969 for a system of labeling materials, including label stocks, laminating adhesives, and inks used by label printers.
- C. Comply with requirements in Division 26 Section "Identification for Electrical Systems."

PART 3 – EXECUTION

3.1 INSTALLATION OF PATHWAYS

- A. Comply with TIA/EIA-569-A for pull-box sizing and length of conduit and number of bends between pull points.
- B. Comply with requirements in Division 26 Section "Raceway and Boxes for Electrical Systems" for installation of conduits and wireways.
- C. Install manufactured conduit sweeps and long-radius elbows if possible.
- D. Pathway Installation in Equipment Rooms:
 - 1. Position conduit ends adjacent to a corner on backboard if a single piece of plywood is installed or in the corner of room if multiple sheets of plywood are installed around perimeter walls of room.
 - 2. Install cable trays to route cables if conduits cannot be located in these positions.
 - 3. Secure conduits to backboard if entering room from overhead.
 - 4. Extend conduits 3 inches above finished floor.
 - 5. Install metal conduits with grounding bushings and connect with grounding conductor to grounding system.
- E. Backboards: Install backboards with 96-inch dimension vertical. Butt adjacent sheets tightly and form smooth gap-free corners and joints.

3.2 INSTALLATION OF CONDUCTORS AND CABLES

- A. Comply with NECA 1.
- B. General Requirements for Cabling:
 - 1. Comply with TIA/EIA-568-B.1.
 - 2. Comply with BICSI ITSIM, Ch. 6, "Cable Termination Practices."
 - 3. Terminate all conductors; no cable shall contain unterminated elements. Make terminations only at indicated outlets, terminals, and cross-connect and patch panels.

4. Cables may not be spliced. Secure and support cables at intervals not exceeding 30 inches and not more than 6 inches from cabinets, boxes, fittings, outlets, racks, frames, and terminals.
 5. Bundle, lace, and train conductors to terminal points without exceeding manufacturer's limitations on bending radii, but not less than radii specified in BICSI ITSIM, "Cabling Termination Practices" Chapter. Install lacing bars and distribution spools.
 6. Do not install bruised, kinked, scored, deformed, or abraded cable. Do not splice cable between termination, tap, or junction points. Remove and discard cable if damaged during installation and replace it with new cable.
 7. Cold-Weather Installation: Bring cable to room temperature before dereeling. Heat lamps shall not be used for heating.
 8. Pulling Cable: Comply with BICSI ITSIM, Ch. 4, "Pulling Cable." Monitor cable pull tensions.
- C. UTP Cable Installation:
1. Comply with TIA/EIA-568-B.2.
 2. Install 110-style IDC termination hardware unless otherwise indicated.
 3. Do not untwist UTP cables more than 1/2 inch from the point of termination to maintain cable geometry.
- D. Installation of Control-Circuit Conductors:
1. Install wiring in raceways. Comply with requirements specified in Division 26 Section "Raceway and Boxes for Electrical Systems."
- E. Open-Cable Installation:
1. Install cabling with horizontal and vertical cable guides in telecommunications spaces with terminating hardware and interconnection equipment.
 2. Suspend copper cable not in a wireway or pathway a minimum of 8 inches above ceilings by cable supports not more than 60 inches apart.
 3. Cable shall not be run through structural members or in contact with pipes, ducts, or other potentially damaging items.
- F. Separation from EMI Sources:
1. Comply with BICSI TDMM and TIA/EIA-569-A recommendations for separating unshielded copper voice and data communication cable from potential EMI sources, including electrical power lines and equipment.
 2. Separation between open communications cables or cables in nonmetallic raceways and unshielded power conductors and electrical equipment shall be as follows:
 - a. Electrical Equipment Rating Less Than 2 kVA: A minimum of 5 inches.

- b. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 12 inches.
 - c. Electrical Equipment Rating More Than 5 kVA: A minimum of 24 inches.
 3. Separation between communications cables in grounded metallic raceways and unshielded power lines or electrical equipment shall be as follows:
 - a. Electrical Equipment Rating Less Than 2 kVA: A minimum of 2-1/2 inches.
 - b. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 6 inches.
 - c. Electrical Equipment Rating More Than 5 kVA: A minimum of 12 inches.
 4. Separation between communications cables in grounded metallic raceways and power lines and electrical equipment located in grounded metallic conduits or enclosures shall be as follows:
 - a. Electrical Equipment Rating Less Than 2 kVA: No requirement.
 - b. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 3 inches.
 - c. Electrical Equipment Rating More Than 5 kVA: A minimum of 6 inches.
 5. Separation between Cables and Electrical Motors and Transformers, 5 kVA or HP and Larger: A minimum of 48 inches.
 6. Separation between Cables and Fluorescent Fixtures: A minimum of 5 inches.

3.3 REMOVAL OF CONDUCTORS AND CABLES

- A. Remove abandoned conductors and cables.

3.4 CONTROL-CIRCUIT CONDUCTORS

- A. Minimum Conductor Sizes:
 - a. Class 1 remote-control and signal circuits, No 14 AWG.
 - b. Class 2 low-energy, remote-control, and signal circuits, No. 16 AWG.
 - c. Class 3 low-energy, remote-control, alarm, and signal circuits, No 12 AWG.

3.5 FIRESTOPPING

- A. Comply with requirements in Division 07 Section "Penetration Firestopping."
- B. Comply with TIA/EIA-569-A, Annex A, "Firestopping."
- C. Comply with BICSI TDMM, "Firestopping Systems" Article.

3.6 GROUNDING

- A. For data communications wiring, comply with ANSI-J-STD-607-A and with BICSI TDMM, "Grounding, Bonding, and Electrical Protection" Chapter.

- B. For low-voltage wiring and cabling, comply with requirements in Division 26 Section "Grounding and Bonding for Electrical Systems."

3.7 IDENTIFICATION

- A. Identify system components, wiring, and cabling according to TIA/EIA-606-A. Comply with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."

3.8 FIELD QUALITY CONTROL

- A. Perform tests and inspections.

- B. Tests and Inspections:

1. Visually inspect UTP cable jacket materials for UL or third-party certification markings. Inspect cabling terminations to confirm color-coding for pin assignments, and inspect cabling connections to confirm compliance with TIA/EIA-568-B.1.
2. Visually inspect cable placement, cable termination, grounding and bonding, equipment and patch cords, and labeling of all components.
3. Test UTP cabling for DC loop resistance, shorts, opens, intermittent faults, and polarity between conductors. Test operation of shorting bars in connection blocks. Test cables after termination but not after cross connection.
 - a. Test instruments shall meet or exceed applicable requirements in TIA/EIA-568-B.2. Perform tests with a tester that complies with performance requirements in "Test Instruments (Normative)" Annex, complying with measurement accuracy specified in "Measurement Accuracy (Informative)" Annex. Use only test cords and adapters that are qualified by test equipment manufacturer for channel or link test configuration.

- C. Document data for each measurement. Print data for submittals in a summary report that is formatted using Table 10.1 in BICSI TDMM as a guide, or transfer the data from the instrument to the computer, save as text files, print, and submit.

- D. End-to-end cabling will be considered defective if it does not pass tests and inspections.

- E. Prepare test and inspection reports.

PART 4 – METHOD OF PAYMENT

4.1 QUANTITY AND PAYMENT

- A. No specific payment will be made for control-voltage electrical power cables and the cost thereof shall be included within the lump sum bid item **FURNISH AND INSTALL**

ELECTRIFICATION OF PARKING LOT LIGHTING, SPORTS LIGHTING, AND FLAGPOLE in the Proposal, which price shall include the cost of all materials, labor and equipment, and all else necessary therefore and incidental thereto for a complete and working electrical system as specified herein and as shown on the plans and specifications or as directed by the engineer.

END OF SECTION

SECTION 260526 – GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.1 SUMMARY

- A. Section Includes: Grounding systems and equipment.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 – PRODUCTS

2.1 CONDUCTORS

- A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
- B. Bare Copper Conductors:
 - 1. Solid Conductors: ASTM B 3.
 - 2. Stranded Conductors: ASTM B 8.
 - 3. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch in diameter.
 - 4. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
 - 5. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

2.2 CONNECTORS

- A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.
- B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy, pressure type with at least two bolts.
 - 1. Pipe Connectors: Clamp type, sized for pipe.

- C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

2.3 GROUNDING ELECTRODES

- A. Ground Rods: Copper-clad steel; 3/4 inch by 10 feet in diameter.

PART 3 – EXECUTION

3.1 APPLICATIONS

- A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.
- B. Underground Grounding Conductors: Install bare copper conductor, No. 2/0 AWG minimum. Bury at least 24 inches below grade.
- C. Conductor Terminations and Connections:
 - 1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
 - 2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.
 - 3. Connections to Ground Rods at Test Wells: Bolted connectors.
 - 4. Connections to Structural Steel: Welded connectors.

3.2 EQUIPMENT GROUNDING

- A. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:
 - 1. Feeders and branch circuits.
 - 2. Lighting circuits.
 - 3. Receptacle circuits.
 - 4. Single-phase motor and appliance branch circuits.
 - 5. Three-phase motor and appliance branch circuits.
 - 6. Flexible raceway runs.
 - 7. Armored and metal-clad cable runs.
 - 8. Busway Supply Circuits: Install insulated equipment grounding conductor from grounding bus in the switchgear, switchboard, or distribution panel to equipment grounding bar terminal on busway.
- B. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters,

dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.

- C. Water Heater, Heat-Tracing, and Antifrost Heating Cables: Install a separate insulated equipment grounding conductor to each electric water heater and heat-tracing cable. Bond conductor to heater units, piping, connected equipment, and components.
- D. Signal and Communication Equipment: In addition to grounding and bonding required by NFPA 70, provide a separate grounding system complying with requirements in TIA/ATIS J-STD-607-A.
 - 1. For telephone, alarm, voice and data, and other communication equipment, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.
 - 2. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a 1/4-by-4-by-12-inch grounding bus.
 - 3. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.

3.3 INSTALLATION

- A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- B. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade unless otherwise indicated.
 - 1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.
 - 2. For grounding electrode system, install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.
- C. Test Wells: Ground rod driven through drilled hole in bottom of handhole.
 - 1. Test Wells: Install at least one test well for each service unless otherwise indicated. Install at the ground rod electrically closest to service entrance. Set top of test well flush with finished grade or floor.
- D. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.
 - 1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.

2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.

E. Grounding and Bonding for Piping:

1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes; use a bolted clamp connector or bolt a lug-type connector to a pipe flange using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
3. Bond each aboveground portion of gas piping system downstream from meter and shutoff valve.

3.4 LABELING

- A. Comply with requirements in Section 260553 "Identification for Electrical Systems" for instruction signs. The label or its text shall be green.
- B. Install labels at the telecommunications bonding conductor and grounding equalizer and at the grounding electrode conductor where exposed.
 1. Label Text: "If this connector or cable is loose or if it must be removed for any reason, notify the facility manager."

3.5 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections and prepare test reports:
 1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
 2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.
 3. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, and at ground test wells. Make tests at ground rods before any conductors are connected.
- B. Report measured ground resistances that exceed the following values:
 1. Power and Lighting Equipment or System with Capacity of 500 kVA and Less: 10 ohms.

- C. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

PART 4 – METHOD OF PAYMENT

4.1 QUANTITY AND PAYMENT

- A. No specific payment will be made for grounding and bonding for electrical systems and the cost thereof shall be included within the lump sum bid item **FURNISH AND INSTALL ELECTRIFICATION OF PARKING LOT LIGHTING, SPORTS LIGHTING, AND FLAGPOLE** in the Proposal, which price shall include the cost of all materials, labor and equipment, and all else necessary therefore and incidental thereto for a complete and working electrical system as specified herein and as shown on the plans and specifications or as directed by the engineer.

END OF SECTION

SECTION 260529 – HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes:

1. Hangers and supports for electrical equipment and systems.
2. Construction requirements for concrete bases.

1.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design:** Design supports for multiple raceways, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- B. Design supports for multiple raceways** capable of supporting combined weight of supported systems and its contents.
- C. Design equipment supports** capable of supporting combined operating weight of supported equipment and connected systems and components.

1.3 SUBMITTALS

- A. Product Data:** For steel slotted support systems.
- B. Shop Drawings:** Show fabrication and installation details and include calculations for the following:
1. Trapeze hangers. Include Product Data for components.
 2. Steel slotted channel systems. Include Product Data for components.
 3. Equipment supports.
- C. Welding certificates.**

1.4 QUALITY ASSURANCE

- A. Comply with NFPA 70.**

PART 2 – PRODUCTS

2.1 SUPPORT, ANCHORAGE AND ATTACHMENT COMPONENTS

- A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allied Tube & Conduit.
 - b. Cooper B-Line, Inc.; a division of Cooper Industries.
 - c. ERICO International Corporation.
 - d. GS Metals Corp.
 - e. Thomas & Betts Corporation.
 - f. Unistrut; Tyco International, Ltd.
 - g. Wesanco, Inc.
 - h. Or approved equal.
 - 2. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
 - 3. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane, or polyester coating applied according to MFMA-4.
 - 4. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
 - 5. Channel Dimensions: Selected for applicable load criteria.
- B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.
- C. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- D. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.
- E. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.
- F. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
 - 1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.

- a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Hilti, Inc.
 2. ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
 3. MKT Fastening, LLC.
 4. Simpson Strong-Tie Co., Inc.; Masterset Fastening Systems Unit.
 5. Or approved equal.

2. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Cooper B-Line, Inc.; a division of Cooper Industries.
 2. Empire Tool and Manufacturing Co., Inc.
 3. Hilti, Inc.
 4. ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
 5. MKT Fastening, LLC.
 6. Or approved equal.

 3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
 4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
 5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
 6. Toggle Bolts: All-steel springhead type.
 7. Hanger Rods: Threaded steel.

2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

- A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.
- B. Materials: Comply with requirements in Division 05 Section "Metal Fabrications" for steel shapes and plates.

PART 3 – EXECUTION

3.1 APPLICATION

- A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.
- B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be 1/4 inch in diameter.
- C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted or other support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
 - 1. Secure raceways and cables to these supports with two-bolt conduit clamps.

3.2 SUPPORT INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.
- B. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.
- C. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
 - 1. To Wood: Fasten with lag screws or through bolts.
 - 2. To New Concrete: Bolt to concrete inserts.
 - 3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
 - 4. To Existing Concrete: Expansion anchor fasteners.
 - 5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches thick.
 - 6. To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
 - 7. To Light Steel: Sheet metal screws.

8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that meet seismic-restraint strength and anchorage requirements.
- D. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 INSTALLATION OF FABRICATED METAL SUPPORTS

- A. Comply with installation requirements in Division 05 Section "Metal Fabrications" for site-fabricated metal supports.
- B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.
- C. Field Welding: Comply with AWS D1.1/D1.1M.

3.4 CONCRETE BASES

- A. Construct concrete bases of dimensions indicated but not less than 4 inches larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.
- B. Use 3000-psi, 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in Division 03 Section "Cast-in-Place Concrete."
- C. Anchor equipment to concrete base.
 1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 2. Install anchor bolts to elevations required for proper attachment to supported equipment.
 3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.5 PAINTING

- A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
 1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.

- B. Touchup: Comply with requirements in Division 09 painting Sections for cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal.
- C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

PART 4 – METHOD OF PAYMENT

4.1 QUANTITY AND PAYMENT

- A. No specific payment will be made for hangers and supports for electrical systems and the cost thereof shall be included within the lump sum bid item **FURNISH AND INSTALL ELECTRIFICATION OF PARKING LOT LIGHTING, SPORTS LIGHTING, AND FLAGPOLE** in the Proposal, which price shall include the cost of all materials, labor and equipment, and all else necessary therefore and incidental thereto for a complete and working electrical system as specified herein and as shown on the plans and specifications or as directed by the engineer.

END OF SECTION

SECTION 260533 – RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:

1. Metal conduits, tubing, and fittings.
2. Nonmetal conduits, tubing, and fittings.
3. Metal wireways and auxiliary gutters.
4. Nonmetal wireways and auxiliary gutters.
5. Surface raceways.
6. Boxes, enclosures, and cabinets.
7. Handholes and boxes for exterior underground cabling.

1.2 ACTION SUBMITTALS

- A. Product Data:** For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.
- B. Shop Drawings:** For custom enclosures and cabinets. Include plans, elevations, sections, and attachment details.

1.3 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings:** Conduit routing plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of items involved:
1. Structural members in paths of conduit groups with common supports.
 2. HVAC and plumbing items and architectural features in paths of conduit groups with common supports.
- B. Seismic Qualification Certificates:** For enclosures, cabinets, and conduit racks and their mounting provisions, including those for internal components, from manufacturer.

PART 2 – PRODUCTS

2.1 METAL CONDUITS, TUBING, AND FITTINGS

- A. Listing and Labeling:** Metal conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

- B. GRC: Comply with ANSI C80.1 and UL 6.
- C. ARC: Comply with ANSI C80.5 and UL 6A.
- D. IMC: Comply with ANSI C80.6 and UL 1242.
- E. EMT: Comply with ANSI C80.3 and UL 797.
- F. FMC: Comply with UL 1; zinc-coated steel.
- G. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.
- H. Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.
 - 1. Fittings for EMT:
 - a. Material: die cast.
 - b. Type: compression.
 - 2. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.
- I. Joint Compound for IMC, or GRC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.2 NONMETALLIC CONDUITS, TUBING, AND FITTINGS

- A. Listing and Labeling: Nonmetallic conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. ENT: Comply with NEMA TC 13 and UL 1653.
- C. RNC: Type EPC-40-PVC, complying with NEMA TC 2 and UL 651 unless otherwise indicated.
- D. LFNC: Comply with UL 1660.
- E. Continuous HDPE: Comply with UL 651B.
- F. Coilable HDPE: Preassembled with conductors or cables, and complying with ASTM D 3485.
- G. Fittings for ENT and RNC: Comply with NEMA TC 3; match to conduit or tubing type and material.

- H. Fittings for LFNC: Comply with UL 514B.
- I. Solvent cements and adhesive primers shall have a VOC content of 510 and 550 g/L or less, respectively, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- J. Solvent cements and adhesive primers shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.3 METAL WIREWAYS AND AUXILIARY GUTTERS

- A. Description: Sheet metal, complying with UL 870 and NEMA 250, Type 1 unless otherwise indicated, and sized according to NFPA 70.
 - 1. Metal wireways installed outdoors shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

2.4 BOXES, ENCLOSURES, AND CABINETS

- A. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.
- B. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.
- C. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, aluminum, Type FD, with gasketed cover.
- D. Nonmetallic Outlet and Device Boxes: Comply with NEMA OS 2 and UL 514C.
- E. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.
- F. Cast-Metal Access, Pull, and Junction Boxes: Comply with NEMA FB 1 and UL 1773, cast aluminum with gasketed cover.
- G. Box extensions used to accommodate new building finishes shall be of same material as recessed box.
- H. Device Box Dimensions: 4 inches square by 2-1/8 inches deep.
- I. Gangable boxes are prohibited.

PART 3 – EXECUTION

3.1 RACEWAY APPLICATION

- A. Outdoors: Apply raceway products as specified below unless otherwise indicated:
 - 1. Exposed Conduit: RNC, Type EPC-80-PVC.
 - 2. Underground Conduit: RNC, Type EPC-40-PVC.
 - 3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
 - 4. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.
- B. Indoors: Apply raceway products as specified below unless otherwise indicated.
 - 1. Exposed, Not Subject to Physical Damage: EMT.
 - 2. Concealed in Ceilings and Interior Walls and Partitions: EMT.
 - 3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
 - 4. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4 stainless steel or nonmetallic in institutional and commercial kitchens and damp or wet locations.
- C. Minimum Raceway Size: 3/4-inch trade size.
- D. Raceway Fittings: Compatible with raceways and suitable for use and location.
 - 1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
 - 2. PVC Externally Coated, Rigid Steel Conduits: Use only fittings listed for use with this type of conduit. Patch and seal all joints, nicks, and scrapes in PVC coating after installing conduits and fittings. Use sealant recommended by fitting manufacturer and apply in thickness and number of coats recommended by manufacturer.
 - 3. EMT: Use compression, cast-metal fittings. Comply with NEMA FB 2.10.
 - 4. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.
- E. Do not install aluminum conduits, boxes, or fittings in contact with concrete or earth.
- F. Install surface raceways only where indicated on Drawings.
- G. Do not install nonmetallic conduit where ambient temperature exceeds 100 deg F.

3.2 INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.
- B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
- C. Arrange stub-ups so curved portions of bends are not visible above finished slab.
- D. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.
- E. Conceal conduit and EMT within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.
- F. Support conduit within 12 inches of enclosures to which attached.
- G. Stub-ups to Above Recessed Ceilings:
 - 1. Use EMT, IMC, or RMC for raceways.
 - 2. Use a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure.
- H. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.
- I. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.
- J. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.
- K. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.
- L. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where an underground service raceway enters a building or structure.
3. Where otherwise required by NFPA 70.

M. Expansion-Joint Fittings:

1. Install in each run of aboveground RNC that is located where environmental temperature change may exceed 30 deg F and that has straight-run length that exceeds 25 feet.
2. Install type and quantity of fittings that accommodate temperature change listed for each of the following locations:
 - a. Outdoor Locations Not Exposed to Direct Sunlight: 125 deg F temperature change.
 - b. Outdoor Locations Exposed to Direct Sunlight: 155 deg F temperature change.
3. Install fitting(s) that provide expansion and contraction for at least 0.00041 inch per foot of length of straight run per degree F of temperature change for PVC conduits.
4. Install expansion fittings at all locations where conduits cross building or structure expansion joints.
5. Install each expansion-joint fitting with position, mounting, and piston setting selected according to manufacturer's written instructions for conditions at specific location at time of installation. Install conduit supports to allow for expansion movement.

N. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches of flexible conduit for equipment subject to vibration, noise transmission, or movement; and for transformers and motors.

1. Use LFMC in damp or wet locations subject to severe physical damage.
2. Use LFMC in damp or wet locations not subject to severe physical damage.

O. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to center of box unless otherwise indicated.

P. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a rain tight connection between the box and cover plate or the supported equipment and box.

Q. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.

- R. Locate boxes so that cover or plate will not span different building finishes.
- S. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.
- T. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.
- U. Set metal floor boxes level and flush with finished floor surface.
- V. Set nonmetallic floor boxes level. Trim after installation to fit flush with finished floor surface.

3.3 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies.

3.4 FIRESTOPPING

- A. Install firestopping at penetrations of fire-rated floor and wall assemblies.

3.5 PROTECTION

- A. Protect coatings, finishes, and cabinets from damage and deterioration.
 - 1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. No specific payment will be made for raceways and boxes for electrical systems and the cost thereof shall be included within the lump sum bid item **FURNISH AND INSTALL ELECTRIFICATION OF PARKING LOT LIGHTING, SPORTS LIGHTING, AND FLAGPOLE** in the Proposal, which price shall include the cost of all materials, labor and equipment, and all else necessary therefore and incidental thereto for a complete and working electrical system as specified herein and as shown on the plans and specifications or as directed by the engineer.

END OF SECTION

SECTION 260543 – UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Conduit, ducts, and duct accessories for direct-buried and concrete-encased duct banks.
2. Handholes and boxes.
3. Manholes.

1.2 DEFINITION

A. RNC: Rigid nonmetallic conduit.

1.3 ACTION SUBMITTALS

A. Product Data: For the following:

1. Duct-bank materials, including separators and miscellaneous components.
2. Ducts and conduits and their accessories, including elbows, end bells, bends, fittings, and solvent cement.
3. Accessories for manholes, handholes, boxes, and other utility structures.
4. Warning tape.
5. Warning planks.

B. Shop Drawings for Precast or Factory-Fabricated Underground Utility Structures: Include plans, elevations, sections, details, attachments to other work, and accessories, including the following:

1. Duct entry provisions, including locations and duct sizes.
2. Reinforcement details.
3. Frame and cover design and manhole frame support rings.
4. Ladder details.
5. Grounding details.
6. Dimensioned locations of cable rack inserts, pulling-in and lifting irons, and sumps.
7. Joint details.

C. Shop Drawings for Factory-Fabricated Handholes and Boxes Other Than Precast Concrete: Include dimensioned plans, sections, and elevations, and fabrication and installation details, including the following:

1. Duct entry provisions, including locations and duct sizes.
2. Cover design.
3. Grounding details.
4. Dimensioned locations of cable rack inserts, and pulling-in and lifting irons.

1.4 INFORMATIONAL SUBMITTALS

- A. Duct-Bank Coordination Drawings: Show duct profiles and coordination with other utilities and underground structures.
 1. Include plans and sections, drawn to scale, and show bends and locations of expansion fittings.
 2. Drawings shall be signed and sealed by a qualified professional engineer.
- B. Product Certificates: For concrete and steel used in precast concrete manholes and handholes, as required by ASTM C 858.
- C. Qualification Data: For professional engineer and testing agency.
- D. Source quality-control test reports.
- E. Field quality-control test reports.

1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.
- B. Comply with ANSI C2.
- C. Comply with NFPA 70.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver ducts to Project site with ends capped. Store nonmetallic ducts with supports to prevent bending, warping, and deforming.
- B. Store precast concrete and other factory-fabricated underground utility structures at Project site as recommended by manufacturer to prevent physical damage. Arrange so identification markings are visible.
- C. Lift and support precast concrete units only at designated lifting or supporting points.

1.7 PROJECT CONDITIONS

- A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electrical service according to requirements indicated:
 - 1. Notify Construction Manager no fewer than two days in advance of proposed interruption of electrical service.
 - 2. Do not proceed with interruption of electrical service without Construction Manager's written permission.

1.8 COORDINATION

- A. Coordinate layout and installation of ducts, manholes, handholes, and boxes with final arrangement of other utilities, site grading, and surface features as determined in the field.
- B. Coordinate elevations of ducts and duct-bank entrances into manholes, handholes, and boxes with final locations and profiles of ducts and duct banks as determined by coordination with other utilities, underground obstructions, and surface features. Revise locations and elevations from those indicated as required to suit field conditions and to ensure that duct runs drain to manholes and handholes, and as approved by Architect.

1.9 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
- B. Furnish cable-support stanchions, arms, insulators, and associated fasteners in quantities equal to 5 percent of quantity of each item installed.

PART 2 – PRODUCTS

2.1 CONDUIT

- A. Rigid Steel Conduit: Galvanized. Comply with ANSI C80.1.
- B. RNC: NEMA TC 2, Type EPC-40-PVC and Type EPC-80-PVC, UL 651, with matching fittings by same manufacturer as the conduit, complying with NEMA TC 3 and UL 514B.

2.2 NONMETALLIC DUCTS AND DUCT ACCESSORIES

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- C. Basis-of-Design Product: Subject to compliance with requirements, provide a product by one of the following:
 - 1. ARNCO Corp.
 - 2. Beck Manufacturing.
 - 3. Cantex, Inc.
 - 4. CertainTeed Corp.; Pipe & Plastics Group.
 - 5. Condux International, Inc.
 - 6. ElecSys, Inc.
 - 7. Electri-Flex Company.
 - 8. IPEX Inc.
 - 9. Lamson & Sessions; Carlon Electrical Products.
 - 10. Manhattan/CDT; a division of Cable Design Technologies.
 - 11. Spiraduct/AFC Cable Systems, Inc.
 - 12. Or approved equal.
- D. Underground Plastic Utilities Duct: NEMA TC 6 & 8, Type EB-20-PVC, ASTM F 512, UL 651A, with matching fittings by the same manufacturer as the duct, complying with NEMA TC 9.
- E. Underground Plastic Utilities Duct: NEMA TC 6 & 8, Type DB-60-PVC and Type DB-120-PVC, ASTM F 512, with matching fittings by the same manufacturer as the duct, complying with NEMA TC 9.
- F. Duct Accessories:
 - 1. Duct Separators: Factory-fabricated rigid PVC interlocking spacers, sized for type and sizes of ducts with which used, and selected to provide minimum duct spacings indicated while supporting ducts during concreting or backfilling.
 - 2. Warning Tape: Underground-line warning tape specified in Section 260553 "Identification for Electrical Systems."
 - 3. Concrete Warning Planks: Nominal 12 by 24 by 3 inches in size, manufactured from 6000-psi concrete.
 - a. Color: Red dye added to concrete during batching.
 - b. Mark each plank with "ELECTRIC" in 2-inch-high, 3/8-inch-deep letters.

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Carder Concrete Products.
 - 2. Christy Concrete Products.
 - 3. Elmhurst-Chicago Stone Co.
 - 4. Oldcastle Precast Group.
 - 5. Riverton Concrete Products; a division of Cretex Companies, Inc.
 - 6. Utility Concrete Products, LLC.
 - 7. Utility Vault Co.
 - 8. Wausau Tile, Inc.
 - 9. Or approved equal.
- C. Comply with ASTM C 858 for design and manufacturing processes.
- D. Description: Factory-fabricated, reinforced-concrete, monolithically poured walls and bottom unless open-bottom enclosures are indicated. Frame and cover shall form top of enclosure and shall have load rating consistent with that of handhole or box.
 - 1. Frame and Cover: Weatherproof cast-iron frame, with cast-iron cover with recessed cover hook eyes and tamper-resistant, captive, cover-securing bolts.
 - 2. Frame and Cover: Weatherproof steel frame, with steel cover with recessed cover hook eyes and tamper-resistant, captive, cover-securing bolts.
 - 3. Frame and Cover: Weatherproof steel frame, with hinged steel access door assembly with tamper-resistant, captive, cover-securing bolts.
 - a. Cover Hinges: Concealed, with hold-open ratchet assembly.
 - b. Cover Handle: Recessed.
 - 4. Frame and Cover: Weatherproof aluminum frame with hinged aluminum access door assembly with tamper-resistant, captive, cover-securing bolts.
 - a. Cover Hinges: Concealed, with hold-open ratchet assembly.
 - b. Cover Handle: Recessed.
 - 5. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
 - 6. Cover Legend: Molded lettering, "ELECTRIC." "TELEPHONE"
 - 7. Configuration: Units shall be designed for flush burial and have closed bottom, unless otherwise indicated.

8. Extensions and Slabs: Designed to mate with bottom of enclosure. Same material as enclosure.
 - a. Extension shall provide increased depth of 12 inches.
 - b. Slab: Same dimensions as bottom of enclosure, and arranged to provide closure.
9. Windows: Precast openings in walls, arranged to match dimensions and elevations of approaching ducts and duct banks plus an additional 12 inches vertically and horizontally to accommodate alignment variations.
 - a. Windows shall be located no less than 6 inches from interior surfaces of walls, floors, or frames and covers of handholes, but close enough to corners to facilitate racking of cables on walls.
 - b. Window opening shall have cast-in-place, welded wire fabric reinforcement for field cutting and bending to tie in to concrete envelopes of duct banks.
 - c. Window openings shall be framed with at least two additional No. 4 steel reinforcing bars in concrete around each opening.
10. Duct Entrances in Handhole Walls: Cast end-bell or duct-terminating fitting in wall for each entering duct.
 - a. Type and size shall match fittings to duct or conduit to be terminated.
 - b. Fittings shall align with elevations of approaching ducts and be located near interior corners of handholes to facilitate racking of cable.
11. Handholes 12 inches wide by 24 inches long and larger shall have inserts for cable racks and pulling-in irons installed before concrete is poured.

2.4 UTILITY STRUCTURE ACCESSORIES

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Bilco Company (The).
 2. Campbell Foundry Company.
 3. Carder Concrete Products.
 4. Christy Concrete Products.
 5. East Jordan Iron Works, Inc.
 6. Elmhurst-Chicago Stone Co.
 7. McKinley Iron Works, Inc.
 8. Neenah Foundry Company.

9. NewBasis.
 10. Oldcastle Precast Group.
 11. Osburn Associates, Inc.
 12. Pennsylvania Insert Corporation.
 13. Riverton Concrete Products; a division of Cretex Companies, Inc..
 14. Strongwell Corporation; Lenoir City Division.
 15. Underground Devices, Inc.
 16. Utility Concrete Products, LLC.
 17. Utility Vault Co.
 18. Wausau Tile, Inc.
 19. Or approved equal.
- C. Manhole Frames, Covers, and Chimney Components: Comply with structural design loading specified for manhole.
1. Frame and Cover: Weatherproof, gray cast iron complying with ASTM A 48/A 48M, Class 30B with milled cover-to-frame bearing surfaces; diameter, 26 inches 29 inches.
 - a. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
 - b. Special Covers: Recess in face of cover designed to accept finish material in paved areas.
 2. Cover Legend: Cast in. Selected to suit system.
 - a. Legend: "ELECTRIC-LV" for duct systems with power wires and cables for systems operating at 600 V and less.
 - b. Legend: "ELECTRIC-HV" for duct systems with medium-voltage cables.
 - c. Legend: "SIGNAL" for communications, data, and telephone duct systems.
 3. Manhole Chimney Components: Precast concrete rings with dimensions matched to those of roof opening.
 - a. Mortar for Chimney Ring and Frame and Cover Joints: Comply with ASTM C 270, Type M, except for quantities less than 2.0 cu. ft. where packaged mix complying with ASTM C 387, Type M, may be used.
- D. Manhole Sump Frame and Grate: ASTM A 48/A 48M, Class 30B, gray cast iron.
- E. Pulling Eyes in Concrete Walls: Eyebolt with reinforcing-bar fastening insert, 2-inch-diameter eye, and 1-by-4-inch bolt.
1. Working Load Embedded in 6-Inch, 4000-psi Concrete: 13,000-lbf minimum tension.
- F. Pulling Eyes in Nonconcrete Walls: Eyebolt with reinforced fastening, 1-1/4-inch-diameter eye, rated 2500-lbf minimum tension.

- G. Pulling-In and Lifting Irons in Concrete Floors: 7/8-inch- (22-mm-) diameter, hot-dip galvanized, bent steel rod; stress relieved after forming; and fastened to reinforcing rod. Exposed triangular opening.
1. Ultimate Yield Strength: 40,000-lbf shear and 60,000-lbf tension.
- H. Bolting Inserts for Concrete Utility Structure Cable Racks and Other Attachments: Flared, threaded inserts of noncorrosive, chemical-resistant, nonconductive thermoplastic material; 1/2-inch ID by 2-3/4 inches deep, flared to 1-1/4 inches minimum at base.
1. Tested Ultimate Pullout Strength: 12,000 lbf minimum.
- I. Expansion Anchors for Installation after Concrete Is Cast: Zinc-plated, carbon-steel-wedge type with stainless-steel expander clip with 1/2-inch bolt, 5300-lbf rated pullout strength, and minimum 6800-lbf rated shear strength.
- J. Cable Rack Assembly: Steel, hot-rolled galvanized, except insulators.
1. Stanchions: T-section or channel; 2-1/4-inch nominal size; punched with 14 holes on 1-1/2-inch (38-mm) centers for cable-arm attachment.
 2. Arms: 1-1/2 inches (38 mm) wide, lengths ranging from 3 inches with 450-lb (204-kg) minimum capacity to 18 inches (460 mm) with 250-lb (114-kg) minimum capacity. Arms shall have slots along full length for cable ties and be arranged for secure mounting in horizontal position at any vertical location on stanchions.
 3. Insulators: High-glaze, wet-process porcelain arranged for mounting on cable arms.
- K. Cable Rack Assembly: Nonmetallic. Components fabricated from nonconductive, fiberglass-reinforced polymer.
1. Stanchions: Nominal 36 inches high by 4 inches wide, with minimum of 9 holes for arm attachment.
 2. Arms: Arranged for secure, drop-in attachment in horizontal position at any location on cable stanchions, and capable of being locked in position. Arms shall be available in lengths ranging from 3 inches with 450-lb (204-kg) minimum capacity to 20 inches (508 mm) with 250-lb (114-kg) minimum capacity. Top of arm shall be nominally 4 inches wide, and arm shall have slots along full length for cable ties.
- L. Duct-Sealing Compound: Nonhardening, safe for contact with human skin, not deleterious to cable insulation, and workable at temperatures as low as 35 deg F (2 deg C). Capable of withstanding temperature of 300 deg F (150 deg C) without slump and adhering to clean surfaces of plastic ducts, metallic conduits, conduit coatings, concrete, masonry, lead, cable sheaths, cable jackets, insulation materials, and common metals.
- M. Fixed Manhole Ladders: Arranged for attachment to wall of manhole. Ladder and mounting brackets and braces shall be fabricated from hot-dip galvanized steel.

N. Portable Manhole Ladders: UL-listed, heavy-duty fiberglass specifically designed for portable use for access to electrical manholes. Minimum length equal to distance from deepest manhole floor to grade plus 36 inches . One required.

O. Cover Hooks: Heavy duty, designed for lifts 60 lbf (270 N) and greater. Two required.

2.5 SOURCE QUALITY CONTROL

A. Test and inspect precast concrete utility structures according to ASTM C 1037.

B. Nonconcrete Handhole and Pull-Box Prototype Test: Test prototypes of manholes and boxes for compliance with SCTE 77. Strength tests shall be for specified tier ratings of products supplied.

1. Tests of materials shall be performed by an independent testing agency.

2. Strength tests of complete boxes and covers shall be by either an independent testing agency or the manufacturer. A qualified registered professional engineer shall certify tests by manufacturer.

3. Testing machine pressure gages shall have current calibration certification complying with ISO 9000 and ISO 10012, and traceable to NIST standards.

PART 3 – EXECUTION

3.1 UNDERGROUND DUCT APPLICATION

A. Ducts for Electrical Cables Over 600 V: RNC, NEMA Type EPC-80 -PVC, in concrete-encased duct bank, unless otherwise indicated.

B. Ducts for Electrical Feeders 600 V and Less: RNC, NEMA Type EPC-80 -PVC, in concrete-encased duct bank, unless otherwise indicated.

C. Ducts for Electrical Feeders 600 V and Less: RNC, NEMA Type EPC-80-PVC, in direct-buried duct bank, unless otherwise indicated.

D. Ducts for Electrical Branch Circuits: RNC, NEMA Type EPC-80 -PVC, in direct-buried duct bank, unless otherwise indicated.

E. Underground Ducts for Telephone, Communications, or Data Utility Service Cables: RNC, NEMA Type -PVC, in concrete-encased duct bank, unless otherwise indicated.

F. Underground Ducts for Telephone, Communications, or Data Utility Service Cables: RNC, NEMA Type EPC-40-PVC, installed in direct-buried duct bank, unless otherwise indicated.

G. Underground Ducts for Telephone, Communications, or Data Circuits: RNC, NEMA Type EPC-40-PVC, in direct-buried duct bank, unless otherwise indicated.

- H. Underground Ducts for Telephone, Communications, or Data Circuits: RNC, NEMA Type EB-20-PVC, in concrete-encased duct bank, unless otherwise indicated.
- I. Underground Ducts Crossing Paved Paths and Driveways: RNC, NEMA Type EPC-40-PVC, encased in reinforced concrete.

3.2 UNDERGROUND ENCLOSURE APPLICATION

- A. Handholes and Boxes for 600 V and Less, Including Telephone, Communications, and Data Wiring:
 - 1. Units in Roadways and Other Deliberate Traffic Paths: Precast concrete. AASHTO HB 17, H-10 structural load rating.
 - 2. Units in Driveway, Parking Lot, and Off-Roadway Locations, Subject to Occasional, Nondeliberate Loading by Heavy Vehicles: Precast concrete, AASHTO HB 17, H-20 structural load rating.
 - 3. Units in Sidewalk and Similar Applications with a Safety Factor for Nondeliberate Loading by Vehicles: Precast concrete, AASHTO HB 17, H-10 structural load rating.
 - 4. Units Subject to Light-Duty Pedestrian Traffic Only: High-density plastic, structurally tested according to SCTE 77 with 3000-lbf vertical loading.
- B. Manholes: Precast concrete.
 - 1. Units Located in Roadways and Other Deliberate Traffic Paths by Heavy or Medium Vehicles: H-20 structural load rating according to AASHTO HB 17.
 - 2. Units Not Located in Deliberate Traffic Paths by Heavy or Medium Vehicles: H-10 load rating according to AASHTO HB 17.

3.3 EARTHWORK

- A. Excavation and Backfill: Comply with Section 310000 "Earthwork" but do not use heavy-duty, hydraulic-operated, compaction equipment.
- B. Restore surface features at areas disturbed by excavation and reestablish original grades, unless otherwise indicated. Replace removed sod immediately after backfilling is completed.
- C. Restore areas disturbed by trenching, storing of dirt, cable laying, and other work. Restore vegetation and include necessary topsoiling, fertilizing, liming, seeding, sodding, sprigging, and mulching. Comply with Section 321816 "Artificial Grass Turf" and Section 329300 "Landscaping"
- D. Cut and patch existing pavement in the path of underground ducts and utility structures according to Section 017329 "Sawcutting"

3.4 DUCT INSTALLATION

- A. Slope: Pitch ducts a minimum slope of 1:300 down toward manholes and handholes and away from buildings and equipment. Slope ducts from a high point in runs between two manholes to drain in both directions.
- B. Curves and Bends: Use 5-degree angle couplings for small changes in direction. Use manufactured long sweep bends with a minimum radius of 48 inches, both horizontally and vertically, at other locations, unless otherwise indicated.
- C. Joints: Use solvent-cemented joints in ducts and fittings and make watertight according to manufacturer's written instructions. Stagger couplings so those of adjacent ducts do not lie in same plane.
- D. Duct Entrances to Manholes and Concrete and Polymer Concrete Handholes: Use end bells, spaced approximately 10 inches o.c. for 5-inch ducts, and vary proportionately for other duct sizes.
 - 1. Begin change from regular spacing to end-bell spacing 10 feet from the end bell without reducing duct line slope and without forming a trap in the line.
 - 2. Direct-Buried Duct Banks: Install an expansion and deflection fitting in each conduit in the area of disturbed earth adjacent to manhole or handhole.
 - 3. Grout end bells into structure walls from both sides to provide watertight entrances.
- E. Building Wall Penetrations: Make a transition from underground duct to rigid steel conduit at least 10 feet outside the building wall without reducing duct line slope away from the building, and without forming a trap in the line. Use fittings manufactured for duct-to-conduit transition. Install conduit penetrations of building walls as specified in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."
- F. Sealing: Provide temporary closure at terminations of ducts that have cables pulled. Seal spare ducts at terminations. Use sealing compound and plugs to withstand at least 15-psig hydrostatic pressure.
- G. Pulling Cord: Install 100-lbf-test nylon cord in ducts, including spares.
- H. Concrete-Encased Ducts: Support ducts on duct separators.
 - 1. Separator Installation: Space separators close enough to prevent sagging and deforming of ducts, with not less than 4 spacers per 20 feet of duct. Secure separators to earth and to ducts to prevent floating during concreting. Stagger separators approximately 6 inches between tiers. Tie entire assembly together using fabric straps; do not use tie wires or reinforcing steel that may form conductive or magnetic loops around ducts or duct groups.
 - 2. Concreting Sequence: Pour each run of envelope between manholes or other terminations in one continuous operation.

- a. Start at one end and finish at the other, allowing for expansion and contraction of ducts as their temperature changes during and after the pour. Use expansion fittings installed according to manufacturer's written recommendations, or use other specific measures to prevent expansion-contraction damage.
- b. If more than one pour is necessary, terminate each pour in a vertical plane and install 3/4-inch reinforcing rod dowels extending 18 inches into concrete on both sides of joint near corners of envelope.
3. Pouring Concrete: Spade concrete carefully during pours to prevent voids under and between conduits and at exterior surface of envelope. Do not allow a heavy mass of concrete to fall directly onto ducts. Use a plank to direct concrete down sides of bank assembly to trench bottom. Allow concrete to flow to center of bank and rise up in middle, uniformly filling all open spaces. Do not use power-driven agitating equipment unless specifically designed for duct-bank application.
4. Reinforcement: Reinforce concrete-encased duct banks where they cross disturbed earth and where indicated. Arrange reinforcing rods and ties without forming conductive or magnetic loops around ducts or duct groups.
5. Forms: Use walls of trench to form side walls of duct bank where soil is self-supporting and concrete envelope can be poured without soil inclusions; otherwise, use forms.
6. Minimum Space between Ducts: 3 inches between ducts and exterior envelope wall, 2 inches between ducts for like services, and 4 inches between power and signal ducts.
7. Depth: Install top of duct bank at least 24 inches below finished grade in areas not subject to deliberate traffic, and at least 30 inches below finished grade in deliberate traffic paths for vehicles, unless otherwise indicated.
8. Stub-Ups: Use manufactured duct elbows for stub-ups at poles and equipment and at building entrances through the floor, unless otherwise indicated. Extend concrete encasement throughout the length of the elbow.
9. Stub-Ups: Use manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through the floor.
 - a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete.
 - b. Stub-Ups to Equipment: For equipment mounted on outdoor concrete bases, extend steel conduit horizontally a minimum of 60 inches from edge of base. Install insulated grounding bushings on terminations at equipment.
10. Warning Tape: Bury warning tape approximately 12 inches above all concrete-encased ducts and duct banks. Align tape parallel to and within 3 inches of the centerline of duct bank. Provide an additional warning tape for each 12-inch increment of duct-bank width over a nominal 18 inches. Space additional tapes 12 inches apart, horizontally.

I. Direct-Buried Duct Banks:

1. Support ducts on duct separators coordinated with duct size, duct spacing, and outdoor temperature.
2. Space separators close enough to prevent sagging and deforming of ducts, with not less than 5 spacers per 20 feet of duct. Secure separators to earth and to ducts to prevent displacement during backfill and yet permit linear duct movement due to expansion and contraction as temperature changes. Stagger spacers approximately 6 inches between tiers.
3. Excavate trench bottom to provide firm and uniform support for duct bank. Prepare trench bottoms as specified in Section 310000 "Earthwork" for pipes less than 6 inches in nominal diameter.
4. Install backfill as specified in Section 310000 "Earthwork"
5. After installing first tier of ducts, backfill and compact. Start at tie-in point and work toward end of duct run, leaving ducts at end of run free to move with expansion and contraction as temperature changes during this process. Repeat procedure after placing each tier. After placing last tier, hand-place backfill to 4 inches over ducts and hand tamp. Firmly tamp backfill around ducts to provide maximum supporting strength. Use hand tamper only. After placing controlled backfill over final tier, make final duct connections at end of run and complete backfilling with normal compaction as specified in Section 310000 "Earthwork."
6. Install ducts with a minimum of 3 inches between ducts for like services and 6 inches between power and signal ducts.
7. Depth: Install top of duct bank at least 36 inches below finished grade, unless otherwise indicated.
8. Set elevation of bottom of duct bank below the frost line.
9. Install manufactured duct elbows for stub-ups at poles and equipment and at building entrances through the floor, unless otherwise indicated. Encase elbows for stub-up ducts throughout the length of the elbow.
10. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through the floor.
 - a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete.
 - b. For equipment mounted on outdoor concrete bases, extend steel conduit horizontally a minimum of 60 inches from edge of equipment pad or foundation. Install insulated grounding bushings on terminations at equipment.
11. Warning Planks: Bury warning planks approximately 12 inches above direct-buried ducts and duct banks, placing them 24 inches o.c. Align planks along the width and along the centerline of duct bank. Provide an additional plank for each 12-inch increment of duct-bank width over a nominal 18 inches . Space additional planks 12 inches apart, horizontally.

- A. Cast-in-Place Manhole Installation:
 - 1. Finish interior surfaces with a smooth-troweled finish.
 - 2. Windows for Future Duct Connections: Form and pour concrete knockout panels 1-1/2 to 2 inches thick, arranged as indicated.
 - 3. Cast-in-place concrete, formwork, and reinforcement are specified in Section 033000 "Cast-in-Place Concrete."

- B. Precast Concrete Handhole and Manhole Installation:
 - 1. Comply with ASTM C 891, unless otherwise indicated.
 - 2. Install units level and plumb and with orientation and depth coordinated with connecting ducts to minimize bends and deflections required for proper entrances.
 - 3. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.

- C. Elevations:
 - 1. Manhole Roof: Install with rooftop at least 15 inches below finished grade.
 - 2. Manhole Frame: In paved areas and traffic ways, set frames flush with finished grade. Set other manhole frames 1 inch above finished grade.
 - 3. Install handholes with bottom below the frost line, 3 feet below grade.
 - 4. Handhole Covers: In paved areas and traffic ways, set surface flush with finished grade. Set covers of other handholes 1 inch above finished grade.
 - 5. Where indicated, cast handhole cover frame integrally with handhole structure.

- D. Drainage: Install drains in bottom of manholes where indicated. Coordinate with drainage provisions indicated.

- E. Manhole Access: Circular opening in manhole roof; sized to match cover size.
 - 1. Manholes with Fixed Ladders: Offset access opening from manhole centerlines to align with ladder.
 - 2. Install chimney, constructed of precast concrete collars and rings to support frame and cover and to connect cover with manhole roof opening. Provide moisture-tight masonry joints and waterproof grouting for cast-iron frame to chimney.

- F. Waterproofing: Apply waterproofing to exterior surfaces of manholes and handholes after concrete has cured at least three days. Waterproofing materials and installation are specified in Section 071354 "Thermoplastic Sheet Waterproofing.". After ducts have been connected and grouted, and before backfilling, waterproof joints and connections and

touch up abrasions and scars. Waterproof exterior of manhole chimneys after mortar has cured at least three days.

- G. Dampproofing: Apply dampproofing to exterior surfaces of manholes and handholes after concrete has cured at least three days. Dampproofing materials and installation are specified in Section 071113 "Bituminous Dampproofing." After ducts have been connected and grouted, and before backfilling, dampproof joints and connections and touch up abrasions and scars. Dampproof exterior of manhole chimneys after mortar has cured at least three days.
- H. Hardware: Install removable hardware, including pulling eyes, cable stanchions, and cable arms, as required for installation and support of cables and conductors and as indicated.
- I. Fixed Manhole Ladders: Arrange to provide for safe entry with maximum clearance from cables and other items in manholes.
- J. Field-Installed Bolting Anchors in Manholes and Concrete Handholes: Do not drill deeper than 3-7/8 inches for manholes and 2 inches for handholes, for anchor bolts installed in the field. Use a minimum of two anchors for each cable stanchion.
- K. Warning Sign: Install "Confined Space Hazard" warning sign on the inside surface of each manhole cover.

3.6 INSTALLATION OF HANDHOLES AND BOXES OTHER THAN PRECAST CONCRETE

- A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting ducts to minimize bends and deflections required for proper entrances. Use box extension if required to match depths of ducts, and seal joint between box and extension as recommended by the manufacturer.
- B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.
- C. Elevation: In paved areas and traffic ways, set so cover surface will be flush with finished grade. Set covers of other handholes 1 inch above finished grade.
- D. Install handholes and boxes with bottom below the frost line, 3 feet below grade.
- E. Install removable hardware, including pulling eyes, cable stanchions, cable arms, and insulators, as required for installation and support of cables and conductors and as indicated. Select arm lengths to be long enough to provide spare space for future cables, but short enough to preserve adequate working clearances in the enclosure.

- F. Field-cut openings for ducts and conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.
- G. For enclosures installed in asphalt paving and subject to occasional, non-deliberate, heavy-vehicle loading, form and pour a concrete ring encircling, and in contact with, enclosure and with top surface screeded to top of box cover frame. Bottom of ring shall rest on compacted earth.
 - 1. Concrete: 3000 psi, 28-day strength, complying with Section 033000 "Cast-in-Place Concrete," with a troweled finish.
 - 2. Dimensions: 10 inches wide by 12 inches deep.

3.7 GROUNDING

- A. Ground underground ducts and utility structures according to Section 260526 "Grounding and Bonding for Electrical Systems."

3.8 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections and prepare test reports:
 - 1. Demonstrate capability and compliance with requirements on completion of installation of underground ducts and utility structures.
 - 2. Pull aluminum or wood test mandrel through duct to prove joint integrity and test for out-of-round duct. Provide mandrel equal to 80 percent fill of duct. If obstructions are indicated, remove obstructions and retest.
 - 3. Test manhole and handhole grounding to ensure electrical continuity of grounding and bonding connections. Measure and report ground resistance as specified in Section 260526 "Grounding and Bonding for Electrical Systems."
- B. Correct deficiencies and retest as specified above to demonstrate compliance.

3.9 CLEANING

- A. Pull leather-washer-type duct cleaner, with graduated washer sizes, through full length of ducts. Follow with rubber duct swab for final cleaning and to assist in spreading lubricant throughout ducts.
- B. Clean internal surfaces of manholes, including sump. Remove foreign material.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. The cost of all on-site underground ducts and raceways for electrical systems for which payment will be made will be on a lump sum basis for bid item **FURNISH AND INSTALL ELECTRIFICATION OF PARKING LOT LIGHTING, SPORTS LIGHTING, AND FLAGPOLE** in the Proposal, which price shall include the cost of the excavation, disposal of excess materials, subgrade material, conduit, pull-boxes, handholes, manholes, ducts, concrete encasement, raceways, hardware, including all fittings, appurtenances, materials, labor and equipment, and all else necessary therefore and incidental thereto for a complete and working electrical system as specified herein and as shown on the plans and specifications or as directed by the Engineer.

END OF SECTION

SECTION 260544 – SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:

1. Sleeves for raceway and cable penetration of non-fire-rated construction walls and floors.
2. Sleeve-seal systems.
3. Sleeve-seal fittings.
4. Grout.
5. Silicone sealants.

B. Related Requirements:

1. Section 078413 "Penetration Firestopping" for penetration firestopping installed in fire-resistance-rated walls, horizontal assemblies, and smoke barriers, with and without penetrating items.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.

PART 2 – PRODUCTS

2.1 SLEEVES

A. Wall Sleeves:

1. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, zinc coated, plain ends.

- B. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies: Galvanized-steel sheet; 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint, with tabs for screw-fastening the sleeve to the board.

C. Sleeves for Rectangular Openings:

1. Material: Galvanized sheet steel.
2. Minimum Metal Thickness:
 - a. For sleeve cross-section rectangle perimeter less than 50 inches and with no side larger than 16 inches, thickness shall be 0.052 inch.

- b. For sleeve cross-section rectangle perimeter 50 inches or more and one or more sides larger than 16 inches, thickness shall be 0.138 inch.

2.2 SLEEVE-SEAL SYSTEMS

- A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Advance Products & Systems, Inc.
 - b. CALPICO, Inc.
 - c. Metraflex Company (The).
 - d. Pipeline Seal and Insulator, Inc.
 - e. Proco Products, Inc.
 - f. Or approved equal.
 - 2. Sealing Elements: EPDM rubber interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
 - 3. Pressure Plates: Carbon steel.
 - 4. Connecting Bolts and Nuts: Carbon steel, with corrosion-resistant coating, of length required to secure pressure plates to sealing elements.

2.3 SLEEVE-SEAL FITTINGS

- A. Description: Manufactured plastic, sleeve-type, waterstop assembly made for embedding in concrete slab or wall. Unit shall have plastic or rubber waterstop collar with center opening to match piping OD.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Presealed Systems.

2.4 GROUT

- A. Description: Nonshrink; recommended for interior and exterior sealing openings in non-fire-rated walls or floors.
- B. Standard: ASTM C 1107/C 1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.
- C. Design Mix: 5000-psi, 28-day compressive strength.

D. Packaging: Premixed and factory packaged.

2.5 SILICONE SEALANTS

A. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below.

1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces that are not fire rated.
2. Sealant shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

B. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.

PART 3 – EXECUTION

3.1 SLEEVE INSTALLATION FOR NON-FIRE-RATED ELECTRICAL PENETRATIONS

A. Comply with NECA 1.

B. Comply with NEMA VE 2 for cable tray and cable penetrations.

C. Sleeves for Conduits Penetrating Above-Grade Non-Fire-Rated Concrete and Masonry-Unit Floors and Walls:

1. Interior Penetrations of Non-Fire-Rated Walls and Floors:
 - a. Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint. Comply with requirements in Section 079200 "Joint Sealants."
 - b. Seal space outside of sleeves with mortar or grout. Pack sealing material solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect material while curing.
2. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
3. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable unless sleeve seal is to be installed.
4. Install sleeves for wall penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of walls. Cut sleeves to length for mounting flush with both surfaces of walls. Deburr after cutting.

5. Install sleeves for floor penetrations. Extend sleeves installed in floors 2 inches above finished floor level. Install sleeves during erection of floors.
- D. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies:
 1. Use circular metal sleeves unless penetration arrangement requires rectangular sleeved opening.
 2. Seal space outside of sleeves with approved joint compound for gypsum board assemblies.
- E. Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work.
- F. Aboveground, Exterior-Wall Penetrations: Seal penetrations using steel pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.
- G. Underground, Exterior-Wall and Floor Penetrations: Install cast-iron pipe sleeves. Size sleeves to allow for 1-inch annular clear space between raceway or cable and sleeve for installing sleeve-seal system.

3.2 SLEEVE-SEAL-SYSTEM INSTALLATION

- A. Install sleeve-seal systems in sleeves in exterior concrete walls and slabs-on-grade at raceway entries into building.
- B. Install type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.3 SLEEVE-SEAL-FITTING INSTALLATION

- A. Install sleeve-seal fittings in new walls and slabs as they are constructed.
- B. Assemble fitting components of length to be flush with both surfaces of concrete slabs and walls. Position waterstop flange to be centered in concrete slab or wall.
- C. Secure nailing flanges to concrete forms.
- D. Using grout, seal the space around outside of sleeve-seal fittings.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. No specific payment will be made for sleeves and sleeve seals for electrical raceways and cabling and the cost thereof shall be included within the lump sum bid item **FURNISH AND INSTALL ELECTRIFICATION OF PARKING LOT LIGHTING, SPORTS LIGHTING, AND FLAGPOLE** in the Proposal, which price shall include the cost of all materials, labor and equipment, and all else necessary therefore and incidental thereto for a complete and working electrical system as specified herein as shown on the plans and specifications or as directed by the Engineer.

END OF SECTION

SECTION 260553 – IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:

1. Identification for raceways.
2. Identification of power and control cables.
3. Identification for conductors.
4. Underground-line warning tape.
5. Warning labels and signs.
6. Equipment identification labels.
7. Miscellaneous identification products.

1.2 ACTION SUBMITTALS

- ##### **A. Product Data:** For each electrical identification product indicated.

1.3 QUALITY ASSURANCE

- ##### **A. Comply with ANSI A13.1.**
- ##### **B. Comply with NFPA 70.**
- ##### **C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.**
- ##### **D. Comply with ANSI Z535.4 for safety signs and labels.**
- ##### **E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.**

PART 2 – PRODUCTS

2.1 POWER RACEWAY IDENTIFICATION MATERIALS

- ##### **A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway size.**
- ##### **B. Colors for Raceways Carrying Circuits at 600 V or Less:**
1. Black letters on an orange field.

2. Legend: Indicate voltage.

- C. Self-Adhesive Vinyl Labels for Raceways Carrying Circuits at 600 V or Less: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.
- D. Snap-Around Labels for Raceways Carrying Circuits at 600 V or Less: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeve, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.
- E. Snap-Around, Color-Coding Bands for Raceways Carrying Circuits at 600 V or Less: Slit, pretensioned, flexible, solid-colored acrylic sleeve, 2 inches long, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

2.2 POWER AND CONTROL CABLE IDENTIFICATION MATERIALS

- A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.
- B. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.
- C. Write-On Tags: Polyester tag, 0.015 inch thick, with corrosion-resistant grommet and cable tie for attachment to conductor or cable.
 - 1. Marker for Tags: Permanent, waterproof, black ink marker recommended by tag manufacturer.
 - 2. Marker for Tags: Machine-printed, permanent, waterproof, black ink marker recommended by printer manufacturer.
- D. Snap-Around Labels: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeve, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.
- E. Snap-Around, Color-Coding Bands: Slit, pretensioned, flexible, solid-colored acrylic sleeve, 2 inches long, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

2.3 CONDUCTOR IDENTIFICATION MATERIALS

- A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.

- B. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.
- C. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.
- D. Write-On Tags: Polyester tag, 0.015 inch thick, with corrosion-resistant grommet and cable tie for attachment to conductor or cable.
 - 1. Marker for Tags: Permanent, waterproof, black ink marker recommended by tag manufacturer.
 - 2. Marker for Tags: Machine-printed, permanent, waterproof, black ink marker recommended by printer manufacturer.

2.4 FLOOR MARKING TAPE

- A. 2-inch- wide, 5-mil pressure-sensitive vinyl tape, with black and white stripes and clear vinyl overlay.

2.5 UNDERGROUND-LINE WARNING TAPE

- A. Tape:
 - 1. Recommended by manufacturer for the method of installation and suitable to identify and locate underground electrical and communications utility lines.
 - 2. Printing on tape shall be permanent and shall not be damaged by burial operations.
 - 3. Tape material and ink shall be chemically inert, and not subject to degrading when exposed to acids, alkalis, and other destructive substances commonly found in soils.
- B. Color and Printing:
 - 1. Comply with ANSI Z535.1 through ANSI Z535.5.
 - 2. Inscriptions for Red-Colored Tapes: ELECTRIC LINE, HIGH VOLTAGE.
 - 3. Inscriptions for Orange-Colored Tapes: TELEPHONE CABLE, CATV CABLE, COMMUNICATIONS CABLE, OPTICAL FIBER CABLE.
- C. Tag:
 - 1. Pigmented polyolefin, bright-colored, continuous-printed on one side with the inscription of the utility, compounded for direct-burial service.
 - 2. Thickness: 4 mils.
 - 3. Weight: 18.5 lb/1000 sq. ft.
 - 4. 3-Inch Tensile According to ASTM D 882: 30 lbf, and 2500 psi.

2.6 WARNING LABELS AND SIGNS

- A. Comply with NFPA 70 and 29 CFR 1910.145.
- B. Baked-Enamel Warning Signs:
 - 1. Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for application.
 - 2. 1/4-inch grommets in corners for mounting.
 - 3. Nominal size, 7 by 10 inches.
- C. Warning label and sign shall include, but are not limited to, the following legends:
 - 1. Arc-Flash Warning: "Warning-Potential Arc Flash Hazard Appropriate PPE and tools required when working on this equipment".
 - 2. High Voltage Warning: "Danger-High Voltage"

2.7 EQUIPMENT IDENTIFICATION LABELS

- A. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed, with black letters on a white background. Minimum letter height shall be 3/8 inch.

2.8 MISCELLANEOUS IDENTIFICATION PRODUCTS

- A. Paint: Comply with requirements in painting Sections for paint materials and application requirements. Select paint system applicable for surface material and location (exterior or interior).
- B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.
- B. Apply identification devices to surfaces that require finish after completing finish work.
- C. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.
- D. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.

- E. System Identification Color-Coding Bands for Raceways and Cables: Each color-coding band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.
- F. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches below finished grade. Use multiple tapes where width of multiple lines installed in a common trench or concrete envelope exceeds 16 inches overall.
- G. Painted Identification: Comply with requirements in painting Sections for surface preparation and paint application.

3.2 IDENTIFICATION SCHEDULE

- A. Accessible Raceways and Metal-Clad Cables, 600 V or Less, for Service, Feeder, and Branch Circuits More Than 40 A, and 120 V to ground: Install labels at 30-foot maximum intervals.
- B. Accessible Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive vinyl labels with the wiring system legend and system voltage. System legends shall be as follows:
 - 1. Emergency Power.
 - 2. Power.
- C. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coding conductor tape to identify the phase.
 - 1. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded service, feeder, and branch-circuit conductors.
 - a. Color shall be factory applied.
 - b. Colors for 208/120-V Circuits:
 - 1. Phase A: Black.
 - 2. Phase B: Red.
 - 3. Phase C: Blue.
 - c. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.

- D. Install instructional sign including the color-code for grounded and ungrounded conductors using adhesive-film-type labels.
- E. Conductors to Be Extended in the Future: Attach write-on tags or marker tape to conductors and list source.
- F. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.
 - 1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
 - 2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
 - 3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual.
- G. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable.
 - 1. Limit use of underground-line warning tape to direct-buried cables.
 - 2. Install underground-line warning tape for both direct-buried cables and cables in raceway.
- H. Workspace Indication: Install floor marking tape to show working clearances in the direction of access to live parts. Workspace shall be as required by NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces.
- I. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Baked-enamel warning signs.
 - 1. Comply with 29 CFR 1910.145.
 - 2. Identify system voltage with black letters on an orange background.
 - 3. Apply to exterior of door, cover, or other access.
 - 4. For equipment with multiple power or control sources, apply to door or cover of equipment including, but not limited to, the following:
 - a. Power transfer switches.
 - b. Controls with external control power connections.
- J. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.

1. Labeling Instructions:

- a. Indoor and Outdoor Equipment: Self-adhesive, engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide a single line of text with 1/2-inch- high letters on 1-1/2-inch- high label; where two lines of text are required, use labels 2 inches high.
- b. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
- c. Unless provided with self-adhesive means of attachment, fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.

PART 4 – METHOD OF PAYMENT

4.1 QUANTITY AND PAYMENT

- A. No specific payment will be made for identification for electrical systems and the cost thereof shall be included within the lump sum bid item **FURNISH AND INSTALL ELECTRIFICATION OF PARKING LOT LIGHTING, SPORTS LIGHTING, AND FLAGPOLE** in the Proposal, which price shall include the cost all materials, labor and equipment, and all else necessary therefore and incidental thereto for a complete and working electrical system as specified herein and as shown on the plans and specifications or as directed by the Engineer.

END OF SECTION

SECTION 260923 – LIGHTING CONTROL DEVICES

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:

1. Photoelectric switches.
2. Indoor occupancy switchbox-mounted occupancy and outdoor motion sensors.

B. Related Requirements:

1. Section 262726 "Wiring Devices" for manual light switches.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 CLOSEOUT SUBMITTALS

A. Operation and maintenance data

PART 2 – PRODUCTS

2.1 OUTDOOR PHOTOELECTRIC SWITCHES

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Cooper Industries, Inc.
2. Intermatic, Inc.
3. NSi Industries LLC; TORK Products.
4. Tyco Electronics; ALR Brand.
5. Or approved equal.

B. Description: Solid state, with SPST dry contacts rated for 1800 VA, to operate connected load, complying with UL 773.

1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
2. Light-Level Monitoring Range: 1.5 to 10 fc, with an adjustment for turn-on and turn-off levels within that range.
3. Time Delay: Thirty-second minimum, to prevent false operation.

4. Lightning Arrester: Air-gap type.
5. Mounting: Twist lock complying with NEMA C136.10, with base.

2.2 INDOOR OCCUPANCY SENSORS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 1. Hubbell Building Automation, Inc.
 2. Leviton Mfg. Company, Inc.
 3. Watt Stopper.
 4. Or approved equal.
- B. General Requirements for Sensors: Wall- or ceiling-mounted, solid-state indoor occupancy sensors with a separate power pack.
 1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
 2. Operation: Unless otherwise indicated, turn lights on when coverage area is occupied, and turn them off when unoccupied; with a time delay for turning lights off, adjustable over a minimum range of 1 to 15 minutes.
 3. Sensor Output: Contacts rated to operate the connected relay, complying with UL 773A. Sensor is powered from the power pack.
 4. Power Pack: Dry contacts rated for 20-A ballast load at 120- and 277-V ac, for 13-A tungsten at 120-V ac, and for 1 hp at 120-V ac. Sensor has 24-V dc, 150-mA, Class 2 power source, as defined by NFPA 70.
 5. Mounting:
 - a. Sensor: Suitable for mounting in any position on a standard outlet box.
 - b. Relay: Externally mounted through a 1/2-inch knockout in a standard electrical enclosure.
 - c. Time-Delay and Sensitivity Adjustments: Recessed and concealed behind hinged door.
 6. Indicator: Digital display, to show when motion is detected during testing and normal operation of sensor.
 7. Bypass Switch: Override the "on" function in case of sensor failure.
 8. Automatic Light-Level Sensor: Adjustable from 2 to 200 fc; turn lights off when selected lighting level is present.
- C. PIR Type: Ceiling mounted; detect occupants in coverage area by their heat and movement.

1. Detector Sensitivity: Detect occurrences of 6-inch- minimum movement of any portion of a human body that presents a target of not less than 36 sq. in..
2. Detection Coverage (Room): Detect occupancy anywhere in a circular area of 1000 sq. ft. when mounted on a 96-inch- high ceiling.
3. Detection Coverage (Corridor): Detect occupancy within 90 feet when mounted on a 10-foot- high ceiling.
4. Detection Coverage (Large Room): Detect occupancy anywhere within a circular area of 2000 sq. ft. when mounted on a 96-inch- high ceiling.
5. Detection Coverage (Corridor): Detect occupancy anywhere within 90 feet when mounted on a 10-foot- high ceiling in a corridor not wider than 14 feet.

2.3 SWITCHBOX-MOUNTED OCCUPANCY SENSORS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 1. Hubbell Building Automation, Inc.
 2. Leviton Mfg. Company, Inc.
 3. Watt Stopper
 4. Or approved equal.
- B. General Requirements for Sensors: Automatic-wall-switch occupancy sensor, suitable for mounting in a single gang switchbox.
 1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
 2. Operating Ambient Conditions: Dry interior conditions, 32 to 120 deg F.
 3. Switch Rating: Not less than 800-VA fluorescent at 120 V, 1200-VA fluorescent at 277 V, and 800-W incandescent.
- C. Wall-Switch Sensor:
 1. Standard Range: 180-degree field of view, field adjustable from 180 to 40 degrees; with a minimum coverage area of 900 sq. ft.
 2. Sensing Technology: PIR.
 3. Switch Type: SP, field selectable automatic "on," or manual "on" automatic "off."
 4. Voltage: Match the circuit voltage; passive-infrared type.
 5. Ambient-Light Override: Concealed, field-adjustable, light-level sensor from 10 to 150 fc. The switch prevents the lights from turning on when the light level is higher than the set point of the sensor.
 6. Concealed, field-adjustable, "off" time-delay selector at up to 30 minutes.

7. Concealed "off" time-delay selector at 30 seconds, and 5, 10, and 20 minutes.
8. Adaptive Technology: Self-adjusting circuitry detects and memorizes usage patterns of the space and helps eliminate false "off" switching.

2.4 OUTDOOR MOTION SENSORS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 1. Hubbell Building Automation, Inc.
 2. Leviton Mfg. Company, Inc.
 3. Watt Stopper
 4. Or approved equal.
- B. General Requirements for Sensors: Solid-state outdoor motion sensors.
 1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
 2. Weatherproof Housing: Detect occurrences of 6-inch- minimum movement of any portion of a human body that presents a target of not less than 36 sq. in. Comply with UL 773A.
 3. Switch Rating:
 - a. Lighting-Fixture-Mounted Sensor: 1000-W incandescent, fluorescent..
 - b. Separately Mounted Sensor: Dry contacts rated for 20-A ballast load at 120- and 277-V ac, for 13-A tungsten at 120-V ac, and for 1 hp at 120-V ac. Sensor has 24-V dc, 150-mA, Class 2 power source, as defined by NFPA 70.
 4. Switch Type: SP.
 5. Voltage: Match the circuit voltage type.
 6. Detector Coverage:
 - a. Standard Range: 210-degree field of view, with a minimum coverage area of 900 sq. ft.
 7. Ambient-Light Override: Concealed, field-adjustable, light-level sensor from 10 to 150 fc. The switch prevents the lights from turning on when the light level is higher than the set point of the sensor.
 8. Concealed, field-adjustable, "off" time-delay selector at up to 30 minutes.
 9. Concealed "off" time-delay selector at 30 seconds, and 5, 10, and 20 minutes.
 10. Adaptive Technology: Self-adjusting circuitry detects and memorizes usage patterns of the space and helps eliminate false "off" switching.

11. Operating Ambient Conditions: Suitable for operation in ambient temperatures ranging from minus 40 to plus 130 deg F, rated as "raintight" according to UL 773A.

2.5 LIGHTING CONTACTORS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. ASCO Power Technologies, LP; a division of Emerson Electric Co.
 2. Eaton Corporation.
 3. General Electric Company; GE Consumer & Industrial - Electrical Distribution; Total Lighting Control.
 4. Square D; a brand of Schneider Electric.
 5. Or approved equal.
- B. Description: Electrically operated and mechanically held, combination-type lighting contactors with nonfused disconnect, complying with NEMA ICS 2 and UL 508.
1. Current Rating for Switching: Listing or rating consistent with type of load served, including tungsten filament, inductive, and high-inrush ballast (ballast with 15 percent or less total harmonic distortion of normal load current).
 2. Fault Current Withstand Rating: Equal to or exceeding the available fault current at the point of installation.
 3. Enclosure: Comply with NEMA 250.
 4. Provide with control and pilot devices as indicated on Drawings, matching the NEMA type specified for the enclosure.

2.6 CONDUCTORS AND CABLES

- A. Power Wiring to Supply Side of Remote-Control Power Sources: Not smaller than No. 12 AWG. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Install and aim sensors in locations to achieve not less than 90 percent coverage of areas indicated. Do not exceed coverage limits specified in manufacturer's written instructions.
- B. Occupancy Adjustments: When requested within 12 months from date of Substantial Completion, provide on-site assistance in adjusting sensors to suit actual occupied

conditions. Provide up to two visits to Project during other-than-normal occupancy hours for this purpose.

1. For occupancy and motion sensors, verify operation at outer limits of detector range. Set time delay to suit Owner's operations.
- C. Mount electrically held lighting contactors with elastomeric isolator pads to eliminate structure-borne vibration unless contactors are installed in an enclosure with factory-installed vibration isolators.
- D. Wiring Method: Comply with Section 260519 "Low-Voltage Electrical Power Conductors and Cables." Minimum conduit size is 1/2 inch.
- E. Identify components and power and control wiring according to Section 260553 "Identification for Electrical Systems."

3.2 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections with the assistance of a factory-authorized service representative:
 1. Operational Test: After installing time switches and sensors, and after electrical circuitry has been energized, start units to confirm proper unit operation.
 2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- B. Lighting control devices will be considered defective if they do not pass tests and inspections.
- C. Prepare test and inspection reports.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. No specific payment will be made for lighting control devices and the cost thereof shall be included within the lump sum bid item **FURNISH AND INSTALL ELECTRIFICATION OF PARKING LOT LIGHTING, SPORTS LIGHTING, AND FLAGPOLE** in the Proposal, which price shall include the cost all materials, labor and equipment, and all else necessary therefore and incidental thereto for a complete and working electrical system as specified herein and as shown on the plans and specifications or as directed by the Engineer.

END OF SECTION

SECTION 262416 – PANELBOARDS

PART 1 – GENERAL

1.1 SUMMARY

- A. Section includes distribution panelboards and lighting and appliance branch-circuit panelboards.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For each panelboard and related equipment.
 - 1. Include dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings.
 - 2. Detail enclosure types and details for types other than NEMA 250, Type 1.
 - 3. Detail bus configuration, current, and voltage ratings.
 - 4. Short-circuit current rating of panelboards and overcurrent protective devices.
 - 5. Include evidence of NRTL listing for series rating of installed devices.
 - 6. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
 - 7. Include wiring diagrams for power, signal, and control wiring.
 - 8. Include time-current coordination curves for each type and rating of overcurrent protective device included in panelboards.

1.3 INFORMATIONAL SUBMITTALS

- A. Seismic Qualification Certificates: Submit certification that panelboards, overcurrent protective devices, accessories, and components will withstand seismic forces.
- B. Field quality-control reports.
- C. Panelboard schedules for installation in panelboards.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

1.5 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NEMA PB 1.

C. Comply with NFPA 70.

1.6 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace transient voltage suppression devices that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 – PRODUCTS

2.1 GENERAL REQUIREMENTS FOR PANELBOARDS

A. Fabricate and test panelboards according to IEEE 344 to withstand seismic forces.

B. Enclosures: Surface-mounted cabinets.

1. Rated for environmental conditions at installed location.

a. Indoor Dry and Clean Locations: NEMA 250, Type 1.

2. Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box.

3. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover.

4. Directory Card: Inside panelboard door, mounted in transparent card holder.

C. Incoming Mains Location: Top.

D. Phase, Neutral, and Ground Buses: Hard-drawn copper, 98 percent conductivity.

E. Conductor Connectors: Suitable for use with conductor material and sizes.

1. Material: Hard-drawn copper, 98 percent conductivity.

2. Main and Neutral Lugs: Mechanical type.

3. Ground Lugs and Bus Configured Terminators: Mechanical type.

4. Feed-Through Lugs: Mechanical type, suitable for use with conductor material. Locate at opposite end of bus from incoming lugs or main device.

5. Subfeed (Double) Lugs: Mechanical type suitable for use with conductor material. Locate at same end of bus as incoming lugs or main device.

F. Service Equipment Label: NRTL labeled for use as service equipment for panelboards with one or more main service disconnecting and overcurrent protective devices.

- G. Future Devices: Mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.
- H. Panelboard Short-Circuit Current Rating: Rated for series-connected system with integral or remote upstream overcurrent protective devices and labeled by an NRTL. Include size and type of allowable upstream and branch devices, and listed and labeled for series-connected short-circuit rating by an NRTL.
- I. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals.

2.2 DISTRIBUTION PANELBOARDS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
 - 2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
 - 3. Siemens Energy & Automation, Inc.
 - 4. Square D; a brand of Schneider Electric.
 - 5. Or approved equal.
- B. Panelboards: NEMA PB 1, power and feeder distribution type.
- C. Doors: Secured with vault-type latch with tumbler lock; keyed alike.
- D. Mains: Lugs only.
- E. Branch Overcurrent Protective Devices: For Circuit-Breaker Frame Sizes 125 A and Smaller: Bolt-on circuit breakers.
- F. Branch Overcurrent Protective Devices: For Circuit-Breaker Frame Sizes Larger Than 125 A: Bolt-on circuit breakers; plug-in circuit breakers where individual positive-locking device requires mechanical release for removal.
- G. Branch Overcurrent Protective Devices: Fused switches.

2.3 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

- A. Molded-Case Circuit Breaker (MCCB): Comply with UL 489, with interrupting capacity to meet available fault currents.
 - 1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.

2. Adjustable Instantaneous-Trip Circuit Breakers: Magnetic trip element with front-mounted, field-adjustable trip setting.
 3. Electronic trip circuit breakers with rms sensing; field-replaceable rating plug or field-replicable electronic trip; and the following field-adjustable settings:
 - a. Instantaneous trip.
 - b. Long- and short-time pickup levels.
 - c. Long- and short-time time adjustments.
 - d. Ground-fault pickup level, time delay, and I^2t response.
 4. Current-Limiting Circuit Breakers: Frame sizes 400 A and smaller; let-through ratings less than NEMA FU 1, RK-5.
 5. GFCI Circuit Breakers: Single- and two-pole configurations with Class A ground-fault protection (6-mA trip).
 6. Ground-Fault Equipment Protection (GFEP) Circuit Breakers: Class B ground-fault protection (30-mA trip).
 7. Arc-Fault Circuit Interrupter (AFCI) Circuit Breakers: Comply with UL 1699; 120/240-V, single-pole configuration.
 8. Molded-Case Circuit-Breaker (MCCB) Features and Accessories:
 - a. Standard frame sizes, trip ratings, and number of poles.
 - b. Lugs: Compression style, suitable for number, size, trip ratings, and conductor materials.
 - c. Handle Padlocking Device: Fixed attachment, for locking circuit-breaker handle in on or off position.
 - d. Handle Clamp: Loose attachment, for holding circuit-breaker handle in on position.
- B. Fused Switch: NEMA KS 1, Type HD; clips to accommodate specified fuses; lockable handle.
1. Fuses, and Spare-Fuse Cabinet: Comply with requirements specified in Section 262813 "Fuses."

2.4 ACCESSORY COMPONENTS AND FEATURES

- A. Portable Test Set: For testing functions of solid-state trip devices without removing from panelboard. Include relay and meter test plugs suitable for testing panelboard meters and switchboard class relays.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Receive, inspect, handle, store and install panelboards and accessories according to NEMA PB 1.1.
- B. Comply with mounting and anchoring requirements.
- C. Mount top of trim 90 inches above finished floor unless otherwise indicated.
- D. Mount panelboard cabinet plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box.
- E. Install overcurrent protective devices and controllers not already factory installed.
 - 1. Set field-adjustable, circuit-breaker trip ranges.
- F. Install filler plates in unused spaces.
- G. Stub four 1-inch empty conduits from panelboard into accessible ceiling space or space designated to be ceiling space in the future. Stub four 1-inch empty conduits into raised floor space or below slab not on grade.
- H. Arrange conductors in gutters into groups and bundle and wrap with wire ties.
- I. Comply with NECA 1.

3.2 IDENTIFICATION

- A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
- B. Create a directory to indicate installed circuit loads and incorporating Owner's final room designations. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories are not acceptable.
- C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification.
- D. Device Nameplates: Label each branch circuit device in distribution panelboards with a nameplate complying with requirements for identification.

3.3 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Acceptance Testing Preparation:

1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
 2. Test continuity of each circuit.
- C. Tests and Inspections:
1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
 2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
- D. Panelboards will be considered defective if they do not pass tests and inspections.
- E. Prepare test and inspection reports, including a certified report that identifies panelboards included and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

PART 4 – METHOD OF PAYMENT

4.1 QUANTITY AND PAYMENT

- A. No specific payment will be made for panelboards and the cost thereof shall be included within the lump sum bid item **FURNISH AND INSTALL ELECTRIFICATION OF PARKING LOT LIGHTING, SPORTS LIGHTING, AND FLAGPOLE** in the Proposal, which price shall include the cost all materials, labor and equipment, and all else necessary therefore and incidental thereto for a complete and working electrical system as specified herein and as shown on the plans and specifications or as directed by the Engineer.

END OF SECTION

SECTION 262726 – WIRING DEVICES

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:

1. Receptacles, receptacles with integral GFCI, and associated device plates.
2. Weather-resistant receptacles.
3. Snap switches and wall-box dimmers.
4. Solid-state fan speed controls.
5. Wall-switch and exterior occupancy sensors.
6. Communications outlets.

1.2 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Receptacles for Owner-Furnished Equipment: Match plug configurations.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

- ##### **A. Shop Drawings:** List of legends and description of materials and process used for pre-marking wall plates.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:

1. Cooper Wiring Devices; Division of Cooper Industries, Inc. (Cooper).

2. Hubbell Incorporated; Wiring Device-Kellems (Hubbell).
 3. Leviton Mfg. Company Inc. (Leviton).
 4. Pass & Seymour/Legrand (Pass & Seymour).
- B. Source Limitations: Obtain each type of wiring device and associated wall plate from single source from single manufacturer.

2.2 GENERAL WIRING-DEVICE REQUIREMENTS

- A. Wiring Devices, Components, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with NFPA 70.
- C. Devices that are manufactured for use with modular plug-in connectors may be substituted under the following conditions:
1. Connectors shall comply with UL 2459 and shall be made with stranding building wire.
 2. Devices shall comply with the requirements in this Section.

2.3 STRAIGHT-BLADE RECEPTACLES

- A. Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498, and FS W-C-596.
- B. Products: Subject to compliance with requirements, provide one of the following:
1. Cooper; 5351 (single), CR5362 (duplex).
 2. Hubbell; HBL5351 (single), HBL5352 (duplex).
 3. Leviton; 5891 (single), 5352 (duplex).
 4. Pass & Seymour; 5361 (single), 5362 (duplex).
 5. Or approved equal.

2.4 GFCI RECEPTACLES

- A. General Description:
1. Straight blade, feed-through type.
 2. Comply with NEMA WD 1, NEMA WD 6, UL 498, UL 943 Class A, and FS W-C-596.
 3. Include indicator light that shows when the GFCI has malfunctioned and no longer provides proper GFCI protection.

2.5 TOGGLE SWITCHES

- A. Comply with NEMA WD 1, UL 20, and FS W-S-896.
- B. Switches, 120/277 V, 20 A:
- C. Products: Subject to compliance with requirements, provide one of the following:
 - 1. Single Pole:
 - a. Cooper; AH1221.
 - b. Hubbell; HBL1221.
 - c. Leviton; 1221-2.
 - d. Pass & Seymour; CSB20AC1.
 - e. Or approved equal.
 - 2. Two Pole:
 - a. Cooper; AH1222.
 - b. Hubbell; HBL1222.
 - c. Leviton; 1222-2.
 - d. Pass & Seymour; CSB20AC2.
 - e. Or approved equal.

2.6 DECORATOR-STYLE DEVICES

- A. GFCI, Non-Feed-Through Type, Convenience Receptacles: Square face, 125 V, 15 A; comply with NEMA WD 1, NEMA WD 6 Configuration 5-15R, UL 498, and UL 943 Class A.
- B. Products: Subject to compliance with requirements, provide one of the following:
 - 1. Cooper; VGF15.
 - 2. Hubbell; GF15LA.
 - 3. Leviton; 8599.
 - 4. Pass & Seymour; 1594.
 - 5. Or approved equal.

2.7 WALL PLATES

- A. Single and combination types shall match corresponding wiring devices.
 - 1. Plate-Securing Screws: Metal with head color to match plate finish.
 - 2. Material for Finished Spaces: Steel with white baked enamel, suitable for field painting.
 - 3. Material for Unfinished Spaces: Galvanized steel.

4. Material for Damp Locations: Cast aluminum with spring-loaded lift cover, and listed and labeled for use in wet and damp locations.
- B. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with Type 3R, weather-resistant, die-cast aluminum with lockable cover.

2.8 FINISHES

- A. Device Color:
1. Wiring Devices Connected to Normal Power System: White unless otherwise indicated or required by NFPA 70 or device listing.
- B. Wall Plate Color: For plastic covers, match device color.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Comply with NECA 1, including mounting heights listed in that standard, unless otherwise indicated.
- B. Coordination with Other Trades:
1. Protect installed devices and their boxes. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of boxes.
 2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
 3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
 4. Install wiring devices after all wall preparation, including painting, is complete.
- C. Conductors:
1. Do not strip insulation from conductors until right before they are spliced or terminated on devices.
 2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
 3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.
 1. Existing Conductors:
 - a. Cut back and pigtail, or replace all damaged conductors.
 - b. Straighten conductors that remain and remove corrosion and foreign matter.

- c. Pigtail existing conductors is permitted, provided the outlet box is large enough.

D. Device Installation:

1. Replace devices that have been in temporary use during construction and that were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, two-thirds to three-fourths of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.
9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device-mounting screws in yokes, allowing metal-to-metal contact.

E. Receptacle Orientation:

1. Install ground pin of vertically mounted receptacles down, and on horizontally mounted receptacles to the right.

F. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

G. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.

H. Adjust locations of service poles to suit arrangement of partitions and furnishings.

3.2 GFCI RECEPTACLES

A. Install non-feed-through-type GFCI receptacles where protection of downstream receptacles is not required.

3.3 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
 - 1. Test Instruments: Use instruments that comply with UL 1436.
 - 2. Test Instrument for Convenience Receptacles: Digital wiring analyzer with digital readout or illuminated digital-display indicators of measurement.
- B. Tests for Convenience Receptacles:
 - 1. Line Voltage: Acceptable range is 105 to 132 V.
 - 2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is unacceptable.
 - 3. Ground Impedance: Values of up to 2 ohms are acceptable.
 - 4. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
 - 5. Using the test plug, verify that the device and its outlet box are securely mounted.
 - 6. Tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.
- C. Wiring device will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.

PART 4 – METHOD OF PAYMENT

4.1 QUANTITY AND PAYMENT

- A. No specific payment will be made for wiring devices and the cost thereof shall be included within the lump sum bid item **FURNISH AND INSTALL ELECTRIFICATION OF PARKING LOT LIGHTING, SPORTS LIGHTING, AND FLAGPOLE** in the Proposal, which price shall include the cost all materials, labor and equipment, and all else necessary therefore and incidental thereto for a complete and working electrical system as specified herein and as shown on the plans and specifications or as directed by the Engineer.

END OF SECTION

SECTION 262813 – FUSES

PART 1 – GENERAL

1.1 SUMMARY

- A. Section Includes: Cartridge fuses rated 600-V ac and less for use in enclosed switches.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

1.3 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

1.4 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with NEMA FU 1 for cartridge fuses.
- C. Comply with NFPA 70.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Cooper Bussmann, Inc.
 2. Edison Fuse, Inc.
 3. Ferraz Shawmut, Inc.
 4. Littelfuse, Inc.
 5. Or approved equal.

2.2 CARTRIDGE FUSES

- A. Characteristics: NEMA FU 1, nonrenewable cartridge fuses with voltage ratings consistent with circuit voltages.

PART 3 – EXECUTION

3.1 FUSE APPLICATIONS

- A. Motor Branch Circuits: Class RK1, time delay.

3.2 INSTALLATION

- A. Install fuses in fusible devices. Arrange fuses so rating information is readable without removing fuse.

3.3 IDENTIFICATION

- A. Install labels complying with requirements for identification and indicating fuse replacement information on inside door of each fused switch and adjacent to each fuse block and holder.

PART 4 – METHOD OF PAYMENT

4.1 QUANTITY AND PAYMENT

- A. No specific payment will be made for fuses and the cost thereof shall be included within the lump sum bid item **FURNISH AND INSTALL ELECTRIFICATION OF PARKING LOT LIGHTING, SPORTS LIGHTING, AND FLAGPOLE** in the Proposal, which price shall include the cost all materials, labor and equipment, and all else necessary therefore and incidental thereto for a complete and working electrical system as specified herein and as shown on the plans and specifications or directed by the Engineer.

END OF SECTION

SECTION 262816 – ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fusible switches.
2. Nonfusible switches.
3. Receptacle switches.
4. Shunt trip switches.
5. Molded-case circuit breakers (MCCBs).
6. Enclosures.

1.2 DEFINITIONS

- A. NC: Normally closed.
- B. NO: Normally open.
- C. SPDT: Single pole, double throw.

1.3 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Enclosed switches and circuit breakers shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
 1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of enclosed switch, circuit breaker, accessory, and component indicated.
- B. Shop Drawings: For enclosed switches and circuit breakers. Include plans, elevations, sections, details, and attachments to other work.
 1. Wiring Diagrams: For power, signal, and control wiring.

1.5 INFORMATIONAL SUBMITTALS

- A. Seismic Qualification Certificates: For enclosed switches and circuit breakers, accessories, and components, from manufacturer.

B. Field quality-control reports.

1.6 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.7 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

PART 2 – PRODUCTS

2.1 FUSIBLE SWITCHES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
3. Siemens Energy & Automation, Inc.
4. Square D; a brand of Schneider Electric.
5. Or approved equal.

B. Type HD, Heavy Duty, Single Throw, 600-V ac, 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, with clips or bolt pads to accommodate indicated fuses, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.

C. Type HD, Heavy Duty, Six Pole, Single Throw, 600-V ac, 200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, with clips or bolt pads to accommodate indicated fuses, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.

D. Accessories:

1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.

3. Class R Fuse Kit: Provides rejection of other fuse types when Class R fuses are specified.
4. Lugs: Suitable for number, size, and conductor material.
5. Service-Rated Switches: Labeled for use as service equipment.

2.2 NONFUSIBLE SWITCHES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
 2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
 3. Siemens Energy & Automation, Inc.
 4. Square D; a brand of Schneider Electric.
 5. Or approved equal.
- B. Type GD, General Duty, Single Throw, 600 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, lockable handle with capability to accept two padlocks, and interlocked with cover in closed position.
- C. Accessories:
 1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
 2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.
 3. Lugs: Suitable for number, size, and conductor material.

2.3 RECEPTACLE SWITCHES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
 2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
 3. Siemens Energy & Automation, Inc.
 4. Square D; a brand of Schneider Electric.
 5. Or approved equal.
- B. Type HD, Heavy-Duty, Single-Throw Fusible Switch: 600-V ac, A; UL 98 and NEMA KS 1; horsepower rated, with clips or bolt pads to accommodate specified fuses; lockable handle with capability to accept three padlocks; interlocked with cover in closed position.

- C. Type HD, Heavy-Duty, Single-Throw Nonfusible Switch: 600-V ac, A; UL 98 and NEMA KS 1; horsepower rated, lockable handle with capability to accept three padlocks; interlocked with cover in closed position.

2.4 ENCLOSURES

- A. Enclosed Switches and Circuit Breakers: NEMA AB 1, NEMA KS 1, NEMA 250, and UL 50, to comply with environmental conditions at installed location.
 - 1. Indoor, Dry and Clean Locations: NEMA 250, Type 1.
 - 2. Outdoor Locations: NEMA 250, Type 3R.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Install individual wall-mounted switches and circuit breakers with tops at uniform height unless otherwise indicated.
- B. Comply with mounting and anchoring requirements.
- C. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from enclosures and components.
- D. Install fuses in fusible devices.
- E. Comply with NECA 1.

3.2 IDENTIFICATION

- A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
- B. Label each enclosure with engraved metal or laminated-plastic nameplate.

3.3 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Acceptance Testing Preparation:
 - 1. Test insulation resistance for each enclosed switch and circuit breaker, component, connecting supply, feeder, and control circuit.
 - 2. Test continuity of each circuit.
- C. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
 2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
- D. Enclosed switches and circuit breakers will be considered defective if they do not pass tests and inspections.
- E. Prepare test and inspection reports, including a certified report that identifies enclosed switches and circuit breakers and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

PART 4 – METHOD OF PAYMENT

4.1 QUANTITY AND PAYMENT

- A. No specific payment will be made for enclosed switches and circuit breakers and the cost thereof shall be included within the lump sum bid item **FURNISH AND INSTALL ELECTRIFICATION OF PARKING LOT LIGHTING, SPORTS LIGHTING, AND FLAGPOLE** in the Proposal, which price shall include the cost all materials, labor and equipment, and all else necessary therefore and incidental thereto for a complete and working electrical system as specified herein and as shown on the plans and specifications or as directed by the Engineer.

END OF SECTION

SECTION 263600 – TRANSFER SWITCHES

PART 1 – GENERAL

1.1 SUMMARY

- A. This Section includes transfer switches rated 600 V and less, including the following:
 - 1. Automatic transfer switches.
 - 2. Bypass/isolation switches.
 - 3. Non-automatic transfer switches.
 - 4. Remote annunciation systems.
 - 5. Remote annunciation and control systems.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include rated capacities, weights, operating characteristics, furnished specialties, and accessories.
- B. Shop Drawings: Dimensioned plans, elevations, sections, and details showing minimum clearances, conductor entry provisions, gutter space, installed features and devices, and material lists for each switch specified.
 - 1. Single-Line Diagram: Show connections between transfer switch, bypass/isolation switch, power sources, and load; and show interlocking provisions for each combined transfer switch and bypass/isolation switch.

1.3 INFORMATIONAL SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Field quality-control test reports.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For each type of product to include in emergency, operation, and maintenance manuals. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:
 - 1. Features and operating sequences, both automatic and manual.
 - 2. List of all factory settings of relays; provide relay-setting and calibration instructions, including software, where applicable.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Maintain a service center capable of providing training, parts, and emergency maintenance repairs within a response period of less than eight hours from time of notification.
- B. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the InterNational Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.
 - 1. Testing Agency's Field Supervisor: Person currently certified by the InterNational Electrical Testing Association or the National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.
- C. Source Limitations: Obtain automatic transfer switches and remote annunciators through one source from a single manufacturer.
- D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- E. Comply with NEMA ICS 1.
- F. Comply with NFPA 70.
- G. Comply with NFPA 99.
- H. Comply with NFPA 110.
- I. Comply with UL 1008 unless requirements of these Specifications are stricter.

1.6 PROJECT CONDITIONS

- A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electrical service:
 - 1. Notify Construction Manager no fewer than two days in advance of proposed interruption of electrical service.
 - 2. Do not proceed with interruption of electrical service without Construction Manager.

1.7 COORDINATION

- A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Section 033000 "Cast-in-Place Concrete."

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Contactor Transfer Switches:
 - 2. Caterpillar; Engine Div.
 - 3. Generac Power Systems, Inc.
 - 4. Kohler Power Systems; Generator Division.
 - 5. Onan/Cummins Power Generation; Industrial Business Group.
 - 6. Transfer Switches Using Molded-Case Switches or Circuit Breakers:
 - 7. Eaton Electrical Inc.; Cutler-Hammer.
 - 8. GE Zenith Controls.
 - 9. Hubbell Industrial Controls, Inc.
 - 10. Or approved equal.

2.2 GENERAL TRANSFER-SWITCH PRODUCT REQUIREMENTS

- A. Indicated Current Ratings: Apply as defined in UL 1008 for continuous loading and total system transfer, including tungsten filament lamp loads not exceeding 30 percent of switch ampere rating, unless otherwise indicated.
- B. Tested Fault-Current Closing and Withstand Ratings: Adequate for duty imposed by protective devices at installation locations in Project under the fault conditions indicated, based on testing according to UL 1008.
 - 1. Where transfer switch includes internal fault-current protection, rating of switch and trip unit combination shall exceed indicated fault-current value at installation location.
- C. Solid-State Controls: Repetitive accuracy of all settings shall be plus or minus 2 percent or better over an operating temperature range of minus 20 to plus 70 deg C.
- D. Resistance to Damage by Voltage Transients: Components shall meet or exceed voltage-surge withstand capability requirements when tested according to IEEE C62.41. Components shall meet or exceed voltage-impulse withstand test of NEMA ICS 1.

- E. Electrical Operation: Accomplish by a nonfused, momentarily energized solenoid or electric-motor-operated mechanism, mechanically and electrically interlocked in both directions.
- F. Switch Characteristics: Designed for continuous-duty repetitive transfer of full-rated current between active power sources.
 - 1. Limitation: Switches using molded-case switches or circuit breakers or insulated-case circuit-breaker components are not acceptable.
 - 2. Switch Action: Double throw; mechanically held in both directions.
 - 3. Contacts: Silver composition or silver alloy for load-current switching. Conventional automatic transfer-switch units, rated 225 A and higher, shall have separate arcing contacts.
- G. Neutral Switching. Where four-pole switches are indicated, provide neutral pole switched simultaneously with phase poles.
- H. Neutral Terminal: Solid and fully rated, unless otherwise indicated.
- I. Oversize Neutral: Ampacity and switch rating of neutral path through units indicated for oversize neutral shall be double the nominal rating of circuit in which switch is installed.
- J. Heater: Equip switches exposed to outdoor temperatures and humidity, and other units indicated, with an internal heater. Provide thermostat within enclosure to control heater.
- K. Battery Charger: For generator starting batteries.
 - 1. Float type rated 10 A.
 - 2. Ammeter to display charging current.
 - 3. Fused ac inputs and dc outputs.
- L. Annunciation, Control, and Programming Interface Components: Devices at transfer switches for communicating with remote programming devices, annunciators, or annunciator and control panels shall have communication capability matched with remote device.
- M. Factory Wiring: Train and bundle factory wiring and label, consistent with Shop Drawings, either by color-code or by numbered or lettered wire and cable tape markers at terminations. Color-coding and wire and cable tape markers are specified in Section 260553 "Identification for Electrical Systems."
 - 1. Designated Terminals: Pressure type, suitable for types and sizes of field wiring indicated.
 - 2. Power-Terminal Arrangement and Field-Wiring Space: Suitable for top, side, or bottom entrance of feeder conductors as indicated.

- 3. Control Wiring: Equipped with lugs suitable for connection to terminal strips.
- N. Enclosures: General-purpose NEMA 250, Type 1, complying with NEMA ICS 6 and UL 508, unless otherwise indicated.

2.3 AUTOMATIC TRANSFER SWITCHES

- A. Comply with Level 1 equipment according to NFPA 110.
- B. Switching Arrangement: Double-throw type, incapable of pauses or intermediate position stops during normal functioning, unless otherwise indicated.
- C. Manual Switch Operation: Under load, with door closed and with either or both sources energized. Transfer time is same as for electrical operation. Control circuit automatically disconnects from electrical operator during manual operation.
- D. Manual Switch Operation: Unloaded. Control circuit automatically disconnects from electrical operator during manual operation.
- E. Signal-Before-Transfer Contacts: A set of normally open/normally closed dry contacts operates in advance of retransfer to normal source. Interval is adjustable from 1 to 30 seconds.
- F. Digital Communication Interface: Matched to capability of remote annunciator or annunciator and control panel.
- G. Transfer Switches Based on Molded-Case-Switch Components: Comply with NEMA AB 1, UL 489, and UL 869A.
- H. Automatic Closed-Transition Transfer Switches: Include the following functions and characteristics:
 - 1. Fully automatic make-before-break operation.
 - 2. Load transfer without interruption, through momentary interconnection of both power sources not exceeding 100 ms.
 - 3. Initiation of No-Interruption Transfer: Controlled by in-phase monitor and sensors confirming both sources are present and acceptable.
 - a. Initiation occurs without active control of generator.
 - b. Controls ensure that closed-transition load transfer closure occurs only when the 2 sources are within plus or minus 5 electrical degrees maximum, and plus or minus 5 percent maximum voltage difference.
 - 4. Failure of power source serving load initiates automatic break-before-make transfer.
- I. In-Phase Monitor: Factory-wired, internal relay controls transfer so it occurs only when the two sources are synchronized in phase. Relay compares phase relationship and

frequency difference between normal and emergency sources and initiates transfer when both sources are within 15 electrical degrees, and only if transfer can be completed within 60 electrical degrees. Transfer is initiated only if both sources are within 2 Hz of nominal frequency and 70 percent or more of nominal voltage.

- J. Motor Disconnect and Timing Relay: Controls designate starters so they disconnect motors before transfer and reconnect them selectively at an adjustable time interval after transfer. Control connection to motor starters is through wiring external to automatic transfer switch. Time delay for reconnecting individual motor loads is adjustable between 1 and 60 seconds, and settings are as indicated. Relay contacts handling motor-control circuit inrush and seal currents are rated for actual currents to be encountered.
- K. Programmed Neutral Switch Position: Switch operator has a programmed neutral position arranged to provide a midpoint between the two working switch positions, with an intentional, time-controlled pause at midpoint during transfer. Pause is adjustable from 0.5 to 30 seconds minimum and factory set for 0.5 second, unless otherwise indicated. Time delay occurs for both transfer directions. Pause is disabled unless both sources are live.
- L. Automatic Transfer-Switch Features:
 - 1. Undervoltage Sensing for Each Phase of Normal Source: Sense low phase-to-ground voltage on each phase. Pickup voltage shall be adjustable from 85 to 100 percent of nominal, and dropout voltage is adjustable from 75 to 98 percent of pickup value. Factory set for pickup at 90 percent and dropout at 85 percent.
 - 2. Adjustable Time Delay: For override of normal-source voltage sensing to delay transfer and engine start signals. Adjustable from zero to six seconds, and factory set for one second.
 - 3. Voltage/Frequency Lockout Relay: Prevent premature transfer to generator. Pickup voltage shall be adjustable from 85 to 100 percent of nominal. Factory set for pickup at 90 percent. Pickup frequency shall be adjustable from 90 to 100 percent of nominal. Factory set for pickup at 95 percent.
 - 4. Time Delay for Retransfer to Normal Source: Adjustable from 0 to 30 minutes, and factory set for 10 minutes to automatically defeat delay on loss of voltage or sustained undervoltage of emergency source, provided normal supply has been restored.
 - 5. Test Switch: Simulate normal-source failure.
 - 6. Switch-Position Pilot Lights: Indicate source to which load is connected.
 - 7. Source-Available Indicating Lights: Supervise sources via transfer-switch normal- and emergency-source sensing circuits.
 - a. Normal Power Supervision: Green light with nameplate engraved "Normal Source Available."
 - b. Emergency Power Supervision: Red light with nameplate engraved "Emergency Source Available."

8. Unassigned Auxiliary Contacts: Two normally open, single-pole, double-throw contacts for each switch position, rated 10 A at 240-V ac.
9. Transfer Override Switch: Overrides automatic retransfer control so automatic transfer switch will remain connected to emergency power source regardless of condition of normal source. Pilot light indicates override status.
10. Engine Starting Contacts: One isolated and normally closed, and one isolated and normally open; rated 10 A at 32-V dc minimum.
11. Engine Shutdown Contacts: Instantaneous; shall initiate shutdown sequence at remote engine-generator controls after retransfer of load to normal source.
12. Engine Shutdown Contacts: Time delay adjustable from zero to five minutes, and factory set for five minutes. Contacts shall initiate shutdown at remote engine-generator controls after retransfer of load to normal source.
13. Engine-Generator Exerciser: Solid-state, programmable-time switch starts engine generator and transfers load to it from normal source for a preset time, then retransfers and shuts down engine after a preset cool-down period. Initiates exercise cycle at preset intervals adjustable from 7 to 30 days. Running periods are adjustable from 10 to 30 minutes. Factory settings are for 7-day exercise cycle, 20-minute running period, and 5-minute cool-down period. Exerciser features include the following:
 - a. Exerciser Transfer Selector Switch: Permits selection of exercise with and without load transfer.
 - b. Push-button programming control with digital display of settings.
 - c. Integral battery operation of time switch when normal control power is not available.

2.4 BYPASS/ISOLATION SWITCHES

- A. Comply with requirements for Level 1 equipment according to NFPA 110.
- B. Description: Manual type, arranged to select and connect either source of power directly to load, isolating transfer switch from load and from both power sources. Include the following features for each combined automatic transfer switch and bypass/isolation switch:
 1. Means to lock bypass/isolation switch in the position that isolates transfer switch with an arrangement that permits complete electrical testing of transfer switch while isolated. While isolated, interlocks prevent transfer-switch operation, except for testing or maintenance.
 2. Drawout Arrangement for Transfer Switch: Provide physical separation from live parts and accessibility for testing and maintenance operations.
 3. Bypass/Isolation Switch Current, Voltage, Closing, and Short-Circuit Withstand Ratings: Equal to or greater than those of associated automatic transfer switch, and with same phase arrangement and number of poles.

4. Contact temperatures of bypass/isolation switches shall not exceed those of automatic transfer-switch contacts when they are carrying rated load.
 5. Operability: Constructed so load bypass and transfer-switch isolation can be performed by 1 person in no more than 2 operations in 15 seconds or less.
 6. Legend: Manufacturer's standard legend for control labels and instruction signs shall describe operating instructions.
 7. Maintainability: Fabricate to allow convenient removal of major components from front without removing other parts or main power conductors.
- C. Interconnection of Bypass/Isolation Switches with Automatic Transfer Switches: Factory-installed copper bus bars; plated at connection points and braced for the indicated available short-circuit current.

2.5 REMOTE ANNUNCIATOR SYSTEM

- A. Functional Description: Remote annunciator panel shall annunciate conditions for indicated transfer switches. Annunciation shall include the following:
1. Sources available, as defined by actual pickup and dropout settings of transfer-switch controls.
 2. Switch position.
 3. Switch in test mode.
 4. Failure of communication link.
- B. Annunciator Panel: LED-lamp type with audible signal and silencing switch.
1. Indicating Lights: Grouped for each transfer switch monitored.
 2. Label each group, indicating transfer switch it monitors, location of switch, and identity of load it serves.
 3. Mounting: Flush, modular, steel cabinet, unless otherwise indicated.
 4. Lamp Test: Push-to-test or lamp-test switch on front panel.

2.6 REMOTE ANNUNCIATOR AND CONTROL SYSTEM

- A. Functional Description: Include the following functions for indicated transfer switches:
1. Indication of sources available, as defined by actual pickup and dropout settings of transfer-switch controls.
 2. Indication of switch position.
 3. Indication of switch in test mode.
 4. Indication of failure of digital communication link.
 5. Key-switch or user-code access to control functions of panel.

6. Control of switch-test initiation.
 7. Control of switch operation in either direction.
 8. Control of time-delay bypass for transfer to normal source.
- B. Malfunction of annunciator, annunciation and control panel, or communication link shall not affect functions of automatic transfer switch. In the event of failure of communication link, automatic transfer switch automatically reverts to stand-alone, self-contained operation. Automatic transfer-switch sensing, controlling, or operating function shall not depend on remote panel for proper operation.
- C. Remote Annunciation and Control Panel: Solid-state components. Include the following features:
1. Controls and indicating lights grouped together for each transfer switch.
 2. Label each indicating light control group. Indicate transfer switch it controls, location of switch, and load it serves.
 3. Digital Communication Capability: Matched to that of transfer switches supervised.
 4. Mounting: Flush, modular, steel cabinet, unless otherwise indicated.

2.7 SOURCE QUALITY CONTROL

- A. Factory test and inspect components, assembled switches, and associated equipment. Ensure proper operation. Check transfer time and voltage, frequency, and time-delay settings for compliance with specified requirements. Perform dielectric strength test complying with NEMA ICS 1.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Design each fastener and support to carry load indicated by seismic requirements and according to seismic-restraint details. See Section 260548 "Vibration and Seismic Controls for Electrical Systems."
- B. Floor-Mounting Switch: Anchor to floor by bolting.
1. Concrete Bases: 4 inches high, reinforced, with chamfered edges. Extend base no more than 4 inches in all directions beyond the maximum dimensions of switch, unless otherwise indicated or unless required for seismic support. Construct concrete bases according to Section 260529 "Hangers and Supports for Electrical Systems."
- C. Annunciator and Control Panel Mounting: Flush in wall, unless otherwise indicated.
- D. Identify components according to Section 260553 "Identification for Electrical Systems."

- E. Set field-adjustable intervals and delays, relays, and engine exerciser clock.

3.2 CONNECTIONS

- A. Wiring to Remote Components: Match type and number of cables and conductors to control and communication requirements of transfer switches as recommended by manufacturer. Increase raceway sizes at no additional cost to Owner if necessary to accommodate required wiring.
- B. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."
- C. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

3.3 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform tests and inspections and prepare test reports.
- B. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections. Report results in writing.
- C. Perform tests and inspections and prepare test reports.
 - 1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installation, including connections, and to assist in testing.
 - 2. After installing equipment and after electrical circuitry has been energized, test for compliance with requirements.
 - 3. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
 - 4. Measure insulation resistance phase-to-phase and phase-to-ground with insulation-resistance tester. Include external annunciation and control circuits. Use test voltages and procedure recommended by manufacturer. Comply with manufacturer's specified minimum resistance.
 - a. Check for electrical continuity of circuits and for short circuits.
 - b. Inspect for physical damage, proper installation and connection, and integrity of barriers, covers, and safety features.
 - c. Verify that manual transfer warnings are properly placed.
 - d. Perform manual transfer operation.

5. After energizing circuits, demonstrate interlocking sequence and operational function for each switch at least three times.
 - a. Simulate power failures of normal source to automatic transfer switches and of emergency source with normal source available.
 - b. Simulate loss of phase-to-ground voltage for each phase of normal source.
 - c. Verify time-delay settings.
 - d. Verify pickup and dropout voltages by data readout or inspection of control settings.
 - e. Test bypass/isolation unit functional modes and related automatic transfer-switch operations.
 - f. Perform contact-resistance test across main contacts and correct values exceeding 500 microhms and values for 1 pole deviating by more than 50 percent from other poles.
 - g. Verify proper sequence and correct timing of automatic engine starting, transfer time delay, retransfer time delay on restoration of normal power, and engine cool-down and shutdown.
 6. Ground-Fault Tests: Coordinate with testing of ground-fault protective devices for power delivery from both sources.
 - a. Verify grounding connections and locations and ratings of sensors.
- D. Testing Agency's Tests and Inspections:
1. After installing equipment and after electrical circuitry has been energized, test for compliance with requirements.
 2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
 3. Measure insulation resistance phase-to-phase and phase-to-ground with insulation-resistance tester. Include external annunciation and control circuits. Use test voltages and procedure recommended by manufacturer. Comply with manufacturer's specified minimum resistance.
 - a. Check for electrical continuity of circuits and for short circuits.
 - b. Inspect for physical damage, proper installation and connection, and integrity of barriers, covers, and safety features.
 - c. Verify that manual transfer warnings are properly placed.
 - d. Perform manual transfer operation.
 4. After energizing circuits, demonstrate interlocking sequence and operational function for each switch at least three times.
 - a. Simulate power failures of normal source to automatic transfer switches and of emergency source with normal source available.

- b. Simulate loss of phase-to-ground voltage for each phase of normal source.
 - c. Verify time-delay settings.
 - d. Verify pickup and dropout voltages by data readout or inspection of control settings.
 - e. Test bypass/isolation unit functional modes and related automatic transfer-switch operations.
 - f. Perform contact-resistance test across main contacts and correct values exceeding 500 microhms and values for 1 pole deviating by more than 50 percent from other poles.
 - g. Verify proper sequence and correct timing of automatic engine starting, transfer time delay, retransfer time delay on restoration of normal power, and engine cool-down and shutdown.
5. Ground-Fault Tests: Coordinate with testing of ground-fault protective devices for power delivery from both sources.
- a. Verify grounding connections and locations and ratings of sensors.
- E. Coordinate tests with tests of generator and run them concurrently.
- F. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation and contact resistances and time delays. Attach a label or tag to each tested component indicating satisfactory completion of tests.
- G. Remove and replace malfunctioning units and retest as specified above.
- H. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each switch. Remove all access panels so joints and connections are accessible to portable scanner.
- 1. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each switch 11 months after date of Substantial Completion.
 - 2. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
 - 3. Record of Infrared Scanning: Prepare a certified report that identifies switches checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.4 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain transfer switches and related equipment as specified below. Refer to Section 017900 "Demonstration and Training."

- B. Coordinate this training with that for generator equipment.

PART 4 – METHOD OF PAYMENT

4.1 QUANTITY AND PAYMENT

- A. No specific payment will be made for transfer switches, and the cost thereof shall be included within the lump sum bid item **FURNISH AND INSTALL ELECTRIFICATION OF PARKING LOT LIGHTING, SPORTS LIGHTING, AND FLAGPOLE** in the Proposal, which price shall include all materials, labor, equipment, including all portions required, and all else necessary therefore and incidental thereto for a complete system as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 264313 – SURGE PROTECTION FOR LOW-VOLTAGE ELECTRICAL POWER CIRCUITS

PART 1 – GENERAL

1.1 SUMMARY

- A. Section includes field-mounted SPDs for low-voltage (120 to 600 V) power distribution and control equipment.
- B. Related Requirements:
 - 1. Section 262413 "Switchboards" for factory-installed SPDs.
 - 2. Section 262416 "Panelboards" for factory-installed SPDs.

1.2 DEFINITIONS

- A. Inominal: Nominal discharge current.
- B. MCOV: Maximum continuous operating voltage.
- C. Mode(s), also Modes of Protection: The pair of electrical connections where the VPR applies.
- D. MOV: Metal-oxide varistor; an electronic component with a significant non-ohmic current-voltage characteristic.
- E. OCPD: Overcurrent protective device.
- F. SCCR: Short-circuit current rating.
- G. SPD: Surge protective device.
- H. VPR: Voltage protection rating.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
 - 2. Copy of UL Category Code VZCA certification, as a minimum, listing the tested values for VPRs, Inominal ratings, MCOVs, type designations, OCPD requirements, model numbers, system voltages, and modes of protection.

1.4 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.

B. Sample Warranty: For manufacturer's special warranty.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For SPDs to include in maintenance manuals.

1.6 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to replace or replace SPDs that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

B. Basis-of-Design Product: Subject to compliance with requirements, provide product by one of the following:

1. Eaton Corporation.
2. Emerson Electric Co.
3. GE Zenith Controls.
4. Schneider Electric Industries SAS.
5. Siemens Industry, Inc.
6. Or approved equal.

2.2 GENERAL SPD REQUIREMENTS

A. SPD with Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

C. Comply with UL 1449.

D. MCOV of the SPD shall be at least 125 percent of the nominal system voltage.

2.3 SERVICE ENTRANCE AND TRANSFER SWITCH SUPPRESSOR

A. SPDs: Comply with UL 1449, Type 1.

- B. SPDs: Listed and labeled by an NRTL acceptable to authorities having jurisdiction as complying with UL 1449, Type 1
 - 1. SPDs with the following features and accessories:
 - a. Integral disconnect switch.
 - b. Internal thermal protection that disconnects the SPD before damaging internal suppressor components.
 - c. Indicator light display for protection status.
 - d. Form-C contacts rated at 5 A and 250-V ac, one normally open and one normally closed, for remote monitoring of protection status.
 - e. Surge counter.
- C. Comply with UL 1283.
- D. Peak Surge Current Rating: The minimum single-pulse surge current withstand rating per phase shall not be less than 200 kA. The peak surge current rating shall be the arithmetic sum of the ratings of the individual MOVs in a given mode.
- E. Protection modes and UL 1449 VPR for grounded wye circuits with 480Y/277 V, three-phase, four-wire circuits shall not exceed the following:
 - 1. Line to Neutral: 1200 V for 480Y/277 V.
 - 2. Line to Ground: 1200 V for 480Y/277 V.
 - 3. Line to Line: 2000 V for 480Y/277 V.
- F. Protection modes and UL 1449 VPR for 240/120 V, single-phase, three-wire circuits shall not exceed the following:
 - 1. Line to Neutral: 700 V.
 - 2. Line to Ground: 1000 V.
 - 3. Line to Line: 1000 V.
- G. SCCR: equal or exceed 200 kA.
- H. Inominal Rating: 20kA.

2.4 ENCLOSURES

- A. Indoor Enclosures: NEMA 250, Type 1.
- B. Outdoor Enclosures: NEMA 250, Type 3R.

2.5 CONDUCTORS AND CABLES

- A. Power Wiring: Same size as SPD leads, complying with Section 260519 "Low-Voltage Electrical Power Conductors and Cables."
- B. Class 2 Control Cables: Multiconductor cable with copper conductors not smaller than No. 18 AWG, complying with Section 260519 "Low-Voltage Electrical Power Conductors and Cables."
- C. Class 1 Control Cables: Multiconductor cable with copper conductors not smaller than No. 14 AWG, complying with Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Comply with NECA 1.
- B. Install an OCPD or disconnect as required to comply with the UL listing of the SPD.
- C. Install SPDs with conductors between suppressor and points of attachment as short and straight as possible, and adjust circuit-breaker positions to achieve shortest and straightest leads. Do not splice and extend SPD leads unless specifically permitted by manufacturer. Do not exceed manufacturer's recommended lead length. Do not bond neutral and ground.
- D. Use crimped connectors and splices only. Wire nuts are unacceptable.
- E. Wiring:
 - 1. Power Wiring: Comply with wiring methods in Section 260519 "Low-Voltage Electrical Power Conductors and Cables."
 - 2. Controls: Comply with wiring methods in Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

3.2 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections with the assistance of a factory-authorized service representative.
 - 1. Compare equipment nameplate data for compliance with Drawings and Specifications.
 - 2. Inspect anchorage, alignment, grounding, and clearances.
 - 3. Verify that electrical wiring installation complies with manufacturer's written installation requirements.

B. An SPD will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

3.3 STARTUP SERVICE

A. Complete startup checks according to manufacturer's written instructions.

B. Do not perform insulation-resistance tests of the distribution wiring equipment with SPDs installed. Disconnect SPDs before conducting insulation-resistance tests, and reconnect them immediately after the testing is over.

C. Energize SPDs after power system has been energized, stabilized, and tested.

3.4 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to operate and maintain SPDs.

PART 4 – METHOD OF PAYMENT

4.1 QUANTITY AND PAYMENT

A. No specific payment will be made for surge protection for low-voltage electrical power circuits and the cost thereof shall be included within the lump sum bid item **FURNISH AND INSTALL ELECTRIFICATION OF PARKING LOT LIGHTING, SPORTS LIGHTING, AND FLAGPOLE** in the Proposal, which price shall include the cost all materials, labor and equipment, and all else necessary therefore and incidental thereto for a complete and working electrical system as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 265630 – SITE LIGHTING POLES & FIXTURE

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Provide light pole fixtures and foundations and associated conduit, as shown on Plans for the parking lot. This item shall include light fixtures, poles, pole foundation, bolt patterns, conduit, pull cord wiring, wiring, pull boxes, fixtures, bulbs and all other appurtenances required to provide a full infrastructure for the installation of wiring, light poles and fixtures, which are to be installed by the contractor.
- B. Provide Solar LED lighting for the walking path, as shown on Plans. This item shall include light fixtures, poles, pole foundation, bolt patterns, poles, fixtures, bulbs and all other appurtenances required to provide a full infrastructure for the installation of light poles and fixtures, and associated solar infrastructure, which are to be installed by the contractor.
- C. The construction for the proposed parking lot shall conform to the requirements of the public utility, Public Service Electric & Gas (PSE&G). The contractor shall coordinate with PSE&G regarding the electrification of all proposed on-site lighting.
- D. The work under this section includes furnishing and installing all components of the site lighting systems necessary for the full operation thereof, in accordance with all applicable codes and regulations.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Solar LED Lighting:
 - a. Solar LED Lighting: Model No. RSA-DB-11-415-12AG-BK-AT-N/NH-BCF-4, manufactured by Pacific Lighting & Standards Company , Lynwood CA or approved equal.
 - b. See construction plans for additional information on the Solar LED Lighting.

2.2 MATERIALS

- A. All solar infrastructure and associated fittings, accessories and appurtenances shall be provided and installed by the contractor.
- B. All conduits and associated fittings, accessories and appurtenances shall be provided and installed by the contractor.
- C. All construction must meet the minimum requirements of the NEC and PSE&G Electric Division.

- D. All pullboxes, wiring, poles, fixtures, bulbs, etc. shall be provided and installed by the contractor.
- E. Light poles and fixtures shall be as shown on the contract plans.
- F. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements as well as the following documents:
 - New Jersey Department of Environmental Protection (NJDEP) Site Remediation Program (SRP) – Fill Material Guidance for SRP Sites;
 - NJDEP SRP – Historic Fill Material Technical Guidance;
 - NJDEP – Solid and Hazardous Waste Management Program – Guidance for Characterization of Concrete and Clean Material for Recycling; and
 - Site-specific Health and Safety Program (HASP), prepared by the LSRP.
- G. The Contractor shall identify the location and address of the disposal facility. Under no circumstances will any material be exported or imported from the Site without direct approval from Neglia and/or LSRP.

2.3 CONCRETE BASES

- A. As detailed on the Plans and Specifications. Bases may be precast or poured-in-place. Bolt and bolt patterns to be confirmed with manufacturer.

PART 3 – EXECUTION

3.1 PREPARATION

- A. The installation shall be in accordance with NEC and PSE&G Electric Division’s standard or as determined by the Engineer. The foundations shall be so constructed as to hold lights in a proper and permanent position, to resist swaying in the wind or displacement by vandalism. All prospective bidders and/or the contractor are responsible for contacting PSE&G to determine the electric source location/feeder.

PART 4 – METHOD OF PAYMENT

4.1 QUANTITY AND PAYMENT

- A. The quantity of Site Light Poles and Fixtures for which payment will be made, will be on a lump sum basis for the item **FURNISH AND INSTALL PARKING LOT (EXCLUDING ELECTRIFICATION)** in the Proposal, which the price shall include the cost of the excavation, disposal of excess materials, subgrade material, precast concrete foundations or cast-in-place concrete foundations (including all materials, labor and equipment required for casting concrete light pole foundations), all mounting hardware, all conduit

(including all fittings, appurtenances, materials, labor and equipment required for conduit installation/construction), pullboxes, bolt patterns, wiring, poles, fixtures, bulbs and all materials, labor, equipment, including all portions required, and all else necessary therefore and incidental thereto for a complete and working parking lot lighting system as specified herein and as shown on the plans or as directed by the Engineer.

- B. The quantity of Site Light Poles and Fixtures, for which payment will be on a per unit basis for the item **FURNISH AND INSTALL POLE MOUNTED SOLAR LED PERIMETER PATH LIGHTING, COMPLETE** in the Proposal, which the price shall include the cost of the excavation, disposal of excess materials, subgrade material, precast concrete foundations or cast-in-place concrete foundations (including all materials, labor and equipment required for casting concrete light pole foundations), all mounting hardware, poles, fixtures, bulbs, solar panel and associated mounting equipment, battery cabinet and associated mounting equipment, internal electrical wiring and systems, and all materials, labor, equipment, including all portions required, and all else necessary therefore and incidental thereto for a complete and working site lighting system as specified herein and as shown on the plans or as directed by the Engineer.

- C. Payment for the provision of a complete and working site electrical system will be on a lump sum basis for the item **FURNISH AND INSTALL ELECTRIFICATION OF PARKING LOT LIGHTING, SPORTS LIGHTING, AND FLAGPOLE** in the Proposal, which the price shall include the cost of the excavation, disposal of excess materials, subgrade material, all mounting hardware, all conduit (including all fittings, appurtenances, materials, labor and equipment required for conduit installation/construction), meters, pole-mounted transformers, pullboxes, wiring, poles, fixtures, bulbs and all materials, labor, equipment, including all portions required, and all else necessary therefore and incidental thereto for a complete and working site electrical system as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 265668 – EXTERIOR ATHLETIC LIGHTING

Lighting System with LED Light Source

PART 1 – GENERAL

1.1 SUMMARY

- A. Work covered by this section of the specifications shall conform to the contract documents, engineering plans as well as state and local codes.
- B. The purpose of these specifications is to define the lighting system performance and design standards for Mattano Park using an LED Lighting source. The manufacturer / contractor shall supply lighting equipment to meet or exceed the standards set forth in these specifications.
- C. The sports lighting will be for the following venues:
 - 1. Soccer 1
 - 2. Soccer 2
- D. The primary goals of this sports lighting project are:
 - 1. **Guaranteed Light Levels:** Selection of appropriate light levels impact the safety of the players and the enjoyment of spectators. Therefore light levels are guaranteed to not drop below specified target values for a period of 25 years.
 - 2. **Environmental Light Control:** It is the primary goal of this project to minimize spill light to adjoining properties and glare to the players, spectators and neighbors.
 - 3. **Control and Monitoring** – To allow for optimized use of labor resources and avoid unneeded operation of the facility, customer requires a remote on/off control system for the lighting system. Fields should be proactively monitored to detect luminaire outages over a 25-year life cycle. All communication and monitoring costs for 25-year period shall be included in the bid.
 - a. Control and monitoring system shall provide contactor control of all existing circuits. Key switches shall be provided to provide field-level control of existing circuit groups.

1.2 ONFIELD LIGHTING PERFORMANCE

- A. **Illumination Levels and Design Factors:** Playing surfaces shall be lit to an average target illumination level and uniformity as specified in the chart below. Lighting manufacturers will provide a guarantee that light levels will be sustained over the life of the warranty period. Lighting calculations shall be developed and field measurements taken on the grid spacing with the minimum number of grid points specified below.
- B. Manufacturers will provide lumen maintenance data of the LED luminaires used per TM-21-11 and will incorporate the lumen maintenance projections into the lighting designs

to ensure target light levels are achieved throughout the guaranteed period of the system. Per IES guidelines, lumen maintenance hours should be reported based on the 6x multiplier of testing hours.

Area of Lighting	Average Target Illumination Levels	Maximum to Minimum Uniformity Ratio	Grid Points	Grid Spacing
Soccer 1	50 footcandles	2:1	88	30' x 30'
Soccer 2	50 footcandles	2:1	88	30' x 30'

- C. Color Temperature: The lighting system shall have a minimum color temperature of 5700K and a CRI of 75.
- D. Playability: Lighting design and luminaire selection should be optimized for playability by reducing glare onfield and providing sufficient uplight.
 - 1. Aiming Angles: To reduce glare, luminaire aiming should ensure the top of the luminaire field angle (based on sample photometric reports) is a minimum of 10 degrees below horizontal.
 - 2. Glare Control Technology – Luminaires selected should have glare control technology including, but not limited to: external visors, internal shields and louvers. No symmetrical beam patterns are acceptable.
 - 3. Mounting Heights: To ensure proper aiming angles, minimum mountings heights shall be as described below. Higher mounting heights may be necessary for luminaire with lesser glare control to meet field angle requirements of section 1.2.C.1.

# of Poles	Pole Designation	Pole Height
6	S1-S6	70'

1.3 ENVIRONMENTAL LIGHT CONTROL

- A. Light Control Luminaires: All luminaires shall utilize spill light and glare control devices including, but not limited to, internal shields, louvers and external shields. No symmetrical beam patterns are accepted.
- B. Spill Light and Glare Control: To minimize impact on adjacent properties, spill light and candela values must not exceed the following levels taken at 3 feet above grade.

150' pill values	Maximum
Horizontal Footcandles	.1 fc
Vertical Footcandles	.2 fc
Candela (taken at 5 ft above grade)	4300 cd

- C. Environmental glare impact scans must be submitted showing the maximum candela 150' from the playing surface.

- D. Spill Scans: Spill scans must be submitted indicating the amount of horizontal and vertical footcandles along the specified lines. Light levels shall be provided in 30-foot intervals along the boundary line at 3 ft above grade with all luminaires on. Spill Values may not take into account foliage, bleachers, or other objects that would block light spillage.
- E. Sample Photometry: The first page of a photometric report for all luminaire types proposed showing horizontal and vertical axial candle power shall be provided to demonstrate the capability of achieving the specified performance. Reports shall be certified by a qualified testing laboratory with a minimum of five years experience or by a manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products. A summary of the horizontal and vertical aiming angles for each luminaire shall be included with the photometric report.
- F. Field Verification: Lighting manufacturer shall supply field verification of environmental light control using a meter calibrated within the last 12 months:
 - 1. Spill verification: Illumination levels shall be taken in accordance with IESNA LM-5-04. The light sensing surface of the light meter should be held 36 inches above the playing surface with the sensing surface horizontal (for horizontal readings) or vertically pointed at the brightest light bank (for max vertical readings)

PART 2 – PRODUCT

2.1 SPORTS LIGHTING SYSTEM CONSTRUCTION

- A. Manufacturing Requirements: All components shall be designed and manufactured as a system. All luminaires, wire harnesses, drivers and other enclosures shall be factory assembled, aimed, wired and tested.
- B. Durability: All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed carbon steel shall be hot dip galvanized per ASTM A123. All exposed aluminum shall be powder coated with high performance polyester or anodized. All exterior reflective inserts shall be anodized, coated, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All exposed hardware and fasteners shall be stainless steel, passivated and coated with aluminum-based thermosetting epoxy resin for protection against corrosion and stress corrosion cracking. Structural fasteners may be carbon steel and galvanized meeting ASTM A153 and ISO/EN 1461 (for hot dipped galvanizing), or ASTM B695 (for mechanical galvanizing). All wiring shall be enclosed within the cross-arms, pole, or electrical components enclosure.
- C. System Description: Lighting system shall consist of the following:
 - 1. Galvanized steel poles and cross-arm assembly.
 - 2. Non-approved pole technology:
 - a. Square static cast concrete poles will not be accepted.

- b. Direct bury steel poles which utilize the extended portion of the steel shaft for their foundation will not be accepted due to potential for internal and external corrosive reaction to the soils and long term performance concerns.
- 3. Lighting systems shall use concrete foundations. See Section 2.4 for details.
 - a. For a foundation using a pre-stressed concrete base embedded in concrete backfill the concrete shall be air-entrained and have a minimum compressive design strength at 28 days of 3,000 PSI. 3,000 PSI concrete specified for early pole erection, actual required minimum allowable concrete strength is 1,000 PSI. All piers and concrete backfill must bear on and against firm undisturbed soil.
 - b. For anchor bolt foundations or foundations using a pre-stressed concrete base in a suspended pier or re-inforced pier design pole erection may occur after 7 days. Or after a concrete sample from the same batch achieves a certain strength.
- 4. Manufacturer will supply all drivers and supporting electrical equipment
 - a. Remote drivers and supporting electrical equipment shall be mounted approximately 10 feet above grade in aluminum enclosures. The enclosures shall be touch-safe and include drivers and fusing with indicator lights on fuses to notify when a fuse is to be replaced for each luminaire. Disconnect per circuit for each pole structure will be located in the enclosure. Integral drivers are not allowed.
 - b. Manufacturer shall provide surge protection at the pole equal to or greater than 40 kA for each line to ground (Common Mode) as recommended by IEEE C62.41.2_2002.
- 5. Wire harness complete with an abrasion protection sleeve, strain relief and plug-in connections for fast, trouble-free installation.
- 6. All luminaires, visors, and cross-arm assemblies shall withstand 150 mi/h winds and maintain luminaire aiming alignment.
- 7. Control cabinet to provide remote on-off control and monitoring of the lighting system. See Section 2.3 for further details.
- 8. Manufacturer shall provide lightning grounding as defined by NFPA 780 and be UL Listed per UL 96 and UL 96A.
 - a. Integrated grounding via concrete encased electrode grounding system.
 - b. If grounding is not integrated into the structure, the manufacturer shall supply grounding electrodes, copper down conductors, and exothermic weld kits. Electrodes and conductors shall be sized as required by NFPA 780. The grounding electrode shall be minimum size of 5/8 inch diameter and 8 feet long, with a minimum of 10 feet embedment. Grounding electrode shall be connected to the structure by a grounding electrode conductor with a minimum size of 2 AWG for poles with 75 feet mounting height or less, and 2/0 AWG for poles with more than 75 feet mounting height.

9. Enhanced corrosion protection package: Due to the potentially corrosive environment for this project, manufacturers must provide documentation that their products meet the following enhanced requirements in addition to the standard durability protection specified above:
 - a) Exposed carbon steel horizontal surfaces on the crossarm assembly shall be galvanized to no less than a five (5) mil average thickness.
 - b) Exposed die cast aluminum components shall be Type II anodized per MIL-STD-8625 and coated with high performance polyester.
 - c) Exposed extruded aluminum components shall be Type II anodized per MIL-STD-8625 and coated with high performance polyester.
- D. Safety: All system components shall be UL listed for the appropriate application.

2.1 ELECTRICAL

- A. Electric Power Requirements for the Sports Lighting Equipment:
 1. Electric power: voltage and phasing to be confirmed
 2. Maximum total voltage drop: Voltage drop to the disconnect switch located on the poles shall not exceed three (3) percent of the rated voltage.
- B. Energy Consumption: The kW consumption for the field lighting system shall be 86.00 kW.

2.3 CONTROL

- A. Instant On/Off Capabilities: System shall provide for instant on/off of luminaires.
- B. Lighting contactor cabinet(s) constructed of NEMA Type 4 aluminum, designed for easy installation with contactors, labeled to match field diagrams and electrical design. Manual off-on-auto selector switches shall be provided.
- C. Contactor control of lights: To minimize wear on drivers and other electrical components and prevent lights from turning on due to communication loss, circuits must be controlled via contactor switching, not dimming driver output to zero.
- D. Dimming: System shall provide for 4-stage dimming (high-medium-low-blackout). Dimming will be set via scheduling options (Website, app, phone, fax, email)
- E. Remote Lighting Control System: System shall allow owner and users with a security code to schedule on/off system operation via a web site, phone, fax or email up to ten years in advance. Manufacturer shall provide and maintain a two-way TCP/IP communication link. Trained staff shall be available 24/7 to provide scheduling support and assist with reporting needs.

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

Controller shall accept and store 7-day schedules, be protected against memory loss

during power outages, and shall reboot once power is regained and execute any commands that would have occurred during outage.

- F. Remote Monitoring System: System shall monitor lighting performance and notify manufacturer if individual luminaire outage is detected so that appropriate maintenance can be scheduled. The controller shall determine switch position (manual or auto) and contactor status (open or closed).
- G. Management Tools: Manufacturer shall provide a web-based database and dashboard tool of actual field usage and provide reports by facility and user group. Dashboard shall also show current status of luminaire outages, control operation and service. Mobile application will be provided suitable for IOS, Android and Blackberry devices.

Hours of Usage: Manufacturer shall provide a means of tracking actual hours of usage for the field lighting system that is readily accessible to the owner.
 - 1. Cumulative hours: shall be tracked to show the total hours used by the facility
 - 2. Report hours saved by using early off and push buttons by users.
- H. Communication Costs: Manufacturer shall include communication costs for operating the control and monitoring system for a period of 25 years.
- I. Communication with luminaire drivers: Control system shall interface with drivers in electrical components enclosures by means of powerline communication.

2.4 STRUCTURAL PARAMETERS

- A. Wind Loads: Wind loads shall be based on the 2021 International Building Code. Wind loads to be calculated using ASCE 7-16, an ultimate design wind speed of 115 and exposure category C.
- B. Pole Structural Design: The stress analysis and safety factor of the poles shall conform to 2013 AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (LTS-6).
- C. Foundation Design: The foundation design shall be based on soil parameters as outlined in the geotechnical report.
- D. Foundation Drawings: Project specific foundation drawings stamped by a registered engineer in the state where the project is located are required. The foundation drawings must list the moment, shear (horizontal) force, and axial (vertical) force at ground level for each pole. These drawings must be submitted at time of bid to allow for accurate pricing.

PART 3 – EXECUTION

3.1 SOIL QUALITY CONTROL

- A. It shall be the Contractor's responsibility to notify the Owner if soil conditions exist other than those on which the foundation design is based, or if the soil cannot be readily excavated. Contractor may issue a change order request / estimate for the Owner's approval / payment for additional costs associated with:
 - 1. Providing engineered foundation embedment design by a registered engineer in the

- State of New Jersey for soils other than specified soil conditions;
2. Additional materials required to achieve alternate foundation;
 3. Excavation and removal of materials other than normal soils, such as rock, caliche, etc.

3.2 DELIVERY TIMING

- A. Delivery Timing Equipment On-Site: The equipment must be on-site 10 to 12 weeks from receipt of approved submittals and receipt of complete order information.

3.3 FIELD QUALITY CONTROL

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

3.4 WARRANTY AND GUARANTEE

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

3.5 SPORTS LIGHT POLE PADDING

- A. Sports light pole padding: Light pole padding is manufactured from 19-ounce Heavy Coated Vinyl, with 2-inch thick high-impact foam. Padding is designed to fit light pole outside diameters of 10.75 inches to 20 inches. Each padding includes a 1-1/2" W sewn in hook and loop vertical closure.
- B. The municipality has the right to choose from the full color spectrum provided by the manufacturer.
- C. The contractor shall provide sports light pole padding, Model: LPP, 6' Standard Height, manufactured by Sportsfield Specialties, Inc., or approved equal.

3.6 LOCKABLE GFIC COVER

- A. The weatherproof cover shall be designed to mount on a double-gang, junction box to ensure weather protection for a standard receptacle. The cover shall mount on outdoor junction box and shall include a weatherproof cover/base assembly, a gasket, six universal inserts, and mounting hardware. The inserts must provide flexibility for mounting at any angle including: 90°, 180°, or 270°. The outlet cover shall meet UL requirements for wet locations. The weatherproof cover shall be designed to meet requirements of 2014 NEC Article 406.8(B)(1) for wet locations and extra-duty applications and shall be UL Type 3R listed. The weatherproof cover and base shall be constructed entirely of die cast aluminum. The cover, which encloses the cord set, shall be gray. The cover shall meet agency requirements for cold impact at -60°F (-51°C). The cover shall provide a usable inside depth of (4 5/8"). The weatherproof cover shall be intermate model WP1250MXD.

PART 4 – DESIGN APPROVAL

4.0 PRE-BID SUBMITTAL REQUIREMENTS (Non-Musco)

- A. Design Approval: The owner / engineer will review pre-bid submittals per section 4.1.B from all the manufacturers to ensure compliance to the specification 10 days prior to bid. If the design meets the design requirements of the specifications, a letter and/or addendum will be issued to the manufacturer indicating approval for the specific design submitted.
- B. Approved Product: Musco's Light-Structure System™ with TLC for LED® is the approved product. All substitutions must provide a complete submittal package for approval as outlined in Submittal Information at the end of this section at least 10 days prior to bid. Special manufacturing to meet the standards of this specification may be required. An addendum will be issued prior to bid listing any other approved lighting manufacturers and designs.
- C. Bidders are required to bid only products that have been approved by this specification or addendum by the owner or owner's representative. Bids received that do not utilize an approved system/design, will be rejected.

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

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

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

H	Control & Monitoring System	Manufacturer of the control and monitoring system shall provide written definition and schematics for automated control system. They will also provide ten (10) references of customers currently using proposed system in the state of New Jersey.
I	Electrical Distribution Plans	Manufacturer bidding an alternate product must include a revised electrical distribution plan including changes to service entrance, panels and wire sizing, signed by a licensed Electrical Engineer in the state of New Jersey.
J	Warranty	A. Provide written warranty information including all terms and conditions. Provide ten (10) references of customers currently under specified warranty in the state of New Jersey.
K	Project References	Manufacturer to provide a list of ten (10) projects where the technology and specific fixture proposed for this project has been installed in the state of New Jersey. Reference list will include project name, project city, installation date, and if requested, contact name and contact phone number.
L	Product Information	Complete bill of material and current brochures/cut sheets for all products being provided.
M	Delivery	Manufacturer shall supply an expected delivery timeframe from receipt of approved submittals and complete order information.
N	Non-Compliance	Manufacturer shall list all items that do not comply with the specifications. If in full compliance, tab may be omitted.
O	Environmental Light Control Design	Environmental glare impact scans must be submitted showing the maximum candela 150' from the playing surface.

PART 5 – METHOD OF PAYMENT

5.1 QUANTITY AND PAYMENT

- A. The quantity of Exterior Athletic Field Lighting, for which payment will be made, will be on a lump sum basis for the item **FURNISH AND INSTALL SPORTS LIGHTING SYSTEM, COMPLETE (EXCLUDING ELECTRIFICATION)** in the Proposal, which the price shall include the cost of the sports light pole padding, lockable GFIC cover, excavation, disposal of excess materials, subgrade material, pre-cast concrete foundations or cast-in-place concrete foundations (including all materials, labor and equipment required for casting concrete light pole foundations), all mounting hardware, all conduit (including all fittings, appurtenances, materials, labor and equipment required for conduit installation/construction), pull-boxes, pile support systems, wiring, poles, fixtures, bulbs, footings, control panel, transformer, foundations, protective safety padding, and all materials, labor, equipment, including all portions required, and all else necessary therefore and incidental thereto for a complete and working light system as specified herein and as shown on the plans.
- B. Payment for the provision of a complete and working site electrical system will be on a lump sum basis for the item **FURNISH AND INSTALL ELECTRIFICATION OF PARKING LOT LIGHTING, SPORTS LIGHTING, AND FLAGPOLE** in the Proposal, which the price shall

include the cost of the excavation, disposal of excess materials, subgrade material, all mounting hardware, all conduit (including all fittings, appurtenances, materials, labor and equipment required for conduit installation/construction), meters, pole-mounted transformers, pullboxes, wiring, poles, fixtures, bulbs and all materials, labor, equipment, including all portions required, and all else necessary therefore and incidental thereto for a complete and working site electrical system as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 310000 – EARTHWORK

PART 1 – GENERAL

1.1 DEFINITIONS

- A. The following terms shall have the meanings ascribed to them in this Article, wherever they appear in this Section.
- B. Due to the presence of compromised soil (i.e. historic fill) at the Site, all excavation, disposal and backfilling work must be performed in accordance with New Jersey Department of Environmental Protection and Site Remediation Program regulations and guidance. As such, the Contractor shall coordinate all aspects of the project related to the environmental impacts with the property Licensed Site Remediation Professional (LSRP) including Off-Site disposal of compromised soil and source of any imported material to the property.
- C. The Contractor shall provide any/all necessary laboratory testing results and associated paperwork to the Owner, LSRP and approved Off-Site receiving/disposal facility.
- D. The Contractor shall provide to the Owner and LSRP an approval acceptance letter from the proposed receiving/disposal facility, a minimum of ten (10) working days in advance of the proposed soil removal operations.
- E. The Contractor shall identify the location and address of the disposal facility. Under no circumstances will any material be exported or imported from the Site without direct approval from Neglia and/or LSRP.
- F. All working with contaminated soil shall be performed in accordance with applicable OSHA regulations (40 CFR 1910.120).
- G. Excavation, Unclassified: The removal of all surface and subsurface material not classified as rock (as defined below). Shall consist of the excavation, removal, export and disposal of all materials of whatever nature, bituminous concrete, concrete, pavement, regulated waste, brick, stone, concrete masonry, small structures, removal of pipe where directed, removal of any other materials encountered of whatsoever nature, required for the proposed construction, the stockpiling and disposal of all excavated materials unsuitable for fill, the transportation of the excavated material, the construction of embankments with the material excavated when so required, the disposal of unsuitable and surplus materials, and all other work as herein described.
- H. Rock Excavation, Unclassified: Rock excavation, unclassified shall mean removal of all rock, boulders or pieces of concrete, and solid ledge rock and masonry, which in the opinion of Neglia Group requires for its removal, drilling and blasting, wedging, sledging, barring, or breaking up with a power-operated tool. Soft or disintegrated rock which can be removed with a pick or power-operated excavator or shovel, loose, shaken or previously blasted rock, broken stone in rock fill or elsewhere, and rock exterior to the maximum limits allowed, or which may fall in the excavation, shall not be included as rock excavation. Pavements, curbs, gutters, sidewalks and driveways shall not be included as rock excavation.

- I. Subgrade Surface: Surface upon which subbase or topsoil is placed.
- J. Subbase: Select granular material or subbase course Type 2 which is placed immediately beneath pavement or concrete slabs.
- K. Maximum Density: The dry unit weight in pounds per cubic foot of the soil at "Optimum Moisture Content" when determined by ASTM D 698 (Method C), and ASTM D 2922 (Method B).
- L. Landscaped Areas: Areas not covered by structures, walks, roads, paving, or parking.
- M. Unauthorized Excavation: The removal of material below required elevation indicated on the Drawings or beyond lateral dimensions indicated or specified without specific written direction by Neglia Group.
- N. It shall be noted that the earthwork quantities indicated in the Contract Documents and in the Bid Proposal form are the quantities of in-place, compacted soil material (compacted to 95% Proctor density) required to construct the improvements shown on the Contract Documents. The Contractor shall refer to the Geotechnical Engineering Report (prepared by Johnson Soils Company, enclosed herewith) in order to determine the appropriate soil shrinkage and swell factors for on-site soils to be reused or redistributed across the site. For all imported soils, it is the Contractor's responsibility to provide a certification that the imported soil complies with all applicable local, County, State, and Federal regulations with respect to "certified clean" soil. In addition, due to the varying nature of "certified clean" soil materials that may be imported onto the site, it is the Contractor's responsibility to account for soil shrinkage and swell in order to provide the quantities of soil indicated in the Contract Documents.

1.2 SUBMITTALS

- A. Product Data:
 - 1. Filter Fabric: Manufacturer's catalog sheets, specifications, and installation instructions.
 - 2. The Contractor shall provide to the Owner and LSRP the name, location, contact information, and permit/licenses numbers of the proposed off-Site disposal facility a minimum of ten (10) working days in advance of the proposed soil removal operations.
 - 3. The Owner and LSRP shall review the facility documentation, and provide approval to the Contractor to utilize said facility. The Owner and/or LSRP have the discretion to deny the proposed disposal facility for any reason. It is the intention of the Owner and LSRP to ensure that any proposed disposal facility is in compliance with all applicable rules, laws and regulations, included but not limited to possessing a valid NJDEP permit. Should the facility be denied by the Owner and/or LSRP, the Contractor at their own expense is responsible for identifying another off-Site disposal facility.
 - 4. Numbers, types, and specifications for compacting equipment to be used.
 - 5. Samples: Submit samples as follows:

- a. Take the samples in the presence of the Engineer, and complete a Granular Material Sample Information Form for each sample. Forms and field sample designation numbers will be furnished by Neglia Group. Samples shall be provided in the following quantities:
- b. Select Granular Material: 10 lb.
- c. Selected Fill: 10 lb.
- d. Subbase Course Type 2: 10 lb.

1.3 PROJECT CONDITIONS

- A. Protect existing trees and plants during performance of the Work unless otherwise indicated to be removed. Box trees and plants indicated to remain within the grading limit line with temporary steel fencing or solidly constructed wood barricades as required. Protect root systems from smothering. Do not store excavated material or allow vehicular traffic or parking within the branch drip line. Restrict foot traffic to prevent excessive compaction of soil over root systems.
- B. Cold Weather Requirements:
 1. When freezing temperatures are predicted, do not excavate to final required elevations for concrete Work unless concrete can be placed immediately. Retain enough earth over the bottom elevation of footings to prevent frost penetration. If excavation has progressed to final footing elevations and concrete cannot be placed immediately, cover the bottom of the excavations with protective material to adequately insulate the exposed earth surface from frost. Remove protective material immediately before placing concrete.
 2. Do not backfill between November 1 and April 1, except with written permission of Neglia Group.

1.4 RELATED DOCUMENTS

- A. The contractor shall refer to the geotechnical engineering report entitled "Geotechnical Engineering Report, Proposed Mattano Park Improvement, Elizabeth New Jersey," prepared by Johnson Soils Company, dated June 10, 2021. This report contains information pertaining to existing surface and subsurface features. In addition, there are site recommendations for such proposed elements as the parking lot area, sport lighting, storm drainage systems, and general site construction.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Select Granular Material: Stockpiled, sound, durable, sand, gravel, stone, or blends of these materials, free from organic and other deleterious materials. Comply with NJDOT Standard Specifications for subbase course material.

Sieve Size	Percent Passing
2 inch	100%
1/4 inch	30-65%
No. 40	5-40%
No. 200	0-10%

- B. Magnesium Sulfate Soundness Test: 20 percent maximum loss by weight after 4 test cycles.
- C. Plasticity Index: The plasticity index of the material passing the No. 40 mesh sieve shall not exceed 5.0.
- D. Elongated Particles: Not more than 30 percent, by weight, of the particles retained on a 1/2 inch sieve shall consist of flat or elongated particles. A flat or elongated particle is defined as one which has its greatest dimension more than 3 times its least dimension.
- E. Selected Fill: Sound, durable, sand, gravel, stone, or blends of these materials, free from organic and other deleterious materials.

Sieve Size	Percent Passing
4 inch	100%
No. 40	0-70%
No. 200	0-15%

- F. Subbase Course Type 2: Stockpiled, crushed ledge rock or approved blast furnace slag. Comply with NJDOT 2009 Standard Specifications for Subbase Course material.

Sieve Size	Percent Passing
2 inch	100%
1/4 inch	25-60%
No. 40	5-40%
No. 200	0-10%

- G. Magnesium Sulfate Soundness Test: 20 percent maximum loss by weight after 4 test cycles.
- H. Plasticity Index: The plasticity index of the material passing the No. 40 mesh sieve shall not exceed 5.0.

- I. Elongated Particles: Not more than 30 percent, by weight, of the particles retained on a 1/2 inch sieve shall consist of flat or elongated particles. A flat or elongated particle is defined as one which has its greatest dimension more than 3 times its least dimension.
- J. Suitable Material (Fill and Backfill for Landscaped Areas): Material consisting of mineral soil (inorganic), blasted or broken rock and similar materials of natural or man-made origin, including mixtures thereof. Maximum particle size shall not exceed 2/3 of the specified layer thickness prior to compaction. NOTE: Material containing cinders, industrial waste, sludge, building rubble, land fill, muck, and peat shall be considered unsuitable for fill and backfill, except topsoil and organic silt may be used as suitable material in landscaped areas provided it is placed in the top layer of the subgrade surface.
- K. Filter Fabric (Separation, Drainage, Slope Protection): Amoco CEF 4545, CEF 4551; Exxon Chemical Co. GTF 150 EX; Mirafi Inc. 140N, 140NL; Nicolon Corp. Filterweave 70/06; Phillips Fibers Corp. Supac 4NP, 5NP, 7NP; Wellman Quline Inc. Q60, Q80, Q100 or approved equal.
- L. Filter Fabric (Stabilization): Amoco CEF 2002 & 2006; Exxon Chemical Co. GTF 350; Mirafi Inc. 500X, 600X, 700X; Nicolon Corp. 500; Phillips Fibers Corp. Supac 3WS, 4WS, 5WS, 6WS; Wellman Quline Inc. Q160 or approved equal.
- M. Lightweight Fill and Backfill: Contractor is advised to follow the specifications of lightweight fill and backfill material if proposed under this project. The placement of this and all fill material must meet the requirements of the Geotechnical Engineer.
- N. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements as well as the following documents:
 - a. New Jersey Department of Environmental Protection (NJDEP) Site Remediation Program (SRP) – Fill Material Guidance for SRP Sites;
 - b. NJDEP SRP – Historic Fill Material Technical Guidance;
 - c. NJDEP – Solid and Hazardous Waste Management Program – Guidance for Characterization of Concrete and Clean Material for Recycling; and
 - d. Site-specific Health and Safety Program (HASP), prepared by the LSRP.

PART 3 – EXECUTION

3.1 CLEARING AND GRUBBING

- A. Clear and grub the site of trees, shrubs, brush, other prominent vegetation, debris, and obstructions except for those items indicated to remain. Completely remove stumps and roots protruding through the ground surface.

- B. Clearing and grubbing of vegetation in wetlands, transition areas, and riparian zones shall only be performed where indicated on the Construction Drawings. Any clearing of vegetation in said areas not within the limits indicated on the plans is strictly prohibited.
- C. Fill depressions caused by the clearing and grubbing operations in accordance with the requirements for filling and backfilling unless further excavation is indicated.

3.2 UNDERGROUND UTILITIES

- A. Locate existing underground utilities and service connections prior to commencing excavation Work. Determine exact utility locations by hand-excavated test pits. Support and protect utilities to remain in place.
- B. Remove inactive, abandoned utilities within the limits of the areas to be excavated. Cap or plug open ends of abandoned utilities extending outside the excavation limits.

3.3 EXCAVATION

- A. 2019 NJDOT Standard Specifications, Excavation, Unclassified.
- B. Excavate earth as required for the Work and as directed by the Licensed Site Remediation Professional (LSRP).
- C. Maintain sides and slopes of excavations in a safe condition until completion of backfilling. The Contractor shall comply with Code of Federal Regulations CFR Title 29 - Labor, Part 1926 (OSHA).
- D. Stockpile excavated materials classified as suitable material where directed, until required for fill. Place, grade, and shape stockpiles for proper drainage as approved by Neglia Group.
- E. Excavation for Structures: Conform to elevations, lines, and limits indicated on the Construction Documents. Excavate to a vertical tolerance of plus or minus 1 inch. Extend excavation a sufficient lateral distance to provide clearance to execute the Work.
- F. Footings and Foundations: Trim bottoms to required lines and elevations. Excavate to final elevations by hand just prior to concrete placement. Leave solid undisturbed base for concrete.
- G. Slabs and Floors: Excavate to the following depths below bottom of concrete for addition of select granular material:
- H. Interior Floors: 6 inches unless otherwise indicated.
- I. Exterior Slabs and Steps: 12 inches unless otherwise indicated.

- J. Pipe Trenches: Open only enough trench length required to facilitate laying pipe or conduit sections. Unless otherwise indicated on the Drawings, excavate trenches approximately 24 inches wider than the outside pipe diameter, equally divided on each side of pipe centerline. Cut trenches to cross section, elevation, profile, line, and grade indicated. Accurately grade and shape trench bottom for uniform bearing of pipe.
- K. Pavement: Excavate to subgrade surface elevation.
- L. Unauthorized Excavations: Unless otherwise directed, backfill unauthorized excavation under footings, foundation bases, and retaining walls with compacted select granular material without altering the required footing elevation. Elsewhere, backfill and compact unauthorized excavation as specified for authorized excavation of the same classification, unless otherwise directed by Neglia Group.

3.4 ROCK EXCAVATION

- A. No blasting shall be performed by the Contractor, except upon written permission of Neglia Group. Any request by the Contractor for permission to blast must be submitted to Neglia Group at least 24 hours prior to start of said proposed blasting.
- B. If blasting permission is granted, the Contractor shall adhere strictly to all required Federal, State and Local safety regulations. In no case shall blasting caps or other exploders be kept at the same place where dynamite or other explosives are stored. A watchman shall be stationed at all times at the place of storage of said explosives.
- C. The prepared blast shall be carefully covered with a heavy woven wire blasting mat, placed so that the area affected by the explosion is positively confined. Should a gas, water or any other conduit intersect the line of trench, the rock must be removed without blasting from a distance of 10 feet on each side of such pipe or conduit.
- D. The contractor shall be responsible for any damage to adjacent structures and property caused by his operations. He shall inspect all structures adjacent to the site of blasting and, when ordered by Neglia Group, he shall take clear, close-up photographs of these structures before and after blasting. Copies of these photographs shall be submitted to Neglia Engineering. Neglia Group or their representative must be present at all times during blasting operations.

3.5 DEWATERING

- A. Prevent surface and subsurface water from flowing into excavations and trenches and from flooding the site and surrounding area.

3.6 PLACING FILTER FABRIC

- A. Place and overlap filter fabric in accordance with the manufacturer's installation instructions, unless otherwise shown. Backfill over fabric in accordance with the manufacturer's instructions and in a manner so as to prevent damage to the fabric.

3.7 PLACING FILL AND BACKFILL

- A. Surface Preparation of Fill Areas: Strip topsoil, remaining vegetation, and other deleterious materials prior to placement of fill. Break up or scarify old pavements to a maximum of two square feet.
- B. The import of fill will be required for this project. Import fill material mined or excavated from undisturbed geologic formations from a commercial source or quarry that has not been located on or impacted by other contaminant sources based on a preliminary assessment or other site review requires the collection and analysis of one (1) sample per geologic formation per year.
- C. The Contractor shall supply the Owner and LSRP with the results and a letter which states: the name of the affiant and relationship to the source of the fill; the location where the fill was obtained, including the street, town, lot and block, county, and state, and a history of the site which is the source of the fill; and a statement (certification) that to the best of the affiant's knowledge and belief the fill being provided is not contaminated pursuant to any applicable remediation standards and the steps taken to confirm such. The material must be pre-approved by the Owner, LSRP and the Geotechnical Engineer prior to the date of its intended use as backfill at the property.
- D. The Contractor shall provide to the Owner and LSRP the name, location, contact information, and permit/licenses numbers of the proposed source of each material type to be imported to the property, a minimum of ten (10) working days in advance of the proposed material importation.
- E. The Contractor shall provide to the Owner and Consultant/LSRP clean fill documentation as identified in the NJDEP Fill Material Guidance for SRP Sites, latest edition, for each individual material type; a minimum of ten (10) working days in advance of the proposed material importation. Inclusive to this presentation shall be laboratory analytical results (in both hard copy and electronic format (including EDD)).
- F. The Owner and LSRP shall review the clean fill documentation for each individual material type, and provide approval/comment regarding the proposed use of the material(s). The material must be approved by the Owner and the LSRP prior to the date of its intended use as backfill at the property.
- G. The Owner and LSRP have the discretion to deny the proposed material for any reason. Should the material be denied by the Owner and/or LSRP, the Contractor at their own expense, is responsible for identifying another material and/or source, and repeating the submission efforts.
- H. The Owner and/or LSRP reserve the right to sample the proposed fill material and perform laboratory analysis prior to same entering the property.

- I. Excavations: Backfill as promptly as practicable, but only after approval by Neglia Group. Do not backfill with excavated material unless said material meets the requirements of this Section.
- J. Place backfill and fill materials in layers not more than 8 inches thick in loose depth unless otherwise specified. Before compaction, moisten or aerate each layer as necessary to facilitate compaction to the required density. Do not place backfill or fill material on surfaces that are muddy, frozen, or covered with ice.
- K. Place fill and backfill against foundation walls, and in confined areas (such as trenches) not easily accessible by larger compaction equipment, in maximum 6-inch-thick (loose depth) layers.
- L. Prevent wedging action of backfill against structures by placing backfill uniformly around structure to approximately same elevation in each layer. Place backfill against walls of structures containing basements or crawl spaces only after the first floor structural members are in place.
- M. Under Exterior Concrete Slabs and Steps:
 - 1. Up to Subgrade Surface Elevation: Place selected fill when fill or backfill is required.
 - 2. Subbase Material: Place 12 inches of select granular material over subgrade surface.
 - 3. Under Interior Concrete Slabs:
 - 4. Up to Subgrade Surface Elevation: Place selected fill when fill or backfill is required.
 - 5. Subbase Material: Place 6 inches of select granular material over subgrade surface.
 - 6. Under Pavements and Walks:
 - 7. Up to Subgrade Surface Elevation: Place selected fill when fill or backfill is required.
 - 8. Subbase Material: Place as indicated.
 - 9. Landscaped Areas: Place suitable material when required to complete fill or backfill areas up to subgrade surface elevation. Do not use material containing rocks over 4 inches in diameter within the top 12 inches of suitable material.
 - 10. Plastic Pipe and Cement Water Pipe in Trenches: Place cushion material a minimum of 4 inches deep under pipe, 4 inches on both sides, and 4 inches over top of pipe. Complete balance of backfill as specified.
 - 11. Copper Tubing and Steel Gas Pipe in Trenches: Place cushion material a minimum of 6 inches deep under pipe, 6 inches on both sides, and 4 inches over top of pipe. Complete balance of backfill as specified.
 - 12. Rigid Non-Metallic Conduit: Except where concrete encasement is required, place cushion material a minimum of 4 inches deep under conduit, 4 inches on both sides, and 12 inches over top of conduit. Complete balance of backfill as specified.

3.8 COMPACTION

- A. Compact each layer of fill and backfill for the following area classifications to the percentage of maximum density specified below and at a moisture content suitable to obtain the required densities, but at not less than 3 percent drier or more than 2 percent wetter than the optimum content as determined by ASTM D 698:

Structures: 95%

Concrete Slabs and Steps: 95%

Landscaped Areas: 90%

Pavements and Sidewalks: 95%

Pipes: 95%

3.9 GRADING

- A. Rough Grading: Trim and grade area required by this Contract to a level of 4 inches below the finished grades indicated, unless otherwise specified herein, or where greater depths are indicated. Provide smooth uniform transition to adjacent areas.
- B. Finish Grading: Finish surfaces free from irregular surface changes, and as follows:
- C. Grassed Areas: Finish areas to receive topsoil to within 1 inch above or below the required subgrade surface elevations.
- D. Walks and Pavements: Place and compact subbase material as specified. Shape surface of areas to required line, grade and cross section, with the finish surface not more than 1/2 inch above or below the required subbase elevation.
- E. Building Slabs: Grade subbase material smooth and even, free of voids, compacted as specified to within 1/4 inch above or below required subbase elevation.

3.10 SUBGRADE SURFACE FOR WALKS AND PAVEMENT

- A. Shape and grade subgrade surface as follows:
- B. Walks: Shape the surface of areas under walks to required line, grade and cross-section, with the finish surface not more than 1 inch above or below the required subgrade surface elevation.
- C. Pavements: Shape the surface of areas under pavement to required line, grade and cross-section, with the finish surface not more than 1/2 inch above or below the required subgrade surface elevation.
- D. Grade Control: During construction, maintain lines and grades including crown and cross-slope of subbase course.
- E. Thoroughly compact subgrade surface for walks and pavement by mechanical rolling, tamping, or with vibratory equipment as approved to the density specified.

3.11 DISPOSAL OF EXCESS AND UNSUITABLE MATERIALS

- A. Remove from the project site and dispose of excess and unsuitable materials, including materials resulting from clearing and grubbing and removal of existing improvements.
- B. Transport excess and unsuitable materials, including materials resulting from clearing and grubbing and removal of existing improvements, to spoil areas away from the project site.
- C. Remove impacted soil in the following manner while under the oversight of the representative/LSRP:
 - 1. The Contractor shall cooperate with the Engineer and representative/LSRP's directives regarding excavation and stockpiling of impacted soil. No soil shall be removed from the excavations as impacted without the approval of the Engineer and representative/LSRP. The Contractor will not be compensated for the unauthorized excavation of impacted soil. The Contractor shall backfill such unauthorized excavation with certified clean fill at no additional cost to the Owner. Impacted soil shall be excavated and placed within the designated areas.
 - 2. Impacted soil excavated shall be stockpiled on 10-mil polyethylene plastic sheeting and covered with the same. Provide adequate means to secure the 10-mil polyethylene plastic sheeting so that the stockpiled soil remains fully covered. Maintain all plastic sheeting, and provide required repairs the sheeting, and/or re-covering of the stockpiled soil as necessary.
 - 3. Install adequate runoff and sediment controls to prevent the migration of contaminated soil or runoff from the stockpiled soil to other areas of the site. Any soil or runoff that migrates from the stockpiled soil to unaffected areas of the property will be the Contractor's responsibility to remediate and dispose of. The Contractor will solely incur these costs.

3.12 FIELD QUALITY CONTROL

- A. Compaction Testing: Notify Neglia Group at least 3 working days in advance of all phases of filling and backfilling operations. Compaction testing will be performed by an independent lab retained by the Contractor to ascertain the compacted density of the fill and backfill materials. Compaction testing will be performed on certain layers of the fill and backfill as determined by project Geotechnical Engineer. If a compacted layer fails to meet the specified percentage of maximum density, the layer shall be recompacted and will be retested. No additional material may be placed over a compacted layer until the specified density is achieved.

3.13 PROTECTION

- A. Protect areas from traffic and erosion, and keep them free of trash and debris.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. The quantity of earthwork, for which payment will be made, will be on a lump sum basis for the item **EARTHWORK** in the Proposal, which the price shall include the furnishing of all materials, labor and equipment and all else necessary therefore and incidental thereto as required for preparation, excavation (including over excavation to the limit shown on the Contract Drawings), support of excavation required for the over excavation, testing (as indicated above), stockpiling, transportation, grading, spreading and compacting all material required for the earthwork operations as specified herein and as indicated within the contract plans or as directed by the Engineer. This includes all existing topsoil to be stockpiled, screened, spread, and utilized as backfill. It is the Contractor's responsibility to compute the amount of earthwork required to construct the proposed improvements.
- B. **It shall be noted that all materials on-site which are to be exported shall be considered non-hazardous contaminated material and shall be tested and disposed of in accordance with this section and other applicable sections herein.**

END OF SECTION

SECTION 311300 – TREE REMOVAL

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Tree Removal shall include the work of cutting, removing and disposing all specifically designated individual trees including all limbs, trunks, stumps and roots and the restoration and replacement of all structures including, but not limited to, curbs, sidewalks, driveway aprons, utilities, vegetation, or other property which may be damaged as a result of the Tree Removal, unless removal and/or replacement of such is outlined in these Specifications and an item included in the Proposal. Tree Removal shall also include the topsoil and seeding or asphalt overlay of all disturbed areas. The removal of trees with size 2"-6" diameters, the cost for this to be included in the site clearing / demolition pay item.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Sidewalks, curbs, driveway aprons, topsoil and seed shall comply with the requirements listed elsewhere in these Specifications.
- B. Any additional material which may be required during construction shall be subject to the approval of the Engineer.

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

State Standard Specifications and Somerset-Union County Soil Conservation District Regulations.

- A. All trees to be removed under this item shall be marked by the Engineer before any Tree Removal. Each tree designated for removal shall be completely removed, except for the stump which shall be grinded to twelve (12) inches below the existing ground surface. Where specified, the sidewalks and curbs shall be removed and the roots under these shall be removed. The disturbed area shall be backfilled with topsoil and seed, or filled with asphalt as herein specified.
- B. Cutting of trees shall be done by competent workman only and in a workmanship like manner. All trees shall be topped and limbed previous to felling, unless otherwise directed by the Engineer. If necessary, trees shall be felled in sections and disposed of to prevent damage to adjacent vegetation, structures, utility wires, or other property.
- C. When or where any direct or indirect damage or injury is done to public or private

property by or on account of any act, omission, neglect or misconduct, on the part of the Contractor in the execution of the work, such property shall be restored by the Contractor, at his expense, to a condition equal to that existing before such damage or injury was done, or he shall make good such damage or injury in such other manner as may be acceptable to the Engineer.

- D. It shall be the responsibility of the Bidders to ascertain, by their own inspection and investigations the sizes and types of trees to be removed and to determine and supply the necessary equipment to perform the work.
- E. All trunks, limbs and branches shall be removed from the site as well as sweeping and removal of all chips to a degree that is satisfactory to the Engineer.
- F. Prior to the removal of any trees, the Contractor shall provide for, if needed, the disconnection of all water, sewer, gas, electric, telephone and cable television service facilities that may interfere with the safe performance of the work. The Contractor shall notify the Municipality and utility companies of the time any such disconnections may be needed and the cost of any and all such utility work, including charges, if any, which may be made by the Municipality and utility companies shall be borne by the Contractor and shall be included in the price bid.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. Payment for Tree Removal shall be made on per unit basis at the price bid for the items **TREE REMOVAL (OVER 6" - 12" DIAMETER); TREE REMOVAL (OVER 12" - 20" DIAMETER); TREE REMOVAL (OVER 24" - 30" DIAMETER)** and **TREE REMOVAL (OVER 30" - 48" DIAMETER)** in the Proposal, which prices shall include all materials, labor, and all else necessary therefore and incidental thereto for the removal of trees as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 312319 – DEWATERING

PART 1 – GENERAL

1.1 DESCRIPTION

- A. The Contractor shall at all times provide ample means and equipment with which to promptly remove and dispose of all water and drainage entering the excavations or other parts of the work, and to keep such excavations dry until the structures to be built therein are completed. In no case will the placing of masonry be permitted with water in the excavation.
- B. Dewatering methods and equipment shall be subject to the approval of Neglia Engineering Associates, and all water removed from the work shall be disposed of in a manner without damage to adjacent properties.
- C. All applicable NJDEP regulations must be maintained with respect to dewatering and discharge. Any applicable Local, County, State, or Federal construction and dewatering permits must be obtained prior to construction by the contractor. The Contractor shall obtain any necessary temporary dewatering permits, as required.
- D. Should dewatering be required, the contractor shall coordinate said effort with the project LSRP to ensure compliance all applicable requirements.
- E. Contractor shall note that dewatering may be necessary for the construction of the proposed improvements and must be anticipated when bidding of the project.

PART 2 – PRODUCTS – Not Applicable.

PART 3 – EXECUTION – Not Applicable.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. No specific payment will be made for dewatering and the cost thereof shall be included in the prices bid for the installation of the proposed concrete ramp. Temporary sheeting of any type used shall also be included in the prices bid for the appropriate pay item.

END OF SECTION

SECTION 312500 – EROSION AND SEDIMENT CONTROL

PART 1 – GENERAL

1.1 DESCRIPTION

- A. The work performed under this item shall include construction of all Best Management Practices (BMPs) soil erosion measures (e.g. inlet filter protection, silt sacks, silt fence, temporary seeding or mulching, stockpile protection, and general soil stabilization).
- B. A soil erosion and sediment control certification will be obtained for the project based on the Soil Erosion and Sediment Control Plan included in the Contract Documents. In the event that the Contractor deviates from the previously-approved plan, it shall be their responsibility to obtain subsequent approval from the Somerset-Union County Soil Conservation District, at no cost to the Owner.
- C. The Contractor shall construct additional stone tracking pads not specifically shown on the plans as necessary to facilitate the mobilization of construction equipment on site.
- D. Furthermore, the contractor shall notify the Somerset - Union Soil Conservation District, in writing, seventy-two (72) hours prior to the start of construction.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Materials shall be in conformance with the Plan and Details, and shall include silt fences, inlet filters, stabilized construction accesses, jute matting, floating turbidity barriers, soil stockpiles, soil membrane, hay bales, Somerset-Union Soil Conservation District.
- B. Temporary matting for construction operations shall be as manufactured by Mabey or approved equal.
- C. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements as well as the following documents:
 - a. New Jersey Department of Environmental Protection (NJDEP) Site Remediation Program (SRP) – Fill Material Guidance for SRP Sites;
 - b. NJDEP SRP – Historic Fill Material Technical Guidance;
 - c. NJDEP – Solid and Hazardous Waste Management Program – Guidance for Characterization of Concrete and Clean Material for Recycling; and
 - d. Site-specific Health and Safety Program (HASP), prepared by the LSRP.

- D. The Contractor shall identify the location and address of the disposal facility. Under no circumstances will any material be exported or imported from the Site without direct approval from Neglia and/or LSRP.

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

- A. State Standard Specifications and Somerset-Union Soil Conservation District Regulations.
- B. All erosion and sedimentation control measures shall be in place prior to any grading operations or construction of proposed facilities and shall be maintained until construction is complete and the construction area is stabilized. After restoration is complete, temporary control measures shall be removed and disposed of properly.
- C. All erosion and sedimentation control measures shall be constructed and maintained in accordance with the "Standards for Soil Erosion and Sediment Control in New Jersey," prepared by the New Jersey State Soil Conservation Committee, current edition.
- D. Disturbed areas that will be exposed in excess of fourteen (14) days shall be temporarily seeded and/or mulched until proper weather conditions exists for establishment of a permanent vegetative cover except in areas where final restoration is expected to be completed within seven days after the completion of construction, in which case no temporary protective measures will be required. If final restoration is expected to begin more than seven days and completed more than thirty (30) days after the start of construction, seeding shall be required for temporary protection, except where seasonal conditions are not suitable for growing vegetation. In this case, mulch may be applied until conditions are suitable for establishing vegetative cover or until final restoration is implemented.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. The quantity of Soil Erosion and Sediment Control Measures, for which payment will be made, will be on a lump sum basis for the item **FURNISH AND INSTALL SOIL EROSION AND SEDIMENT CONTROL DEVICES** in the Proposal, which price shall include the cost of all BMPs, soil erosion measures, construction entrances, general soil stabilization techniques, and maintenance of the measures throughout the duration of construction.
- B. Payment for this item shall include the furnishing of all materials, labor and equipment and all else necessary therefore and incidental thereto.

END OF SECTION

SECTION 321123 – DENSE GRADED AGGREGATE

PART 1 – GENERAL

1.1 DESCRIPTION

- A. This item shall include the placement of ¾" Dense Graded Aggregate (DGA), at the thickness shown on the plans including all necessary excavation and removal of all earth, rock, boulders, brick, stone and concrete masonry, including small structures and other materials encountered. It shall also include all necessary transportation, grading, placement and disposal of material in accordance with all Client, Local, State, and Federal regulations.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. The stone shall be free from pieces coated with clay, caked stone dust and other objectionable materials. It shall not contain more than 5% of weathered and decomposed rock, not more than 5% of stone of types other than the type being used, in accordance with the Specifications, and not more than 7% by weight of flat or elongated pieces. A flat piece shall be one in which the ratio of the width to thickness of its circumscribing rectangular prism is greater than 5:1, and an elongated piece shall be one in which the ratio of the length to width of its circumscribing rectangular prism is greater than 5:1. The percentage of wear shall be determined in accordance with AASHTO Designation T3.
- B. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements as well as the following documents:
 - a. New Jersey Department of Environmental Protection (NJDEP) Site Remediation Program (SRP) – Fill Material Guidance for SRP Sites;
 - b. NJDEP SRP – Historic Fill Material Technical Guidance;
 - c. NJDEP – Solid and Hazardous Waste Management Program – Guidance for Characterization of Concrete and Clean Material for Recycling; and
 - d. Site-specific Health and Safety Program (HASP), prepared by the LSRP.
- C. The Contractor shall identify the location and address of the disposal facility. Under no circumstances will any material be exported or imported from the Site without direct approval from Neglia and/or LSRP.

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

- A. Excavation and backfill of the certified clean Dense Graded Aggregate shall be in accordance with the applicable Sections and/or Subsection for Roadway Excavation of the current NJDOT 2019 Standard Specifications.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. The quantity of Dense Graded Aggregate or Quarry Process Stone, as directed by the Engineer utilized for construction of asphalt pavement surfaces, for which payment will be made, will be on a per square yardage basis for the item **DENSE-GRADED AGGREGATE BASE COURSE, 6" THICK** in the Proposal, which price shall include the cost of all materials, equipment, and labor, including all portions required below grade, and all else necessary therefore and incidental thereto for completion of operations as specified herein and as shown on the plans or as directed by the Engineer.
- B. No specific payment will be made for the utilization of Dense Graded Aggregate or Quarry Process Stone for construction of sidewalk, curb, aprons, reinforced concrete pads, foundations, drainage pipe or any structures not specifically identified in the Quantity and Payment Section A above.

END OF SECTION

SECTION 321216 – HOT MIX ASPHALT BASE COURSE MIX 19M64

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Hot Mix Asphalt Base Course shall be Mix 19M64, as shown on the Construction Drawings. This work shall consist of the furnishing and placing of bituminous stabilized base course, at the various thicknesses after compaction as indicated on the plans, on the prescribed surfaces, and locations in accordance with the Plans, Details and Specifications.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. The composition of the Hot Mix Asphalt Mix 19M64 Course shall be coarse aggregate, fine aggregate, mineral filler and asphalt cement. These shall be as shown in the Standard Specifications, except that the materials shall conform to the requirements as shown for "Stone Mix". All reference to gravel mix is deleted.
- B. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements as well as the following documents:
 - a. New Jersey Department of Environmental Protection (NJDEP) Site Remediation Program (SRP) – Fill Material Guidance for SRP Sites;
 - b. NJDEP SRP – Historic Fill Material Technical Guidance;
 - c. NJDEP – Solid and Hazardous Waste Management Program – Guidance for Characterization of Concrete and Clean Material for Recycling; and
 - d. Site-specific Health and Safety Program (HASP), prepared by the LSRP.
- C. The Contractor shall identify the location and address of the disposal facility. Under no circumstances will any material be exported or imported from the Site without direct approval from Neglia and/or LSRP.

PART 3 – EXECUTION

3.1 CONSTRUCTION

- A. After spreading and strike off, and while hot, each course shall be compacted thoroughly and uniformly by rolling. The rolling shall be done with a three-wheeled, 10-ton roller until the mixture is thoroughly compacted to the satisfaction of Neglia Group.
- B. A tack coat shall be applied to any one or more layers of the Hot Mix Asphalt Mix 19M64, if in the opinion of the Engineer such layer or layers become coated with dust, dirt, or

other foreign material sufficiently to prevent a good bond between the layers of Base Course or between the completed Base Course and Surface Course.

- C. The construction of all hot mix asphalt shall be in accordance with the 2019 NJDOT Standard Specifications.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. No specific payment will be made for HMA Base Course used for backfill of utility trenches. The cost thereof shall be included in the prices bid for the installation of various sizes of the proposed pipe and other structures.
- B. The quantity for which payment will be made, will be the actual tonnage delivered and used. In computing the tonnage, proven truck weights shall govern. The net weight mixture delivered in each truckload shall be determined in the following manner. Each truckload of material delivered shall be weighted by a certified weigh master, on certified scales approved by the Division of Weights and Measures, Department of Law and Public Safety. The weigh master shall furnish to the truck driver duplicate weight slips showing the gross, tare and net weight. To each weight slip shall be affixed his signature and official seal or approved commissioned stamp attesting that he is a duly constituted weigh master. One of these delivery slips shall be furnished to the Engineer's Representative on the project.
- C. No material will be accepted unless accompanied by such a delivery slip, which shall be completely legible and clearly indicate the title of the project for which delivery is intended.
- D. The Engineer shall deduct the weight of all material lost, wasted, damaged or rejected, or laid in excess of the Engineer's direction or contrary to the Specifications, in determining the quantity for payment.
- E. Payment will be made for the actual tonnage of asphalt as above determined, at the prices bid for **HOT MIX ASPHALT BASE COURSE, MIX 19M64, 2" THICK** in the Proposal, which shall include the cost of asphalt, tack coat, all materials, labor, equipment, testing of materials and all else necessary to complete the surface course as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 321217 – HOT MIX ASPHALT SURFACE COURSE MIX 9.5M64

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Hot Mix Asphalt Base Course shall be Mix 9.5M64, as shown on the Construction Drawings. This work shall consist of the furnishing and placing of a bituminous surface course, at the various thicknesses after compaction as indicated on the plans, on the prescribed surfaces, locations, in accordance with the Plans, Details and Specifications.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. The bituminous materials for Mix HMA 9.5M 64 shall consist of asphalt cement. The penetration grade shall be 85/100, conforming to the requirements specified therefore in SubSection 902 – Asphalt; of the NJDOT Standard Specifications unless otherwise directed by the Laboratory. All other materials shall be as shown in the Standard Specifications.
- B. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements as well as the following documents:
 - a. New Jersey Department of Environmental Protection (NJDEP) Site Remediation Program (SRP) – Fill Material Guidance for SRP Sites;
 - b. NJDEP SRP – Historic Fill Material Technical Guidance;
 - c. NJDEP – Solid and Hazardous Waste Management Program – Guidance for Characterization of Concrete and Clean Material for Recycling; and
 - d. Site-specific Health and Safety Program (HASP), prepared by the LSRP.
- C. The Contractor shall identify the location and address of the disposal facility. Under no circumstances will any material be exported or imported from the Site without direct approval from Neglia and/or LSRP.

PART 3 – EXECUTION

3.1 CONSTRUCTION

- A. After spreading and strike-off, and while hot, each course shall be compacted thoroughly and uniformly by rolling. The rolling shall be done with a three-wheeled, 10-ton roller until the mixture is thoroughly compacted to the satisfaction of Neglia Group.

- B. A tack coat shall be applied to any one or more layers of the Hot Mix Asphalt Mix 9.5M64, if in the opinion of the Engineer such layer or layers become coated with dust, dirt, or other foreign material sufficiently to prevent a good bond between the layers of Base Course or between the completed Base Course and Surface Course.
- C. The construction of all hot mix asphalt shall be in accordance with the 2009 NJDOT Standard Specifications.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. The quantity for which payment will be made, will be the actual tonnage delivered and used. In computing the tonnage, proven truck weights shall govern. The net weight mixture delivered in each truckload shall be determined in the following manner:
 - B. Each truckload of material delivered shall be weighted by a certified weigh master, on certified scales approved by the Division of Weights and Measures, Department of Law and Public Safety.
 - C. The weigh master shall furnish to the truck driver duplicate weight slips showing the gross, tare and net weight. To each weight slip shall be affixed his signature and official seal or approved commissioned stamp attesting that he is a duly constituted weigh master. One of these delivery slips shall be furnished to the Engineer's Representative on the project.
 - D. No material will be accepted unless accompanied by such a delivery slip, which shall be completely legible and clearly indicate the title of the project for which delivery is intended.
 - E. The Engineer shall deduct the weight of all material lost, wasted, damaged or rejected, or laid in excess of the Engineer's direction or contrary to the Specifications, in determining the quantity for payment.
 - F. Payment will be made for the actual tonnage of asphalt as determined above, at the prices bid for the item **HOT MIX ASPHALT SURFACE COURSE, MIX 9.5M64, 2" THICK** in the Proposal, which the price shall include the cost of asphalt, all materials, labor, equipment, testing of materials, and all else necessary therefore and incidental thereto for completion as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 321219 – PERVIOUS ASPHALT CHOKER COURSE

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Choker Course shall be AASHTO No. 57, as shown on the Construction Drawings. This work shall consist of the furnishing, cleaning, and placing of stones.

- B. CONTRACTOR SHALL ENSURE TO USE MIRAFI GEOTEXTILE FABRIC - HP270 AS SPECIFIED WITHIN THE GEOTECHNICAL ENGINEERING REPORT "PROPOSED MATTANO PARK IMPROVEMENTS, 360-484 5TH AVENUE, BLOCK 5, LOT 453B, ELIZABETH, NJ, JSC PROJECT NO. 11-247.E1, PREPARED BY JOHNSON SOILS COMPANY, DATED JUNE 10, 2021". IF SETTLEMENT AND CRACKING OCCURS DUE STABILIZATION FABRIC NOT BEING PLACE, THE CONTRACTOR WILL BE REQUIRED TO RE-CONSTRUCT THE PARKING LOT AT NO ADDITIONAL COST TO THE OWNER.**

PART 2 – PRODUCTS

2.1 MATERIALS

- A. The Mix shall consist of open-graded, self-compacting aggregate blend of size 5, 6, and 7 stones.

PART 3 – EXECUTION

3.1 CONSTRUCTION

- A. Top of course should be flat enough to apply asphalt mix on top.

- B. 1-½" clean washed aggregate should be laid.

- D. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements as well as the following documents:
 - a. New Jersey Department of Environmental Protection (NJDEP) Site Remediation Program (SRP) – Fill Material Guidance for SRP Sites;
 - b. NJDEP SRP – Historic Fill Material Technical Guidance;
 - c. NJDEP – Solid and Hazardous Waste Management Program – Guidance for Characterization of Concrete and Clean Material for Recycling; and
 - d. Site-specific Health and Safety Program (HASP), prepared by the LSRP.

- E. The Contractor shall identify the location and address of the disposal facility. Under no circumstances will any material be exported or imported from the Site without direct approval from Neglia and/or LSRP.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. The quantity of pervious asphalt choker course for which payment will be made, will be under the basis for the item **FURNISH AND INSTALL PERVIOUS ASPHALT PAVEMENT SYSTEM WITH STONE AND GEOTEXTILE FABRIC** in the Proposal, which the price shall include the cost of the choker course, all materials, labor, equipment, testing of materials, and all else necessary therefore and incidental thereto for completion as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 321220 – PERVIOUS ASPHALT SURFACE MIX COURSE

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Surface Mix Course shall be Mix OGFC. This work shall consist of the furnishing and placing of a bituminous surface course, at the various thicknesses after compaction as indicated on the plans, on the prescribed surfaces, locations, in accordance with the Plans, Details and Specifications.

- B. CONTRACTOR SHALL ENSURE TO USE MIRAFI GEOTEXTILE FABRIC - HP270 AS SPECIFIED WITHIN THE GEOTECHNICAL ENGINEERING REPORT "PROPOSED MATTANO PARK IMPROVEMENTS, 360-484 5TH AVENUE, BLOCK 5, LOT 453B, ELIZABETH, NJ, JSC PROJECT NO. 11-247.E1, PREPARED BY JOHNSON SOILS COMPANY, DATED JUNE 10, 2021". IF SETTLEMENT AND CRACKING OCCURS DUE STABILIZATION FABRIC NOT BEING PLACE, THE CONTRACTOR WILL BE REQUIRED TO RE-CONSTRUCT THE PARKING LOT AT NO ADDITIONAL COST TO THE OWNER.**

PART 2 – PRODUCTS

2.1 MATERIALS

- A. The composition of the Surface Mix Course shall be aggregate, fine aggregate particles, asphalt binder, and at least 16% voids.

- B. Asphalt Binder shall be polymer modified binder 64E-22 in surface course.

- C. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements as well as the following documents:
 - a. New Jersey Department of Environmental Protection (NJDEP) Site Remediation Program (SRP) – Fill Material Guidance for SRP Sites;
 - b. NJDEP SRP – Historic Fill Material Technical Guidance;
 - c. NJDEP – Solid and Hazardous Waste Management Program – Guidance for Characterization of Concrete and Clean Material for Recycling; and
 - d. Site-specific Health and Safety Program (HASP), prepared by the LSRP.

- D. The Contractor shall identify the location and address of the disposal facility. Under no circumstances will any material be exported or imported from the Site without direct approval from Neglia and/or LSRP.

PART 3 – EXECUTION

3.1 CONSTRUCTION

- A. After spreading and strike-off, and while hot, each course shall be compacted thoroughly and uniformly by rolling. The rolling shall be done with a three-wheeled, 10-ton roller for 2 passes and then with 3.5-ton roller until the mixture is thoroughly compacted to the satisfaction of the Engineer.
- B. A tack coat shall be applied to any one or more layers of the Mix Course, if in the opinion of the Engineer such layer or layers become coated with dust, dirt, or other foreign material sufficiently to prevent a good bond between the layers of Base Course or between the completed Base Course and Surface Course.
- C. Asphalt must be clear for 24 hours after paving to ensure no voids are filled with debris.
- D. The construction of all asphalt shall be in accordance with the 2019 NJDOT Standard Specifications.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. The quantity of pervious asphalt for which payment will be made, will be under the basis for the item **FURNISH AND INSTALL PERVIOUS ASPHALT PAVEMENT SYSTEM WITH STONE, AND GEOTEXTILE FABRIC** in the Proposal, which the price shall include, all materials, labor, equipment, testing of materials, and all else necessary therefore and incidental thereto for completion as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 321540 – CLEAN CRUSHED STONE

PART 1 GENERAL

1.1 DESCRIPTION

- A. The ¾-inch Clean Crushed Stone shall include the furnishing and placing of stones as indications on the Construction Details.

PART 2 – PRODUCTS – Not Applicable

PART 3 – EXECUTION

3.1 MATERIALS – METHODS OF CONSTRUCTION

- A. Clean Crushed Stone shall be uniform in texture and quality and shall conform to the 2009 NJDOT Standard Specifications for Broken Stone and Pipes.
- B. The embankment/erosion control fabric shall be Mirafi 140S, or approved equivalent.
- C. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements as well as the following documents:
 - New Jersey Department of Environmental Protection (NJDEP) Site Remediation Program (SRP) – Fill Material Guidance for SRP Sites;
 - NJDEP SRP – Historic Fill Material Technical Guidance;
 - NJDEP – Solid and Hazardous Waste Management Program – Guidance for Characterization of Concrete and Clean Material for Recycling; and
 - Site-specific Health and Safety Program (HASP), prepared by the LSRP.
- D. The Contractor shall identify the location and address of the disposal facility. Under no circumstances will any material be exported or imported from the Site without direct approval from Neglia and/or LSRP.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. No specific payment will be made for Clean Crushed Stone. The cost for all the work specified above shall be included in the prices bid for the installation of various sizes of the proposed pipe and other structures.

END OF SECTION

SECTION 321613 – CONCRETE CURBS

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Concrete, Depressed, High concrete curb, Header curbs, Mountable Concrete Curb, and Barrier Curbs shall include the excavation and removal of all earth, rock, boulders, brick, stone and concrete masonry, including small structures and other materials encountered of whatever nature, required for the construction of concrete curb of whatever reveal is proposed and as shown on the plans and details. It shall also include the transportation and disposal of the excavated materials; the construction of embankments with the materials excavated; the disposal of unsuitable and surplus materials; and other work as shown on the plans or specified herein.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. 2019 NJDOT Standard Specifications.
- B. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements as well as the following documents:
 - a. New Jersey Department of Environmental Protection (NJDEP) Site Remediation Program (SRP) – Fill Material Guidance for SRP Sites;
 - b. NJDEP SRP – Historic Fill Material Technical Guidance;
 - c. NJDEP – Solid and Hazardous Waste Management Program – Guidance for Characterization of Concrete and Clean Material for Recycling; and
 - d. Site-specific Health and Safety Program (HASp), prepared by the LSRP.
- C. The Contractor shall identify the location and address of the disposal facility. Under no circumstances will any material be exported or imported from the Site without direct approval from Neglia and/or LSRP.

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

- A. Construction shall be in accordance with the applicable Sections and/or Subsections for Curbs within the 2019 NJDOT Standard Specifications.
- B. On-site and Off-site curb shall be as per the Plans and Details.

- C. Excavation and backfill shall conform to the applicable Sections and/or Subsections for Roadway Excavation of the NJDOT Standard Specifications. The backfill and curb foundation shall be well compacted by means of flat-faced mechanical tampers, or by other means to be approved by Neglia Group, and in accordance with the applicable Sections and/or Subsections of the 2019 NJDOT Standard Specifications.
- D. Curbs at handicap ramps shall be depressed so that the top is flush with the adjacent pavement or shoulder surface.
- E. Barrier curbs shall include the required reinforced per the construction details.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. Payment for concrete curbs will be made for the quantity of each, as above determined, measured in linear feet, at the price per linear foot bid for the item **CONSTRUCT 9" X 18" CONCRETE VERTICAL CURB, CONSTRUCT 12" X 18" CONCRETE CURB, CONSTRUCT 12" X 27" HIGH CONCRETE CURB** and **MOUNTABLE CONCRETE CURB** in the Proposal, which the price shall include the cost of backfill, construction of curbs and headers, mountable concrete curb, removal of existing curbs, expansion joints in curb and between curb and adjacent concrete pavement or base course, doweling curbs to pavement, if prescribed, all work included in the two foot pay limit as shown in the detail, and cleaning pavement in connection therewith, all materials, labor and equipment, and all else necessary to construct concrete curbs as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 321623 – CONCRETE SIDEWALK

PART 1 – GENERAL

1.1 DESCRIPTION

- A. This item shall include the construction of Portland Cement Concrete sidewalk, sub-base, and the subgrade therefore, the excavation and removal of all earth, rock, brick, stone and other materials encountered of whatever nature, required for the construction of concrete sidewalk. It shall also include the transportation of excavated materials; the construction of embankments with the materials excavated; the disposal of unsuitable and surplus materials; and other work as herein described. Portland Cement Concrete Sidewalk is hereinafter termed concrete sidewalk. The width of the concrete sidewalks shall be as shown in the site plans.
- B. Concrete Pads, 6" Thick Reinforced, shall include the construction of Portland Cement Concrete and landings and pads (6" thick) as shown on the plans, steel mesh reinforcement, and shall include the excavation and removal of all earth, rock, boulders, brick, sawcutting, stone and concrete masonry, including small structures and other materials encountered of whatever nature, required for the construction of reinforced concrete aprons. Concrete pads shall be constructed as shown on the plans and details. It shall also include the transportation and disposal of the excavated materials; the construction of embankments with the materials excavated; the disposal of unsuitable and surplus materials; and other work as shown on the plans or specified herein.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Materials shall be as those specified for Concrete Sidewalk and Driveways, as specified in 606-Sidewalks, Driveways, and Islands of the 2019 NJDOT Standard Specification.
- B. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements as well as the following documents:
 - a. New Jersey Department of Environmental Protection (NJDEP) Site Remediation Program (SRP) – Fill Material Guidance for SRP Sites;
 - b. NJDEP SRP – Historic Fill Material Technical Guidance;
 - c. NJDEP – Solid and Hazardous Waste Management Program – Guidance for Characterization of Concrete and Clean Material for Recycling; and
 - d. Site-specific Health and Safety Program (HASP), prepared by the LSRP.
- C. The Contractor shall identify the location and address of the disposal facility. Under no circumstances will any material be exported or imported from the Site without direct approval from Neglia and/or LSRP.

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

- A. Methods of construction shall be in accordance with applicable Sections and/or Subsections for Sidewalks and Driveways of the 2019 NJDOT State Standard Specifications.
- B. Excavation shall be in accordance with applicable Sections and/or Subsections of the 2009 NJDOT Standard Specifications.
- C. All concrete sidewalks on-site shall have saw-cut joints, ½-inch-deep, every 5 feet or as indicated on the drawings. **Contractor shall provide a saw-cut joint pattern in the form of a shop drawing submittal.**
- D. All operations pertaining to handling, measuring, and batching materials, and mixing concrete, shall conform to the requirements specified in applicable Sections and/or Subsections for Handling, Measuring, and Batching Materials; and applicable Sections and/or Subsections for Mixing Concrete in the 2019 NJDOT Standard Specifications.
- E. Concrete sidewalks shall be 4 inches thick, to the dimensions specified on the plans.
- F. Concrete curb ramps (either ADA-compliant pedestrian ramps or driveway aprons) and concrete pads shall be 6 inches thick, with reinforcement (per 2019 NJDOT Standard Specifications).

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. The cost of concrete sidewalk, for which payment will be made, will be on a square yardage basis for the items **CONSTRUCT CONCRETE SIDEWALK, 4" THICK** and **CONSTRUCT CONCRETE SIDEWALK, REINFORCED 6" THICK**, in the Proposal, which prices shall include the furnishing of all materials, labor and equipment, and all else necessary therefore and incidental thereto for completion of operations as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 321710 – ADA CONCRETE CURB RAMPS

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Concrete curb ramps shall consist of a ramp area of sloping concrete sidewalk, a landing area of regular concrete sidewalk, public sidewalk curb ramp delineation, detectable warning surface and two transitional sections of sloping sidewalk, all in conformance with the details shown on the plans or as directed by the Engineer. Adjacent curbs shall be transitioned according to the varying heights stipulated in the plans and/or details. Adjacent sidewalks shall be transitioned according to the plans and details.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Materials shall be as those specified for Concrete Sidewalk and Driveways, as specified in Section 607, Sidewalks and Driveways of the N. J. Department of Transportation Standard Specifications.

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

- A. Curb Ramps shall be constructed at the locations shown on the plans or as directed by the Engineer. The sub grade shall be constructed in the same manner as described for sidewalk. Each separate portion of the ramp shall be constructed to conform to the slope designated for that specific section, as shown on the plan detail or as directed by the engineer. Detectable warning surface shall be wet set-in concrete.
- B. It shall be the contractor's responsibility to ensure that all handicap ramps are ADA compliant. This shall include provisions by the contractor to provide spot grades, adequate level readings and elevations. The contractor shall coordinate any field concerns with the Engineer prior to pouring concrete.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. No specific payment will be made for ADA curb ramps and the cost thereof shall be included in the prices bid for the various items within the bid proposal.

END OF SECTION

SECTION 321713.19 – PRECAST CONCRETE WHEEL STOPS

PART 1 – GENERAL

1.1 DESCRIPTION

- A. This work shall consist of installing new precast concrete bumper blocks as indicated on the contract documents.
- B. Precast wheel stops shall consist of the reinforcement, anchoring and concrete wheel stops (also known as concrete bumper blocks) in conformance with the details and at locations shown on the plans or as directed by the Engineer.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Concrete shall be a minimum of 5,000 psi air-entrained concrete or per New Jersey Department of Transportation Specifications.
- B. Wheel-stops shall be with two #4 rebars.
- C. Standard length shall be 6'-0" in length.
- D. Two ¾" diameter thru-holes for anchoring.

PART 3 – EXECUTION

3.1 METHOD OF CONSTRUCTION

- A. Concrete Wheel stops shall be constructed at the locations shown on the plans or as directed by the Engineer. Tapered side design to relieve tension on setting pins. Slots on underside to allow drainage and allow units to be lifted with forklift. Graduated taper on ends.
- B. Concrete and Reinforcement shall meet all New Jersey Department of Transportation Specifications.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. The quantity of Precast Concrete Wheel Stops, for which payment will be made on a per unit basis for the item **CONCRETE BUMPER BLOCK** in the Proposal, which the price shall include the cost of all labor, material and equipment required for purchase and installation to the satisfaction of the Engineer.

END OF SECTION

SECTION 321720 – DETECTABLE WARNING SURFACE

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Handicap accessible curb ramps shall consist of installation of detectable warning surfaces in conformance with the details shown on the plans or as directed by the Engineer and set in concrete.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. DWS Truncated Dome Mats shall be manufactured by:

Detectable Warning Systems
Box 232, 17853 Santiago Blvd., #107
Villa Park, CA 92861
Phone: (866) 999-7452 Fax: (714) 974-3246
(OR APPROVED EQUAL)
Color Shall be SAFETY RED

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

- A. Curb Ramps shall be constructed at the locations shown on the plans or as directed by Neglia Group. The sub grade shall be constructed in the same manner as described for sidewalk. Each separate portion of the ramp shall be constructed so as to conform to the slope designated for that specific section, as shown on the plan detail or as directed by Neglia Group.
- B. Public Sidewalk Curb Ramp Delineation shall be in accordance with applicable Sections and/or Subsections of the Standard State Specifications.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. Payment for Detectable Warning Surface will be made on square yards for the item **DETECTABLE WARNING SURFACE**, in the Proposal, which price shall include the cost of Detectable Warning Surface, all materials, labor, equipment and all else necessary to install the Detectable Warning Surface, in accordance with the Plans and Specifications, or as directed by the Engineer.

END OF SECTION

SECTION 321723 – PAVEMENT MARKINGS

PART 1 – GENERAL

1.1 DESCRIPTION

- A. In this item, the Contractor shall be responsible for applying of white, blue and yellow lines, including, but not limited to, line-striping, handicap parking spaces, parking spaces, center lines, parking striping at fire hydrants, directional arrows, stop lines, or crosswalks, the cleaning of surfaces, furnishing and placing of paint, protecting the wet paint against deformation, smear or smudge, maintenance of traffic on the pavement surfaces and in accordance with layout as shown on plans, or as directed by the Engineer. All striping and pavement marking shall be hot-applied, extruded, long-life, thermoplastic, 90 mils thick.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Materials shall conform with applicable Sections and Subsections for, Long-Life Thermoplastic Traffic Markings of the 2019 NJDOT Standard Specifications.

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

- A. Pavement Line-striping shall be in accordance with applicable Sections and Subsections for, Long-Life Thermoplastic Traffic Markings of the 2019 NJDOT Standard Specifications.
- B. Immediately prior to striping, all dirt, loose chalky paint, or other foreign matter shall be removed from the pavement surface by method to be approved by Neglia Group.
- C. Striping shall not be applied until Neglia Group has approved the degree of cleanliness or condition of the pavement surface.
- D. All painted lines laid improperly, whether they have to do with alignment, pattern, or pavement cleanliness shall be removed, to the satisfaction of Neglia Group, and properly repainted.
- E. The Contractor shall be responsible for the chalking and/or the layout of lines, in accordance with the Plans, or as directed by Neglia Group.
- F. Striping shall not start until 1½ hours has elapsed after sunrise, nor shall it continue after 3:00 p.m., unless otherwise specified by Neglia Group or their Representatives.
- G. Striping shall be applied only on a thoroughly dry surface and during period of favorable weather.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

A. The cost of pavement striping, for which payment will be made on a per linear foot basis as follows:

a. **TRAFFIC MARKING LINES, 4" THICK**

b. **TRAFFIC MARKING LINES, 12" THICK**

in the Proposal, which prices shall include the furnishing of all materials, labor and equipment, and all else necessary therefore and incidental thereto as required for preparing and installing all materials required as specified herein and as shown on the plans or as directed by the Engineer.

B. The cost of pavement markings and symbols, for which payment will be made on a per square foot basis as follows:

a. **TRAFFIC MARKINGS, SYMBOLS**

in the Proposal, which the price shall include the furnishing of all materials, labor and equipment, and all else necessary therefore and incidental thereto as required for preparing and installing all materials required as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 321800 – ARTIFICIAL TURF BASE

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Furnish all labor, materials, tools and equipment necessary to install, in place, aggregate base, curb, drainage and fabric for the artificial turf as indicated on the plans and as specified herein. The installation of all new materials shall be performed in strict accordance with the manufacturer’s written installation instructions, and in accordance with all approved shop drawings.

PART 2 – PRODUCTS

2.2 MATERIALS

- A. The system shall consist of a vertical draining base consisting of the following:

GEOTEXTILE FABRIC

The entire field shall be underlain directly on subgrade by a continuous Mirafi Geotextile Fabric – HP270, as manufactured by Tencate Mirafi, Mirafi HP270, approved or equal.

POROUS STONE BASE

The 12” stone base shall consist of a large base stone and a porous "choking" finish aggregate material. The large stone base layer shall consist of a ASSHTO No. 2 Broken Stone or as per turf manufacturer’s recommendation (10” thick layer). The aggregate "choking" material shall consist of clean, washed, No. 1 Crushed Stone (2” thick layer). All stone must be approved in writing by the turf installer / supplier and must conform to the following gradations:

% PASSING		
SIEVES	BASE STONE	FINISHING STONE
3” or 75mm		
2” or 50mm	100	
1½” or 38mm	90-100	
1” or 25mm	75-100	
¾” or 19mm	65-95	
½” or 12.5mm	55-85	100
3/8” or 9.5mm	40-75	85-100
¼” or 6.3mm	25-65	75-100
US #4 or 4.75mm	15-60	60-90
US #8 or 2.36mm	0-40	35-75
US #16 or 1.18mm	0-20	10-55
US #30 or 600mm	0-7	0-40
US #60 or 250mm	0-5	0-15

US #100 or 150mm	0-3	0-8
US #200 or 75mm	0-2	0-2

RESTRICTIONS:

To ensure structural stability: $D_{60}/D_{10} > 5$ and $1 < \frac{D_{30}^2}{D_{10} D_{60}} < 3$
 Fragmentation must be 100%.

To ensure separation of both stones: $\frac{D_{85} \text{ of finishing stone}}{D_{15} \text{ of base stone}} > 2$
 and $3 < \frac{D_{50} \text{ of base stone}}{D_{50} \text{ of finishing stone}} < 6$

To ensure proper drainage: Permeability of base stone > 500 in/hr (3.5×10^{-1} cm/sec)
 Permeability of finishing stone > 20 in/hr (1.4×10^{-2} cm/sec)
 Porosity of both stones > 25%
 (When stone is saturated and compacted to 95% Proctor.)

Depending on the type of rock present in the crushed stone mix, other mechanical characteristics might be necessary for approval

“Dx” is the size of the sieve (in mm) that lets pass x% of the stone. For example, D₆₀ is the size of the sieve that lets 60% of the stone pass. These sizes, for calculation purposes, may be obtained by interpolation on a semi-log graph of the sieve analysis.

PART 3 – EXECUTION

3.1. CONSTRUCTION

- A. All topsoil, organic, and non-compactable materials shall be removed. The sub-grade slope shall be between 0.5% to 1% from the center of the field to the sidelines. The base installer shall strictly adhere to the installation procedures outlined under this section. Any variance from these requirements must be approved in writing by the manufacturer's representative, and submitted to the Engineer, verifying that the changes do not in any way affect the warranty. The turf manufacturer and turf installer must accept the aggregate base prior to the installation of the synthetic grass system. The surface tolerance shall not exceed 1/4 inch over 10 feet when measured in any direction. Laser grading shall be utilized. The soil bed must be compacted in both directions to attain the specified compaction rate which is generally 95% standard Proctor.
- B. The 10” crushed stone shall be laid without damaging the soil bed. If the required compacted depth of the base course exceeds 10”, the base shall be constructed in 2 or more layers or lifts of approximate equal thickness. Each layer shall be compacted in both

directions to attain the specified compaction rate. The finished crushed stone base shall be sloped 0.5% from the center longitudinal axis towards the sidelines or as specified. The finished crushed stone base surface of the leveling course shall not vary from the specified grade by more than 1/4 inch over 10 feet when measured in any direction.

C. The final grade aggregate layer shall not be more than 2" thick. The final grade material shall be sloped 1% from the center longitudinal axis towards the sidelines unless otherwise specified. The final grade shall be compacted in both directions according to the specifications. Survey to be performed and submitted by Contractor within one week of completion of stone layer.

D. Contractor to make new grade adjustment immediately thereafter.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

A. Artificial Turf Base will not be measured under a separate item. Quantity and Payment for this item, including stone, curb, fabric, and all materials, labor and equipment and all else necessary therefore and incidental thereto, shall be included in the square yard price bid for **FURNISH AND INSTALL ARTIFICIAL TURF FIELD STONE BASE, CURB, AND GEOTEXTILE FABRIC SYSTEM** in the Proposal.

END OF SECTION

SECTION 321813 – ARTIFICIAL TURF (NOT IN CONTRACT)

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. **The work under this section is shown for information purposes only. The contractor shall not be responsible for the furnishing and installation of the turf and associated striping but shall be responsible to prepare the surface to finish grade for turf installation by others. The contractor will be responsible for the submission of a formal As-Built drawing to confirm the header curb and field sub-grade elevations prior to the actual turf installation. Site meeting with the contractor, the engineer, the owner and the turf installer/manufacture will be required to provide a satisfactory transition to the next project phase.**
- B. The work under this section shall consist of furnishing all labor, materials, and equipment necessary to install, in place, all synthetic turf and other materials as indicated on the plans and as specified herein. The installation of all new materials shall be performed in strict accordance with these specifications, the manufacturer's instructions and in accordance with all details and shop drawings.

1.3 SUBMITTALS

Items A, B, F, G, and H must be submitted with the bid.

- A. Product Data: For each type of product indicated. Includes product cut-sheets proving compliance with this specification.
- B. The contractor shall provide the following samples of the artificial turf system for this project:
 - 1. A 12-inch x 12-inch minimum infilled sample of the exact synthetic turf system being proposed for this project.
 - 2. Infill mix in accordance with product specifications.
- C. Synthetic turf system shall be approved as ADA Handicap accessible as determined by Test Method ASTM 1951-99 (Standard Specification for determination of accessibility of surface under and around playground equipment).
- D. All components of the synthetic turf system must indicate detection levels below those levels established in Table 1A - Residential Direct Contact Health Based Criteria and Soil Remediation Standards (mg/kg) N.J.A.C. 7:26D (Remediation Standards).
- E. Shop Drawings: Show fabrication and installation details for synthetic turf including, but not limited to:
 - a. Proposed locations of all seams in fabric surfacing.

- b. Field lining and marking - Submit a complete scale and dimensional drawing of inlaid or tufted-in field lines and marking boundaries. Include graphics for end zones for approval as well.
 - c. This shall be submitted prior to field fabrication for approval.
 - d. 3rd party ASTM testing proving compliance with this specification.
- F. Manufacturer Certificates: Certified list of two (2) existing installations of a long pile synthetic turf and sand/rubber infill system with a nylon or polypropylene or polyethylene thatch layer in the last three years, including Owner Representative and telephone number, attesting compliance with quality assurance information. All must be located within the continental United States.
 - G. Qualification Data: The turf contractor/manufacturer must have 100 full-sized sand/rubber infill fields that have been in use for a minimum of three years all being located in the Continental United States in locations similar in climate to the Northeast United States.
 - H. Sample Warranty & Sample 3rd Party Insurance Policy: Provide a sample pre-paid third party insured warranty & sample manufacturer's warranty with the bid. Policy must be in force at the time of bid. Submission must comply with Section 1.5 Warranties.
 - I. Maintenance and Operations Data: At the completion of the project submit 3 complete sets, in manual form, of all the manufacturer's recommended procedures and materials for, but not limited to general maintenance, line/marketing installation, small repair procedures, cleaning, etc.

1.4 QUALITY ASSURANCE

- A. All components and their installation method shall be designed and manufactured for use on outdoor athletic fields. The materials as hereinafter specified, should be able to withstand full climatic exposure in the Northeast USA, be resistant to insect infestation, rot, fungus and mildew; to ultra-violet light and heat degradation, and shall have the basic characteristic of flow-through drainage allowing free movement of surface run-off through the turf and directly into prepared granular base and into the field drainage system.
- B. The synthetic turf manufacturer shall be of national reputation with systems that have been in use at all levels of competition, including professional and collegiate levels of football and soccer and shall have been in use for a period of not less than three years. The turf fabric shall be produced by the manufacturer and installed by factory-authorized distributors directly employing the installation crew.
- C. The turf manufacturer must be experienced in the manufacture of synthetic turf. The turf manufacturer shall have completed installations in the United States and have completed at least two hundred (200) installations within the last two (2) years in the Continental United States.

- D. The turf manufacturer must have installed at least five (5) fields of tufted polyethylene fiber with a secondary nylon or polypropylene or polyethylene thatch layer tufted through a porous secondary backing with silica sand & SBR rubber infill.
- E. Prior to approval of a specified synthetic turf system, the company shall specify in writing that their turf system does not violate any other manufacturer's patents allowed or patents pending.

1.5 WARRANTIES

- A. in materials and installation workmanship of the turf for a period of eight (8) years from the date of substantial completion. The turf manufacturer must verify that their representative has inspected the installation and that the work conforms to the manufacturer's requirements and any written directives. The manufacturer's warranty shall include general wear and damage caused from UV degradation. Other items that must be addressed include the following:
 - 1. Acceptable uses for the field.
 - 2. Fading.
 - 3. Color match within specifications.
 - 4. Excessive fiber wear.
 - 5. Wrinkling and panel movement.
 - 6. Shock absorbency (Gmax) not to exceed 175.
 - 7. Drainage (through the turf only).
 - 8. Flammability.
- B. The manufacturer's warranty shall be fully third party insured, through a pre-paid policy of 8 years and be non-prorated. Warranties that include language which pro-rates benefits shall not be accepted. Prior to final payment for the synthetic turf, the Contractor shall submit to the Owner, this policy guaranteeing the warranty to the Owner. Insurance must reflect the following values:
 - 1. Must provide coverage for \$7 million dollars per claim of total installed turf for removal, disposal and replacement of new synthetic turf.
 - 2. Must have a minimum of a \$15 million dollar annual aggregate towards repairs/replacements in a given policy year. The annual aggregate shall be applied only to policies executed in the 12 month policy window. Every annual policy year, another \$15 million worth of annual aggregate shall be set aside for the policies executed in that policy year.
 - 3. Policy must be in-force at time of bid.
 - 4. Policy must be issued by an A-rated or greater A.M. Best Rating
 - 5. Must be pre-paid for the entire 8 years.
 - 6. Policies that include self-insurance or self-retention clauses shall not be considered.

7. Sample copy of this policy must be provided with the bid detailing compliance with policy limits as described.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

“Not Used” – The phrase means no manufacturer is specified. Bidders are directed to provide a manufacturer which meets the specification requirements for the material.

2.2 MATERIALS

- A. Synthetic Turf System: A complete synthetic turf system consisting of a minimum of 2" 100% polyethylene with a combination of extruded spined monofilament & slit-film polyethylene fiber and shorter texturized nylon or polypropylene or polyethylene monofilament thatch fiber tufted to a minimum two -part woven backing primary backing. The spined monofilament shall be a minimum 10,000 denier. The fiber shall be specifically designed to virtually eliminate abrasion.
- B. The tufted fiber shall not weight less than 60 ounces per square yard. The tufted rows of fibers are to be spaced no more than ½" apart. The tufted carpet shall consist of both spined monofilament & slit-film polyethylene fibers and texturized monofilament thatch fiber.
- C. The carpets' primary backing shall be a minimum of 6.5 oz/sy thick and coated with a secondary backing of polyurethane at a minimum application rate of 22 oz/sy. Non-perforated carpet shall not be accepted.
- D. The carpet shall be delivered in 15' wide rolls. The rolls shall be of sufficient length to go from sideline to sideline. Head seams, other than at sidelines, will not be acceptable.
 1. The pile surface shall provide good traction in all types of weather with the use of conventional sneaker type shoes, composition sole athletic shoes, baseball spikes and screw-on football spikes.
 2. The pile surface shall be suitable for both temporary and permanent line markings using acrylic paint, as per the manufacturer's recommendations.
 3. All synthetic turf seams shall be glued.

2.3 FABRIC SURFACE

- A. The pile surface shall resemble freshly mown natural grass in appearance, texture and color.
- B. The pile surface shall be nominally uniform in length.
- C. The pile fiber angle shall be 90 degrees + 15 degrees, measured from the horizontal after installation of the infill material.
- D. The synthetic turf system shall have a nominal fiber length of 2".
- E. Each roll shall be minimum 15' wide.
- F. Synthetic turf system shall be perforated at 4-6" on center. Systems that are not perforated for maximum drainage shall not be acceptable.

2.4 PILE YARN SPECIFICATIONS

- A. Yarn shall be proved athletic quality yarn designed specifically for outdoor use and stabilized to resist the effects of ultraviolet degradation, heat, foot traffic, water and airborne pollutants. The fabric shall possess the following minimum physical characteristics. ASTM testing shall be provided with the bid and any products not meeting the minimum characteristics will be rejected.

1. Polyethylene Yarn Denier (minimum)	10,000
2. Texturized Yarn Denier (minimum)	4,200
3. Pile Height (nominal)	2"
4. Pile Ribbon Face Weight	60 oz/sy
5. Tufting Gauge	1/2" maximum
6. Primary Backing Weight	6.5 oz/sy
7. Secondary Backing Weight	22oz/sy
8. Total System Weight	86 oz/sy
9. Tuft Bind	>9 lbs
10. Carpet Percolation Rate	>30 in/hr
11. Grab Tear Strength	>200 lbs/force

2.5 INFILL MATERIAL

- A. Infill particles shall be recycled granulates SBR rubber, free of belting fabric and/or wire, with a minimum fill height necessary to achieve the required shock absorbing properties and silica sand. Manufacturer shall provide a cross section indicating fill materials with specific system dimensions of materials to be used with a minimum of three and a half (3.5) pounds per square foot of rubber and a minimum of two and a half (2.5) pounds per square foot of silica sand.
- B. Infill materials: Infill materials are comprised of a base layer of silica sand (minimum of three and a half (3.5) pounds per square foot) and a top layer of SBR rubber (minimum of two and a half (2.5) pounds per square foot) placed on top of the synthetic turf backing and dressed between the synthetic surface fibers.

2.6 SYNTHETIC TURF GROOMER

- A. Groomer - Contractor shall supply a Manufacturer recommended grooming system as part of the price for the synthetic turf. The groomer shall include a deep rake that penetrates the infill and sweep away debris. This should include all necessary equipment to properly clean and maintain the turf. The equipment should be capable of being pulled behind a standard tractor or utility vehicle. No additional payment will be made for providing the equipment.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for maximum moisture content, installation tolerances, and other conditions affecting performance of work. Proceed with installation only after satisfactory conditions have been corrected.
- B. Certification of prior work: The synthetic turf manufacturer and/or installation contractor shall perform an inspection of the field base onto which the synthetic turf system is to be installed and to examine the finished surface for required compaction, permeability and grade tolerances (through string line testing). After any discrepancies between the required materials, application and tolerance requirements noted have been corrected, the synthetic turf installer should submit a written certification of VISUAL acceptance of the base for installation of the synthetic turf system. Any tests other than VISUAL tests (string line, water hose, etc.) shall be the responsibility of the General Contractor or Design Professional.
- C. Installation of all materials shall be performed in full compliance with approved project shop drawings. Only factory trained technicians skilled in the installation of athletic caliber synthetic turf systems, working under the direct supervision of the manufacturer's supervisors, shall undertake the placement of the turf system. The designated Supervisory personnel on the project must be certified, in writing by the turf manufacturer as competent in the installation of these materials, including sewing seams and proper installation of the infill mixture. The manufacturer shall certify the installation and warranty compliance.
- D. Inspect delivered field surface fabric and components immediately prior to installation. Any damaged or defective items shall be rejected. Installed artificial system shall be inspected for, but not limited to, the following:
 - i. Uniformity of product and color.
 - ii. Surface bubbles.
 - iii. Field markings.
 - iv. Field Edge installation.
 - v. Pile height of each roll shall be measured. Any material(s) that does not meet minimum height and thickness specifications shall be rejected.
 - vi. Pile height shall be measured in its finished positions.
- E. All installation shall be completed in strict accordance with the manufacturer's current printed installation instructions as approved by the Engineer.
- F. Environmental Conditions: Weather conditions are important for the successful installation of the systems. No work under this section will proceed when:
 - a. Ambient temperatures are below 45 degrees F.
 - b. Material temperatures are below 45 degrees F.

- c. Surfaces are wet or damp.
 - d. Rain is imminent or falling.
 - e. Conditions exist or are imminent, which will be unsuitable to installation requirements of the systems specified herein. Humidity levels will be inside the limits recommended by the adhesive manufacturer to obtain optimum bonding characteristics of the surfaces.
- G. The carpet rolls are to be installed directly over the properly prepared base stone. Extreme care should be taken to avoid disturbing the base stone both in regard to compaction and planarity. A 2-5 ton static roller shall be on site and available to repair and properly compact any disturbed areas of the base stone.
- H. The full width rolls shall be laid out across the field. Utilizing standard state of the art gluing procedures, each roll shall be attached to the next. Each seam will be glued. When all of the rolls of the playing surface have been installed, the sideline areas will be installed at right angles to the playing field turf. All work shall be such that seams shall remain as required for the duration of the warranty period at a minimum. All seam widths are to be held to a minimum and shall be traverse to the field direction. Seams shall be flat, tight and permanent, with no separation or fraying.
- I. The perimeter of the field shall be firmly secured to the edge anchors for the life of the warranty and in accordance to project details.
- J. Resilient Infill: The infill material shall be spread evenly with a large spreader (minimum 5-foot wide). Between applications the infill area shall be brushed with a motorized rotary nylon broom.
- a. Inlays shall conform to the manufacturer's specifications, directions and recommendations for the best results.
 - b. Striping layout shall be accurately surveyed by the Contractor before installation of inlaid filed markings.
 - c. Install inlays only when the surface is completely dry. Adhere all inlays securely into place. Never loose-lay and sew an inlay into place.

3.2 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Testing Services: Testing and inspecting of completed applications of synthetic turf system shall take place in suggestive states, in areas of extent and using methods that are industry standard. Do not proceed with application of next stages until test results for previously completed applications show compliance.
- C. Remove and replace items where test results indicate that it does not comply with specified requirements.

3.3 FINAL ACCEPTANCE

- A. Prior to final acceptance, the Contractor shall submit to the Owner three (3) copies of Maintenance Manual, which will include all necessary instructions for the proper care and preventative maintenance of the synthetic turf system, including painting and striping.
- B. The Contractor shall provide evidence that the turf can be plowed with conventional rubber bladed snow removal equipment.
- C. The finished playing surface shall appear as mowed grass with no irregularities and shall afford excellent traction for conventional athletic shoes for all types. The finished surface shall resist abrasion and cutting from normal use.

3.4 CLEANING

- A. Contractor shall provide the labor, supplies and equipment as necessary for final cleaning of surfaces and installed items. All usable remnants of new material shall become the property of the Owner. The Contractor shall keep the area clean throughout the project and clear of debris. Surfaces, recesses, enclosures, etc. shall be cleaned, as necessary, to leave the work area in a clean, immaculate condition ready for immediate occupancy and use by the Owner.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. **The furnishing and installation of the Artificial Turf will be performed by others.** The Contractor is responsible to prepare the base material and header curb in preparation for others to install the turf.

END OF SECTION

SECTION 321814 – TURF EDGE

PART 1 – GENERAL

1.1 DESCRIPTION

- A. This item shall include the construction of 12" x 12" Concrete Curb and 12" wide, with attached nailer around the outside of the artificial turf field, the attachment of the synthetic turf to the curb, the excavation and removal of all earth, rock, boulders, brick, stone and concrete masonry, including small structures and other materials encountered of whatever nature, required for the construction of concrete curb. It shall also include the transportation of the excavated materials; the construction of embankments with the materials excavated; the disposal of unsuitable and surplus materials; and other work as shown on the plans or specified herein.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Class B concrete shall be used throughout.

PART 3 – EXECUTION

3.1 CONSTRUCTION

- A. Excavation and backfill shall conform to the requirements of NJDOT Specifications Section 202 - Excavation. The backfill and curb foundation shall be well compacted by means of flat-faced mechanical tampers, or by other means to be approved by the Engineer.
- B. Curbs shall be constructed in accordance with Section 607 – Curbs of the NJDOT specifications.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMEN

- A. Quantity and Payment for this item, and all costs related thereto, shall be included in the paid item for **FURNISH AND INSTALL ARTIFICIAL TURF FIELD STONE BASE, CURB, AND GEOTEXTILE FABRIC SYSTEM** in the Proposal.

END OF SECTION

SECTION 321828 – TENNIS COURT PAVEMENT SURFACE COAT

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This specification covers the application of a new wearing surface texture for Plexipave Tennis Courts and new or existing asphalt concrete Tennis Courts that have a sound, well-drained base of adequate thickness and stability. Existing surfaces should be properly sloped for good drainage, and free from cracks. The process consists of the repair of any minor depressions, followed by application of the Plexipave System or approved equal.
- B. NOTE: The success of the all-weather characteristics of resurfacing is dependent on a sound base (with good drainage) and asphalt concrete meeting the requirements of The National Asphalt Paving Association and the U.S. Tennis Court and Track Builders Association. Surface variation should not exceed 1/8 inch in ten feet. When measured in any direction with a straightedge and a slope of 1 inch in 10 feet, all in one plane.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Tennis Court Surface Coat shall be the “Plexipave Acrylic Latex Pavement Surfacing” as manufactured by:

PLEXIPAVE
150 Dascomb Road
Andover, MA 01810 USA
1-800-225-1141
(Or Approved Equal)

COLOR SHALL BE AS PER OWNER

PART 3 - EXECUTION

3.1 METHODS OF CONSTRUCTION

A. SURFACE PREPARATION

- 1. The surface to be coated must be sound, smooth, and free from dust, dirt or oily materials. Prior to the application of surfacing materials, the entire surface should be flooded, and checked for minor depressions or irregularities. Any puddled area covering a nickel shall be marked and repaired with Court Patch Binder using the following mix:
 - a. 100 lbs. 60 – 80 mesh silica sand (dry)
 - b. gallons Plexipave Court Patch Binder

- c. 1 to 2 gallons Portland Cement (dry) (depending on humidity and temperature)
- d. Tack coat consisting of 1 part Court Patch Binder and 2 parts water shall be applied to the patch areas and allowed to dry thoroughly prior to patching. For more information see CPC Specification 10.14 or 10.21.
- e. After patching, the surface shall not vary more than 1/8 inch in ten feet measured in any direction.
- f. In order to provide a smooth, dense underlayment for the system, one application of California Acrylic Resurfacer or approved equivalent shall be applied to the surface to obtain a coverage of 15 – 20 sq. yds. Per gallon (.07 - .05 gallons per square yard). No application shall be covered by a succeeding application until thoroughly cured. Dilution with water and sand is required utilizing the following mix:
 - 1. Acrylic Resurfacer 55 gallons
 - 2. Water (Clean and Potable) 20-40 gallons
 - 3. Sand (45-60 Mesh) 600 – 900 lbs.
 - 4. Liquid Yield 112 – 138 gallons

B. FORTIFIED PLEXIPAVE

- 1. Fortified Plexipave or approved equivalent shall be applied by rubber bladed squeegee on the clean, dry surface in 3 applications to obtain a total quantity of not less than .15 nor more than .23 gallons per sq. yd. of area, based on the material prior to any dilution. No application shall be covered by a succeeding application until thoroughly cured. Fortified Plexipave can be job mixed as follows:
 - a. Plexipave Color Base 30 gallons
 - b. Plexichrome 20 gallons
 - c. Water 20 gallons
- 2. The diluted material shall be homogenous. Segregation before or during application will not be permitted.
- 3. The finished surface shall have a uniform appearance and be free from ridges and tool marks.

C. PLAYING LINES

- 1. Four hours minimum after completion of the color resurfacing, 2-inch wide playing lines shall be accurately located, marked, and painted with Line Paint as specified by U.S. Tennis Association.

D. LIMITATIONS

- 1. No part of the construction involving the Plexipave System or approved equal shall be conducted during rainfall, or when rainfall is imminent. The air temperature must be at least 50°F and rising. Do not apply when surface temperature is above 140°F. The

Plexipave System or approved equal will not prevent surface or structural cracks from reoccurring.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. Tennis Court Surface Coat will be measured on a square yard basis for bid item **FURNISH AND INSTALL TWO TONE ACRYLIC TENNIS COURT COATING SYSTEM** in the Proposal, which the price shall include the furnishing and full installation, including disposal of excess material, all material including but not limited to, all primers, topcoat, line striping and binder, and all else necessary therefore and incidental thereto for a complete tennis court pavement surface coat as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 321829 – TENNIS COURT LINE PAINT

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Highly reflective marking paint for use over any bituminous surface or color coating system in recreational or light traffic areas. The finished application is non-glaring, highly resistant to climatic conditions, fast drying easily applied, and provides excellent hiding. Plexicolor Line Paint will not cause crazing, cracking, peeling, or deterioration to asphalt that is typical of solvent-type traffic paints. Also available as a texture line paint coatings fine silica fillers.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Line Paint shall be the “Hi-Hide Plexicolor Line Paint Textured” as manufactured by:

PLEXIPAVE
150 Dascomb Road
Andover, MA 01810 USA
1-800-225-1141
(Or Approved Equal)

COLOR SHALL BE AS PER OWNER

PART 3 - EXECUTION

3.1 METHODS OF CONSTRUCTION

A. APPLICATION

- 1. Roller or Spray and Marking

B. DRYING TIME

- 1. 30 minutes to one hour – 1 coat.

C. COVERAGE

- 1. Approximately 150-200 square feet per gallon (One gallon generally required for one doubles Tennis court, 481 linear feet – 2” wide).

D. LIMITATIONS

- 1. Apply only when ambient temperature is 50°F and rising.
- 2. Do not apply when rain or high humidity is imminent,

3. Not for application on general use roadways subjected to skidding tires, snowplows, or chains.
4. Keep from freezing. Do not store it in hot sun.
5. Keep containers tightly closed when not in use.
6. Do not apply when surface temperature is less than 50°F or more than 140°F.
7. Allow asphalt to cure at least 14 days.

E. PLEXICOLOR LINE PAINT

1. The Line Paint, as designated on drawings and in specifications, for use over asphaltic and tar emulsion surfaces including slurry coats, shall conform to the following characteristics and performance:
2. The paint shall be a 100% acrylic emulsion type containing no alkyds, butadiene styrene, or vinyls and shall be thinned with water only. The paint shall also be suitable for application by brush, spray, or roller.
3. All materials used in the manufacturing of paint shall be of good commercial quality entirely suitable for the purpose intended under normal conditions for use. For white color, the opaque portion of the pigment shall be rutile titanium dioxide and the vehicle shall consist of 100% acrylic polymer dispersed in water together with the minimum amounts of necessary additives; such as pigment dispersents, anti-foaming agents, and preservatives; but no driers shall be used.
4. The white paint shall meet a minimum requirement of total solids (percent by weight or paint) of 51.5% and a maximum pigment content (percent by weight of paint) of 36%. The white paint shall contain not less than three pounds per gallon of treated rutile titanium dioxide. A minimum fineness of grind of 4 and a viscosity (Krebs Units) of 80 minimum and 95 maximum is required. The paint shall brush easily and have good flowing, leveling, and spreading characteristics and shall be suitable for application by spray equipment or rollers

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. Tennis Court Line Paint will be measured on a per unit basis for bid item **FURNISH AND INSTALL TENNIS COURT STRIPING, COMPLETE** in the Proposal, which the price shall include the furnishing and full installation, including disposal of excess material, all material including but not limited to, all primers, topcoat, line striping and binder, and all else necessary therefore and incidental thereto for a complete tennis court and pickleball courts pavement surface coat as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 323113 – CHAIN-LINK FENCE AND GATES

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Chain Link Fence shall include the furnishing of materials and the erection of Black Vinyl Coated Chain Link Fence, varying sized Swing Gates w/ Hardware in accordance with the Contract Plans, Specifications, and the direction of the Engineer.

PART 2 – PRODUCTS

2.1 MATERIALS

A. STEEL POSTS, RAILS, AND BRACES

1. All Structural and Roll-Formed shapes shall conform to provisions of ASTM A123 for galvanized coating. All tubular members shall comply with provisions of ASTM A120, Schedule 40, for weight and coating.

B. END, CORNER AND PULL POST

1. Fence: Up to 8 feet in Height: 3.00 inch O.D., galvanized Schedule 40 Pipe, with a minimum bending strength of 381 lbs.
2. Fence: 20 feet in Height: 4.00 inch O.D., galvanized Schedule 40 Pipe.

C. LINE POSTS (10 FOOT MAXIMUM SPACING)

1. Fabric: Up to 8 feet in Height: "C" Section, Standard Roll-Formed, 2.50 inch O.D., galvanized Schedule 40 Pipe.
2. Fabric: 20 feet in Height: "C" Section, Standard Roll-Formed, 3.50 inch O.D., galvanized Schedule 40 Pipe.

D. GATE POSTS

1. Gate Leaves - Up to and Including 6-Foot-Wide: Roll-Formed Section (2.50 inch O.D., Schedule 40 Pipe.)
2. Gate Leaves over 6-feet-wide: 2.50 inch O.D., Schedule 40 Pipe.

E. TOP RAIL, MID-RAIL & BOTTOM RAIL

1. 1-5/8 inch O.D., Schedule 40 Pipe, with minimum bending strength of 202 pounds. Furnish in manufacturer's standard lengths of approximately 21 feet with couplings approximately 6 inches long for each joint; one coupling in each five shall have an expansion spring. Provide means for attaching top rail securely to each gate, corner, pull and end posts. Top rail shall form continuous brace from end-to-end to each run of fence.

F. POST BRACING ASSEMBLY

1. Shall match top rail. Brace rail assembly shall be complete with 3/8-inch diameter rod and adjustable take-up.

G. CHAIN-LINK FABRIC

1. One piece fabric widths for fences up to 12 feet; 2 inch mesh, #9 gauge, as indicated on contract drawings. Fence Fabric shall be coated with Black PVC or polyolefin elastomer coating, 7 mil thickness minimum, thermally-fused.
2. SELVAGE EDGES
 - a. Fabric in heights of 60 inches and under shall be knuckled at both selvages. Fabric 72 inches and over shall be knuckled at bottom selvage and twisted and barbed at top.
3. FINISHES
 - a. Black vinyl-coating conforming to ASTM F 668 Class 2b, fused and adhered.

H. ACCESSORIES

1. All accessories, shall be black vinyl-coated.
2. STRETCHER BARS
(For tubular end, corner, pull or gate posts only)
 - a. One piece lengths equal to full height of fabric with a minimum cross-section of 1 inch x 3/4 inch. Provide one stretcher bar for each gate and end post, and two for each corner and pull post.
3. STRETCHER BAR BANDS
 - a. Heavy pressed steel, spaced not over 15 inches O.C. to secure stretcher bars to tubular end, corner pull and gate post.
4. POLYCAP FENCE GUARD
 - a. Provide PolyCap fence guard for 4-foot-high permanent outfield fencing. PolyCap shall be weather treated and UV-protected 4½-inch-diameter polyethylene. Secure PolyCap with matching ties every three feet.

I. GATES

1. Fabricate Gate Perimeter Frames of 2.50 inch O.D. tubular members, Vinyl Coated Galvanized ASTM A120. Provide additional horizontal and vertical members to insure proper gate operation and for attachment of fabric, hardware and accessories.
2. Assemble gate frames by welding or fittings and rivets for rigid connections. Use same fabric as for fence, unless otherwise indicated. Install fabric with stretcher bars at vertical edges, and tie at top and bottom edges. Attach stretcher bars to gate frame at not more than 15 inches O.C. Attach hardware with rivets or by other means which will provide security against removal or breakage.

3. Provide diagonal cross-bracing consisting of 3/8-inch-diameter adjustable length truss rods on gates where necessary to provide frame rigidity without sag or twist.
4. GATE HARDWARE
 - a. Provide the following hardware and accessories for each gate, finish shall be black vinyl-coating:
 - b. Hinges: Pressed steel or malleable iron to suit gate size, non-lift-off-type, offset to permit 180-degree gate opening. Provide one pair of hinges for each leaf.
 - c. Latch: Forked type or plunger bar type to permit operation from either side of gate. Provide padlock eye as integral part of latch.
 - d. Keeper: Provide keeper for all vehicle gates, which automatically engages the gate leaf and holds it in the open position until manually released.
 - e. Double Gates: Provide gate stops for all double gates, consisting of mushroom-type or flush plate with anchors. Set in concrete to engage the center drop rod or plunger bar. Provide locking device and padlock eyes as an integral part of the latch, requiring one padlock for locking both gate leaves.
 - f. Sliding Gates: Provide manufacturer's standard heavy-duty track, ball bearing hanger sheaves, overhead framing and supports, guides, stays, bracing, and accessories as required.

J. MISCELLANEOUS MATERIAL AND ACCESSORIES

1. WIND SCREEN

- a. SAFETY RAIL by Tomark Sports, Inc. Model No. 15247 (Dark Green) or approved equal.

2. WIRE TIES

- a. For tying fabric to line posts use 6 gauge steel wire clips for "C" Section posts, and minimum 9 gauge aluminum wire ties for tubular posts, spaced 10 inches O.C. For tying fabric to rails and braces use 9 gauge aluminum wire ties spaced 24 inches O.C. For tying fabric to tension wire use 11 gauge hog rings spaced 24 inches O.C.

3. CONCRETE

- a. Provide concrete consisting of Portland Cement complying with ASTM C150, aggregates complying with ASTM C33, and clean water. Mix materials to obtain concrete with a minimum 28 day compressive strength of 2,500 psi, using at least four sacks of cement per cubic yard.

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

- A. The chain-link fence shall be erected in accordance with the details and to the lines and grade as indicated on the Contract Plans, or as directed by the Engineer, and shall also comply with current practice for fence construction, as recommended by the manufacturer and subject to the approval of the Engineer.
- B. The Contractor shall clear the line of fence of all obstruction and dispose of such materials, all as directed by the engineer.
- C. Terminal posts shall be located at the beginning and end of each continuous length of fence construction and at abrupt changes on vertical and horizontal alignment, as shown on the Contract Plans, or as directed by the Engineer.
- D. All posts shall be set in concrete as shown on the Contract Plans and shall be installed plumb, with tops properly aligned.
- E. Concrete footings shall be constructed in accordance with the detail plans and requirements of Section 501 - Concrete Structures of the NJDOT Standard Specifications.
- F. Forms will not be required and the entire excavation shall be filled with concrete.
- G. Where ledge rock is encountered, the depth of concrete footings for posts may be reduced one-half of that portion of the fence post set below the top of rock, and the diameter of the hole in rock may be reduced to a minimum of 4 inches and filled with mortar.
- H. Aluminum surfaces to be placed in contact with concrete shall be given a coat of zinc chromate primer.
- I. Fence fabric shall face away from the roadway except where otherwise directed by the Engineer.
- J. All carriage bolts shall be installed so as to be non-removable from outside of fence.
- K. Gates shall be single or double gates and of the width as shown on the Contract Plans, and shall be installed to open through a minimum arc of 180 degrees.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. The quantities of Black Vinyl Coated Chain-link Fence, for which payment will be made, will be the actual linear footage of fence constructed and installed in accordance with the

Contract Plans, or as directed by the Engineer. Payment will be made at the price per linear foot bid for the following items:

- a. **FURNISH AND INSTALL 10' HIGH, 1 ¾" MESH, BLACK VINYL COATED CHAIN-FENCE**
- b. **FURNISH AND INSTALL 4' HIGH, BLACK VINYL COATED CHAIN-LINK FENCE**
- c. **FURNISH AND INSTALL 4' HIGH, BLACK VINYL COATED CHAIN-LINK FENCE WITH 16' HIGH ATHLETIC NETTING SYSTEM MOUNTED ABOVE (TOTAL HEIGHT: 20')**

in the Proposal, which prices shall include the furnishing of all materials, foundations, polycap for all outfield fencing, labor and equipment and all else necessary therefore and incidental thereto for a complete system as specified herein and as shown on the plans or as directed by the Engineer.

- B. The quantities of Black Vinyl Coated Chain-link Gates, for which payment will be made, will be the actual quantity of gates installed in accordance with the Contract Plans, or as directed by the Engineer. Payment will be made at the price per unit bid for the following items:

- a. **FURNISH AND INSTALL 4' HIGH, 4' WIDE SINGLE-SWING, BLACK VINYL COATED CHAIN-LINK GATE**
- b. **FURNISH AND INSTALL 4' HIGH, 4' WIDE SINGLE-SWING, BLACK VINYL COATED CHAIN-LINK TRANSOM GATE WITH 16' HIGH ATHLETIC NETTING SYSTEM MOUNTED ABOVE (TOTAL HEIGHT: 20')**
- c. **FURNISH AND INSTALL 10' HIGH, 4' WIDE SINGLE-SWING, BLACK VINYL COATED CHAIN-LINK GATE**
- d. **FURNISH AND INSTALL 4' HIGH, 12' WIDE DOUBLE-SWING, BLACK VINYL COATED CHAIN-LINK GATE**
- e. **FURNISH AND INSTALL 4' HIGH, 12' WIDE DOUBLE-SWING, BLACK VINYL COATED CHAIN-LINK TRANSOM GATE WITH 16' HIGH ATHLETIC NETTING SYSTEM MOUNTED ABOVE (TOTAL HEIGHT: 20')**
- f. **FURNISH AND INSTALL 10' HIGH, 12' WIDE DOUBLE-SWING, BLACK VINYL COATED CHAIN-LINK GATE**

in the Proposal, which prices shall include the furnishing of all materials, foundations, labor and equipment and, all else necessary therefore and incidental thereto for a complete system as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 323133 – FIELD NETTING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This item shall include all labor, material and equipment for furnishing and the complete installation of sports field barrier netting, posts, sleeves and anchors, including all hardware, in accordance with the manufacturer's installation specifications. It shall include the construction of footings and foundations as required along the boundary of the turf field. It shall include the transportation and/or delivery of the equipment, the disposal of any surplus materials, as required and other work as herein described.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Sportsfield Specialties
4155 St. Hwy 10
P.O. Box 231
Delhi, NY 13753
888-975-3343
www.sportsfieldspecialties.com
(Or Approved Equal)

PART 3 - EXECUTION

3.1 METHODS OF CONSTRUCTION

- A. The contractor shall install the system in accordance with manufacturer's specifications. The contractor shall submit shop drawings and designs, signed and sealed by a licensed professional, proving that the system is structurally sound and will withstand wind, ice, snow and other loads appropriate to this area including ice loads and wind loads together.

PART 4 - QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. The quantities of Field Netting, for which payment will be made, will be the actual linear footage constructed in accordance with the Contract Plans, or as directed by the Engineer.
- B. Payment for Field Netting will be made for the linear footage actually constructed, measured at the unit prices bid for the items **FURNISH AND INSTALL SPORTS NETTING SYSTEM, 20' HEIGHT, FURNISH AND INSTALL 4' HIGH, BLACK VINYL COATED CHAIN-LINK FENCE WITH 16' HIGH ATHLETIC NETTING SYSTEM MOUNTED ABOVE (TOTAL HEIGHT: 20')**, and at the per unit basis for the items **FURNISH AND INSTALL 4' HIGH, 4' WIDE SINGLE-SWING, BLACK VINYL COATED CHAIN-LINK TRANSOM GATE WITH 16' HIGH**

ATHLETIC NETTING SYSTEM MOUNTED ABOVE (TOTAL HEIGHT: 20'), and **FURNISH AND INSTALL 4' HIGH, 12' WIDE DOUBLE-SWING, BLACK VINYL COATED CHAIN-LINK TRANSOM GATE WITH 16' HIGH ATHLETIC NETTING SYSTEM MOUNTED ABOVE (TOTAL HEIGHT: 20')** in the Proposal, which the price shall include the furnishing of the net, posts, sleeves, footings, anchors, foundations and all materials, labor and equipment, and all else necessary therefore and incidental thereto.

END OF SECTION

SECTION 323914 – LOCKING REMOVABLE BOLLARDS

PART 1 – GENERAL

1.1 DESCRIPTION

- A. This item shall include all labor, material and equipment to setup and complete the installation of locking removable bollards and concrete foundations as identified herein and on the drawings. This includes all material, labor, equipment, and hardware in accordance with the manufacturer's installation specifications. It shall include the transportation and/or delivery of the locking removable bollards, the disposal of any surplus materials as required, and other work as herein described.
- B. Under this section, the Contractor shall construct, furnish and install Knox box, location to be determined by the County of Union.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Locking Removable Bollard: Shall be item number 400-36 S-1SL, as manufactured by Dumor, Inc., or approved equal, and shall contain the following features:
 - a. 4-inch diameter
 - b. 36-inch height above grade, 78-inch total height
- B. The base plate shall be flush with the ground surface and shall have minimal gapping and no protrusions to prevent tripping hazards.
- C. Contractor shall provide color samples from full available color spectrum to Owner for review and approval prior to ordering.
- D. Contractor is responsible to furnish and install Knox Bos associated with the proposed Lockable Removable Bollards system. Final making model of Knox Box to be confirm with City of Elizabeth Fire Department and County of Union during construction.

PART 3 – EXECUTION

3.1 CONSTRUCTION

- A. All locking removable bollards shall be installed as recommended with manufacturer's written directions, included with product, as indicated on the drawings or as directed by the Engineer.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. The cost of locking removal bollard, for which payment will be made on unit basis for the item **LOCKING REMOVABLE BOLLARDS** in the Proposal, which prices shall include the cost of foundation, the furnishing of all materials, Knox box, tools, labor and equipment, and all else necessary therefore and incidental thereto as required for preparing and installing all materials required as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 329113 – TOPSOILING, HYDROSEED, STRAW MULCH, AND SOD

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Provide topsoil, seed, straw mulch, and sod as shown and as directed by Neglia Group.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Topsoil obtained from stripping within limits of the project, or furnished from outside the project, shall contain no stones, lumps, roots, or similar objects larger than 2 inches in any dimension, and shall have a pH value of not less than 5.8. When the pH value of the topsoil is less than 5.8, it shall be increased by applying ground limestone at a rate necessary to attain a pH value of 6.5.
- B. Material stripped from the following sources shall not be considered suitable for use as topsoil.
 - 1. Soils having a pH value less than 4.1
 - 2. Chemically contaminated soils.
 - 3. Areas from which the original surface has been stripped and/or covered over, such as borrow pits, open mines, demolition sites, dumps, and sanitary landfills.
 - 4. Unacceptable wet excavation.
- C. Topsoil furnished from sources outside the limits of the project shall have a minimum organic content of not less than 2.75 percent by weight. When the organic content of the topsoil furnished from sources outside the limits of the project is less than 2.75 percent, it shall be increased by adding peat at a rate necessary to attain this minimum organic content. The organic content of soils shall be determined by the Laboratory using the chromic acid titration method, as described in the United States Department of Agriculture's Circular 757.
- D. The organic content of all topsoil used for planting shall conform to the requirements specified above.
- E. The gradation of the topsoil furnished from sources outside the limits of the project shall be determined by the Laboratory, using the Bouyoucos Hydrometer Analysis conforming to the requirements of current A.A.S.H.O. Designation T88. The gradation of the topsoil shall be within the following ranges:

Sand (1.00 MM to 0.25 MM) 70% to 80%
Silt and Clay (less than .25 MM) 20% to 30%

F. A percolation rate of 1 inch/Hour to 2 inch/Hour is required after root growth by the sod after establishment.

G. The materials to be used for topsoiling shall conform to the appropriate articles as follows:

Fertilizer, 5-10-5 Commercial Designation.....	Sec. 909.02
Ground Limestone.....	Sec. 909.03
Mulch, Hay	Sec. 909.04
Grain Seed	Sec. 909.06
Topsoil	Sec. 909.10
Grass Seed Mixture	Hydroseed Lesco 3 Rye

I. The materials for Sodding shall conform to the requirements of the appropriate Articles as follows:

Fertilizer.....	Sec. 917.03
Ground Limestone.....	Sec. 917.04
Sod	As specified below.

H. Sod:

Shall be New Jersey certified sod containing approved blends, free from noxious weeds and objectionable grasses. It shall not contain all the dense root system of the grass and shall not be less than 1 1/2 inches thick. Before removing the sod, the grass shall be cut to a height of 2 inches and its surface shall be raked clean of all debris. It shall be cut with suitable tools in uniform strips not less than 12 inches wide.

Sod shall be mineral grown on a sandy loam soil from approved sources in the locality of the work where the soil is of such character that it will not break up or crumble during cutting, transportation or laying.

Sod Blend:

Sod blend shall be one of the following blends selected based on site conditions:

Tall Fescue:

85% Rembrandt Tall Fescue

15% Bluegrass(mixture of P105 and Midnight II Bluegrass)

Penntrio Bentgrass:

33% Pennlinks II

33% Penneagle II

33% Pureformance

Bluegrass Short-Cut:

25% Midnight Star
25% Moonlight
25% Award
25% Liberator

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

- A. The topsoil shall be spread over the surface in a uniform layer that will produce the prescribed compacted thickness of at least six (6") inches. When required, ground limestone which has been protected from moisture and is dry and free flowing, shall be evenly spread over the area to be seeded at a rate that will produce a pH value of the soil of 6.5. The area shall then be raked, disked or otherwise worked to incorporate the limestone into the upper 3 to 4 inches of soil to remove stones, roots, debris and other unsuitable material and to form an even surface. The soil shall be in a pliable condition at the time of seeding.
- B. Section Removed.
- C. The contractor shall hydro-seed (only when directed by the Engineer) only on a calm day. No seeding shall be performed on frozen ground or when the temperature is 32 degrees Fahrenheit or lower. Schedules for fertilizing and seeding must be submitted to Neglia Group for approval prior to the work. Hydroseeding shall be done within ten days following soil preparation.

Fertilizer shall be 5-10-5 and shall be applied at a rate of 325 lbs. per acre.

Virgin wood fiber mulch shall be applied at a rate of 1500 lbs. per acre.

ECT tackifier shall be applied at a rate of 5 lbs. per acre.

Hydroseed mix shall be Lesco 3 Rye.

- D. The Sod shall be placed on a 6-inch-thick bed of topsoil, soon after being cut. Immediately before placing the sod, the topsoil shall be fertilized at the rate of 600 pounds of 5-10-5 fertilizer per acre. The sod shall be laid with staggered joints, and on slopes the placing shall start at the bottom.
- E. The sod pieces shall be pressed closely together, and at the top of a slope the upper edge of the sod strips shall be turned into the soil and covered with earth. On slopes steeper than 4:1, the sod shall be held in place with pegs driven flush with the surface of the sod. The pegs shall be not more than 1 foot apart, and not less than 2 pegs shall be used for each strip of sod. The sod shall be pressed into the underlying soil by thorough tamping and rolling, after which a thin layer of topsoil, and 5-10-5 fertilizer applied at the rate of

600 pounds per acre, shall be spread evenly over all sodded areas shall be thoroughly watered.

- F. The finished surface shall be smooth, even and to the prescribed lines and contour. The sod shall be kept moist until growth is established. Sod showing evidence of dying or other defects before acceptance of the project shall be replaced.
- G. Sod shall be watered by the contractor until established. The watering of the sod may require watering trucks.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. Payment for topsoiling, hydroseed, straw mulch and sod will be made on a square yardage basis for the price bid for the item **TOPSOILING, HYDROSEED AND STRAW MULCH** in the Proposal, which the price shall include the cost of any and all materials, labor and equipment, and all else necessary and incidental thereto for proper restoration as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 329300 – LANDSCAPING

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Landscaping shall consist of the furnishing, delivering, installing, monitoring and maintaining, planting of all trees, shrubs, plants, and plantings, "Plant Material", in the location shown on the Plans and noted in the plant list and all incidental work related thereto. Landscaping shall include watering all landscape plantings and providing tree gator or approved equal tree watering bags for all shade trees proposed on the Landscape Plan.

1.2 PLANT ESTABLISHMENT PERIOD

- A. The Engineer will re-inspect the plants approximately 1 year after the start of the plant establishment period. Replace without cost to Owner, within three weeks or as soon as weather and soil conditions permit, plants that are more than 25 percent dead or in an unhealthy condition as determined by the Engineer.
- B. The Engineer will re-inspect the plants approximately 2 years after the start of the plant establishment period. Replace without cost to Owner, within three weeks or as soon as weather and soil conditions permit, plants that are more than 25 percent dead or in an unhealthy condition as determined by the Engineer.
- C. In addition to a tree's death, health or structural issues that significantly jeopardize the survivability, proper development, and/or long-term structural integrity of the tree shall be cause for replacement under this guarantee.

PART 2 – PRODUCTS

2.1 SHADE AND FLOWERING TREES

- A. Furnish nursery-grown trees in accordance with good horticultural practices under climatic conditions similar to those of the Project for at least two years, unless specifically noted otherwise. Documentation confirming the point of origin shall be provided to the Engineer prior to delivery.
- B. Trees shall comply with ANSI Z60.1, with healthy root systems developed by transplanting or root pruning. Trees and shrubs shall exceed AAN standards for quality by being exceptionally heavy, uniform, so trained or favored in development and appearance as to be superior in form, density and spread of branches, compactness, and symmetry. Determination of quality shall be made by the Engineer. Provide well-shaped, fully branched, healthy, vigorous stock free of disease, insects, eggs, larvae, and defects such as knots, sun scald, leaf spotting, injuries, abrasions, and disfigurement. All trees shall be

quality, nursery-grown stock. Inferior, "B" grade and or "park" grade tree will not be accepted.

- C. All trees shall be delivered in a healthy and vigorous condition and free of insects, diseases, girdling roots, and wounds.
- D. All single-stemmed trees shall have a single, strong, straight central leader, unless otherwise noted or appropriate for the species.
- E. All trees shall have a well-developed, well-spaced and reasonably symmetrical branch scaffold with strong branch attachments. Crown form shall be appropriate for the particular species or variety.
- F. Root ball diameter and depth and the ratio of caliber to height shall be within the proportions set forth in the American Standard for Nursery Stock.
- G. Grade: Provide trees and shrubs of sizes and grades complying with ANSI Z60.1 for type of trees and shrubs required. Trees and shrubs of a larger size may be used if acceptable to Landscape Architect, with a proportionate increase in size of roots or balls.
- H. Label at least one tree of each variety and caliper with a securely attached, waterproof tag bearing legible designation of botanical and common name.
- I. Shade Trees: Single-stem trees with straight trunk, well-balanced crown, and intact leader, of height and caliper indicated, complying with ANSI Z60.1 for type of trees required
- J. Provide balled and burlapped grown trees.
- K. Branching Height: One-third to one-half of tree height. For street trees branching height shall be one half of tree height
- L. Multi-stem Trees: Branched or pruned naturally according to species and type, with relationship of caliper, height, and branching according to ANSI Z60.1; clump stem form. Provide balled and burlapped tree.

2.3 DECIDUOUS SHRUBS

- A. Form and Size: Deciduous shrubs with not less than the minimum number of canes required by and measured according to ANSI Z60.1 for type, shape, and height of shrub. Provide balled and burlapped and container-grown shrubs as indicated on the plant list.
- B. Label at least one shrub of each variety and caliper with a securely attached, waterproof tag bearing legible designation of botanical and common name.

2.4 CONIFEROUS EVERGREENS

- A. Form and Size: Specimen-quality, exceptionally heavy, densely branched, symmetrically shaped coniferous evergreens. Provide balled and burlapped trees.
- B. Label at least one shrub of each variety and caliper with a securely attached, waterproof tag bearing legible designation of botanical and common name.

2.5 BROADLEAF EVERGREENS

- A. Form and Size: Normal-quality, well-balanced, broadleaf evergreens, of type, height, spread, and shape required, complying with ANSI Z60.1. Provide balled and burlapped and container-grown shrubs as indicated on the plant list.
- B. Label at least one shrub of each variety and caliper with a securely attached, waterproof tag bearing legible designation of botanical and common name.

2.6 OTHER MATERIAL

- A. Topsoil: The word "topsoil" in the NJDOT Standard Specifications shall mean "planting soil mix" throughout.
- B. Mulch: Mulch around trees, shrubs and perennials shall be shredded hardwood mulch. 811.02 Materials
- C. Stakes and guys: Install Stakes and Guys per methods and locations as shown on the Drawings in locations if and where directed by the Engineer.
- D. Stakes shall be rough-sawn, sound, new hardwood, redwood, or pressure-preservative-treated softwood, free of knots, holes, cross grain, and other defects, 2 by 2 inches by length indicated, pointed at one end.
- E. Guy and Tie Wire: ASTM A 641/A 641M, Class 1, galvanized-steel wire, 2-strand, twisted, 0.106 inch in diameter.
- F. Guy Cable: For large trees: 5-strand, 3/16-inch-diameter, galvanized-steel cable, with zinc-coated turnbuckles, a minimum of 3 inches long, with two 3/8-inch galvanized eyebolts.
- G. Hose Chafing Guard: Reinforced rubber or plastic hose at least 1/2 inch in diameter, black, cut to lengths required to protect tree trunks from damage.
- H. Woven Fabric Guy Ties: Flat, woven, non-fraying, polypropylene material, 3/4" wide, white. Arbor Tie or approved equivalent.
- I. Anti-desiccant: Water-insoluble emulsion, permeable moisture retarder, film forming, for trees and shrubs, designed to permit transpiration but retard excessive loss of moisture

from plants. Deliver in original, sealed, and fully labeled containers and mix according to manufacturer's written instructions.

- J. Tree Watering Bags: UV-treated polyethylene irrigation bag reinforced with nylon webbing. All sides to be watertight with ¼" thick heat seals. Bags shall have nylon zippers to allow to be secured to tree or secured to other bags for multiple-bag configuration.
- K. Root Barriers:
 - 1. Mechanical barrier and root deflector to prevent tree roots from damaging hardscapes and landscapes.
 - 2. Copolymer Polypropylene barrier designed for root barrier applications.
 - 3. Integral molded vertical root deflecting ribs spaced at 6" (150mm) on center.
 - 4. Thickness: 0.080" (2.032 mm) minimum
 - 5. Interlocking design
 - 6. ISO 9002 certified
 - 7. Tensile strength 3800 PSI, passing ASTM D638
 - 8. Elongation yield 6.3%, passing ASTM D638
 - 9. Flexural modulus 155,000 PSI, passing ASTM D790B
 - 10. Notched Izod Impact 7.1, passing ASTM D256A
 - 11. Rockwell Hardness r-scale 68, passing ASTM D785A

PART 3 – EXECUTION

3.1 GENERAL

- A. Construction shall be in accordance with Division 800 – Landscaping in the 2019 NJDOT Standard Specifications and as modified herein.

3.2 EXAMINATION

- A. Examine areas to receive exterior plants for compliance with requirements and conditions affecting installation and performance. Notify Landscape Architect, in writing, of any conditions that might prevent satisfactory completion. Proceed with installation only after unsatisfactory conditions have been corrected.
- B. Test drainage of pits and planting beds. Notify Engineer of potential poor drainage of tree and shrub pits and planting beds. Recommend a program for correction of poor drainage conditions and submit proposal to Engineer. Do not proceed with planting operations in areas of poor drainage until conditions are corrected, or direction is given by the Engineer.

3.3 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, and lawns and existing exterior plants from damage caused by planting operations.
- B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- C. Lay out individual tree and shrub locations and areas for multiple exterior plantings. Stake locations, outline areas, adjust locations when requested, and obtain Landscape Architect's acceptance of layout before planting. Make minor adjustments as required.
- D. Apply anti-desiccant to trees and shrubs using power spray to provide an adequate film over trunks, branches, stems, twigs, and foliage to protect during digging, handling, and transportation.
- E. If deciduous trees or shrubs are moved in full leaf, spray with anti-desiccant at nursery before moving and again two weeks after planting.

3.3 PERSONNEL AND WORKMANSHIP

- A. All of the Contractor's personnel shall be experienced in tree planting and properly supervised to ensure that property is protected from damage, that the safety of all personnel and the public is protected, and that all work is completed in a professional manner.
- B. The Contractor's work crews shall possess and utilize the equipment that is appropriate and necessary to complete the work in a proper, safe and expeditious manner.
- C. All work shall be completed in a good workman like manner and in accordance with industry standard and accepted horticultural practices.

3.4 PLANTING, STAKING ROOT-GUARD AND MULCHING PROCEDURES

- A. The following is the approved method of planting:
 - 1. Remove the wire cage prior to planting.
 - 2. Handle trees by the root ball, never by the trunk. Fully support the bottom of the root ball and protect the trunk and limbs from damage when lifting.
 - 3. Identify the location of the true root collar within the root ball — this is not necessarily the top of the root ball.
 - 4. Carefully dig a planting hole that is at least twice as wide as the root ball and to a depth that will ensure that the true root collar remains above the surrounding grade. In restricted areas, dig the hole as wide as possible. Over-digging the depth will cause excessive settling and offers no benefit to the tree. In areas with poor, compacted soil, till additional soil around the hole to 12" deep.

5. Scarify the sides of the planting hole where the soil is compacted or if they become glazed by the digging process. Tamp the bottom of the planting hole, if necessary, to prevent settling.
6. Trees shall be planted such that the root flare is 1" above adjacent grade unless the drawings indicate otherwise. Tree planting height shall be dictated by the actual root flare rather than the top of rootball as received from growers or nurseries.
7. Tops of tree rootballs shall be no higher than 2" above the tops of main order tree roots.
8. If main order roots are buried greater than 2" but less than 4" below the top of tree rootballs, contractor must trim rootballs by carefully removing soil from the top of the rootballs so that main order roots are within 2" of the top of rootball.
9. If main order roots are buried greater than 4" below the top of rootball, the tree will be rejected and the contractor must remove the tree from the jobsite.
10. The contractor is responsible for ensuring that trees received on site and planted on site meet the aforementioned specifications regarding tree root flare and rootball.
The Engineer reserves the right to reject any tree delivered to the site if tree's root flare is buried greater than 4" below top of rootball.
11. Add a few inches of soil around the bottom of the root ball to straighten and stabilize it.
12. Install root barrier around the root ball all trees within five feet of a sidewalk or curb. Root guard on sidewalk side of root ball at a depth of at least 18 inches.
13. Once the tree is stabilized, cut and remove from the planting hole all burlap, twine and wire from at least the upper two-thirds of the root ball (do not fold under).
14. Add several inches of backfill around the sides of the root ball, not over the top of it. Use soil taken from the hole without amendments and with large stones, debris and hard clods removed unless it is extremely poor quality. Any introduced soil must be similar in texture to the surrounding soil or it will create a problem with water infiltration.
15. Water the soil in to eliminate air pockets — do not tamp. The Contractor shall be responsible for delivering water to the planting sites.
16. Continue backfilling and watering-in lifts of soil until the hole is backfilled to the top of the outer edge of the root ball. Do not backfill over the crown (top center) of the root ball or the root collar. Be sure to eliminate all air pockets.
17. Form a shallow (no more than 3' high) soil saucer outside the edge of the root ball to facilitate watering; All excess soil shall be removed from the site by the Contractor.
18. Spade a neat edge between the soil and surrounding turf and mulch the entire soil surface beneath the tree and within the planting bed with a 3" - 4" layer of shredded hardwood mulch. Keep mulch a few inches from the base of the trunk — never mound mulch against the tree. The root collar shall be visible above grade when all work is complete or the installation will be rejected.

19. Remove all tags, ribbon, twine, etc. from the Plant Material.
20. Remove any dead or damaged branches in accordance with proper pruning practices. No live growth shall be pruned (including "tipping") without prior approval of the Engineer.
21. Install a minimum of one tree watering bag per tree. Install multiple bags for trees as recommended by the tree watering bag manufacturer. Fill water bags for each tree.
22. Restore the work area to its original condition.
23. Immediately notify the Engineer of any unforeseen circumstances that prevent adherence to these procedures and specifications.

3.5 MAINTENANCE

- A. Maintain all exterior plants covered by this Item, as required to establish healthy, viable plantings, including the following maintenance requirements during the maintenance period:
 1. Mowing;
 2. Edging;
 3. Pruning;
 4. Cultivating;
 5. Watering, do not allow plants to wilt at any time;
 6. Weeding;
 7. Fertilizing;
 8. Mulching;
 9. Restoring plant saucers for trees;
 10. Maintaining trees support systems at correct tension;
 11. Resetting plants to proper grade and vertical position;
 12. Insect and Pest Control as required to keep plants free of insects and disease;
 13. Restoring or replacing damaged tree wrappings;
 14. Removal of trash and debris; and
 15. Replacing dead or dying plants.

3.6 FINAL ACCEPTANCE

- A. Inspection to determine Final Acceptance of planted areas will be made by the Engineer upon Contractor's request at completion of the two-year Plant Establishment Period. Provide notification at least fifteen (15) working days before requested inspection date.

- B. Planted areas will be acceptable provided all requirements, including plant replacements and maintenance, have been complied with and healthy, thriving, and growing plants are established.
- C. Remove all Tree Staking and Guying materials prior to Final Acceptance inspection.
- D. Knock down, regrade, and re-mulch all tree pit saucers prior to Final Acceptance inspection.

3.7 CLEANUP AND PROTECTION

- A. During exterior planting, keep adjacent paving and construction clean and work area in an orderly condition.
- B. Protect exterior plants from damage due to landscape operations, operations by other contractors and trades, and others. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged exterior planting.

3.8 DISPOSAL

- A. Disposal: Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of off Owner's property.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. Payment for this item will be made for the quantity as above determined, at the unit price bid for the items **SUNSET RED MAPLE, 2 1/2" – 3" CAL. B&B, BLACK GYM, 2 1/2" – 3" CAL. B&B, SWAMP WHITE OAK, 2 1/2" – 3" CAL. B&B, CHEROKEE BRAVE DOGWOOD, 7' – 8' B&B, JUNE SAUCER MAGNOLIA 7' – 8' B&B, THUNDERCLOUD FLOWERING PLUM, 7' – 8' B&B, PENNSYLVANIA SEDGE, 2 GAL., and BRIGHT EDGE YUCCA, 5 GAL.** in the Proposal, which the price shall include the cost of furnishing all trees, shrubs and groundcover and protection thereof before planting, planting bed preparation, excavation of holes, planting, mixing and placing backfill material, fertilizing, furnishing and applying anti-desiccant or fungicide, mulching to include planting bed and Plant Material, repairing ground surface, disposal of excess excavated and waste materials, watering, maintenance, replacements, all materials, labor, equipment, and all else necessary therefore and incidental thereto for complete landscaping as specified herein and as shown on the plans or as directed by the Landscape Architect.
- B. The Contractor shall be responsible for manually watering the landscape areas until growth has been established.

END OF SECTION

SECTION 331000 – DOMESTIC WATER PIPING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This item shall consist of the installation of type-k copper water service pipe, valves, fittings, tap, disinfection, modification and restoration of existing bathroom building to provide water service from the existing site water service to the ground hydrant.
- B. This item shall include the excavation, backfill, restoration of site and building and all materials necessary to install the water service connection from the existing bathroom building to the proposed ground hydrant.
- C. The contractor is responsible for returning all building and grass areas to pre-construction conditions and shall be included in the price bid for this item.

PART 2 – PRODUCTS

2.1 GENERAL

- A. The Contractor shall provide all water service materials in accordance with Section 651 – Water of the 2007 NJDOT Standard Specifications, latest revised.
- B. The Contractor shall furnish all material to construct a fully functional water service system from the existing water service to the proposed ground hydrant.

2.2 TYPE-K COPPER TUBING AND FITTINGS

- A. Copper tubing and fittings shall conform to the requirements of A.S.T.M. Designation B88, Type K, for underground service and Type L, for above ground / interior applications. Type K tube shall be annealed and used in conjunction with fittings as required to connect to the existing water service. The tubing and fittings shall be installed in accordance with recommendations of the manufacturer.
- B. Soft Copper Tube: ASTM B 88, Types K, water tube, annealed temper.
 - 1. Copper Pressure Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper, solder-joint fittings. Furnish wrought-copper fittings if indicated.
 - 2. Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body, with ball-and-socket, metal-to-metal seating surfaces, and solder-joint or threaded ends.
- C. Hard Copper Tube: ASTM B 88, Types L, water tube, drawn temper.
 - 1. Copper Pressure Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper, solder-joint fittings. Furnish wrought-copper fittings if indicated.
 - 2. Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body, with ball-and-socket, metal-to-metal seating surfaces, and solder-joint or threaded ends.

2.3 COPPER-ALOY BALL VALVES

- A. Two-Piece, Copper-Alloy Ball Valves: Bronze body with full or regular-port, chrome-plated bronze ball; PTFE or TFE seats; and 600-psig minimum CWP rating and blowout-proof stem.
- B. Copper-Alloy Ball Valves, General: MSS SP-110.

PART 3 – EXECUTION

3.1 MATERIALS - METHODS OF CONSTRUCTION

- A. The Contractor shall construct the water services in accordance with all local ordinances and Section 207 - Subsurface Structure Excavation of the N.J. Department of Transportation Standard Specifications.
- B. All work shall be inspected and approved by the local Municipal Water Department.
- C. No work shall be closed or covered up until it has been duly inspected and approved for proper and satisfactory construction and installation, and in compliance with the Contract Documents or as directed by the Engineer. Should uncompleted or unapproved work be covered, the Contractor shall, at his own expense, uncover all work so that it can be properly inspected and approved; and, after such inspection and approval, he will properly repair and replace all work found defective, unsatisfactory, and not in accordance with the Contract Documents. After such repair and replacement, he will bring all work to the completeness and status that it was before it was closed and covered; all at his own expense.
- D. Sawcut existing concrete floor as required and restore upon completion of required work to the satisfaction of the Engineer.
- E. Install valves with unions or flanges at each piece of equipment arranged to allow service, maintenance, and equipment removal without system shutdown.
 - 1. Locate valves for easy access and provide separate support where necessary.
 - 2. Install valves in position to allow full stem movement.
 - 3. Adjust or replace valve packing after piping systems have been tested and put into service but before final adjusting and balancing. Replace valves if persistent leaking occurs.

3.2 CLEANING

- A. Clean and disinfect potable and non-potable domestic water piping as follows:
 - 1. Purge new piping and parts of existing domestic water piping that have been altered, extended, or repaired before using.

2. Use purging and disinfecting procedures prescribed by authorities having jurisdiction or, if methods are not prescribed, procedures described in either AWWA C651 or AWWA C652 or as described below:
 - a. Flush piping system with clean, potable water until dirty water does not appear at outlets.
 - b. Fill and isolate system according to either of the following:
 - i. Fill system or part thereof with water/chlorine solution with at least 50 ppm of chlorine. Isolate with valves and allow to stand for 24 hours.
 - ii. Fill system or part thereof with water/chlorine solution with at least 200 ppm of chlorine. Isolate and allow to stand for three hours.
 - c. Flush system with clean, potable water until no chlorine is in water coming from system after the standing time.
 - d. Submit water samples in sterile bottles to authorities having jurisdiction. Repeat procedures if biological examination shows contamination.
3. Prepare and submit reports of purging and disinfecting activities.
4. Clean interior of domestic water piping system. Remove dirt and debris as work progresses.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. Payment shall be according to the unit measurement of each Domestic Water Piping. Payment will be made at a linear foot price bid for item **FURNISH AND INSTALL 1-INCH COPPER TYPE 'K' WATER LINE** in the Proposal, which shall cover the cost of strap tapping straddle, valves, excavation, backfill, dewatering, restoration, compaction, disinfection, plumbing inspection coordination, and all labor, tools, equipment and materials necessary therefore and incidental thereto to complete the work specified and indicated on the drawings or as directed by the Engineer.

END OF SECTION

SECTION 331216 – GATE VALVES

PART 1 – GENERAL

1.1 DESCRIPTION

- A. This item shall consist of the excavation and the construction of Gate Valves, as shown on the Contract Plans, or as directed the Engineer.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Valves shall be Metroseal 250 and opening right with 2-inch square red nut, manufactured by U.S. Pipe and Foundry Company, or approved equivalent. They are to be of the type know as ductile iron body, bronze-mounted, resilient-seated Gate Valves, tested to 300 pounds per square inch. Gate valves shall conform to ANSI/AWWA C509 – Resilient-Seated Gate Valves for Water Supply Service and ANSI/AWWA C550 – Protective Epoxy Interior Coatings for Valves and Hydrants.
- B. The Contractor shall furnish and place adjustable cast iron valve boxes and covers with each valve specified. They shall be of the type as manufactured by U.S. Pipe and Foundry Company, or approved equivalent. The covers shall have plainly cast on them the letters “WATER”.
- C. The Governing Body, upon recommendation of the Engineer, may appoint an Inspector who, under the direction of the Engineer, will inspect the valves at the factory. He shall have unrestricted access to all parts of the work, as necessary, in the performance of his duties. The cost of inspection of rejected valves shall be borne by the Contractor and will be deducted from his estimates.

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

- A. The valves must be set, as indicated on the Contract Plans, in a truly vertical position, or as directed by the Engineer. All backfilling must be well rammed about them. Valve boxes and covers shall be provided and set to grade, as determined on the Contract Plans or as directed by the Engineer.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. The cost of gate valves shall be the actual number of valves furnished and installed at a per unit cost bid for item **FURNISH AND INSTALL 1-INCH WATER VALVE** in the Proposal, which the price shall include excavation, disposal of excess soils, backfill, valve boxes, all labor, materials, equipment, and all else necessary therefore and incidental thereto for a complete valve as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 333613 – STORMWATER BACKFLOW PREVENTER

PART 1 – GENERAL

1.1 DESCRIPTION

- A. This item shall consist of providing and installing backflow preventers for storm sewers and force mains at the varying sizes and models indicated on the site plan, details and this specification.

1.2 SUBMITTALS

- A. Submit product literature that includes information on the performance and operation of the valve, materials of construction, dimensions and weights, elastomer characteristics, head-loss, flow data and pressure ratings.
- B. Upon request, provide shop drawings that clearly identify the valve materials of construction and dimensions.

1.3 QUALITY ASSURANCE

- A. Supplier shall have at least 12 years of experience in the design and manufacturing of “Tideflex Series 35-1” and “Tideflex CheckMate Inline Check Valves” style elastomeric check valves, or approved equal.
- B. Manufacturer shall have conducted independent hydraulic testing to determine head-loss, jet velocity and vertical opening height characteristics on multiple sizes of “Tideflex Series 35-1” and “Tideflex CheckMate Inline Check Valves” or approved equal valves ranging from 4 inches through 72 inches. The testing must have been conducted for free discharge (discharge to atmosphere) and submerged conditions.

PART 2 – PRODUCTS

2.1 MATERIALS FOR “TIDEFLEX SERIES 35-1” CHECK VALVE

- A. Various sizes of “Tideflex Series 35-1” and “CheckMate” inline check valves as manufacturer by Tideflex Technologies, 600 N. Bell Avenue, Carnegie, PA 15106, Telephone 412-279-0044, or approved equal.
- B. The “Tideflex Series 35-1” check valve or approved equal shall have an eccentric flat bottom design with an all rubber flange, made of lightweight elastomer design.
- C. The “Tideflex Series 35-1” check valve shall be mountable to outlet structures, headwalls, or box manholes.

- D. The flange size drilling shall conform to ANSI B16.10, Class 150# or can be constructed with DIN, 2632 and other standards.
- E. The "Tideflex Series 35-1" check valve, or approved equal, shall be furnished complete with steel or stainless steel backup rings for installation. "Tideflex Series 35-1" check valves 18 inches and larger shall be constructed with a curved bill as standard.

2.2 "TIDEFLEX CHECKMATE" ELASTOMERIC INLINE CHECK VALVES

- A. Check Valves are to be all rubber and the flow-operated check type with slip-in cuff or flange connection. The entire "Tideflex CheckMate" inline check valve, or approved equal, shall be ply-reinforced throughout the body, disc and bill, which is cured and vulcanized into a one-piece, uni-body construction. A separate valve body or pipe used as the housing is not acceptable. The valve shall be manufactured with no metal, mechanical hinges or fasteners, which would be used to secure the disc or bill to the valve housing. The port area of the disc shall contour down, which shall allow passage of flow in one direction while preventing reverse flow. The entire valve shall fit within the inner diameter of the specified pipe once installed. The "Tideflex CheckMate" inline check valve, or approved equal, shall not protrude beyond the face of the structure or end of the pipe.
- B. The downstream end of the valve must be circumferentially in contact with the pipe while in the closed positions.
- C. Slip-in or inline style "Tideflex CheckMate" check valves or approved equal will be furnished with a set of stainless steel expansion clamps. The clamps, which will secure the valve in place, shall be installed inside the cuff portion of the valve, based on installation orientation, and shall expand outwards by means of a turnbuckle. Each clamp shall be predrilled allowing for the valve to be pinned and secured into position in accordance with the manufacturer's installation instructions. Flange-style "Tideflex CheckMate" check valves, or approved equal, will be furnished with a stainless steel, ANSI 125/150 drilled, retaining ring unless specified otherwise.
- D. Manufacturer must have flow test data from an accredited hydraulics laboratory to confirm pressure drop and hydraulic data. Company name, plant location, valve size patent number, and serial number shall be bonded to the check valve.
- E. When line pressure exceeds the backpressure, the line pressure shall force the bill and disc of the valve open, allowing flow to pass. When the backpressure exceeds the line pressure, the bill and disc of the valve shall be forced closed, preventing backflow.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Valve shall be installed in accordance with manufacturer's written Installation and Operation Manual and approved submittals.

3.2 MANUFACTURER'S CUSTOMER SERVICE

- A. Manufacturer's authorized representative shall be available for customer service during installation and start-up, and to train personnel in the operation, maintenance and troubleshooting of the valve.
- B. If specified, the manufacturer shall also make customer service available directly from the factory in addition to authorized representatives for assistance during installation and start-up, and to train personnel in the operation, maintenance and troubleshooting of the valve.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. The quantity of stormwater backflow preventers, for which payment will be made, will be the actual number of backflow preventers supplied and permanently installed, in accordance with the Plans or as directed by the Engineer.
- B. Payment for the backflow preventers will be made for the quantity as above determined, at the unit price bid for the items **FURNISH AND INSTALL 24-INCH IN-LINE STORMWATER BACKFLOW PREVENTER** and **FURNISH AND INSTALL 36-INCH IN-LINE STORMWATER BACKFLOW PREVENTER** in the Proposal, which prices shall include the cost of furnishing the preventer, permanent installation, all labor, materials and equipment, and all else necessary therefore and incidental thereto for a complete system as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 334113 – HDPE DRAINAGE PIPE

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This work shall consist of furnishing and installing underground detention and pipe conveyance systems composed of lengths of perforated and solid wall high-density polyethylene (HDPE) pipe varying in size (as indicated on the Contract Documents). It shall include the required excavation, clean stone, geotextile fabric, impermeable liner, and any other material, tools, equipment necessary to construct the underground recharge basin and pipe conveyance systems and structures as shown on the Contract Drawings and shall conform to Division 200 – Earthwork of the NJDOT Standard Specifications for Road and Bridge Construction, latest revised.
- B. Clean Crushed Stone shall be furnished and placed above, around, and below the perforated recharge basin pipes, manifolds and fittings, and enclosed with geotextile filter fabric as specified and as shown on the Contract Drawings and as specified in this Section or as directed by the Engineer. 3/4" clean crushed stone shall be used.

1.2 SUBMITTALS

- A. Submit samples and catalog cuts of the proposed HDPE solid wall and perforated pipe, risers, manifolds, fittings, covers/lids, geogrid, clean stone, impermeable liner, cleanouts and geotextile fabric.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. High-Density Polyethylene Pipe (HDPE), perforated and solid, varying in size from 12" to 30" diameter, all risers and fittings of various sizes shall be Type N-12 as manufactured by Advanced Drainage Systems, Inc., Tel. 800-821-6710, or approved equal.
- B. Geotextile Filter Fabric shall Type 140N as manufactured by Mirafi, Tel. 706-693-2226 or US Fabrics, Tel. 800-518-2290. Geogrid to be Mirafi Miragrid of US Fabrics, or approved equal.
- C. Clean Crushed Stone shall be uniform in texture and quality and shall conform with Section 901 – Aggregates, Section 601 – Pipe, and Section 602 – Drainage Structures, of the 2019 NJDOT Standard Specifications, latest revised.

PART 3 – EXECUTION

3.1 CONSTRUCTION

- A. Excavation, bedding, and backfilling shall conform to the applicable Sections and/or Subsections of the 2019 NJDOT Standard Specifications.
- B. All HDPE pipe shall be installed in accordance with ASTM D2321 – Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
- C. Pipe bedding shall be 18” minimum thickness for 12”, 24” and 30” dia. perforated HDPE pipe.
- D. Pipe bedding shall be 4” minimum thickness for all HDPE pipe for sizes 12” dia. up to 24” dia., and 6” minimum for HDPE pipes 30” – 60” dia.
- E. Geotextile fabric and impermeable liner to be installed in the location shown on the Contract Documents, in accordance with manufactures’ requirements and specifications.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. Quantity and Payment for HDPE Drainage Pipe will be made in accordance with the Contract Documents at the linear foot price bid for items listed below:
 - **HDPE PIPE, 12”** **(LF)**
 - **HDPE PIPE, 18”** **(LF)**
 - **HDPE PIPE, PERFORATED, 24”** **(LF)**

Filter fabric shall not be measured separately and shall be included in the unit price for the various bid items in the Proposal, The above items price shall cover the cost of excavation, backfill, sheathing, shoring, bracing, pumping, dewatering, stone, geogrid, all bedding, fittings, risers, covers, compaction, testing, and all labor, tools, equipment and materials necessary therefore and incidental thereto or as directed by the Engineer.

END OF SECTION

SECTION 334123 – SCH 40 PVC STORM PIPE

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Schedule 40 PVC Storm Pipe shall consist of the excavation for the construction of the various sizes and classes of PVC pipe as shown on the Contract Documents or as otherwise directed by the Engineer. PVC storm pipe shall be constructed if and where directed.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. The pipe shall be made of Polyvinyl Chloride (PVC) plastic having a cell classification of 12454B or 12454C or 13364B, (with minimum tensile modulus of 500,000 PSI) as defined in ASTM Specification D1784. Fittings shall be made of PVC plastic having a cell classification of 12454B or 12454C or 13343C as defined in ASTM Specification D1784. Compounds that have different cell classifications because one or more properties are superior to those of the specified compounds are also acceptable.
- B. All PVC drainage pipe, fittings, cleanouts, and materials shall be schedule 40.
- C. All PVC sewage pipe, fittings, cleanouts, and materials shall be SDR-35.
- D. Elastomeric gaskets shall comply with the requirements described in ASTM Specification F477.
- E. The pipe and fittings shall meet all the requirements of ASTM Standard D3034-83 for SDR35 PVC Pipe for sanitary sewer unless otherwise noted.
- F. Pipe and socket dimensions shall conform to those shown in Tables 1 and 2, respectively, taken from ASTM D-3034-83.

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

- A. Storm Sewer Pipes shall be constructed in accordance with Section 909.02.03 – Plastic Drainage Pipe, of the 2019 N.J. Department of Transportation Standard Specifications.
- B. Sanitary Sewer Pipes shall be constructed in accordance with the applicable Sections and/or subsections for Subsurface Structure Excavation of N.J. Department of Transportation Standard Specifications and the “Sanitary Sewer” Section of these Specifications.
- C. All pipelines shall be tested before backfilling trenches. Tests shall be made between manholes within twelve (12) working days of the completion of such sections of mains. The leakage from the main for such section tested, while the pressure is a 3.5 psig for a period of one hour, shall be no greater than the rate of one hundred (100) gallons per inch-inch mile of pipe in twenty-four hours.

PART 4 – QUANTITY AND PAYMENT

4.2 QUANTITY AND PAYMENT

- A. Payment for PVC Pipe will be made on a linear foot basis in the price bid for the items **PVC PIPE, 6"**, and **PVC PIPE, PERFORATED, 8"** in the Proposal, which prices shall include the cost of furnishing, laying, assembling, temporary trenching, backfilling, dewatering, pumping, fittings, caps/covers, cleanouts, gutter connections, and all labor, tools, equipment and materials, and all else necessary therefore and incidental thereto for a complete system as specified herein and as shown on the plans or as directed by the Engineer.

END OF SECTION

SECTION 334133 – REINFORCED CONCRETE PIPE

PART 1 – GENERAL

1.1 DESCRIPTION

- A. This Specification covers reinforced concrete pipe varying in size from 12” to 36” diameter intended to be used for the conveyance of storm water, and shall include the excavation for the construction of reinforced concrete storm pipe, subgrade, sawcutting, temporary reconstruction section for trench restoration, relocation of all gas, water and sanitary connections and in accordance with Section 602 - Storm Drains of the Standard Specifications, and as shown on the Contract Plans and Specifications, or as directed by the Engineer.
- B. The contractor is responsible for providing neat sawcuts and for protection of existing curbs and driveway aprons adjacent to the installation of any reinforced concrete pipe. Any damage to existing curbs and/or driveway aprons shall be replaced at the contractor’s cost.
- C. Any gas and water relocations and connections shall be coordinated with the respective utility companies. The contractor is responsible for the complete installation of all utility connections in accordance with the respective utility company’s requirements and shall include (if required) any valves, bends, tees, taps, saddles, thrust blocks, site restoration, curb replacement, sidewalk replacement, etc. required for a continued use of service
- D. The contractor is responsible for replacing any conflicts with the existing sanitary sewer laterals with newly constructed laterals, wye-connections, cleanouts, site restoration, curb replacement, sidewalk replacement, etc. required for a continued use of service.

Note: Contractor shall confirm location and elevation of all utility crossings via test pits prior to ordering reinforced concrete drainage pipe.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. All reinforced concrete pipe shall be Class V, unless otherwise noted.
- B. Fine aggregate shall conform to the requirements of Section 901.13; Coarse aggregate shall be broken stone or washed gravel conforming to the requirements of Section 901.04 and Section 901.05, respectively. Elliptical reinforcing will not be permitted in circular pipe.
- C. Sub-grade shall be as shown on the site plan

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

- A. Construction shall be in accordance with Section 602 and excavation and backfill for all drains shall be governed by the provisions of Section 207 - Subsurface Structure Excavation of the Standard Specifications.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. Quantity and Payment for Reinforced Concrete Pipe will be made in accordance with the Contract Documents at the linear foot price bid for items listed below:

- **RCP, CLASS V, 12" (LF)**
- **RCP, CLASS V, 15" (LF)**
- **RCP, CLASS V, 24" (LF)**
- **RCP, CLASS V, 36" (LF)**

The above items price shall cover the cost of excavation, backfill, sheathing, shoring, bracing, pumping, dewatering, stone, geogrid, all bedding, fittings, risers, covers, compaction, testing, and all labor, tools, equipment and materials necessary therefore and incidental thereto or as directed by the Engineer.

END OF SECTION

SECTION 334913 – STORM AND SANITARY STRUCTURES

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Storm and Sanitary Manholes (all sizes and types), Storm Field Drains, Storm Area Drains, Storm Inlets (all sizes and types) and Reset Castings shall consist of the construction of these structures, stone bedding, backfilling and backfill material, and the furnishing, installing and placing of new heads, grates, and covers.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Precast concrete storm and sanitary manholes (all sizes and types), precast concrete inlets (all sizes and types) may be used as approved by Neglia Group.
- B. All materials used in the construction of manholes (all sizes and types), inlets, and catch basins, shall conform to Section 603 - Inlets and Manholes of the 2019 NJDOT Standard Specifications. All structural reinforcing shall be epoxy-coated.
- C. All Type 'B' Inlets shall be equipped with Type-N Eco curb piece (with bicycle-safe grates) as manufactured by Campbell Foundry Pattern No. 2618 or Neenah Foundry or approved equal. Type 'A' and 'E' Inlets located within driveways or parking areas shall be equipped with bicycle-safe grates, as manufactured by Campbell Foundry Pattern No. 3425 or Neenah Foundry, or approved equal.
- D. All castings shall have the name of the Municipality, the date, and the words "Sanitary" or "Storm" stamped or cast clearly and legibly thereon. Units not so furnished will not be accepted for use on Municipal projects. Concrete blocks shall conform to the compressive strength and absorption requirements of ASTM C139.
- E. All storm manholes that are to be installed with open grate shall be equipped with a pedestrian safe grate.
- F. Inlets identified as "ADS" on the Drainage Plan shall be plastic "Nyloplast" inlet structures, as manufactured by Advanced Drainage Systems, Inc. ("ADS"), or approved equal.
- G. Precast concrete headwall shall be located as indicated on the Construction Documents. Headwall materials and construction shall be in accordance with the Construction Documents and all applicable NJDOT and NJDEP requirements and regulations.
- H. Recycled Concrete aggregate shall conform to the requirements of the application Sections and/or Subsections of the 2019 NJDOT Standard Specifications; Course aggregate shall be broken stone or washed gravel conforming to the requirements of applicable Sections and/or Subsections of the 2019 NJDOT Standard Specifications.

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

- A. Construction for manholes (all sizes and types), inlets, area drains, and catch basins shall be in accordance with applicable Sections and/or Subsections for Inlets and Manholes of the 2019 NJDOT Standard Specifications. Particular attention should be brought to precast concrete inlets and manholes, and Reconstruction and Conversion of Existing Structures, of the NJDOT Standard Specifications.
- B. Excavation and Backfilling shall be in accordance with the applicable Sections and/or Subsections of the 2019 NJDOT Standard Specifications.
- C. All precast concrete or “ADS Nyloplast” manholes and inlets with solid covers that are to be installed within the limits of the artificial turf fields or within 25 feet of any athletic field shall be installed in the “buried” condition (i.e. the cover/rim shall be installed beneath the artificial turf field and shall be provided with an adequately sized turf “plug” directly above the rim/cover with a visual identification at the surface, for future inspection and maintenance purposes).
- D. **OUTLET CONTROL STRUCTURE, COMPLETE**, shall include the concrete chamber, weir wall with openings, pipe connections, inlet frame and cover, and all other associated appurtenances. Said structures shall be designed and constructed to withstand H-20 Loading.
- E. **STORMWATER OUTFALL, COMPLETE**, shall include the concrete headwall with toe, scour hole, and gabion basket wall and all other associated appurtenances. Said structures shall be constructed as shown on the Construction Details.

PART 4 – QUANTITY AND PAYMENT

4.1 QUANTITY AND PAYMENT

- A. The quantity of storm and sanitary structures to be reset, constructed, or rehabilitated for which payment shall be made, will be the number of each type thereof constructed, which prices shall include the cost of furnishing all materials, transportation, removal and disposal, excavation, sawcutting, bedding, fabric, backfilling, backfill material, roadway restoration, sheathing, bracing, dewatering, construction or reconstruction complete, as specified, all materials including new head castings and frames and ladder rungs or those claimed for the Project as prescribed, labor, equipment, and all else necessary therefore and incidental thereto for a complete system as specified herein and as shown on the plans or as directed by the Engineer. The following bid items within the Proposal shall be used for the above work:

Bid Item	Quantity Measure
CONSTRUCT STORMWATER MANHOLE, STANDARD, FURNISH AND INSTALL CASTING AND COVER	UNIT
CONSTRUCT STORMWATER MANHOLE (W/ OPEN GRATE), STANDARD, FURNISH AND INSTALL CASTING AND PEDESTRIAN SAFE GRATE	UNIT
CONSTRUCT OUTFALL STRUCTURE WITH SCOUR HOLE OUTLET PROTECTION, COMPLETE	UNIT
CONSTRUCT OUTLET CONTROL STRUCTURE, COMPLETE	UNIT
CONSTRUCT STORMWATER CLEANOUT	UNIT
CONSTRUCT TYPE 'A' INLET, FURNISH AND INSTALL CASTING AND BICYCLE SAFE GRATE	UNIT
CONSTRUCT TYPE 'B' INLET, FURNISH AND INSTALL CASTING, N-ECO CURB PIECE AND BICYCLE SAFE GRATE	UNIT
CONSTRUCT YARD INLET, FURNISH AND INSTALL CASTING AND PEDESTRIAN SAFE GRATE	UNIT
RESET SANITARY CLEANOUT	UNIT

No separate payment shall be made for any damaged curbs, sidewalks, aprons, or roadways for these items. Any damage incurred during construction shall be replaced to existing conditions at no additional cost to the owner.

END OF SECTION

APPENDIX A

Received Regulatory Permit Approvals

1. NJDEP – Water Development Individual Permit-Commercial/Industry/Public (Landward) and Flood Hazard Area Individual Permit
(No. 2004-11-0007.11 LUP230002, Approved December 8, 2023, Expires December 7, 2028)
2. NJDEP – Freshwater Wetlands Letter of Interpretation: Line Verification
(No. 2004-11-0007.1 LLI230001, Dated July 31, 2024)
3. NJDEP – Freshwater Wetlands General Permit No. 11 and TAW – Special Activity Redevelopment
(No. 2004-11-0007.1 LUP230001, Approved August 1, 2024, Expires July 31, 2029)
4. Somerset-Union Soil Conservation District – Soil Erosion & Sediment Control Plan Certification
(No. 2024-6449, dated July 10, 2024)



STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATERSHED & LAND MANAGEMENT
 Mail Code 501-02A, P.O. Box 420, Trenton, New Jersey 08625-0420
 Telephone: (609) 777-0454 or Fax: (609) 777-3656
 www.nj.gov/dcp/landuse



PERMIT

<p>In accordance with the laws and regulations of the State of New Jersey, the Department of Environmental Protection hereby grants this permit to perform the activities described below. This permit is revocable with due cause and is subject to the terms, conditions, and limitations listed below and on the attached pages. For the purpose of this document, "permit" means "approval, certification, registration, authorization, waiver, etc." Violation of any term, condition, or limitation of this permit is a violation of the implementing rules and may subject the permittee to enforcement action.</p>		Approval Date December 8, 2023
		Expiration Date December 7, 2028
Permit Number(s): 2004-11-0007.1 LUP230002	Type of Approval(s): WFD-IP-Commercial/Industry/Public (Landward) FHA Individual Permit	Governing Rule(s): N.J.A.C. 7:7-1.1(a) N.J.A.C. 7:13-1.1(b)
Permittee: Union County c/o Ricardo Matias 2325 South Avenue Scotch Plains, NJ 07076	Site Location: Block(s) & Lot(s): [5, 453B] [527, 1] Municipality: Elizabeth City County: Union	
Description of Authorized Activities: <p>This document authorizes the construction of 2 artificial turf soccer fields and a new natural grass soccer field, the construction of new walkways, bleachers, sports field lighting, and tennis courts, the expansion of the parking lot to add 62 new parking spaces, and the construction of a stormwater outfall, at Mattano Park on the parcel(s) referenced above.</p> <p>This project is authorized under and in conditional compliance with the applicable Coastal Zone Management Rules (N.J.A.C. 7:7-1.1 et seq.), as amended on October 5, 2021, and the applicable Flood Hazard Area Control Act Rules (N.J.A.C. 7:13-1.1 et seq.), as amended on July 17, 2023, provided that all conditions to follow are met.</p> <p><i>The Department has determined that the herein approved activities meet the requirements of the (FHACA/CZM) rules. This approval does not obviate the local Floodplain Administrator's responsibility to ensure all development occurring within their community's Special Flood Hazard Area is compliant with the local Flood Damage Prevention Ordinance, and minimum NFIP standards, regardless of any state-issued permits. FEMA requires communities to review and permit all proposed construction or other development within their SFHA in order to participate in the NFIP.</i></p>		
Prepared by: Becky Mazzei	Received and/or Recorded by County Clerk:	
If the permittee undertakes any regulated activity, project, or development authorized under this permit, such action shall constitute the permittee's acceptance of the permit in its entirety as well as the permittee's agreement to abide by the requirements of the permit and all conditions therein.		
This permit is not valid unless authorizing signature appears on the last page.		

STATEMENT OF AUTHORIZED IMPACTS:

The authorized activities allow for the permittee to undertake impacts to regulated areas as described below. Additional impacts to regulated areas without prior Department approval shall constitute a violation of the rules under which this document is issued and may subject the permittee and/or property owner to enforcement action, pursuant to N.J.A.C. 7:13-2.18; N.J.A.C. 7:7-29.

PRE-CONSTRUCTION CONDITIONS:

1. Within 30 days of permit issuance, the permittee shall apply to the Bureau of Tidelands for a Tidelands Grant for construction within formerly flowed Tidelands areas.
2. Prior to any construction activities within freshwater wetlands and transition areas, the applicant shall obtain the appropriate authorization under the Freshwater Wetland Protection Act rules (permit applications pending 2004-11-0007.1 LUP230001).
3. Prior to construction or any alteration to the project site, the permittee, using the services of an Architectural Historian who meets the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738-9) in Architectural History, shall document the existing landscape and viewsheds within the Mattano Park Historic District and the Union County Park System Historic District to Level III equivalent standards of the Historic American Landscapes Survey (HALS). In lieu of large format photography, the permittee shall include high-resolution digital photos that meet the National Park Service National Register Digital Photo Submission Standards.

The recordation shall include both archivally stable, 4-inch by 6-inch, black and white prints and high-resolution digital RAW and/or TIFF files on an archival CD-R. A minimum of 30 views of the landscape comprising the Mattano Park Historic District and its setting within the Union County Park System Historic District shall be produced as part of the recordation. Photography shall include, but not be limited to, documentation of the areas to be altered by the project and views from contributing resources most likely to have views of proposed project components.

The permittee shall ensure that all documentation is completed and accepted by the HPO prior to any new construction. The permittee shall provide one original archival copy of the recordation to the HPO and duplicate copies, with original photographs, shall be provided to the appropriate repositories as identified in consultation with the NJHPO.

4. The permittee shall ensure that the new design of the park is sympathetic to the character of the Mattano Park and Union County Park System Historic Districts and shall be in keeping with the Secretary of the Interior's *Standards for the Treatment of Historic Properties* to the greatest extent possible, including but not limited to fencing, lighting, hardscaping, etc. The permittee shall submit final plans and specifications for the new park design to the Historic Preservation Office for review and approval prior to the commencement of construction.
5. The permittee, using the services of a person meeting the Secretary of the Interior's Professional Qualification Standards [48 FR 44738-9] in History and/or Architectural History, shall design and install at least one (1) interpretive sign detailing the history and significance of Mattano Park and the Olmsted Brothers' design to be displayed in a publicly accessible area. The signage shall include a colorful panel mounted on a pedestal or wall and the content shall incorporate historic photographs as well as text regarding the historic significance of the park and its role within the larger Union County park system. The location, content, size, and text of the signage shall be submitted to the HPO for

review and approval prior to fabrication. The sign shall be installed and verification of installation shall be provided within three (3) months of project completion.

SPECIAL CONDITIONS:

1. The NJDOT has determined that a geodetic marker is located in the vicinity of the parking lot expansion. If a geodetic control reference marker is found on site and the position of the survey marker or monument cannot be protected, the applicant shall coordinate with the New Jersey Department of Transportation's Geodetic Survey and Survey Support Unit at least 60 days prior to disturbance to relocate the geodetic control marker to an appropriate location prior to construction. The impacted areas shall be restored to original grade and condition. The applicant shall contact the NJDOT GSSSU with any questions at (609) 963-1680.
2. The applicant shall make specific arrangements to ensure the continuous maintenance and efficient operation of all proposed stormwater management measures onsite. This includes the inspection (and cleaning where necessary) of any and all constructed swales, basins and inlets at least four times per year and after every major storm totaling 1 inch of rainfall or more, the inspection and cleaning of any and all mechanical treatment devices in accordance with the Department's certification letters (downloadable at <https://www.njstormwater.org/treatment.html>), the use of appropriate soil conservation practices onsite, and any other reasonable effort required to maintain the stormwater management system in good working order.
3. The Department has determined that this project meets the requirements of the Stormwater Management rules at N.J.A.C. 7:8. Any future expansion or alteration of the approved stormwater management system, which would affect water quality, increase the rate or volume of stormwater leaving the site, affect the infiltration capacity on the site, or alter the approved low impact site design, shall be reviewed and approved by the Department prior to construction. This includes any proposed changes to the discharge characteristics of any basin, the construction of new inlets or pipes that tie into the storm sewer network and/or the replacement of existing inlets or pipes with structures of different capacity.
4. In accordance with N.J.A.C.7:13-12.6(e)4, the permittee shall install clearly visible signs in the parking areas indicating that these areas will be subject to inundation during flood events.
5. All excavated material shall be disposed of in a lawful manner. The material shall be placed outside of any flood hazard area, riparian zone, regulated water, freshwater/coastal wetlands and adjacent transition area, and in such a way as to not interfere with the positive drainage of the receiving area.
6. This permit is issued subject to compliance with N.J.A.C. 7:7-27.2 Conditions that apply to all coastal permits.

STANDARD CONDITIONS:

1. The issuance of a permit shall in no way expose the State of New Jersey or the Department to liability for the sufficiency or correctness of the design of any construction or structure(s). Neither the State nor the Department shall, in any way, be liable for any loss of life or property that may occur by virtue of the activity or project conducted as authorized under a permit.
2. The issuance of a permit does not convey any property rights or any exclusive privilege.

3. The permittee shall obtain all applicable Federal, State, and local approvals prior to commencement of regulated activities authorized under a permit.
4. A permittee conducting an activity involving soil disturbance, the creation of drainage structures, or changes in natural contours shall obtain any required approvals from the Soil Conservation District or designee having jurisdiction over the site.
5. The permittee shall take all reasonable steps to prevent, minimize, or correct any adverse impact on the environment resulting from activities conducted pursuant to the permit, or from noncompliance with the permit.
6. The permittee shall immediately inform the Department of any unanticipated adverse effects on the environment not described in the application or in the conditions of the permit. The Department may, upon discovery of such unanticipated adverse effects, and upon the failure of the permittee to submit a report thereon, notify the permittee of its intent to suspend the permit.
7. The permittee shall immediately inform the Department by telephone at (877) 927-6337 (WARN DEP hotline) of any noncompliance that may endanger public health, safety, and welfare, or the environment. The permittee shall inform the Watershed & Land Management by telephone at (609) 777-0454 of any other noncompliance within two working days of the time the permittee becomes aware of the noncompliance, and in writing within five working days of the time the permittee becomes aware of the noncompliance. Such notice shall not, however, serve as a defense to enforcement action if the project is found to be in violation of this chapter. The written notice shall include:
 - i. A description of the noncompliance and its cause;
 - ii. The period of noncompliance, including exact dates and times;
 - iii. If the noncompliance has not been corrected, the anticipated length of time it is expected to continue; and
 - iv. The steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.
8. Any noncompliance with a permit constitutes a violation of this chapter and is grounds for enforcement action, as well as, in the appropriate case, suspension and/or termination of the permit.
9. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the authorized activity in order to maintain compliance with the conditions of the permit.
10. The permittee shall employ appropriate measures to minimize noise where necessary during construction, as specified in N.J.S.A. 13:1G-1 et seq. and N.J.A.C. 7:29.
11. The issuance of a permit does not relinquish the State's tidelands ownership or claim to any portion of the subject property or adjacent properties.
12. The issuance of a permit does not relinquish public rights to access and use tidal waterways and their shores.

13. The permittee shall allow an authorized representative of the Department, upon the presentation of credentials, to:
 - i. Enter upon the permittee's premises where a regulated activity, project, or development is located or conducted, or where records must be kept under the conditions of the permit;
 - ii. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit; and
 - iii. Inspect, at reasonable times, any facilities, equipment, practices, or operations regulated or required under the permit. Failure to allow reasonable access under this paragraph shall be considered a violation of this chapter and subject the permittee to enforcement action.
14. The permittee shall not cause or allow any unreasonable interference with the free flow of a regulated water by placing or dumping any materials, equipment, debris or structures within or adjacent to the channel while the regulated activity, project, or development is being undertaken. Upon completion of the regulated activity, project, or development, the permittee shall remove and dispose of in a lawful manner all excess materials, debris, equipment, and silt fences and other temporary soil erosion and sediment control devices from all regulated areas.
15. The permittee and its contractors and subcontractors shall comply with all conditions, site plans, and supporting documents approved by the permit.
16. All conditions, site plans, and supporting documents approved by a permit shall remain in full force and effect, so long as the regulated activity, project, or development, or any portion thereof, is in existence, unless the permit is modified pursuant to the rules governing the herein approved permits.
17. The permittee shall perform any mitigation required under the permit in accordance with the rules governing the herein approved permits.
18. If any condition or permit is determined to be legally unenforceable, modifications and additional conditions may be imposed by the Department as necessary to protect public health, safety, and welfare, or the environment.
19. Any permit condition that does not establish a specific timeframe within which the condition must be satisfied (for example, prior to commencement of construction) shall be satisfied within six months of the effective date of the permit.
20. A copy of the permit and all approved site plans and supporting documents shall be maintained at the site at all times and made available to Department representatives or their designated agents immediately upon request.
21. The permittee shall provide monitoring results to the Department at the intervals specified in the permit.
22. A permit shall be transferred to another person only in accordance with the rules governing the herein approved permits.
23. A permit can be modified, suspended, or terminated by the Department for cause.

24. The submittal of a request to modify a permit by the permittee, or a notification of planned changes or anticipated noncompliance, does not stay any condition of a permit.
25. Where the permittee becomes aware that it failed to submit any relevant facts in an application, or submitted incorrect information in an application or in any report to the Department, it shall promptly submit such facts or information.
26. The permittee shall submit email notification to the Bureau of Coastal & Land Use Compliance & Enforcement at CLU_tomsriver@dep.nj.gov at least 3 days prior to commencement of site preparation and/or regulated activities, whichever comes first. The notification shall include proof of completion of all pre-construction conditions, including proof of recording of permits, approved plans and/or conservation easements, if required. The permittee shall allow an authorized Bureau representative on the site to inspect to ensure compliance with this permit.
27. The permittee shall record the permit, including all conditions listed therein, with the Office of the County Clerk (the Registrar of Deeds and Mortgages, if applicable) of each county in which the site is located. The permit shall be recorded within 30 calendar days of receipt by the permittee, unless the permit authorizes activities within two or more counties, in which case the permit shall be recorded within 90 calendar days of receipt. Upon completion of all recording, a copy of the recorded permit shall be forwarded to Watershed & Land Management at the address listed on page one of this permit.

APPROVED PLAN(S):

The drawings hereby approved consist of 8 sheets prepared by Neglia Engineering Associates, dated August 1, 2023, last revised December 7, 2023, unless otherwise noted, and entitled:

“MATTANO PARK IMPROVEMENTS, BLOCK 527 - LOT 1, CITY OF ELIZABETH, UNION COUNTY, NEW JERSEY,”

- a. “SITE PLAN”, sheet no. 4.00, unrevised,
- b. “GRADING PLAN”, sheet no. 5.00, unrevised,
- c. “DRAINAGE PLAN”, sheet no. 6.00,
- d. “PERMITTING PLAN - FLOOD HAZARD AREA”, sheet no. 8.00,
- e. “CONSTRUCTION DETAILS II”, sheet no. 9.01, last revised December 6, 2023,
- f. “CONSTRUCTION DETAILS VII”, sheet no. 9.06, last revised December 6, 2023,
- g. “CONSTRUCTION DETAILS VIII”, sheet no. 9.07, and
- h. “CONSTRUCTION DETAILS IX”, sheet no. 9.08.

APPEAL OF DECISION:

Any person who is aggrieved by this decision may submit an adjudicatory hearing request within 30 calendar days after public notice of the decision is published in the DEP Bulletin (available at www.nj.gov/dep/bulletin). If a person submits the hearing request after this time, the Department shall deny the request. The hearing request must include a completed copy of the Administrative Hearing Request Checklist (available at www.nj.gov/dep/landuse/forms.html). A person requesting an adjudicatory hearing shall submit the original hearing request to: NJDEP Office of Administrative Hearings and Dispute Resolution, Attention: Adjudicatory Hearing Requests, Mail Code 401-07A, P.O. Box 420, 401 East State Street, 7th Floor, Trenton, NJ 08625-0420. Additionally, a copy of the hearing request shall be submitted to the Director of Watershed & Land Management at the address listed on page one of this permit. In addition to your hearing request, you may file a request with the Office of Dispute

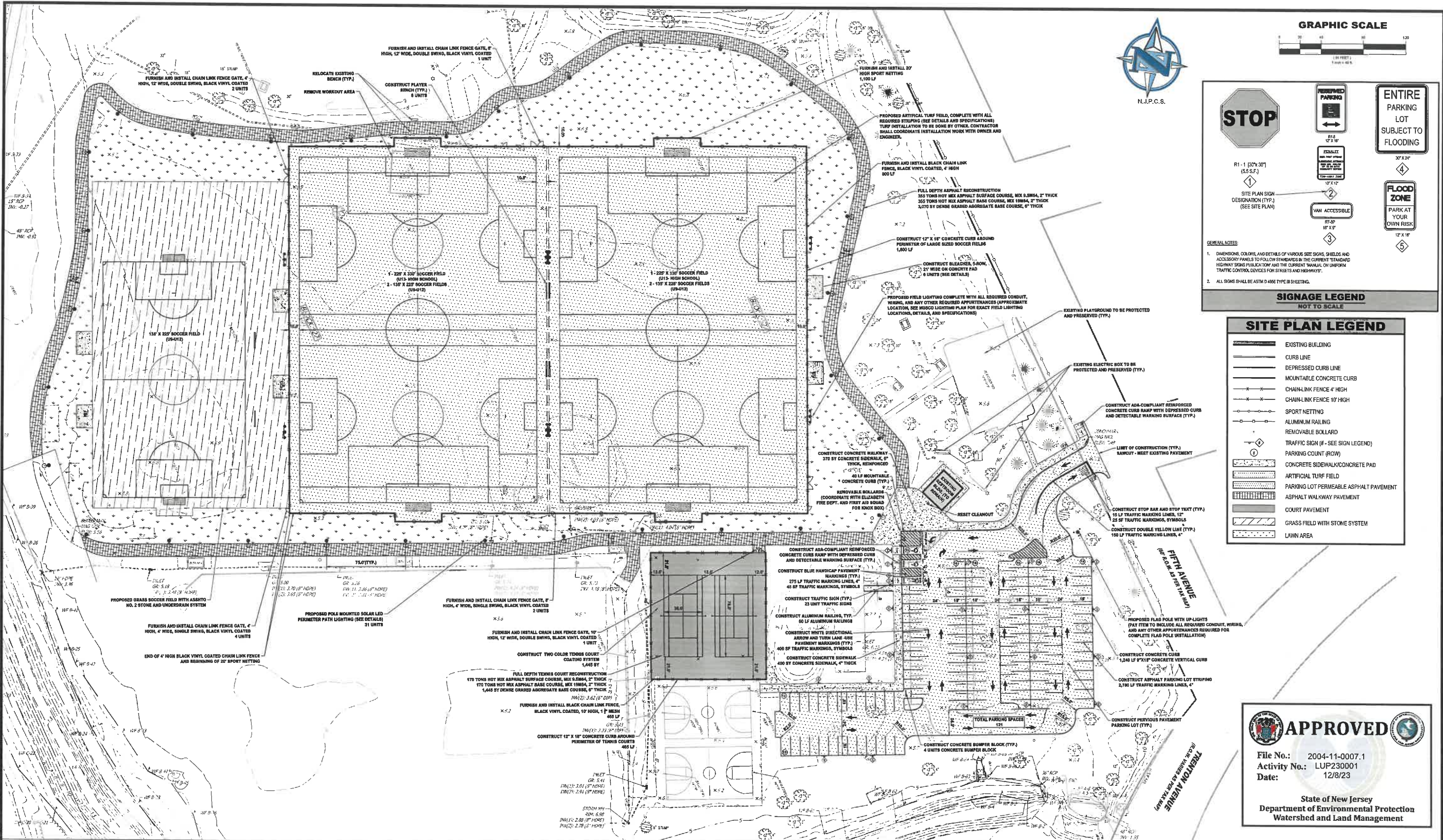
Resolution to engage in alternative dispute resolution. Please see www.nj.gov/dep/odr for more information on this process.

If you need clarification on any section of this permit or conditions, please contact Watershed & Land Management at (609) 777-0454.

Approved By:  Digitally signed
by Gary Nickerson
Date: 2023.12.08

~~14:45:40 -05'00'~~
Gary Nickerson, Environmental Specialist 4
Bureau of Coastal Permitting
Watershed & Land Management

- c: Municipal Clerk, Elizabeth City
- Municipal Construction Official, Elizabeth City
- Agent (original) – David Atkinson



GRAPHIC SCALE

1" = 10' (1:120)

SIGNAGE LEGEND
NOT TO SCALE

STOP (R1 - 1 (30" x 30") (5.5 S.F.))

ENTIRE PARKING LOT SUBJECT TO FLOODING (37' x 24')

FLOOD ZONE (PARK AT YOUR OWN RISK) (12' x 18')

RESERVED PARKING (R1.5 12' x 18')

WALK ACCESSIBLE (R7.5P 18' x 9')

GENERAL NOTES:

- DIMENSIONS, COLORS, AND DETAILS OF VARIOUS SIZE SIGNS, SHIELDS AND ACCESSORY PANELS TO FOLLOW STANDARDS IN THE CURRENT STANDARD HIGHWAY SIGN PUBLICATION AND THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS.
- ALL SIGNS SHALL BE ASTM D 4852 TYPE II SHEETING.

SITE PLAN LEGEND

- EXISTING BUILDING
- CURB LINE
- DEPRESSED CURB LINE
- MOUNTABLE CONCRETE CURB
- CHAIN LINK FENCE 4' HIGH
- CHAIN LINK FENCE 10' HIGH
- SPORT NETTING
- ALUMINUM RAILING
- REMOVABLE BOLLARD
- TRAFFIC SIGN (# - SEE SIGN LEGEND)
- PARKING COUNT (ROW)
- CONCRETE SIDEWALK/CONCRETE PAD
- ARTIFICIAL TURF FIELD
- PARKING LOT PERMEABLE ASPHALT PAVEMENT
- ASPHALT WALKWAY PAVEMENT
- COURT PAVEMENT
- GRASS FIELD WITH STONE SYSTEM
- LAWN AREA

APPROVED

File No.: 2004-11-0007.1
Activity No.: LUP230001
Date: 12/8/23

State of New Jersey
Department of Environmental Protection
Watershed and Land Management

CAUTION: IF THIS DOCUMENT DOES NOT CONTAIN THE RAISED IMPRESSION SEAL OF THE PROFESSIONAL, IT IS NOT AN AUTHORIZED ORIGINAL DOCUMENT AND MAY HAVE BEEN ALTERED. © COPYRIGHT 2023 BY NEGLIA ENGINEERING. ALL RIGHTS RESERVED.

NO.	DATE	REVISIONS	DRAWN	DESIGNED	CHECKED



Digitally signed by **DAVID W. ATKINSON, P.E., C.M.E.**
PROFESSIONAL ENGINEER
Date: 2023.12.08 00:04:03 -05'00'

THOMAS R. SOLFARO, P.E., C.M.E.
PROFESSIONAL ENGINEER
N.J. LICENSE NO. 41652

NEGLIA ENGINEERING ASSOCIATES
34 PARK AVENUE
LYNDHURST, NJ 07036
TEL: 201-938-8805

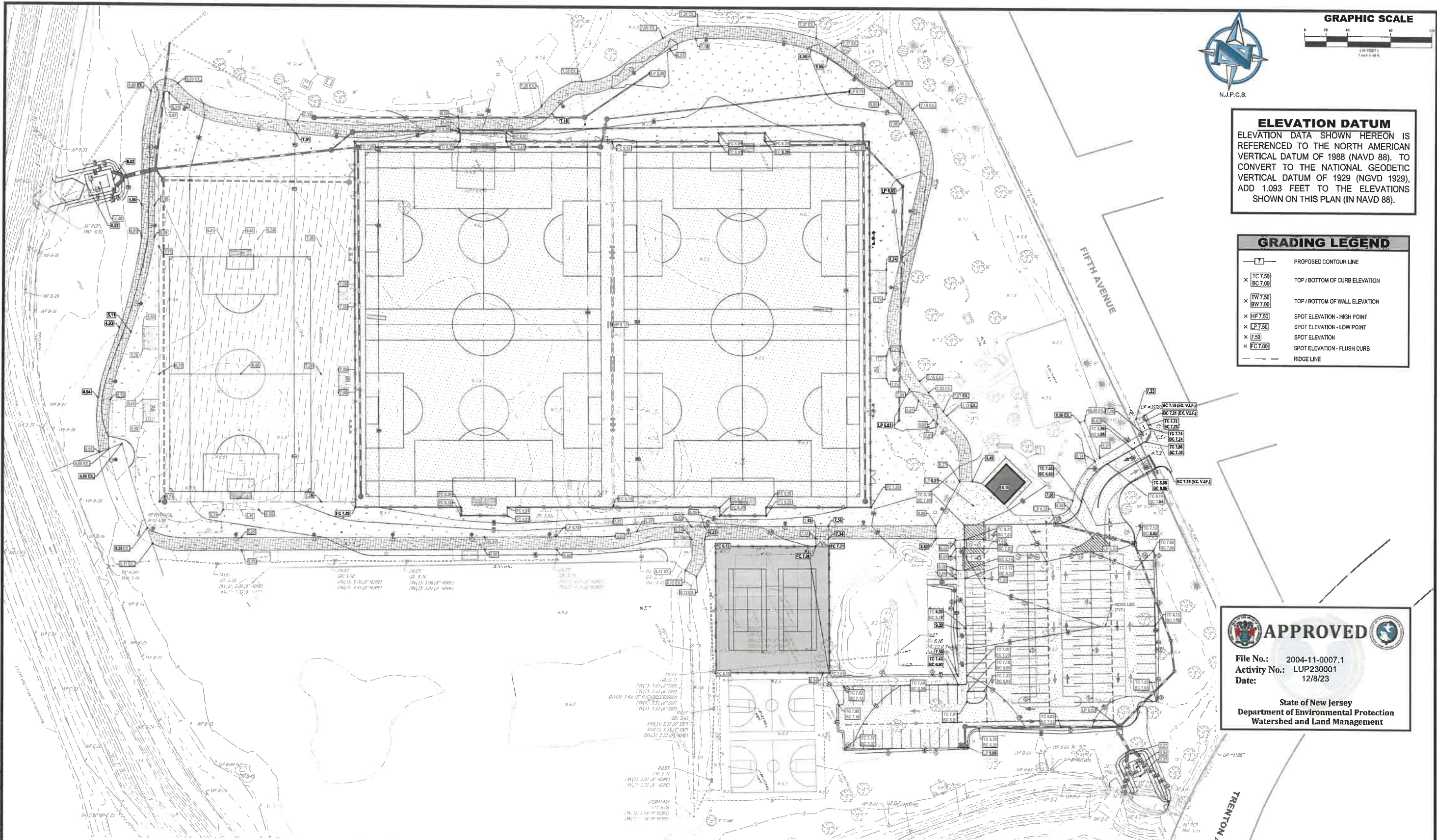
MICHAEL J. NEGLIA, P.E., P.L.S., P.P.
PROFESSIONAL ENGINEER
N.J. LICENSE NO. 38604

PROFESSIONAL LAND SURVEYOR
N.J. LICENSE NO. 38604

PROFESSIONAL PLANNER
N.J. LICENSE NO. 33100568600

SITE PLAN
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY **NEW JERSEY**

PROJECT NO.: UNIOCTY20.011
SHEET NO.: 4.00
DATE: AUGUST 1, 2023



ELEVATION DATUM
 ELEVATION DATA SHOWN HEREON IS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). TO CONVERT TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 1929), ADD 1.093 FEET TO THE ELEVATIONS SHOWN ON THIS PLAN (IN NAVD 88).

GRADING LEGEND

—	PROPOSED CONTOUR LINE
X TC 7.50 BC 7.00	TOP / BOTTOM OF CURB ELEVATION
X TW 7.50 BW 7.00	TOP / BOTTOM OF WALL ELEVATION
X HP 7.50	SPOT ELEVATION - HIGH POINT
X LP 7.50	SPOT ELEVATION - LOW POINT
X 7.50	SPOT ELEVATION
X FC 7.00	SPOT ELEVATION - FLUSH CURB
---	RIDGE LINE

APPROVED

File No.: 2004-11-0007.1
 Activity No.: LUP230001
 Date: 12/8/23

State of New Jersey
 Department of Environmental Protection
 Watershed and Land Management

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DAVID R. ATKINSON, P.E., C.M.E.
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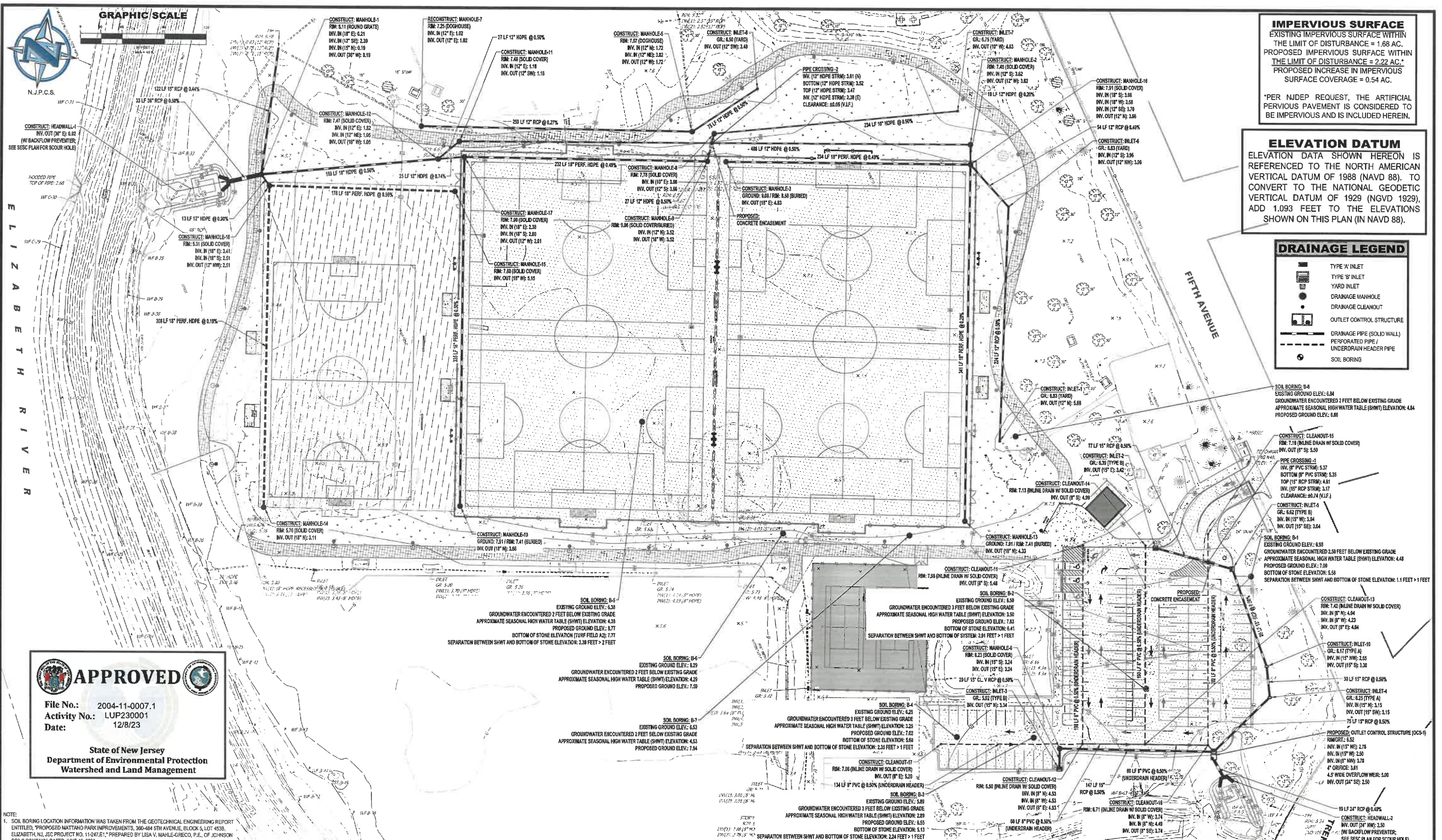
PROFESSIONAL LAND SURVEYOR
 N.J. LICENSE NO. 36624

PROFESSIONAL PLANNER
 N.J. LICENSE NO. 33L0056900

GRADING PLAN
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY NEW JERSEY

DRAWN BY: JV
 CHECKED BY: DRAMH
 FIELD BOOK NO. PAGE

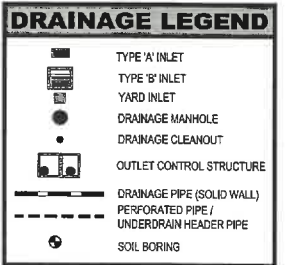
PROJECT NO.: **UNIOCT20.011**
 SHEET NO.: **5.00**
 DATE: 12/8/23



IMPERVIOUS SURFACE
 EXISTING IMPERVIOUS SURFACE WITHIN THE LIMIT OF DISTURBANCE = 1.68 AC.
 PROPOSED IMPERVIOUS SURFACE WITHIN THE LIMIT OF DISTURBANCE = 2.22 AC.
 PROPOSED INCREASE IN IMPERVIOUS SURFACE COVERAGE = 0.54 AC.

*PER NJDEP REQUEST, THE ARTIFICIAL PERVIOUS PAVEMENT IS CONSIDERED TO BE IMPERVIOUS AND IS INCLUDED HEREIN.

ELEVATION DATUM
 ELEVATION DATA SHOWN HEREON IS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). TO CONVERT TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 1929), ADD 1.093 FEET TO THE ELEVATIONS SHOWN ON THIS PLAN (IN NAVD 88).



SOIL BORING: B-4
 EXISTING GROUND ELEV.: 6.31
 GROUNDWATER ENCOUNTERED 2 FEET BELOW EXISTING GRADE
 APPROXIMATE SEASONAL HIGH WATER TABLE (SHWT) ELEVATION: 4.84
 PROPOSED GROUND ELEV.: 6.86

CONSTRUCT: CLEANOUT-15
 RIM: 7.18 (ONLINE DRAIN W/ SOLID COVER)
 INV. OUT (8" S): 5.59

CONSTRUCT: INLET-5
 GR.: 6.62 (TYPE B)
 INV. IN (15" S): 3.84
 INV. OUT (15" S): 3.04

SOIL BORING: B-1
 EXISTING GROUND ELEV.: 6.59
 GROUNDWATER ENCOUNTERED 2.59 FEET BELOW EXISTING GRADE
 APPROXIMATE SEASONAL HIGH WATER TABLE (SHWT) ELEVATION: 4.48
 PROPOSED GROUND ELEV.: 7.09
 BOTTOM OF STONE ELEVATION: 5.58
 SEPARATION BETWEEN SHWT AND BOTTOM OF STONE ELEVATION: 1.1 FEET > 1 FEET

CONSTRUCT: CLEANOUT-13
 RIM: 7.42 (ONLINE DRAIN W/ SOLID COVER)
 INV. IN (8" S): 4.84
 INV. IN (8" S): 4.23
 INV. OUT (8" S): 4.04

CONSTRUCT: INLET-10
 GR.: 6.17 (TYPE A)
 INV. IN (15" S): 2.55
 INV. OUT (15" S): 3.30

CONSTRUCT: INLET-4
 GR.: 4.25 (TYPE A)
 INV. IN (15" S): 1.15
 INV. OUT (15" S): 1.15

PROPOSED: OUTLET CONTROL STRUCTURE (OCS-1)
 RIM: 6.52
 INV. IN (15" S): 2.78
 INV. IN (15" S): 2.50
 INV. IN (8" S): 3.70
 4" ORIFICE: 3.61
 4.5" WIDE OVERFLOW WEIR: 5.00
 INV. OUT (24" S): 2.50

CONSTRUCT: CLEANOUT-16
 RIM: 6.71 (ONLINE DRAIN W/ SOLID COVER)
 INV. IN (8" S): 3.74
 INV. IN (8" S): 4.49
 INV. OUT (8" S): 3.74

CONSTRUCT: HEADWALL-2
 INV. OUT (24" S): 2.50
 (W/ BACKFLOW PREVENTER;
 SEE SESS PLAN FOR SCOUR HOLE)

APPROVED

File No.: 2004-11-0007.1
 Activity No.: LUP230001
 Date: 12/8/23

State of New Jersey
 Department of Environmental Protection
 Watershed and Land Management

NOTE:
 1. SOIL BORING LOCATION INFORMATION WAS TAKEN FROM THE GEOTECHNICAL ENGINEERING REPORT ENTITLED, "PROPOSED MATTANO PARK IMPROVEMENTS, 300-404 5TH AVENUE, BLOCK 5, LOT 403B, ELIZABETH, NJ, JSC PROJECT NO. 11-047.E1," PREPARED BY LISA V. MAHLE-GRECO, P.E., OF JOHNSON SOILS COMPANY, DATED JUNE 10, 2021.

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DRAINAGE PLAN
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY NEW JERSEY

PROJECT NO.: UNIOCTY20.011
 SHEET NO.: 6.00
 DATE: AUGUST 1, 2023



GRAPHIC SCALE



APPROXIMATE LOCATION OF FLOODWAY (TYP.)

MEAN HIGH WATER LINE/ TOP OF BANK (TYP.)

50.0' RIPARIAN ZONE

FEMA FLOOD HAZARD LINE (TYP.) (1 PCT ANNUAL CHANCE FLOOD HAZARD)

RIPIARIAN ZONE LIMITS (TYP.)

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File No.: 2004-11-0007.1
 Activity No.: LUP230001
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State of New Jersey
 Department of Environmental Protection
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RIPIARIAN ZONE DISTURBANCE CALCULATIONS

- FHA INDIVIDUAL PERMIT - 50-FOOT RIPARIAN ZONE
- STORMWATER DISCHARGE
 - HEADWALL AND OUTLET PROTECTION
 - TOTAL RIPARIAN DISTURBANCE = 0 SF / 0 AC.
 - MAXIMUM PERMITTED DISTURBANCE = 2,000 SF / 0.046 AC.
 - DISTURBANCE FOR HEADWALL AND OUTLET PROTECTION IS LESS THAN THE MAXIMUM (N.J.A.C. 7:13-11.2)
 - STORMWATER PIPE
 - TOTAL RIPARIAN DISTURBANCE = 0 SF / 0 AC.
 - MAXIMUM PERMITTED DISTURBANCE = 1,000 SF / 0.023 AC.
 - DISTURBANCE FOR STORMWATER PIPE IS LESS THAN THE MAXIMUM (N.J.A.C. 7:13-11.2)
 - REGULATED ACTIVITY NOT LISTED IN TABLE 11.2
 - CONSTRUCTION ASPHALT PATH, EXPANSION OF PARKING LOT AND PROPOSED GRADING
 - TOTAL PROPOSED TEMPORARY AND PERMANENT RIPARIAN DISTURBANCE = 0 SF / 0 AC.
 - MAXIMUM PERMITTED DISTURBANCE = 10,890 SF / 0.250 AC.
 - DISTURBANCE FOR PARKING LOT ASPHALT PATH AND GRADING IS LESS THAN THE MAXIMUM (N.J.A.C. 7:13-11.2)(i)

PERMITTING PLAN LEGEND

	LIMIT OF DISTURBANCE LINE
	TOP OF BANK LINE / MEAN HIGH WATER LINE (SEE NOTE NO.1)
	RIPIARIAN BUFFER LINE
	CONSERVATION RESTRICTION AREA (TO REMAIN UNDISTURBED)

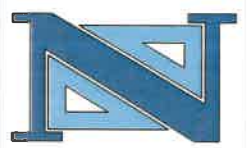
NOTES:

- PER EMAIL CORRESPONDENCE FROM BECKY MAZZEI OF THE NJ DEPARTMENT OF ENVIRONMENTAL PROTECTION DATED NOVEMBER 22, 2023, IT WAS DETERMINED THAT THE SURVEYED MEAN HIGH WATER LINE (MHWL) BE UTILIZED TO REPRESENT THE TOP OF BANK FOR THE ELIZABETH RIVER.
- THIS PROJECT DOES NOT PROPOSE ANY DISTURBANCE TO DESIGNATED RIPARIAN BUFFER ZONES OR THE ESTABLISHED CONSERVATION RESTRICTED AREA.

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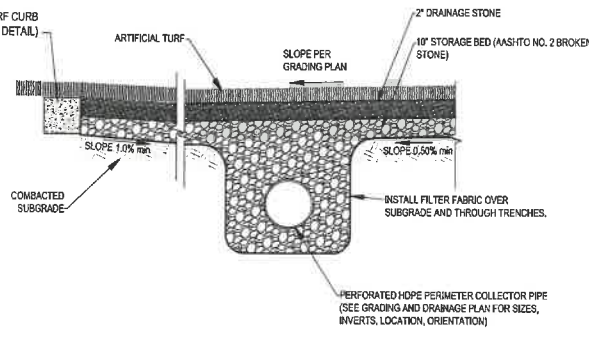
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PROFESSIONAL PLANNER
 N.J. LICENSE NO. 33J00566600

PERMITTING PLAN - FLOOD HAZARD AREA
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY NEW JERSEY

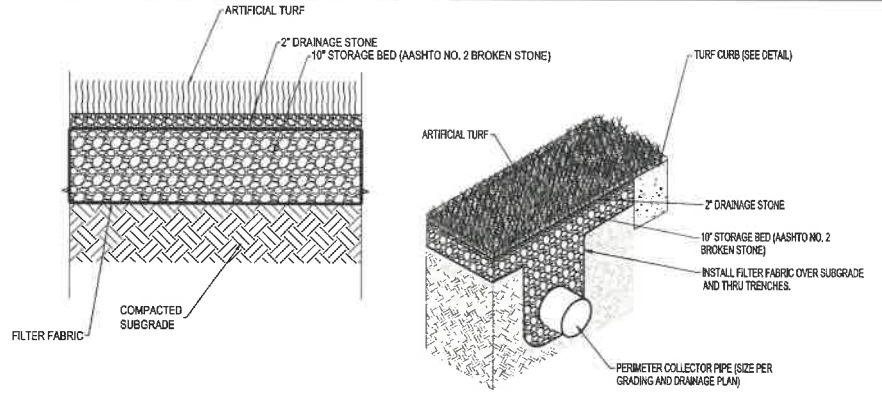
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 FIELD BOOK NO.: PAGE

PROJECT NO.: UNIOCTY20.011 SHEET NO.: 8.00
 DATE: AUGUST 1, 2023

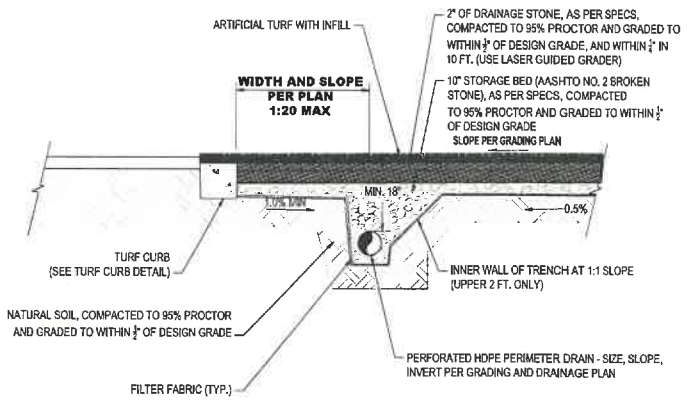


TYPICAL TURF EDGE
NOT TO SCALE

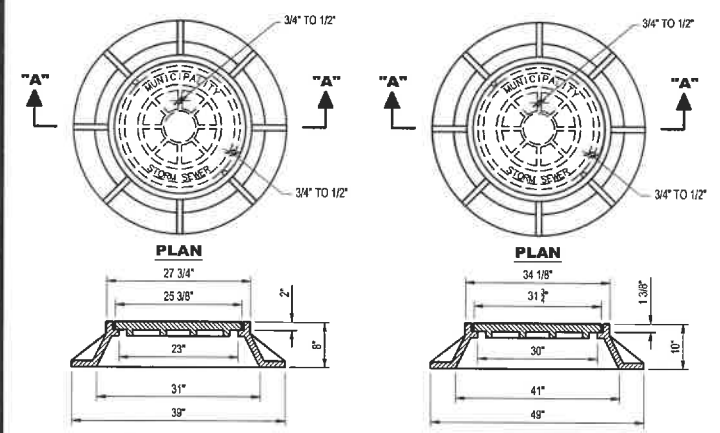
- FIELD DRAINAGE NOTES:**
1. THE NEW SUBGRADE WILL BE SHAPED AND COMPACTED TO 95% DENSITY WITH A 1.0% SLOPE TO ALLOW FOR DRAINAGE.
 2. A NEW CONCRETE CURB WILL BE INSTALLED AROUND THE PERIMETER TO PROVIDE A SECURE EDGE FOR FASTENING THE SYNTHETIC TURF.
 3. A GEOTEXTILE FILTER FABRIC WILL BE PLACED OVER THE SUBGRADE AND COMPOSITE DRAINS WILL BE INSTALLED AT 20 FEET ON CENTER AT A 45 DEGREE ANGLE TO THE FIELD. REFER TO THE FIELD DRAINAGE PLAN.
 4. A PERIMETER COLLECTOR WILL BE INSTALLED WHICH WILL BE CONNECTED TO THE PROPOSED DRAINAGE SYSTEM. REFER TO THE GRADING AND DRAINAGE PLAN AND DRAINAGE DETAILS.
 5. CLEAN WASHED STONE WILL BE PLACED OVER THE PERIMETER COLLECTORS AND FINE GRADED.
 6. A 2" LAYER (MAX. DEPTH) OF FINISH STONE WILL BE FINE GRADED OVER THE BASE STONE.
 7. SYNTHETIC TURF WILL BE INSTALLED OVER THE STONE BASE.
 8. UNIT PRICE FOR PIPE, OF THE VARIOUS TYPES & SIZES SPECIFIED INCLUDES: ANY SAWCUTTING, EXCAVATION, CRUSHED STONE, GRADING, CONCRETE & ASPHALT REMOVAL, AND PROPER DISPOSAL OF ALL WASTE AS A RESULT THEREOF.



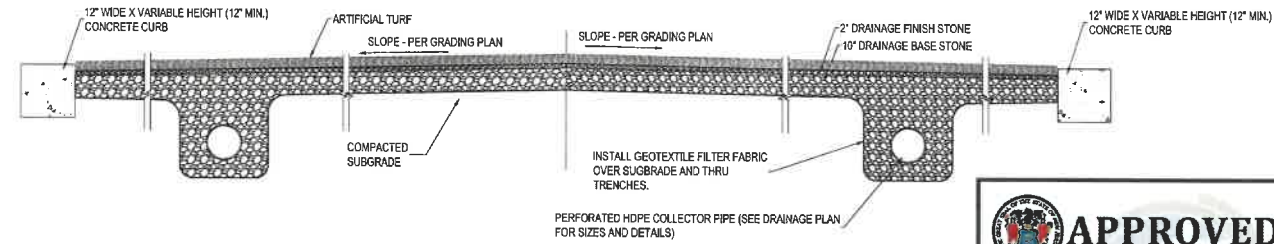
ISOMETRIC VIEW OF COLLECTOR PIPE
NOT TO SCALE



ARTIFICIAL TURF PERIMETER DRAIN
NOT TO SCALE



STANDARD MANHOLE FRAME & COVER
NOT TO SCALE

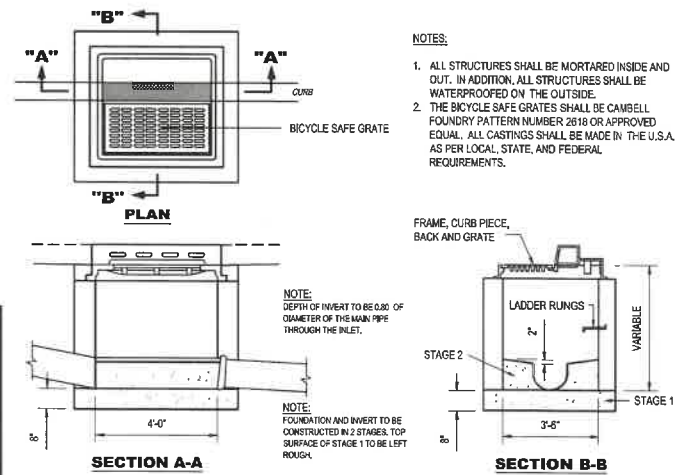


SECTION THROUGH FIELD
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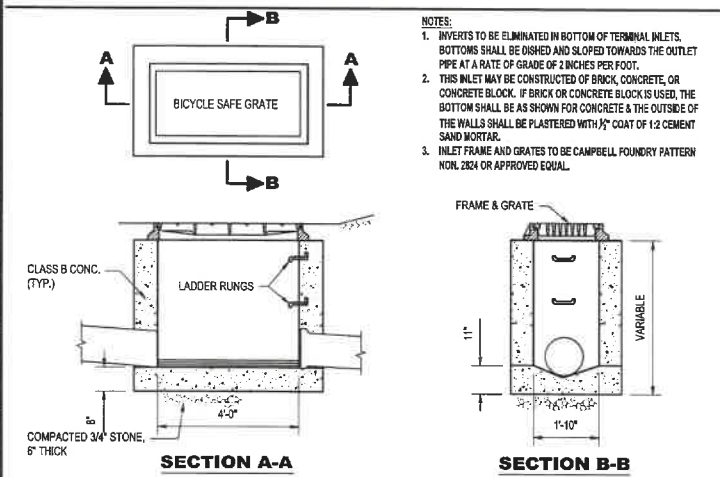
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File No.: 2004-11-0007.1
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Date: 12/8/23

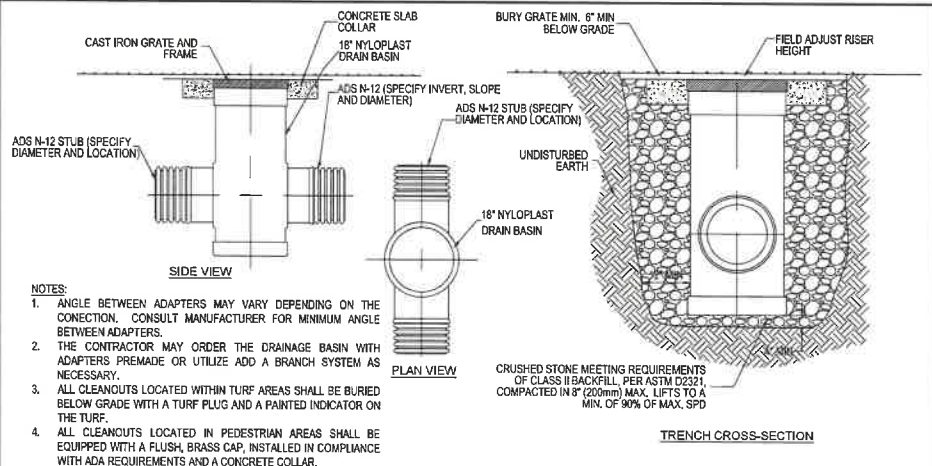
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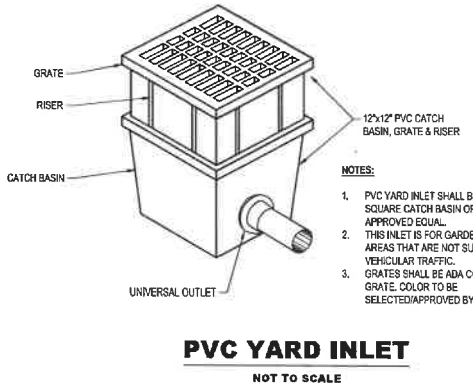
INLET TYPE "B"
NOT TO SCALE



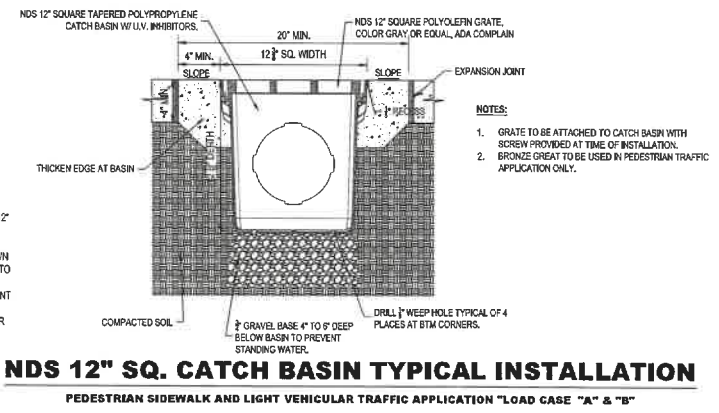
INLET TYPE "A"
NOT TO SCALE



RISER/BURIED CLEANOUT W/ACCESS FRAME DETAIL
NOT TO SCALE



PVC YARD INLET
NOT TO SCALE



NDS 12" SQ. CATCH BASIN TYPICAL INSTALLATION
PEDESTRIAN SIDEWALK AND LIGHT VEHICULAR TRAFFIC APPLICATION "LOAD CASE "A" & "B"

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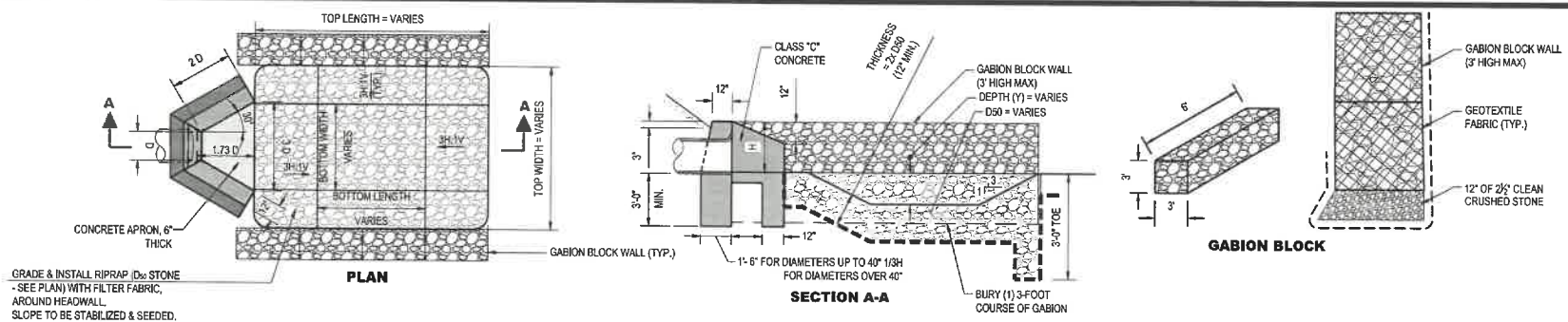
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CONSTRUCTION DETAILS VII
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY NEW JERSEY

DESIGNED BY: J.V. CHECKED BY: DRAMH PROJECT NO. UNIOCTY20.011 SHEET NO. 9.06
SCALE: N.T.S. DATE: AUGUST 1, 2023



- NOTES:**
- CONTRACTOR TO INSTALL GEOTEXTILE FABRIC BETWEEN GABION WALL AND SOIL BACKFILL TO PREVENT SOIL MOVEMENT THROUGH THE BASKETS.
 - CONTRACTOR TO PROVIDE GABION WIRE BASKETS THAT CONFORM TO THE DIMENSIONS SHOWN ON THE PLANS WITH A TOLERANCE OF 5 PERCENT. USE WIRE MESH THAT IS GALVANIZED STEEL WIRE NO. 12 GAUGE AND TENSILE STRENGTH BETWEEN 60,000 AND 80,000 PSI. GABION WIRE BASKETS ARE TO CONFORM TO NJDOT STANDARD ROADWAY CONSTRUCTION SPECIFICATIONS 2018, LATEST REVISED.

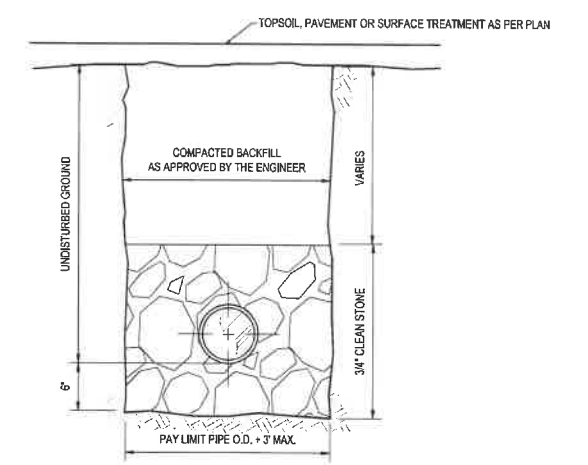
- CONDUIT OUTLET PROTECTION AND RIPRAP NOTES:**
- FIFTY PERCENT BY WEIGHT OF THE RIPRAP MIXTURE SHALL BE SMALLER THAN THE MEDIAN SIZE STONE DESIGNATED AS D50. THE LARGEST STONE SIZE IN THE MIXTURE SHALL BE 1.5 TIMES THE D50 SIZE. THE RIPRAP SHALL BE REASONABLY WELL GRADED.
 - THE THICKNESS OF RIPRAP LINING SHALL BE AT LEAST TWO TIMES THE D50 STONE SIZE WITH THE USE OF A GEOTEXTILE FILTER LAYER, MIRAFI 140N OR EQUAL.
 - THE WIDTH OF THE APRON AT THE CULVERT OUTLET SHALL BE AT LEAST 3 TIMES THE CULVERT WIDTH.
 - WHERE THERE IS A WELL-DEFINED CHANNEL DOWNSTREAM OF THE APRON, THE BOTTOM WIDTH OF THE APRON SHALL BE AT LEAST EQUAL TO THE BOTTOM WIDTH OF THE CHANNEL; AND THE STRUCTURAL LINING SHALL EXTEND AT LEAST ONE FOOT ABOVE THE TAILWATER ELEVATION BUT NO LOWER THAN TWO-THIRDS OF THE VERTICAL CONDUIT DIMENSION ABOVE THE CONDUIT INVERT.
 - THE SIDE SLOPES SHALL BE 3:1 OR FLATTER.
 - THE BOTTOM GRADE SHALL BE 0.0% (LEVEL).
 - THERE SHALL BE NO OVER FALL AT THE END OF THE APRON OR AT THE END OF THE CULVERT.
 - NO BENDS OR CURVES AT THE INTERSECTION OF THE CONDUIT AND THE RIP RAP APRON WILL BE PERMITTED.
 - PLASTIC-COATED WIRE MESH STONE-FILLED BASKETS OR MATTRESSES OR CONCRETE REVELMENT BLOCKS MAY BE SUBSTITUTED FOR RIPRAP IF THE D50 SIZE CALCULATED ABOVE IS LESS THAN OR EQUAL TO THE THICKNESS OF THE WIRE MESH STRUCTURES OR CONCRETE REVELMENT BLOCKS. DESIGN LIFE OF THE WIRE MESH STRUCTURES IS ESTIMATED TO BE TEN (10) YEARS (MINIMUM). WIRE MESH BASKETS SHALL BE FILLED WITH 4" TO 7" ANGULAR SHAPED ROCK. ENGINEERING DESIGN REQUIRED FOR ANY SUBSTITUTIONS.
 - PERFORMED SCOUR HOLES MAY BE UTILIZED, IN ACCORDANCE WITH NJ EROSION CONTROL STANDARDS WHERE CONDITIONS DICTATE THE IMPRACTICAL USE OF FLAT APRONS. THE USE OF SCOUR HOLES SHALL COMPLY WITH COUNTY OR LOCAL ORDINANCES WHICH WOULD RESTRICT THE USE OF SUCH DEVICES DUE TO POSSIBLE PROBLEMS WITH MOSQUITO BREEDING. ENGINEERING DESIGN REQUIRED FOR ANY SUBSTITUTIONS.

PIPE SIZE	HEADWALL IN CUBIC YARDS		APRONS IN CUBIC YARDS	
	COR.METAL	RESN. CONC.	RESN. CONC.	CONC.
12"	1.1	1.1	0.2	0.2
18"	1.1	1.1	0.2	0.2
24"	2.3	2.3	0.4	0.4
30"	3.5	3.5	0.6	0.6
36"	4.7	4.7	0.8	0.8
42"	5.9	5.9	1.0	1.0
48"	7.1	7.1	1.2	1.2
54"	8.3	8.3	1.4	1.4
60"	9.5	9.5	1.6	1.6
66"	10.7	10.7	1.8	1.8
72"	11.9	11.9	2.0	2.0

- NOTES:**
- ALL EDGES TO BE CHAMFERED 1".
 - CONCRETE TO BE N.J.D.O.T., CLASS "C".
 - APRONS TO BE 6" THICK CONCRETE, FLAT AT OUTLET END, DISHED AT INLET END.
 - EXPOSED PORTIONS OF WALL TO BE RUBBED AND FLOATED.
 - FOR ARCH PIPE, THE SPAN SHALL BE SUBSTITUTED FOR D.

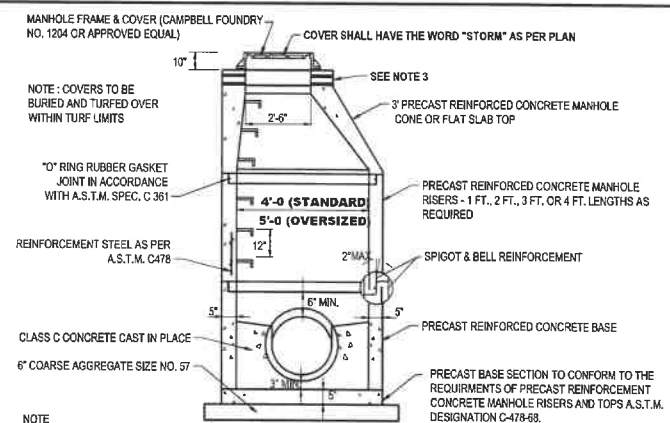
STORMWATER OUTFALL AND SCOUR HOLE

NOT TO SCALE



TRENCH FOR STORM SEWER

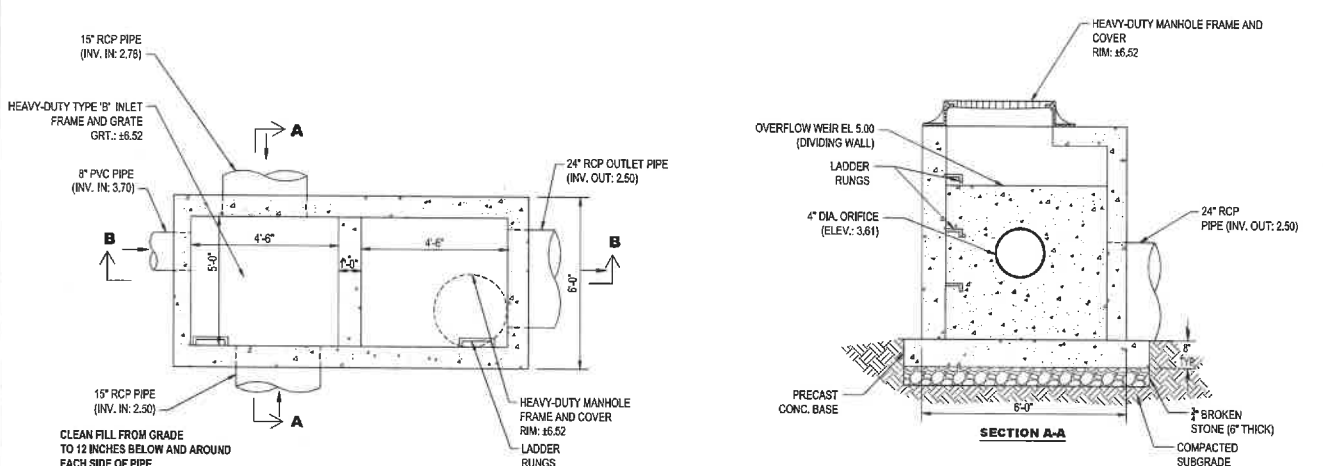
NOT TO SCALE



- NOTE:**
- ALL PIPES ARE TO BE CUT FLUSH WITH STRUCTURE WALL.
 - COST FOR FRAME AND COVER ARE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.
 - SHOP DRAWINGS MUST BE SUBMITTED BY A NEW JERSEY PROFESSIONALLY LICENSED ENGINEER FOR ALL PROPOSED PRECAST STRUCTURES THREE (3) WEEKS PRIOR TO CONSTRUCTION.

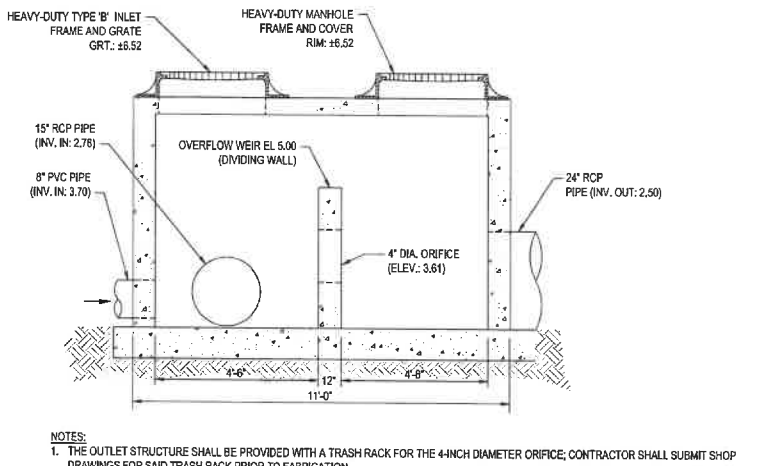
PRECAST CONCRETE MANHOLE

NOT TO SCALE



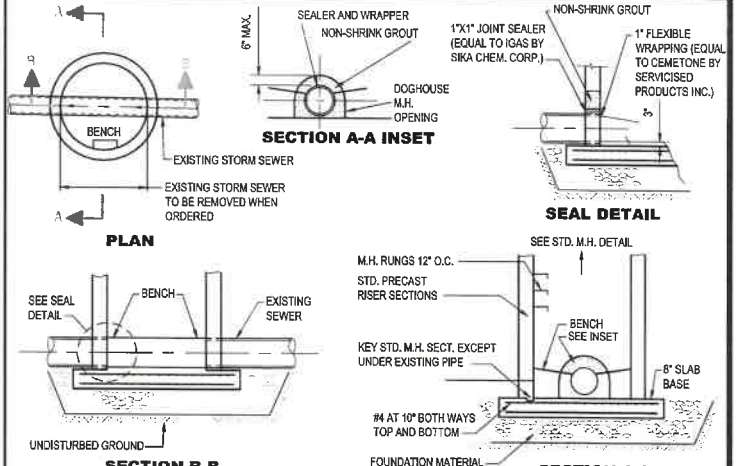
OUTLET CONTROL STRUCTURE (OSC-1)

NOT TO SCALE



DOGHOUSE MANHOLE

NOT TO SCALE



DOGHOUSE MANHOLE

NOT TO SCALE

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Digitally signed by **DAVID R. ATKINSON, P.E., C.M.E.**
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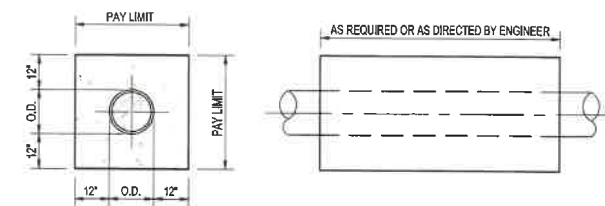
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PROFESSIONAL LAND SURVEYOR
 N.J. LICENSE NO. 39604

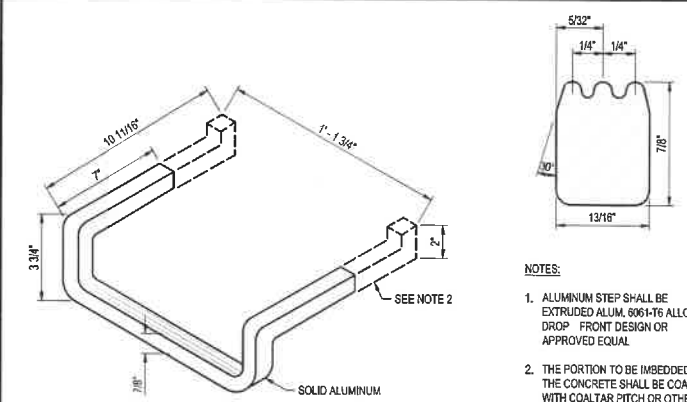
PROFESSIONAL PLANNER
 N.J. LICENSE NO. 3310096000

CONSTRUCTION DETAILS VIII
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY NEW JERSEY

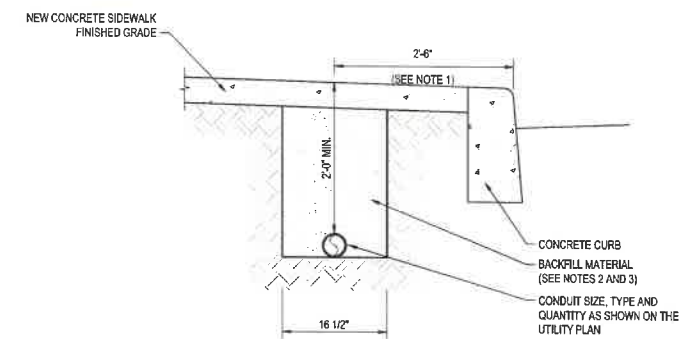
DESIGNED BY: JV CHECKED BY: DRAWH PROJECT NO.: UNIOCTY20.011 SHEET NO.: 9.07
 FIELD BOOK NO. SCALE: N.T.S. DATE: AUGUST 1, 2023



SECTION PLAN AND ELEVATION
CONCRETE ENCASEMENT
 NOT TO SCALE



MANHOLE LADDER RUNGS
 NOT TO SCALE



- NOTES:**
- WHERE TREE EXISTS ALONG THE CURB LINE THE OFFSET DIMENSION SHALL BE INCREASED TO AVOID DISTURBING THE TREE ROOT.
 - BACKFILL SHALL BE SELECT MATERIAL FREE OF LARGE STONE, FROZEN MATERIAL, CHNDERS AND ASHES. THE BACKFILL MATERIAL SHALL BE PLACED IN TWO EQUAL LIFTS. EACH LIFT SHALL BE THOROUGHLY COMPACTED WITH A MODIFIED VIBRATORY PLATE COMPACTOR.
 - FOR 2" CONDUIT TYPE CURB, THE TRENCH SHALL BE BACKFILLED WITH #10 DOT CLASS C CONCRETE TO WITHIN 2" OF FINAL GRADE.

CONDUIT TRENCH (OFF-ROAD)
 NOT TO SCALE

APPROVED

File No.: 2004-11-0007.1
 Activity No.: LUP230001
 Date: 12/8/23

State of New Jersey
 Department of Environmental Protection
 Watershed and Land Management

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REVISIONS			
NO.	DATE	DESCRIPTION	
1.	2023/12/07	REVISED PER NJDEP COMMENTS	DRAWN DESIGNED CHECKED J.V. J.V. N.H.



Digitally signed by **DAVID R. ATKINSON, P.E., C.M.E.**
 Reason: I am the author of this document.
 Date: 2023.12.08 00:27:21 -05'00'

THOMAS R. SOLFARO, P.E., C.M.E.
 PROFESSIONAL ENGINEER
 N.J. LICENSE NO. 41935

A PROJECT OF
NEGLIA ENGINEERING ASSOCIATES
 34 PARK AVENUE NEW JERSEY
 TEL: 201-939-0805 LYNDHURST FAX: 201-939-0846 E-MAIL: NEA@NEGLIAENGINEERING.COM

MICHAEL J. NEGLIA, P.E., P.L.S., P.P.
 PROFESSIONAL ENGINEER N.J. LICENSE NO. 38604
 PROFESSIONAL LAND SURVEYOR N.J. LICENSE NO. 38604
 PROFESSIONAL PLANNER N.J. LICENSE NO. 33L0056900

CONSTRUCTION DETAILS IX
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY NEW JERSEY

DRAWN BY: JV CHECKED BY: DRAMH PROJECT NO.: UNIOCTY20.011 SHEET NO.: 9.08
 DESIGNED BY: JV SCALE: N.T.S. DATE: AUGUST 1, 2023
 FIELD BOOK NO.: PAGE

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State of New Jersey

PHILIP D. MURPHY
Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION

SHAWN M. LATOURETTE
Commissioner

TAHESHA L. WAY
Lt. Governor

Division of Land Resource Protection
Mail Code 501-02A
P.O. Box 420
Trenton, New Jersey 08625-0420
www.nj.gov/dep/landuse

July 31, 2024

Ricardo Matias
Union County
2325 South Avenue
Scotch Plains, NJ 07076

RE: Freshwater Wetlands Letter of Interpretation: Line Verification
File No.: 2004-11-0007.1
Activity Number: LLI230001
RSP Service ID# 1589932
Applicant: UNION COUNTY
Block(s) and Lot(s): [527, 1]
Elizabeth City, Union County

Dear Mr. Matias:

This letter is in response to your request for a Letter of Interpretation to have the Division of Land Resource Protection (Division) staff verify the boundary of the freshwater wetlands and/or State open waters on the referenced property.

In accordance with agreements between the State of New Jersey Department of Environmental Protection, the U.S. Army Corps of Engineers Philadelphia and New York Districts, and the U.S. Environmental Protection Agency, the NJDEP, the Division is the lead agency for establishing the extent of State and Federally regulated wetlands and waters. The USEPA and/or USACOE retain the right to reevaluate and modify the jurisdictional determination at any time should the information prove to be incomplete or inaccurate.

Based upon the information submitted, and upon a site inspection conducted by Division staff on September 21, 2023, the Division has determined that the wetlands and waters boundary lines as shown on the plan map entitled: "LOI PLAN MATTANO PARK IMPROVEMENTS BLOCK 527-LOT 1 CITY OF ELIZABETH UNION COUNTY NEW JERSEY", consisting of 2 sheets, dated March 12, 2024, last revised July 25, 2024, and prepared by Thomas R. Solfaro, is accurate as shown.

The freshwater wetlands and waters boundary lines, as determined in this letter, must be shown on any future site development plans. The lines should be labeled with the above file number and the following note:

"Freshwater Wetlands/Waters Boundary Line as verified by NJDEP"

Wetlands Resource Value Classification ("RVC")

In addition, the Division has determined that the resource value and the standard transition area or buffer required adjacent to the delineated wetlands are as follows:

Exceptional: WFC14 to WFC21. [150-foot wetland buffer]

Intermediate: WFA1 to WFA6, WFB1 to WFB67, WFC1 to WFC13, WFC22 to WFC33. [50-foot wetland buffer]

State Open Water: All within/behind wetlands flagged WFC1 to WFC33. [No wetland buffer]

RVC may affect requirements for wetland and/or transition area permitting. This classification may affect the requirements for an Individual Wetlands Permit (see N.J.A.C. 7:7A-7), the types of Statewide General Permits available for the property (see N.J.A.C. 7:7A-4) and any modification available through a transition area waiver (see N.J.A.C. 7:7A-6). Please refer to the Freshwater Wetlands Protection Act (N.J.S.A. 13:9B-1 et seq.) and implementing rules for additional information.

Wetlands resource value classification is based on the best information available to the Department. The classification is subject to reevaluation at any time if additional or updated information is made available, including, but not limited to, information supplied by the applicant.

Under N.J.S.A. 13:9B-7a (2), if the Division has classified a wetland as exceptional resource value, based on a finding that the wetland is documented habitat for threatened and endangered species that remains suitable for use for breeding, resting or feeding by such species, an applicant may request a change in this classification. Such requests for a classification change must demonstrate that the habitat is no longer suitable for the documented species because there has been a change in the suitability of this habitat. Requests for resource value classification changes and associated documentation should be submitted to the Division at the address at the top of this letter.

General Information

Pursuant to the Freshwater Wetlands Protection Act Rules, you are entitled to rely upon this jurisdictional determination for a period of five years from the date of this letter unless it is determined that the letter is based on inaccurate or incomplete information. Should additional information be disclosed or discovered, the Division reserves the right to void the original letter of interpretation and issue a revised letter of interpretation.

Regulated activities proposed within a wetland, wetland transition area or water area, as defined by N.J.A.C. 7:7A-2.2 and 2.6 of the Freshwater Wetlands Protection Act rules, require a permit from this office unless specifically exempted at N.J.A.C. 7:7A-2.8. The approved plan and supporting jurisdictional limit information are now part of the Division's public records.

Please be advised, surface water features onsite may possess flood hazard areas and/or riparian zones. Development within these areas may be subject to the Flood Hazard Area Control Act rules at N.J.A.C. 7:13. The Division can verify the extent of flood hazard areas and/or riparian zones through a flood hazard area verification under the application procedures set forth at N.J.A.C. 7:13-5.1.

This letter in no way legalizes any fill which may have been placed, or other regulated activities which may have occurred on-site. This determination of jurisdiction extent or presence does not make a finding that wetlands or water areas are "isolated" or part of a surface water tributary system unless specifically called out in this letter as such. Furthermore, obtaining this determination does not affect your responsibility to obtain any local, State, or Federal permits which may be required.

Recording

Within 90 calendar days of the date of this letter, the applicant shall submit the following information to the clerk of each county in which the site is located, and shall send proof to the Division that this information is recorded on the deed of each lot referenced in the letter of interpretation:

1. The Department file number for the letter of interpretation;
2. The approval and expiration date of the letter of interpretation;

3. A metes and bounds description of the wetland boundary approved under the letter of interpretation;
4. The width and location of any transition area approved under the letter of interpretation; and
5. The following statement: "The State of New Jersey has determined that all or a portion of this lot lies in a freshwater wetland and/or transition area. Certain activities in wetlands and transition areas are regulated by the New Jersey Department of Environmental Protection and some activities may be prohibited on this site or may first require a freshwater wetland permit. Contact the Division of Land Resource Protection at (609) 777-0454 or <http://www.nj.gov/dep/landuse> for more information prior to any construction onsite."

Failure to have this information recorded in the deed of each lot and/or to submit proof of recording to the Division constitutes a violation of the Freshwater Wetlands Protection Act rules and may result in suspension or termination of the letter of interpretation and/or subject the applicant to enforcement action pursuant to N.J.A.C. 7:7A-22.

Appeal Process

In accordance with N.J.A.C. 7:7A-1.7, any person who is aggrieved by this decision may request a hearing within 30 days of the date the decision is published in the DEP Bulletin by writing to: New Jersey Department of Environmental Protection, Office of Legal Affairs, Attention: Adjudicatory Hearing Requests, P.O. Box 402, Trenton, NJ 08625-0402. This request must include a completed copy of the Administrative Hearing Request Checklist found at www.state.nj.us/dep/landuse/forms. Hearing requests received after 30 days of publication notice may be denied. The DEP Bulletin is available on the Department's website at www.state.nj.us/dep/bulletin. In addition to your hearing request, you may file a request with the Office of Dispute Resolution to engage in alternative dispute resolution. Please see the website www.nj.gov/dep/odr for more information on this process.

Please contact Andrew Mazza of our staff by e-mail andrew.mazza@dep.nj.gov at or (609) 777-0454 should you have any questions regarding this letter. Be sure to indicate the Department's file number in all communication.

Sincerely,



Date: 2024.07.31
13:40:11 -04'00'

Matthew Resnick, Environmental Specialist III
Bureau of Freshwater Wetlands and Highlands Permitting
Division of Land Resource Protection

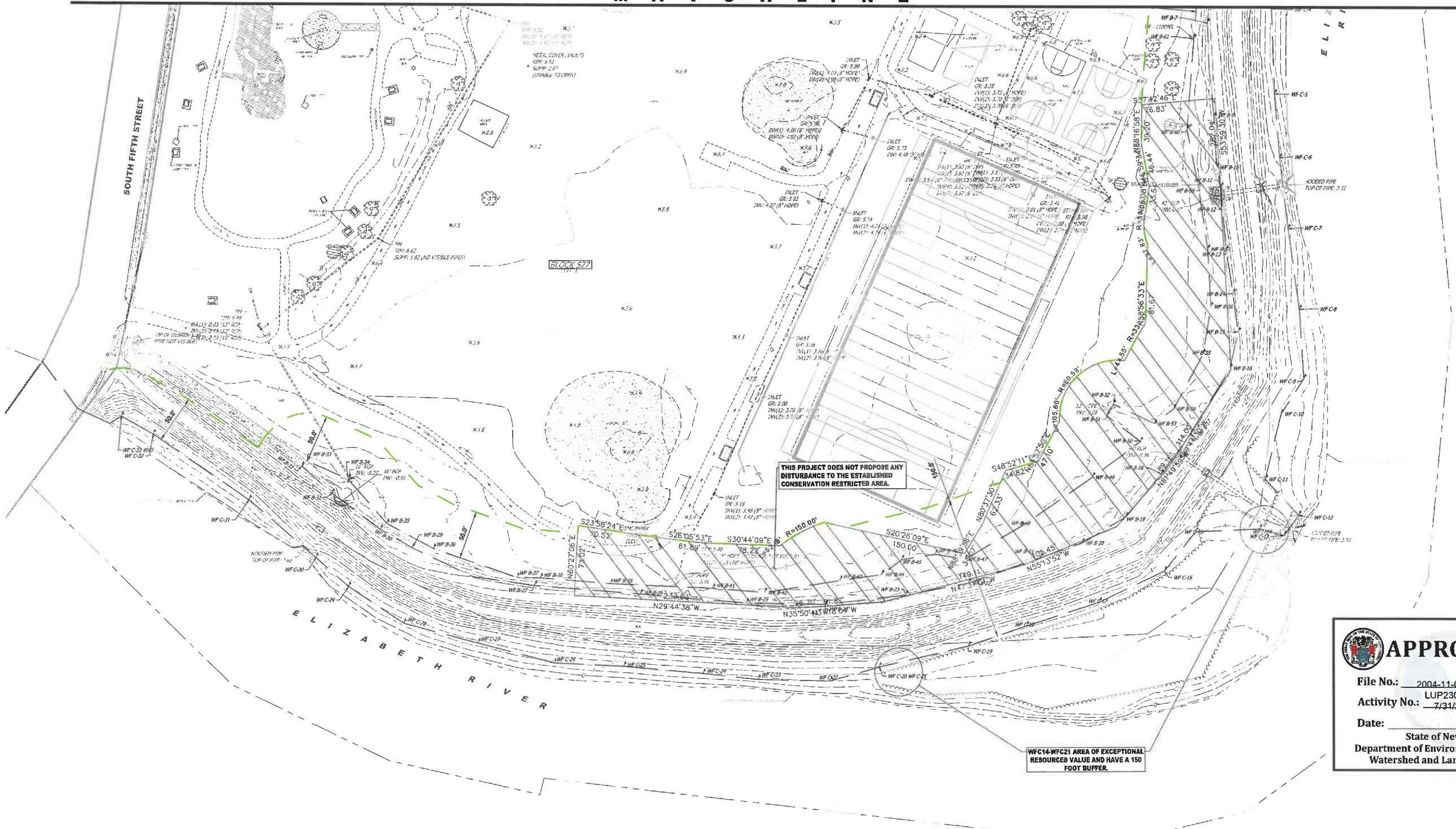
e-copy: Municipal Clerk
Municipal Construction Official
Agent (original)

GRAPHIC SCALE



N.J.P.C.S.

M A T C H L I N E



THIS PROJECT DOES NOT PROPOSE ANY DISTURBANCE TO THE ESTABLISHED CONSERVATION RESTRICTED AREA.

WFC14-WFC21 AREA OF EXCEPTIONAL RESOURCES VALUE AND HAVE A 150 FOOT BUFFER.

APPROVED

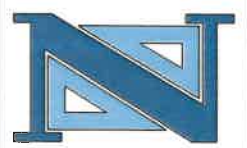
File No.: 2004-11-0007.1
 Activity No.: LUP230001
 Date: 7/31/24

State of New Jersey
 Department of Environmental Protection
 Watershed and Land Management

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CERTIFICATE OF AUTHORIZATION (N.J.S.A. 45:8-56) 24GA27927000

NO.	DATE	DESCRIPTION	DRAWN	DESIGNED	CHECKED
1.	2024/03/22	REVISED PER NDEP COMMENTS	J.V.	J.V.	N.H.
2.	2024/06/28	REVISED PER NDEP COMMENTS	J.V.	J.V.	N.H.
3.	2024/07/02	REVISED PER NDEP COMMENTS	J.V.	J.V.	N.H.
4.	2024/07/25	REVISED PER NDEP COMMENTS	J.V.	J.V.	N.H.



Digitally signed by
DAVID R. ATKINSON, P.E., C.M.E.
 PROFESSIONAL ENGINEER
 N.J. LICENSE NO. 41835

Digitally signed by
THOMAS R. SOLFARO, P.E., C.M.E.
 PROFESSIONAL ENGINEER
 N.J. LICENSE NO. 41835

Date: 2024.07.25
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NEGLIA ENGINEERING ASSOCIATES
 A PROJECT OF
 34 PARK AVENUE
 LYNDHURST, NEW JERSEY
 TEL: 201-939-8805 FAX: 201-939-0846 E-MAIL: NEA@NEGLIAENGINEERING.COM

MICHAEL J. NEGLIA, P.E., P.L.S., P.P.
 PROFESSIONAL ENGINEER N.J. LICENSE NO. 36604
 PROFESSIONAL LAND SURVEYOR N.J. LICENSE NO. 39604
 PROFESSIONAL PLANNER N.J. LICENSE NO. 33LD056800

LOI PLAN
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY NEW JERSEY

DRAWN BY: JV CHECKED BY: DRAWN PROJECT NO.: UNIOCTY20.011 SHEET NO.: 2 OF 2
 DESIGNED BY: JV SCALE: 1" = 10' FIELD BOOK NO.: DATE: MARCH 12, 2024

C:\Users\jv\OneDrive\Documents\2024\20240725\20240725.dwg Plot Date: 7/25/24 1:55:43 PM



**STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATERSHED & LAND MANAGEMENT**
Mail Code 501-02A, P.O. Box 420, Trenton, New Jersey 08625-0420
Telephone: (609) 777-0454 or Fax: (609) 777-3656
www.nj.gov/dep/landuse



PERMIT

<p>In accordance with the laws and regulations of the State of New Jersey, the Department of Environmental Protection hereby grants this permit to perform the activities described below. This permit is revocable with due cause and is subject to the terms, conditions, and limitations listed below and on the attached pages. For the purpose of this document, "permit" means "approval, certification, registration, authorization, waiver, etc." Violation of any term, condition, or limitation of this permit is a violation of the implementing rules and may subject the permittee to enforcement action.</p>		Approval Date 8/1/24
		Expiration Date 7/31/29
Permit Number(s): 2004-11-0007.1 LUP230001	Type of Approval(s): FWW GP11 Outfalls/Intake Structures TAW - Special Activity Redevelopment Water Quality Certificate	Governing Rule(s): N.J.A.C. 7:7A-1.1(a)
Permittee: Ricardo Matias Union County 2325 South Avenue Scotch Plains, NJ 07076	Site Location: Block(s) & Lot(s): [5, 453B] [527, 1] Municipality: Elizabeth City County: Union	
Description of Authorized Activities: <p>This document authorizes the construction of two (2) stormwater outfall structures, the redevelopment of an existing asphalt walking path, and redevelopment of a portion of a paved parking area. The project is in association with the redevelopment of a public park, located on the parcels referenced above.</p> <p>This authorization to conduct activities in wetlands and/or waters includes the issuance of a Water Quality Certificate.</p> <p><i>The Department has determined that the herein approved activities meet the requirements of the (FHACA/CZM) rules. This approval does not obviate the local Floodplain Administrator's responsibility to ensure all development occurring within their community's Special Flood Hazard Area is compliant with the local Flood Damage Prevention Ordinance, and minimum NFIP standards, regardless of any state-issued permits. FEMA requires communities to review and permit all proposed construction or other development within their SFHA in order to participate in the NFIP.</i></p>		
Prepared by: Andrew Mazza	Received and/or Recorded by County Clerk:	
<p>If the permittee undertakes any regulated activity, project, or development authorized under this permit, such action shall constitute the permittee's acceptance of the permit in its entirety as well as the permittee's agreement to abide by the requirements of the permit and all conditions therein.</p>		
This permit is not valid unless authorizing signature appears on the last page.		

STATEMENT OF AUTHORIZED IMPACTS:

The authorized activities allow for the permittee to undertake impacts to regulated areas as described below. Additional impacts to regulated areas without prior Department approval shall constitute a violation of the rules under which this document is issued and may subject the permittee and/or property owner to enforcement action, pursuant to N.J.A.C. 7:7A-22.

FWW GP11 Outfalls/Intake Structures	Permanent Disturbance (Acres)	Temporary Disturbance (Acres)
Freshwater wetlands	0	0.012
Transition areas	0.100	0.031
State open waters	0	0

TAW - Special Activity Redevelopment	Permanent Disturbance (Acres)	Temporary Disturbance (Acres)
Transition areas	0	0.049

PRE-CONSTRUCTION CONDITIONS:

1. **Timing:** If this permit contains a condition that must be satisfied prior to the commencement of construction, the permittee shall comply with such condition(s) within the time required by the permit or, if no time specific requirement is imposed, then the permittee shall comply with such condition(s) within six months of the effective date of the permit, or provide evidence satisfactory to the Division that such condition(s) cannot be satisfied.
2. Prior to site preparation or construction onsite, the permittee shall obtain all necessary consent from affected offsite and easement property owners. No work shall occur without proper permissions.
3. In order to protect anadromous fish species within the Elizabeth River from sediment generating activities, any grading, excavation, or construction activities within the stream or the banks of the stream are prohibited between April 1 through June 30 of each year. In addition, any activity within the flood hazard area or riparian zone of this watercourse which does not minimize the introduction of sediment into said stream or which could cause more than a minimum increase in the natural level of turbidity, is also prohibited anytime but especially during this period. The Department reserves the right to require additional soil conservation measures if it becomes evident that additional measures are required to protect State regulated resources, or the right to suspend all regulated activities onsite should it be determined that the permittee has not taken proper precautions to ensure continuous compliance with this condition. Should sediment control measures or water isolation measures be constructed prior the start of the timing restriction, work may commence landward of the sediment control structures or water isolation measures during the timing restriction period.
4. Prior to construction or any alteration to the project site, the permittee, using the services of an Architectural Historian who meets the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738-9) in Architectural History, shall document the existing landscape and viewsheds within the Mattano Park Historic District and the Union County Park System Historic District to Level III equivalent standards of the Historic American Landscapes Survey (HALS). In

lieu of large format photography, the permittee shall include high-resolution digital photos that meet the National Park Service National Register Digital Photo Submission Standards.

The recordation shall include both archivally stable, 4-inch by 6-inch, black and white prints and high-resolution digital RAW and/or TIFF files on an archival CD-R. A minimum of 30 views of the landscape comprising the Mattano Park Historic District and its setting within the Union County Park System Historic District shall be produced as part of the recordation. Photography shall include, but not be limited to, documentation of the areas to be altered by the project and views from contributing resources most likely to have views of proposed project components.

The permittee shall ensure that all documentation is completed and accepted by the HPO prior to any new construction. The permittee shall provide one original archival copy of the recordation to the HPO and duplicate copies, with original photographs, shall be provided to the appropriate repositories as identified in consultation with the NJHPO.

5. The permittee shall ensure that the new design of the park is sympathetic to the character of the Mattano Park and Union County Park System Historic Districts and shall be in keeping with the Secretary of the Interior's *Standards for the Treatment of Historic Properties* to the greatest extent possible, including but not limited to fencing, lighting, hardscaping, etc. The permittee shall submit final plans and specifications for the new park design to the Historic Preservation Office for review and approval prior to the commencement of construction.
6. The permittee, using the services of a person meeting the Secretary of the Interior's Professional Qualification Standards [48 FR 44738-9] in History and/or Architectural History, shall design and install at least one (1) interpretive sign detailing the history and significance of Mattano Park and the Olmsted Brothers' design to be displayed in a publicly accessible area. The signage shall include a colorful panel mounted on a pedestal or wall and the content shall incorporate historic photographs as well as text regarding the historic significance of the park and its role within the larger Union County park system. The location, content, size, and text of the signage shall be submitted to the HPO for review and approval prior to fabrication. The sign shall be installed and verification of installation shall be provided within three (3) months of project completion.
7. Prior to the commencement of site clearing, grading, or construction onsite, the permittee shall install a sediment barrier at the limits of disturbance authorized herein and at the limits of the freshwater wetlands transition area as **modified herein**, which is sufficient to prevent the sedimentation of the remaining freshwater wetlands and transition areas onsite, and shall serve as a physical barrier protecting these areas from encroachment by construction vehicles or other soil-disturbing activities. All sediment barriers and soil erosion control measures shall be kept in place and maintained throughout the duration of construction, until such time that the site is stabilized.
8. Prior to entrance into the project location, the permittee shall ensure that all matting material and construction equipment, including tracks and tires, shall be washed, cleaned, and certified as clean by Neglia's Environmental Inspector to minimize the spread and colonization of invasive plants and organisms. In addition, soil containing root fragments and above-ground vegetative material from invasive plant species shall be carefully managed during soil-disturbing activities and disposed of at a suitable offsite location rather than mulched and reused or stockpiled elsewhere onsite. For information on the specific species that are considered to be invasive, please refer to the Invasive Plant Atlas at <http://www.invasiveplantatlas.org/index.html>.

SPECIAL CONDITIONS:

1. This permit authorization includes a water quality certificate to conduct activities in freshwater wetlands.
2. The authorized activities shall comply with the applicable conditions set forth under N.J.A.C. 7:7A-5.7, 7.11, 8.3(f) and 20.2. Failure to comply with these conditions shall constitute a violation of the Freshwater Wetlands Protection Act (N.J.S.A. 13:9B-1 et. seq.). Any additional un-permitted disturbance of freshwater wetlands, State open waters, or transition areas besides that shown on the approved plans shall be considered a violation of the Freshwater Wetlands Protection Act Rules unless the activity is exempt or a permit is obtained from the Department prior to the start of the disturbance.
3. This authorization is based upon a Letter of Interpretation Line Verification issued by the Division on 7/31/2024 under File and Activity No. 2004-11-0007.1. The Department has determined that the freshwater wetlands affected by this permit authorization are of exceptional and intermediate resource value and the standard transition area or buffer required adjacent to these wetlands is 150 and 50 feet, respectively. This general permit includes a transition area waiver, which allows encroachment only in that portion of the transition area, which has been determined by the Department to be necessary to accomplish the regulated activities. Any additional regulated activities conducted within the standard transition area onsite shall require a separate transition area waiver from the Division. Regulated activities within a transition area are defined at N.J.A.C. 7:7A-2.3 (If transition area disturbance only, delete these two sentences). Please refer to the Freshwater Wetlands Protection Act (N.J.S.A. 13:9B-1 et seq.) and implementing Rules (N.J.A.C. 7:7A) for additional information.
4. This authorization for a General Permit is valid for a term not to exceed five years from the date of this permit. If the permittee wishes to continue an activity covered by the permit after the expiration date of the permit, the permittee must apply for and obtain a permit extension or a new permit, prior to the permit's expiration. If the term of the authorization exceeds the expiration date of the general permit issued by rule, and the permit upon which the authorization is based is modified by rule to include more stringent standards or conditions, or is not reissued, the applicant must comply with the requirements of the new regulations by applying for a new GP authorization or an Individual permit.
5. The applicant shall make specific arrangements to ensure the continuous maintenance and efficient operation of all proposed stormwater management measures onsite. This includes the inspection (and cleaning where necessary) of any and all constructed swales, basins and inlets at least four times per year and after every major storm totaling 1 inch of rainfall or more, the inspection and cleaning of any and all mechanical treatment devices in accordance with the Departments certification letters (downloadable at <https://www.njstormwater.org/treatment.html>), the use of appropriate soil conservation practices onsite, and any other reasonable effort required to maintain the stormwater management system in good working order.
6. The Department has determined that this project meets the requirements of the Stormwater Management rules at N.J.A.C. 7:8. Any future expansion or alteration of the approved stormwater management system, which would affect water quality, increase the rate or volume of stormwater leaving the site, affect the infiltration capacity on the site, or alter the approved low impact site design, shall be reviewed and approved by the Department prior to construction. This includes any proposed changes to the discharge characteristics of any basin, the construction of new inlets or pipes that tie into the storm sewer network and/or the replacement of existing inlets or pipes with structures of different capacity.

7. All excavated material shall be disposed of in a lawful manner. The material shall be placed outside of any flood hazard area, riparian zone, regulated water, freshwater/coastal wetlands and adjacent transition area, and in such a way as to not interfere with the positive drainage of the receiving area.
8. Construction equipment shall not be stored, staged, or driven within any regulated areas onsite, unless expressly approved by this permit or described on the approved plans.
9. All temporary disturbances within freshwater wetlands and transition areas shall be replanted with native, non-invasive herbaceous and/or woody vegetation appropriate for the hydrologic conditions of the area.
10. The trench into which the stormwater conveyance structure is placed shall be no wider than necessary to comply with the United States Occupational Safety and Health Administration safety standards for excavations set forth at 29 CFR Part 1926, Subpart P.
11. Any excavation within freshwater wetlands, transition areas, or State open waters shall be backfilled to preexisting elevations with the uppermost 18 inches backfilled with original topsoil material. The permittee shall ensure that the backfilling activities do not interfere with the natural hydraulic characteristics of the freshwater wetlands.
12. Any pipes laid through freshwater wetlands, transition areas, or State open waters which have been authorized by a Division permit shall be properly sealed to prevent leaking or infiltration and designed to not form a path for groundwater to be discharged or drained from the freshwater wetland. Pipes and backfilled materials shall be placed entirely beneath the preexisting ground elevation.
13. The permittee shall ensure that all onsite construction activities regulated under the Flood Hazard Area Control Act Rules at N.J.A.C. 7:13 comply with the conditions set forth in the Department-approved Flood Hazard Area Individual Permit issued for the site on December 8, 2023, under File No. 2004-11-0007.1 LUP230001.

STANDARD CONDITIONS:

1. The issuance of a permit shall in no way expose the State of New Jersey or the Department to liability for the sufficiency or correctness of the design of any construction or structure(s). Neither the State nor the Department shall, in any way, be liable for any loss of life or property that may occur by virtue of the activity or project conducted as authorized under a permit.
2. The issuance of a permit does not convey any property rights or any exclusive privilege.
3. The permittee shall obtain all applicable Federal, State, and local approvals prior to commencement of regulated activities authorized under a permit.
4. A permittee conducting an activity involving soil disturbance, the creation of drainage structures, or changes in natural contours shall obtain any required approvals from the Soil Conservation District or designee having jurisdiction over the site.
5. The permittee shall take all reasonable steps to prevent, minimize, or correct any adverse impact on the environment resulting from activities conducted pursuant to the permit, or from noncompliance with the permit.

6. The permittee shall immediately inform the Department of any unanticipated adverse effects on the environment not described in the application or in the conditions of the permit. The Department may, upon discovery of such unanticipated adverse effects, and upon the failure of the permittee to submit a report thereon, notify the permittee of its intent to suspend the permit.
7. The permittee shall immediately inform the Department by telephone at (877) 927-6337 (WARN DEP hotline) of any noncompliance that may endanger public health, safety, and welfare, or the environment. The permittee shall inform the Watershed & Land Management by telephone at (609) 777-0454 of any other noncompliance within two working days of the time the permittee becomes aware of the noncompliance, and in writing within five working days of the time the permittee becomes aware of the noncompliance. Such notice shall not, however, serve as a defense to enforcement action if the project is found to be in violation of this chapter. The written notice shall include:
 - i. A description of the noncompliance and its cause;
 - ii. The period of noncompliance, including exact dates and times;
 - iii. If the noncompliance has not been corrected, the anticipated length of time it is expected to continue; and
 - iv. The steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.
8. Any noncompliance with a permit constitutes a violation of this chapter and is grounds for enforcement action, as well as, in the appropriate case, suspension and/or termination of the permit.
9. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the authorized activity in order to maintain compliance with the conditions of the permit.
10. The permittee shall employ appropriate measures to minimize noise where necessary during construction, as specified in N.J.S.A. 13:1G-1 et seq. and N.J.A.C. 7:29.
11. The issuance of a permit does not relinquish the State's tidelands ownership or claim to any portion of the subject property or adjacent properties.
12. The issuance of a permit does not relinquish public rights to access and use tidal waterways and their shores.
13. The permittee shall allow an authorized representative of the Department, upon the presentation of credentials, to:
 - i. Enter upon the permittee's premises where a regulated activity, project, or development is located or conducted, or where records must be kept under the conditions of the permit;
 - ii. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;
 - iii. Inspect, at reasonable times, any facilities, equipment, practices, or operations regulated or required under the permit. Failure to allow reasonable access under this paragraph shall be considered a violation of this chapter and subject the permittee to enforcement action; and

- iv. Sample or monitor at reasonable times, for the purposes of assuring compliance or as otherwise authorized by the Federal Act, by the Freshwater Wetlands Protection Act, or by any rule or order issued pursuant thereto, any substances or parameters at any location.
14. The permittee shall not cause or allow any unreasonable interference with the free flow of a regulated water by placing or dumping any materials, equipment, debris or structures within or adjacent to the channel while the regulated activity, project, or development is being undertaken. Upon completion of the regulated activity, project, or development, the permittee shall remove and dispose of in a lawful manner all excess materials, debris, equipment, and silt fences and other temporary soil erosion and sediment control devices from all regulated areas.
15. The permittee and its contractors and subcontractors shall comply with all conditions, site plans, and supporting documents approved by the permit.
16. All conditions, site plans, and supporting documents approved by a permit shall remain in full force and effect, so long as the regulated activity, project, or development, or any portion thereof, is in existence, unless the permit is modified pursuant to the rules governing the herein approved permits.
17. The permittee shall perform any mitigation required under the permit in accordance with the rules governing the herein approved permits.
18. If any condition or permit is determined to be legally unenforceable, modifications and additional conditions may be imposed by the Department as necessary to protect public health, safety, and welfare, or the environment.
19. Any permit condition that does not establish a specific timeframe within which the condition must be satisfied (for example, prior to commencement of construction) shall be satisfied within six months of the effective date of the permit.
20. A copy of the permit and all approved site plans and supporting documents shall be maintained at the site at all times and made available to Department representatives or their designated agents immediately upon request.
21. The permittee shall provide monitoring results to the Department at the intervals specified in the permit.
22. A permit shall be transferred to another person only in accordance with the rules governing the herein approved permits.
23. A permit can be modified, suspended, or terminated by the Department for cause.
24. The submittal of a request to modify a permit by the permittee, or a notification of planned changes or anticipated noncompliance, does not stay any condition of a permit.
25. Where the permittee becomes aware that it failed to submit any relevant facts in an application, or submitted incorrect information in an application or in any report to the Department, it shall promptly submit such facts or information.
26. The permittee shall submit email notification to the Bureau of Coastal & Land Use Compliance & Enforcement at CLU_tomsriver@dep.nj.gov at least 3 days prior to commencement of site

preparation and/or regulated activities, whichever comes first. The notification shall include proof of completion of all pre-construction conditions, including proof of recording of permits, approved plans and/or conservation easements, if required. The permittee shall allow an authorized Bureau representative on the site to inspect to ensure compliance with this permit.

27. The permittee shall record the permit, including all conditions listed therein, with the Office of the County Clerk (the Registrar of Deeds and Mortgages, if applicable) of each county in which the site is located. The permit shall be recorded within 30 calendar days of receipt by the permittee, unless the permit authorizes activities within two or more counties, in which case the permit shall be recorded within 90 calendar days of receipt. Upon completion of all recording, a copy of the recorded permit shall be forwarded to Watershed & Land Management through the DEP Online service. The uploaded documents will go directly into the Department's database, and staff will be notified that information has been received. The service can be found at: <https://dep.nj.gov/wlm/eservices/lrp-eservices/>.

APPROVED PLAN(S):

The drawing hereby approved consists of 1 sheet prepared by Thomas R. Solfaro, dated August 1, 2023, unrevised, and entitled:

“OUTFALL PROFILES MTTANO PARK IMPROVEMENTS BLOCK 527-LOT 1 CITY OF ELIZABETH UNION COUNTY NEW JERSEY”, Sheet No. 6.01

The drawing hereby approved consists of 1 sheet prepared by Thomas R. Solfaro, dated August 1, 2023, last revised March 22, 2024, and entitled:

“PERMITTING PLAN-FRESHWATER WETLANDS MATTANO PARK IMPROVEMENTS BLOCK 527-LOT 1 CITY OF ELIZABETH UNION COUNTY NEW JERSEY”, Sheet No. 8.01

APPEAL OF DECISION:

Any person who is aggrieved by this decision may submit an adjudicatory hearing request within 30 calendar days after public notice of the decision is published in the DEP Bulletin (available at <https://dep.nj.gov/bulletin/>). If a person submits the hearing request after this time, the Department shall deny the request. The hearing request must include a completed copy of the Administrative Hearing Request Checklist (available at <https://dep.nj.gov/wlm/forms/>). A person requesting an adjudicatory hearing shall submit the original hearing request to: NJDEP Office of Administrative Hearings and Dispute Resolution, Attention: Adjudicatory Hearing Requests, Mail Code 401-07A, P.O. Box 420, 401 East State Street, 7th Floor, Trenton, NJ 08625-0420. Additionally, a copy of the hearing request shall be submitted to the Director of Watershed & Land Management at the address listed on page one of this permit. In addition to your hearing request, you may file a request with the Office of Dispute Resolution to engage in alternative dispute resolution. Please see www.nj.gov/dep/odr for more information on this process.

If you need clarification on any section of this permit or conditions, please contact Watershed & Land Management's Technical Support Call Center at (609) 777-0454.

Approved By:



Date: 2024.08.01
13:19:54 -04'00'

Matthew Resnick, Principal Environmental Specialist III
Bureau of Freshwater Wetlands and Highland Permitting
Division of Land Resource Protection

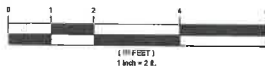
c: Municipal Clerk, Elizabeth City
Municipal Construction Official, Elizabeth City
Agent (original) – David Atkinson



HORIZONTAL SCALE



VERTICAL SCALE

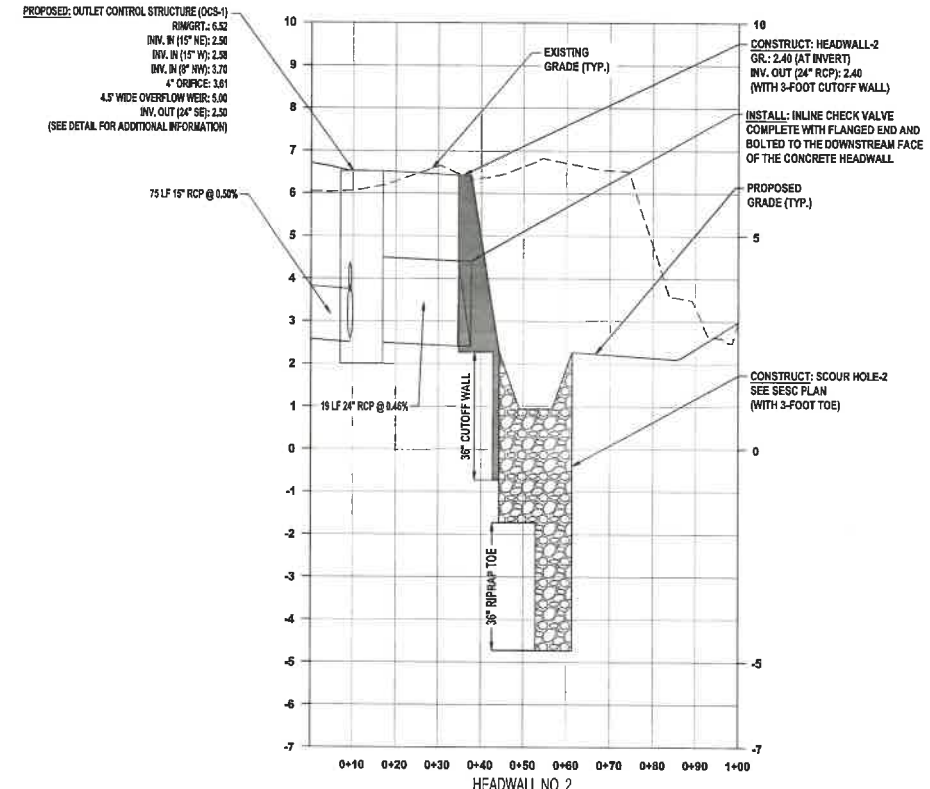
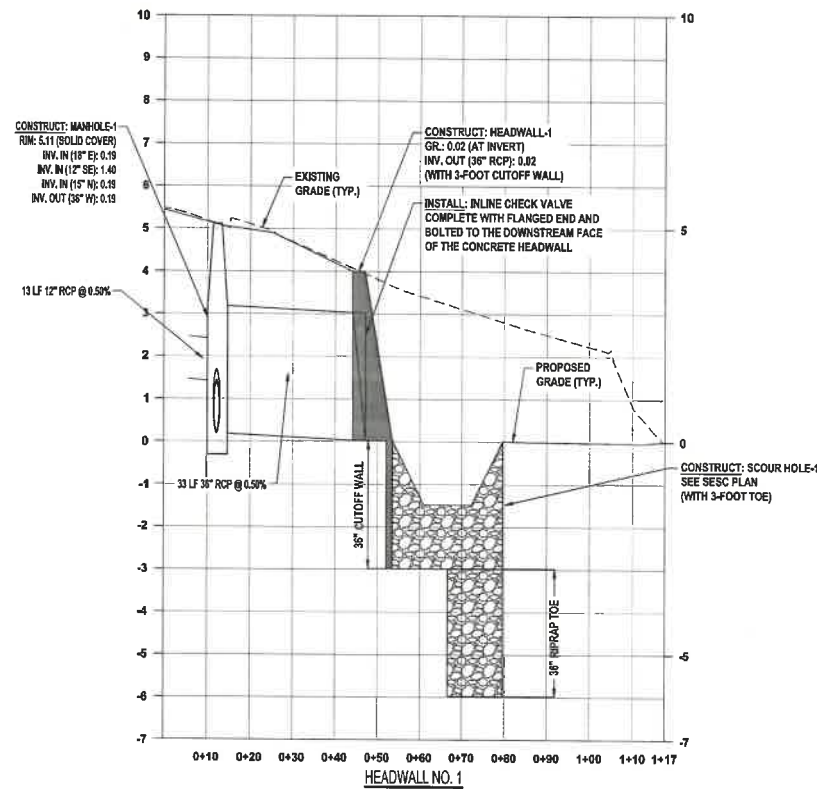


File No.: 2004-11-0007.1

Activity No.: LUP230001
8/1/24

Date:

State of New Jersey
Department of Environmental Protection
Watershed and Land Management



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CERTIFICATE OF AUTHORIZATION (N.J.S.A. 45:8-56) 24GA27927000

NO.	DATE	REVISIONS DESCRIPTION	DRAWN	DESIGNED	CHECKED



Digitally signed by
DAVID H. ANKINS, P.E., C.M.E.
PROFESSIONAL ENGINEER
No. N.J. 45506
Date: 2024.05.31 18:17:40 -04'00'

THOMAS R. SOLFARO, P.E., C.M.E.
PROFESSIONAL ENGINEER
N.J. LICENSE NO. 41895

NEGLIA ENGINEERING ASSOCIATES
34 PARK AVENUE
LYNDHURST, NJ 07036
TEL: 201-938-9305
FAX: 201-933-0549
E-MAIL: NEA@NEGLIAENGINEERING.COM

MICHAEL J. NEGLIA, P.E., P.L.S., P.P.
PROFESSIONAL ENGINEER
N.J. LICENSE NO. 38804

PROFESSIONAL LAND SURVEYOR
N.J. LICENSE NO. 38904

PROFESSIONAL PLANNER
N.J. LICENSE NO. 33J0059800

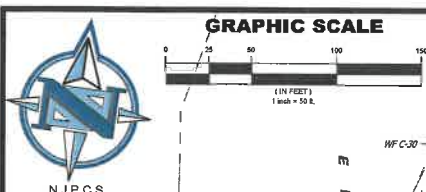
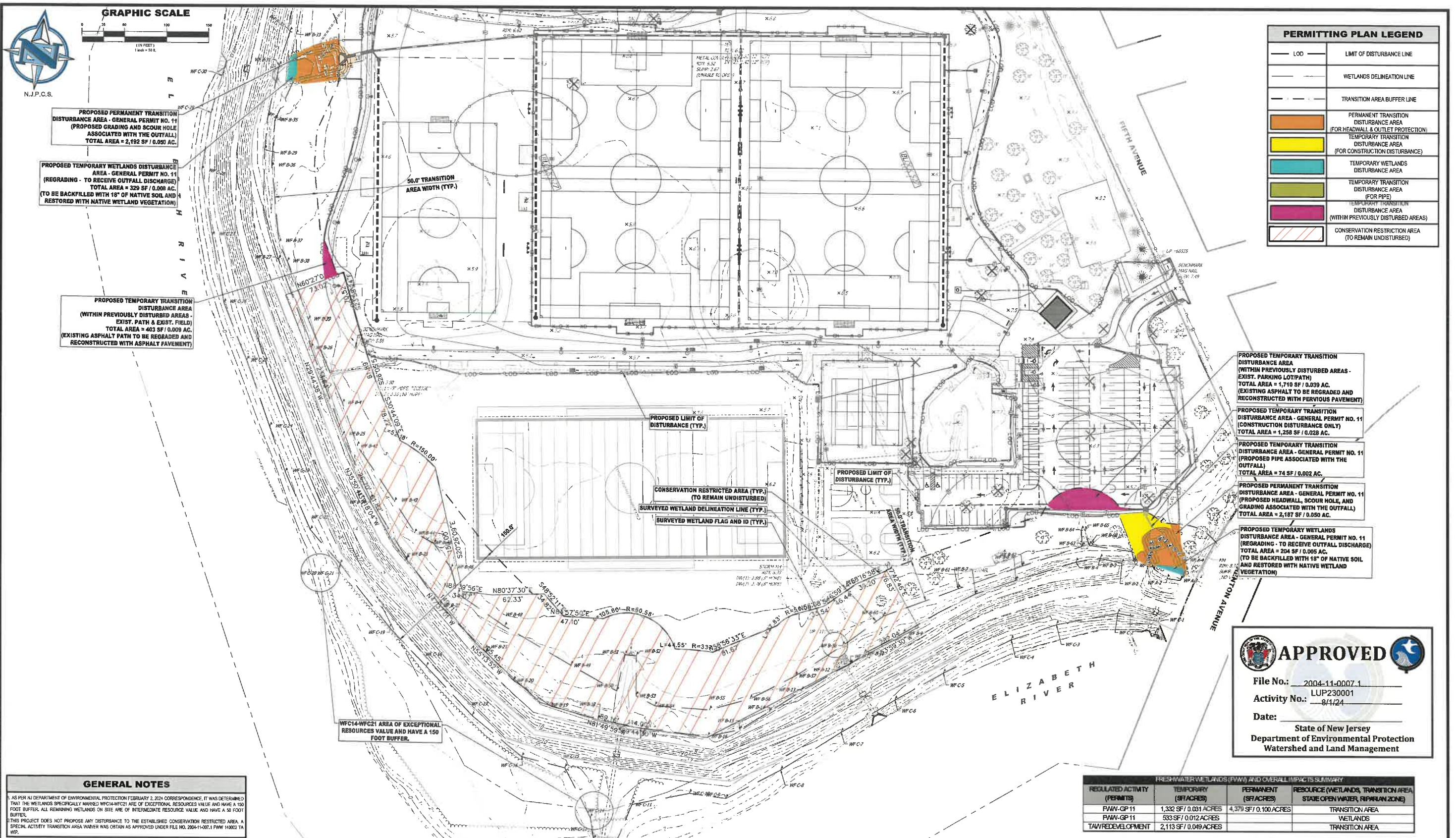
**OUTFALL PROFILES
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY NEW JERSEY**

DRAWN BY: JV
DESIGNED BY: JV
FIELD BOOK NO:

CHECKED BY: DRANH
SCALE: 1" = 2'

PROJECT NO.: UNIOCTY20.011
SHEET NO.: 6.01
DATE: AUGUST 1, 2024

m:\2024\uniocty20.011\mattano\dwg\outfall\outfall.dwg, Plot Date: 8/1/24 10:30 AM



PERMITTING PLAN LEGEND	
	LIMIT OF DISTURBANCE LINE
	WETLANDS DELINEATION LINE
	TRANSITION AREA BUFFER LINE
	PERMANENT TRANSITION DISTURBANCE AREA (FOR HEADWALL & OUTLET PROTECTION)
	TEMPORARY TRANSITION DISTURBANCE AREA (FOR CONSTRUCTION DISTURBANCE)
	TEMPORARY WETLANDS DISTURBANCE AREA
	TEMPORARY TRANSITION DISTURBANCE AREA (FOR PIPE)
	TEMPORARY TRANSITION DISTURBANCE AREA (WITHIN PREVIOUSLY DISTURBED AREAS)
	CONSERVATION RESTRICTION AREA (TO REMAIN UNDISTURBED)

PROPOSED PERMANENT TRANSITION DISTURBANCE AREA - GENERAL PERMIT NO. 11 (PROPOSED GRADING AND SCOUR HOLE ASSOCIATED WITH THE OUTFALL) TOTAL AREA = 2,192 SF / 0.050 AC.

PROPOSED TEMPORARY WETLANDS DISTURBANCE AREA - GENERAL PERMIT NO. 11 (REGRADE - TO RECEIVE OUTFALL DISCHARGE) TOTAL AREA = 329 SF / 0.009 AC. (TO BE BACKFILLED WITH 18" OF NATIVE SOIL AND RESTORED WITH NATIVE WETLAND VEGETATION)

PROPOSED TEMPORARY TRANSITION DISTURBANCE AREA (WITHIN PREVIOUSLY DISTURBED AREAS - EXIST. PATH & EXIST. FIELD) TOTAL AREA = 403 SF / 0.009 AC. (EXISTING ASPHALT PATH TO BE REGRADED AND RECONSTRUCTED WITH ASPHALT PAVEMENT)

PROPOSED TEMPORARY TRANSITION DISTURBANCE AREA (WITHIN PREVIOUSLY DISTURBED AREAS - EXIST. PARKING LOT/PATH) TOTAL AREA = 1,710 SF / 0.039 AC. (EXISTING ASPHALT TO BE REGRADED AND RECONSTRUCTED WITH PERVIOUS PAVEMENT)

PROPOSED TEMPORARY TRANSITION DISTURBANCE AREA - GENERAL PERMIT NO. 11 (CONSTRUCTION DISTURBANCE ONLY) TOTAL AREA = 1,258 SF / 0.028 AC.

PROPOSED TEMPORARY TRANSITION DISTURBANCE AREA - GENERAL PERMIT NO. 11 (PROPOSED PIPE ASSOCIATED WITH THE OUTFALL) TOTAL AREA = 74 SF / 0.002 AC.

PROPOSED PERMANENT TRANSITION DISTURBANCE AREA - GENERAL PERMIT NO. 11 (PROPOSED HEADWALL, SCOUR HOLE, AND GRADING ASSOCIATED WITH THE OUTFALL) TOTAL AREA = 2,197 SF / 0.050 AC.

PROPOSED TEMPORARY WETLANDS DISTURBANCE AREA - GENERAL PERMIT NO. 11 (REGRADE - TO RECEIVE OUTFALL DISCHARGE) TOTAL AREA = 204 SF / 0.005 AC. (TO BE BACKFILLED WITH 18" OF NATIVE SOIL AND RESTORED WITH NATIVE WETLAND VEGETATION)

WFC14-WFC21 AREA OF EXCEPTIONAL RESOURCES VALUE AND HAVE A 150 FOOT BUFFER.

PROPOSED LIMIT OF DISTURBANCE (TYP.)

CONSERVATION RESTRICTED AREA (TYP.) (TO REMAIN UNDISTURBED)
SURVEYED WETLAND DELINEATION LINE (TYP.)
SURVEYED WETLAND FLAG AND ID (TYP.)

PROPOSED LIMIT OF DISTURBANCE (TYP.)

APPROVED

File No.: 2004-11-0007.1
LUP230001
Activity No.: 8/1/24
Date: State of New Jersey
Department of Environmental Protection
Watershed and Land Management

GENERAL NOTES

1. AS PER NJ DEPARTMENT OF ENVIRONMENTAL PROTECTION FEBRUARY 2, 2024 CORRESPONDENCE, IT WAS DETERMINED THAT THE WETLANDS SPECIALLY MARKED WFC14-WFC21 ARE OF EXCEPTIONAL RESOURCE VALUE AND HAVE A 150 FOOT BUFFER. ALL REMAINING WETLANDS ON SITE ARE OF INTERMEDIATE RESOURCE VALUE AND HAVE A 50 FOOT BUFFER.

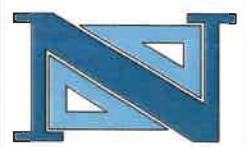
2. THIS PROJECT DOES NOT PROPOSE ANY DISTURBANCE TO THE ESTABLISHED CONSERVATION RESTRICTED AREA. A SPECIAL ACTIVITY TRANSITION AREA WAIVER WAS OBTAIN AS APPROVED UNDER FILE NO. 2004-11-007.1 FW 10002 TA WP.

FRESHWATER WETLANDS (FWW) AND OVERALL IMPACTS SUMMARY			
REGULATED ACTIVITY (PERMITS)	TEMPORARY (SF/ACRES)	PERMANENT (SF/ACRES)	RESOURCE (WETLANDS, TRANSITION AREA, STATE OPEN WATER, RIPARIAN ZONE)
FWW-GP 11	1,332 SF / 0.031 ACRES	4,379 SF / 0.100 ACRES	TRANSITION AREA
FWW-GP 11	533 SF / 0.012 ACRES		WETLANDS
TA/REDEVELOPMENT	2,113 SF / 0.049 ACRES		TRANSITION AREA

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CERTIFICATE OF AUTHORIZATION (N.J.S.A. 45:8-56) 24GA27927000

NO.	DATE	REVISIONS	DRAWN	DESIGNED	CHECKED
1.	2024/03/22	REVISED PER NJDEP COMMENTS	J.V.	J.V.	N.H.



Digitally signed by
DAVID R. ATKINSON, P.E., C.M.E.
Professional Engineer
N.J. License No. 454506
Date: 2024.05.31 18:20:09 -04'00'

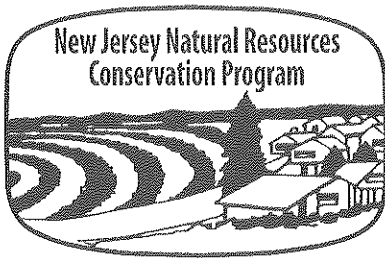
THOMAS R. SOLFARO, P.E., C.M.E.
Professional Engineer
N.J. License No. 41153

NEGLIA ENGINEERING ASSOCIATES
34 PARK AVENUE
LYNDHURST, NEW JERSEY
TEL: 201-939-8805 FAX: 201-939-0640
E-MAIL: NEA@NEGLIAENGINEERING.COM

MICHAEL J. NEGLIA, P.E., P.L.S., P.P.
PROFESSIONAL ENGINEER N.J. LICENSE NO. 38594
PROFESSIONAL LAND SURVEYOR N.J. LICENSE NO. 38594
PROFESSIONAL PLANNER N.J. LICENSE NO. 33,100/595960

PERMITTING PLAN - FRESHWATER WETLANDS
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY NEW JERSEY

UNIOCTY20.011
8.01



SOMERSET - UNION SOIL CONSERVATION DISTRICT

Somerset County 4-H Center
308 Milltown Road • Bridgewater, NJ 08807
(908) 526-2701 Fax (908) 575-3977

July 10, 2024

Union County
Ricardo Matias
2325 South Avenue
Scotch Plains, NJ 07076

**RE: Mattano Park Improvements
(plan revised 8/1/2023)
Block 527, Lot 1
City of Elizabeth
Application #2024-6449**

Dear Sir or Madam:

The Somerset-Union Soil Conservation District has reviewed the above erosion control plan and certifies that the plan is in accordance with the N.J. Erosion and Sediment Control Act, Chapter 251, P.L. 1975.

This approval is limited to the soil erosion and sedimentation controls specified in this plan. It is not authorization to engage in the proposed land use unless such use has been previously approved by the municipality or other controlling agency.

All revisions and municipal renewals of this project will require resubmission and approval by the District. Any conveyance of the project (or portion thereof) will transfer full responsibility for compliance to subsequent owner(s). The District must be notified in writing of any change of ownership.

The District requires written notification prior to the start of land disturbance. Please be advised that failure to do so is considered a violation of State Law and a fine will be imposed.

If there are any questions, please feel free to call our office.

Very truly yours,

SOMERSET-UNION S.C.D.

Mark Kirby
District Supervisor

MK/FC/JK J:\Access\MASTERS\CenLet-35-SU.doc

Enclosure

cc: City of Elizabeth Const. Off.
Mun. Planning Board
Mun. Engineer
Neglia Engineering



State of New Jersey

DEPARTMENT OF AGRICULTURE
HEALTH / AGRICULTURE BUILDING
PO Box 330
TRENTON NJ 08625-0330

PHILIP D. MURPHY
Governor

DOUGLAS H. FISHER
Secretary

SHEILA Y. OLIVER
Lt. Governor

State Soil Conservation
Committee

Frank Minch
Executive Secretary
Tel. (609) 292-5540

Members

Douglas H. Fisher
Chairman
Catherine McCabe
Robert Goodman
Brian Schilling
John Kocubinski
Carrie Lindig
Raymond J. Cywinski
Michael Rigolizzo
Sylvia Kovacs
Anthony DiLodovico
Joseph Lomax
Matthew J. Ward
Cristin Mustillo
Deputy Attorney General

Date July 10, 2024
Applicant Name Union County c/o Ricardo Matias
Address 360-484 Fifth Avenue
Project Mattano Park Improvement
Chapter 251 Identification # 2024-6449
SCD Certification Code: **STLQRLSPRU**
Acres: 10.11
Block 527 Lot 1
City of Elizabeth

Your proposed project requires a Stormwater Construction General Permit (5G3) pursuant to N.J.A.C. 7:14 A. As the applicant, you are required to submit applications and payment electronically utilizing the NJDEP Stormwater Construction Activity E-Permitting System.

You must file for this permit prior to starting soil disturbing activities.

In order to access the E-permitting system you must first become a registered user of NJDEP Online at <http://www.nj.gov/dep/online>. Once registered, the following information is required to complete the E-Permit, Stormwater Construction General Permit Request for Authorization (RFA).

1. The Application/ Project name.
2. The location of the site – Physical Address, NJ State Plane Coordinates, Block(s) and Lot(s).
3. Highlands Area Approval/ Exemption (*if site is located within the Highlands*)
4. Contact information (*address, email, and phone*) for – Fees/ Billing contact, Owner, and Permittee.
5. Chapter 251 Identification Number and SCD Certification Code (***provided above****)

*These codes are unique to your stormwater RFA and Chapter 251 approval. Enter these codes in the E-permitting system, on the screen titled "SCD Certified Plan". The codes are **case sensitive** and each code may only be used once.

6. Area of land disturbance (*provided above*)
7. The date activity will commence.
8. Identification number of all existing NJPDES permits for the facility.
9. A project description and description of current land use.
10. Certification PIN (*this PIN is generated and emailed to you when registering a NJDEP online account*).
11. A method of payment – checking/ savings account, voucher payment, credit card

If you have any questions regarding this information or any other aspect of the E-Permitting system please contact Daniel Kutj, NJDEP Bureau of Nonpoint Pollution Control at (609) 633-7021 or at PortalComments@dep.state.nj.us



SOMERSET - UNION SOIL CONSERVATION DISTRICT
308 Milltown Road • Bridgewater, NJ 08807
(908) 526-2701 • Fax (908) 575-3977

72 HOUR START OF LAND DISTURBANCE

APPLICATION NO. 2024-6449

PROJECT NAME _____

PROJECT ADDRESS _____

AGENT RESPONSIBLE _____ AGENT TEL. _____

AGENT ADDRESS _____

JOB SUPER (ON SITE) _____ COMPANY NAME _____

SUPER ADDRESS _____

OFFICE OR TRAILER # _____ CELL # _____ FAX # _____

EMAIL ADDRESS _____ ANTICIPATED STARTING DATE _____

REMINDER: IT IS THE RESPONSIBILITY OF THE AGENT TO NOTIFY THE DISTRICT OF ANY CHANGES IN ON-SITE CONTACTS

APPENDIX B

Geotechnical Engineering Report

Geotechnical Engineering Report for “Proposed Mattano Park Improvements, 360-484 5th Avenue, Block 5, Lot 453B, Elizabeth, NJ, JSC Project No. 11-247.E1,” prepared by Johnson Soils Company, dated June 10, 2021.



66 Glen Avenue
Glen Rock, NJ 07452
Telephone: 201-301-1045
Fax: 201-857-8002
Email: info@johnsonsoils.com

June 10, 2021

NEGLIA ENGINEERING ASSOCIATES

200 Central Avenue, Suite 102
Mountainside, NJ 07092

Re: Geotechnical Engineering Report
Proposed Mattano Park Improvements
360-484 5th Avenue
Block 5, Lot 453B
Elizabeth, NJ
JSC Project No. 11-247.E1

This report is submitted to Neglia Engineering Associates as per our proposal dated April 22, 2021. It includes our findings, conclusions and recommendations related to the design and construction the field improvements and lighting.

The site is an existing sports field. The property is located on the west side of 5th Avenue and between Trenton Avenue and S. 5th Street in Elizabeth, New Jersey. The existing and proposed features are shown on the plan entitled "Boring Location Plan", which was adapted from the plans provided by **Neglia Engineering Associates**.

INVESTIGATIONS

Eight (8) Borings were located in the field area were drilled on May 12 & 14, 2021. The Borings were advanced using truck mounted drilling equipment in accordance with the procedures of the Standard Penetration Test (ASTM-1586). For this test, a standard split barrel sampler of two (2) inches outside diameter, one and three eighth (1 $\frac{3}{4}$) inches inside diameter is advanced into the soil using a one hundred and forty (140) pound weight hammer falling 30 inches. Standard Penetration Tests were taken from zero (0) to twelve (12) feet continuously and at five (5) feet intervals thereafter.

The boring location plan and record sheet for the boring is attached to this report.

FINDINGS

Subsurface Conditions: The explorations for this study indicate that the site is underlain by uniform subsurface conditions. The strata are listed below in order of increasing depth. Detailed descriptions of the subsurface conditions are shown on the individual log of Boring, Plates 3A through 3H.

1. **Topsoil:** A layer of Topsoil was encountered from the surface in Borings 4, 5, 6 & 8 to a depth of six (6) inches below the existing surface grade.
2. **Fill:** A layer of Misc. Fill was encountered below the Topsoil in Borings 4, 5, 6 & 8 and from the surface in Borings 1, 2, 3 & 7 to depths ranging from six to eight (6-8) feet below the existing surface grade.
3. **Peat (PT):** A layer of Peat was encountered below the Fill in Borings 1, 2, 3, 4, 6, 7 & 8 to depths ranging from five to ten (5-10) feet below the existing surface grade.
4. **Silty Sand (SM):** A layer of Silty Sand was encountered below the Peat in Borings 1, 2, 6, 7 & 8 and below the fill in Boring 5 to depths ranging from ten feet to twenty six feet half inches (10'-26'1/2") below the existing surface grade.
5. **Silt (ML):** A layer of Silt was encountered below the Silty Sand in Boring 5 to a depth of twenty two (22) feet below the existing surface grade.
6. **Silty Sand and Gravel (SM-GM):** A layer of Silty Sand and Gravel was encountered below the Silt in Boring 5 and below the Silty Sand in Boring 8 to depths ranging from eighteen feet to twenty eight feet one inches (18'2"-28'1") below the existing surface grade.

Borings 5, 6, 7 & 8 encountered refusal at 28'1", 26'1/2", 20'4" and 18'2" respectively. The refusal depth is defined as the depth where no further penetration can be achieved with earth drilling and sampling procedures. Rock core drilling would be necessary to define whether the refusal depth is cobble, boulders or bedrock.

Ground water was encountered at depths between two to three (2-3) feet at the time of the investigation. It should be noted that the water level conditions might vary due to variations in seasons, rainfall, temperature and other factors.

GENERAL SITE GEOLOGY

This site is situated on the Piedmont Physiographic Province, a plateau area that spans New Jersey in the Northern tip in a Southwest direction to Alabama at its Southern end. Bedrock in this region is a part of the Passaic Formation from the Upper Triassic period. This formation is composed of interbedded fine-grained sandstone, siltstone, shaley siltstone, silty mudstone, and mudstone. Bedrock exposure in this area is rare due to relatively thick surficial sediment cover.

The bedrock beneath the site is a part of the Passaic formation, which was formed during the Late Triassic to the Early Jurassic period (237-174 MYA). The bedrock consists of interbedded reddish-brown sandstone with siltstone, shaley siltstone, and shale. The sandstone ranges from fine to medium grained, it is thin to medium bedded, and contains mica. Middle and lower parts of unit contain interbedded olive-gray, dark-gray, or black siltstone, silty shale, shale, and less common argillite. Reddish-brown sandstone and pebbly sandstone are thin-to-thick-bedded, medium-to-coarse grained, planar to cross-bedded with local lensoidal interbeds of pebble conglomerate. Within the formation there are small variations that appear in layers within the classic Passaic formation of siltstone, silty mudstone, and shale. Two layers that occur underneath this site include a layer with a sandstone, siltstone, and mudstone facies, and a layer with gray facies.

The bottom most layer surficial geology is composed Rahway Till Reddish-brown to light-reddish-brown silty sand to sandy clayey silt containing some to many sub-rounded and sub-angular pebbles and cobbles and a few sub-rounded boulders. It is poorly sorted, non-stratified. It may contain thin, discontinuous beds and lenses of sorted sand and gravel. Above this is a layer of Alluvium, which contained sand, silt, minor gravel and clay, it's dark-brown, gray, reddish-brown in color, and can be as much as 30 feet thick. The uppermost layer is composed of Estuarine and Salt-Marsh Deposits, this is made up of organic silt and clay, and peat with some sand and fine gravel. These are black, dark brown and dark gray in color, and can be as much as 25 feet thick.

COMMENTS AND CONCLUSIONS

The Topsoil, Fill & Black Peat located above the natural dense Silty Sand is **unsuitable** bearing material for the proposed new lighting. The natural dense Silty Sand should provide a suitable bearing material. Footings or caissons should be excavated as per recommendations below.

In the instance where groundwater or surface runoff that may enter the proposed excavations may be effectively controlled by sump pits placed within or adjacent to the proposed excavations. It should be noted that the water level conditions might vary due to variations in rainfall, temperature and other factors at the time of construction.

RECOMMENDATIONS

The following recommendations are offered:

1. Use the following design parameters:

Boring B-5:

Depth Range (feet below grade)	Footing Bearing Capacity (psf*)	Shaft Bearing Capacity (psf*)	Shaft Lateral Resistance (psf* per foot of depth)
0-6" (Topsoil)	0	0	0
6"-8' (Fill)	0	0	0
8'-12' (Silty Sand)	500	500	50
12'-22' (Silt)	2,000	2,000	200
22'-28' 1"- (Silty Sand & Gravel)	4,000	4,000	400
28' 1" (Rock)	10,000	10,000	1,000

Boring B-6:

Depth Range (feet below grade)	Footing Bearing Capacity (psf*)	Shaft Bearing Capacity (psf*)	Shaft Lateral Resistance (psf* per foot of depth)
0-6" (Topsoil, Gravel)	0	0	0
6"-6' (Fill)	0	0	0
6'-9' (Peat)	25	25	2
9'-26' (Silty Sand)	3,000	3,000	300
26'- (Rock)	10,000	10,000	1,000

Boring B-7:

Depth Range (feet below grade)	Footing Bearing Capacity (psf*)	Shaft Bearing Capacity (psf*)	Shaft Lateral Resistance (psf* per foot of depth)
0"-5' (Fill)	0	0	0
5'-8' (Peat)	25	25	2
8'-20'4" (Silty Sand)	3,000	3,000	300
20'4"- (Rock)	10,000	10,000	1,000

Boring B-8:

Depth Range (feet below grade)	Footing Bearing Capacity (psf*)	Shaft Bearing Capacity (psf*)	Shaft Lateral Resistance (psf* per foot of depth)
0"-6" (Topsoil)	0	0	0
6"-3' (Fill)	0	0	0
3'-5' (Peat)	25	25	2
5'-15' (Silty Sand)	2,000	2,000	200
15'-18'2"- (Silty Sand & Gravel)	4,000	4,000	400
18'2"- (Rock)	10,000	10,000	1,000

2. The minimum footing and shaft depth is to be three (3) feet below the existing grade for frost protection.
 - a. The footing/caisson depth should be below all fill and Peat to depths ranging from five to ten (5-10) feet below the existing surface grade.

3. Parking lot Areas:
 - a. The existing Topsoil, Fill & Black Peat is unsuitable in its current condition.
 - b. Remove a minimum of two (2) feet underneath the proposed subgrade area.
 - c. Proof roll all existing on-site soils with a minimum of four (4) passes of heavy vibratory compactor with a minimum static drum weight of 12,000 pounds or equal. Any areas observed to be soft or unstable should be removed and replaced with controlled Fill (see recommendation #9 & #10) and inspected by a geotechnical engineer.
 - d. Place a layer of Mirafi Geotextile Fabric - HP270 to stabilize the proposed parking area.
 - i. If stabilization fabric is NOT placed, settlement and cracking of the proposed parking areas will occur.
 - e. Place compacted controlled Fill up to proposed subgrade. Where additional Fill is required to establish subgrades, controlled Fill should be used (see recommendation #9 & #10).

4. The Site Seismic Classification is "C" in terms of the International Building Code (IBC). The profile is not considered to be susceptible to liquefaction.
 - a. $S_s = 0.273g$
 - b. $S_1 = 0.071g$
 - c. $S_{Ms} = 0.328g$
 - d. $S_{M1} = 0.121g$
 - e. $S_{DS} = 0.219g$
 - f. $S_{D1} = 0.080g$

5. Permeability testing results:
 - a. B-1 @ 8' is 0.6 in/hr.
 - b. B-2 @ 8' is 0.4 in/hr.
 - c. B-3 @ 6' is 2.5 in/hr.
 - d. B-4 @ 6' is 2.2 in/hr.

6. Soil Classification "C" as per OSHA 1926 Subpart P App A with maximum allowable slopes (H:V) of 1 ½:1 as per OSHA 1926 Subpart P App B Table B-1.
 - a. This is for short term maximum allowable slopes less than 12 feet.
 - b. Sloping or benching for excavations greater than 20 feet deep shall be designed by a Professional Engineer licensed in the State of New Jersey.

7. Types of Controlled FILL:
 - a. Onsite FILL is NOT recommended to be reused as backfill or compacted controlled fill.
 - b. On site Silty Sand can be used as backfill or controlled when used within +/- 2% of optimum water content and approved by a geotechnical engineer at the time of use.
 - c. Other Types of Controlled fill options:
 - i. Crushed Stone – ¾" or 1 ½" with no fines
 - ii. Sand and Gravel with less than 20% passing the #200 sieve.
 - iii. Quarry Process Stone (QP) with less than 20% passing the #200 sieve.

8. Controlled and Compacted Fill Requirements:
 - a. A geotechnical engineer licensed in the state of New Jersey to inspect all earthwork operations.
 - b. The contractor and/or owner shall notify the geotechnical engineer in writing a minimum of five (5) days prior to the start of all work on the project. The notification shall include all sources of Fill, equipment to be used, the estimated dates of the work and the proposed onsite supervisor.
 - c. All misc. Fill shall be graded prior to the start of all earthwork operations.

- d. All Fill areas shall be proof rolled prior to the placement of any new Fill. All proof rolling shall be performed in the presence of the geotechnical engineer. If soft areas are found during the proof rolling process, the area shall be removed and replaced with compacted, controlled Fill as per the direction of the geotechnical engineer.
- e. Any proposed Fill area shall be leveled before placement of any Fill. The area shall be free from ruts, hummocks or other uneven surfaces that would prevent uniform compaction.
- f. Use any of the material stated in the types of controlled Fill section or other material approved by the geotechnical engineer.
- g. A fifty pound (50-lb) bag of material shall be submitted to the geotechnical engineer for approval and testing a minimum of five (5) days prior to the start of work. No Fill material shall be placed until the geotechnical engineer has approved the material for use in the project.
- h. All controlled Fill should be placed in horizontal layers of eight to twelve (8-12) inches in loose thickness and be uniformly compacted to achieve a density of at least ninety-five (95) percent of the maximum dry density as determined by in the laboratory when tested in accordance with the most recent ASTM D1557 Standard.
- i. Backfill within confined areas should be placed in layers of six to eight (6-8) inches in loose thickness and compacted to the same 95% of maximum dry density using portable compaction equipment.
- j. No Fill material shall be placed, spread or compacted when the ground or Fill is frozen, thawing or during unfavorable weather conditions. When work is interrupted by heavy rain or frost, operations shall not be resumed unless the moisture content and density of the Fill are acceptable to the geotechnical engineer.
- k. A sufficient number of passes shall be approved by the geotechnical engineer in order to achieve the acceptable specified density above. A minimum of three (3) passes of the approved compactor shall be required over all areas of each lift.
- l. Field density tests shall be made by the geotechnical engineer to determine the in-place field density in each layer placed. No Fill shall be placed over any layer that has not been previously approved by the geotechnical engineer. Should any of the tests find insufficient density, then additional compaction will be required until the required density is obtained.

9. The following construction tasks should be inspected by a geotechnical engineer using appropriate laboratory and field testing support:
 - a. Confirmation of undisturbed soil levels for footings/caissons
 - b. All types of controlled Fill soils to be used in parking lot areas with placement of stabilization fabric.
 - c. Compaction of all controlled Fill for parking lot areas.

The recommendations above are based on the data obtained from soil borings performed at the indicated specific locations and from other identified information. This report does not reflect any variations which may occur across the site apart from the borings. The nature and extent of such variations may not become evident until construction. If variations appear evident, it will be necessary to re-evaluate the recommendations of this report. Supplemental recommendations may be required upon the finalization of the construction plans or changes to the proposed structure location and/or use.

This report has been prepared for the specific application to the project noted. In the event that there are changes in the nature, design or locations of the proposed structures, the conclusions and recommendations contained herein are not valid unless the changes are reviewed and the recommendations modified in writing by JSC.

JSC assumes that a qualified contractor will be employed to perform all required construction activities and that the contractor will be cognizant that all excavations are performed in accordance with all applicable codes and in good building practice. Contractor shall be aware of avoiding damage to all adjacent properties.


The exploration and analysis of the foundation conditions described herein are considered suitable to form a practical basis for the foundation design.

The information and opinions rendered in our report are exclusively for use by **NEGLIA ENGINEERING ASSOCIATES** and JSC will not distribute or publish this report without written consent except as required by law or court order. The information and opinions expressed in this report are given in response to a limited assignment and should be considered and implemented only in light of that assignment. The services provided by JSC in completing this project were consistent with normal standards of engineering profession. No warranty, expressed or implied, is made.

The following Plates are attached to this report:


Plate 1-	Site Location Map
Plates 2A to 2B-	Boring Location Plan
Plates 3A to 3H-	Logs of Borings
Plate 4-	Unified Soil Classification System

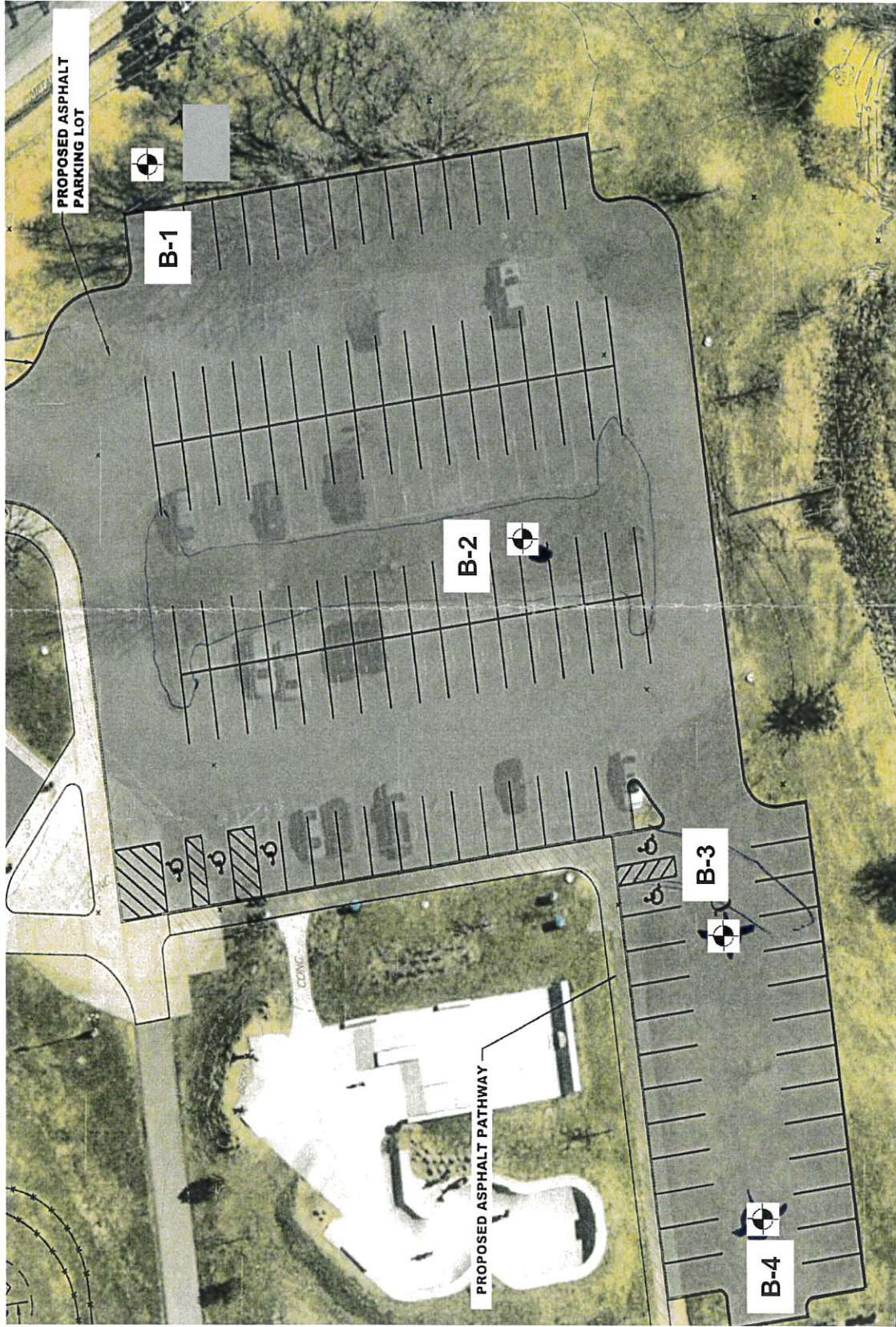
Very truly yours,
JOHNSON SOILS COMPANY


Lisa V. Mahle-Greco, P.E.
Engineering Manager
NJ Lic. No. 43197

M. Alam



	Site Location Plan	JSC #11-247.E1
	360-484 5 th Avenue Elizabeth, NJ	PLATE 1



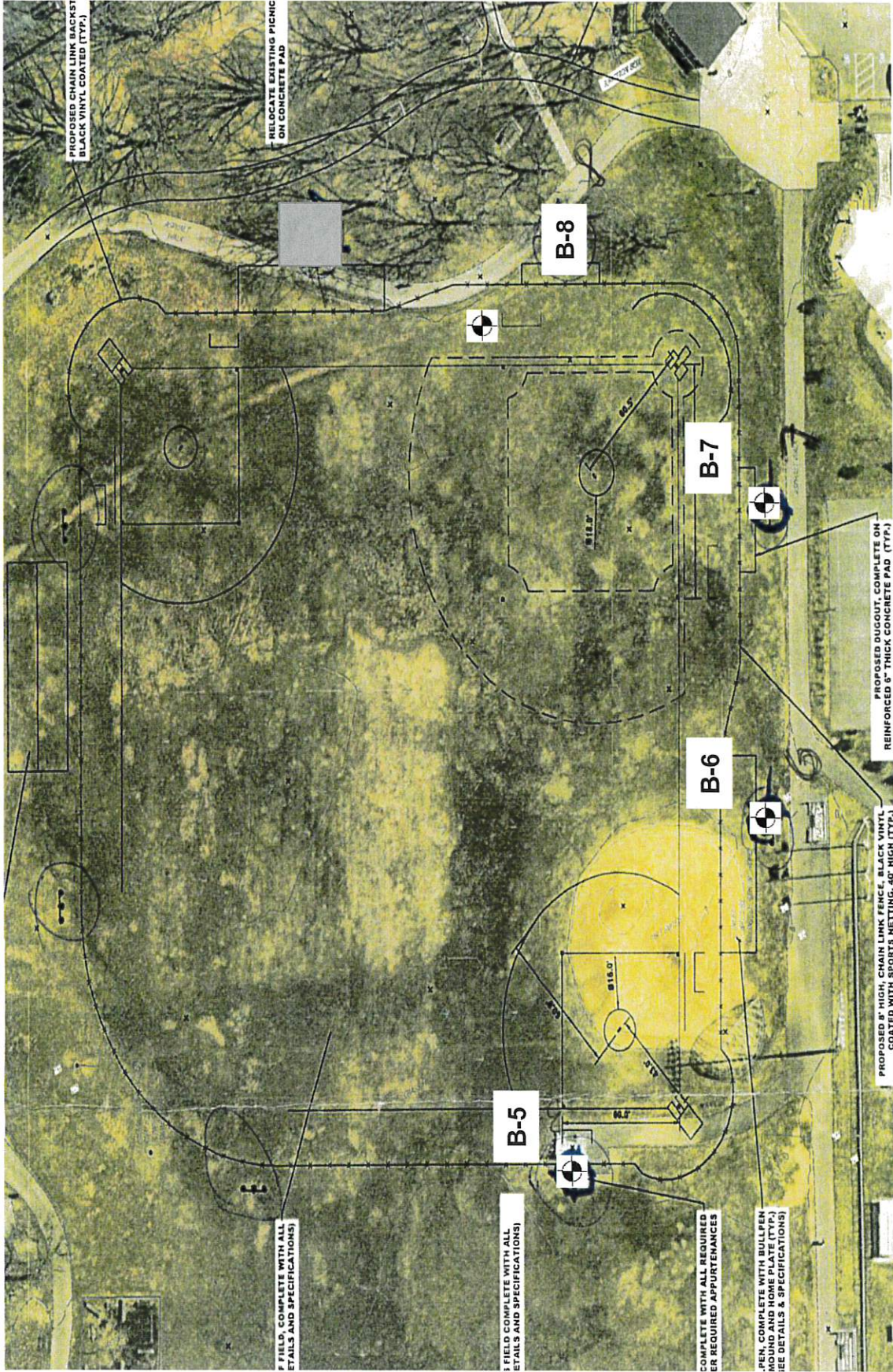
JSC # 11-247.E1

Boring Location Plan

PLATE 2A

360-484 5th Avenue
Elizabeth, NJ





Boring Location Plan

360-484 5th Avenue
Elizabeth, NJ

JSC # 11-247.E1

PLATE 2B



**LOG OF BORING
B-1**

Sheet 1 of 1
JSC #11-247.E.1
Completed: 5/12/2021
Water Level : 2'6"

Depth (Feet)	Sample #	Depth (Feet)	Sample/Spoon Blows/6"	Symbol USCS	Depth	Description
0	1	0-2	2-2-3-5		0"-4'	Fill-Sand, Silt & Gravel.
-	2	2-4	3-2-3-4			
-	3	4-6	2-2-2-4	PT	4'-7'6"	Black Peat.
5	4	6-8	1-1-1-2			
-	5	8-10	1-1-4-5	ML	7'6"-10'	Brown Silt, little fine Sand. (wet, very loose)
-						
10						
-						
-						
-						
-						
15						
-						
-						
-						
-						
20						
-						
-						
-						
-						
25						
-						
-						
-						
-						
30						
-						
-						
-						
-						
35						

Remarks: Boring B-1 Completed @ 10' on 5/12/2021

Client: Neglia Engineering Associates Hollow Stem Auger

Site: 360-484 5th Avenue Portable
Elizabeth, NJ

Driller: RV Drilling Mud Rotary



**LOG OF BORING
B-2**

Sheet 1 of 1
JSC #11-247.E.1
Completed: 5/12/2021
Water Level : 3'

Depth (Feet)	Sample #	Depth (Feet)	Sample/Spoon Blows/6"	Symbol USCS	Depth	Description
0	1	0-2	2-4-5-6		0'-6'	Fill - Sand, Organic Silt & Bricks
-	2	2-4	6-4-9-9			
-	3	4-6	6-5-3-3			
5						
-	4	6-8	2-2-2-2	PT	6'-9'	Black Peat.
-	5	8-10	2-2-2-2	OL	9'-10'	Gray Organic Silt, little fine Sand. (wet, loose)
-						
10						
-						
-						
-						
-						
15						
-						
-						
-						
20						
-						
-						
-						
25						
-						
-						
-						
30						
-						
-						
-						
35						

Remarks: Boring B-2 Completed @ 10' on 5/12/2021

Client: Neglia Engineering Associates Hollow Stem Auger
 Site: 360-484 5th Avenue Portable
 Elizabeth, NJ Mud Rotary
 Driller: RV Drilling



**LOG OF BORING
B-3**

Sheet 1 of 1
JSC #11-247.E.1
Completed: 5/12/2021
Water Level : 3'

Depth (Feet)	Sample #	Depth (Feet)	Sample/Spoon Blows/6"	Symbol USCS	Depth	Description
0	1	0-2	2-6-7-6		0-8'	Fill - Sand, Silt, Organic & Cinder.
-	2	2-4	5-5-10-17			
-	3	4-6	10-5-5-5			
5	4	6-8	4-2-2-2			
-	5	8-10	1-1-1-1	PT	8'-10'	
10						
-						
-						
-						
15						
-						
-						
-						
20						
-						
-						
-						
25						
-						
-						
-						
30						
-						
-						
-						
35						

Remarks: Boring B-3 Completed @ 10' on 5/12/2021

Client: Neglia Engineering Associates Hollow Stem Auger

Site: 360-484 5th Avenue Portable

Elizabeth, NJ Mud Rotary

Driller: RV Drilling



**LOG OF BORING
B-4**

Sheet 1 of 1
JSC #11-247.E.1
Completed: 5/12/2021
Water Level : 3'

Depth (Feet)	Sample #	Depth (Feet)	Sample/Spoon Blows/6"	Symbol USCS	Depth	Description
0	1	0-2	1-5-7-6		0-6"	Topsoil
-					6"-8'	Fill - Sand, Cinder & Organic Silt.
-	2	2-4	6-7-7-13			
-						
-	3	4-6	11-7-5-8			
5						
-	4	6-8	5-4-4-3			
-						
-	5	8-10	2-1-1-1	PT	8'-10'	Black Peat.
-						
10						
-						
-						
-						
-						
15						
-						
-						
-						
-						
20						
-						
-						
-						
-						
25						
-						
-						
-						
-						
30						
-						
-						
-						
-						
35						

Remarks: Boring B-4 Completed @ 10' on 5/12/2021

Client: Neglia Engineering Associates Hollow Stem Auger
 Site: 360-484 5th Avenue Portable
 Elizabeth, NJ Mud Rotary
 Driller: RV Drilling



**LOG OF BORING
B-5**

Sheet 1 of 1
JSC #11-247.E.1
Completed: 5/12/2021
Water Level : 2'

Depth (Feet)	Sample #	Depth (Feet)	Sample/Spoon Blows/6"	Symbol USCS	Depth	Description
0	1	0-2	1-2-3-4		0-6"	Topsoil
-					6"-8'	Fill - Sand, Silt, Bricks & Organic.
-	2	2-4	5-10-7-6			
-	3	4-6	5-4-4-4			
5	4	6-8	4-4-5-6			
-						
-	5	8-10	4-1-1-1	SM	8'-12'	Redbrown fine to medium sand, little Silt & Gravel. (wet, very loose)
10	6	10-12	WH-WH-WH-2			
-				ML	12'-22'	Redbrown Silt, some fine Sand, trace Clay. (wet, stiff)
-						
15	7	15-17	5-5-5-7			
-						
-						
20	8	20-22	1-2-2-2			-grading to soft @20'
-				SM-GM	22'-28'1"	Redbrown fine to medium Sand and Gravel, little silt. (wet, dense)
-						
25	9	25-27	17-9-30-16			
-						
-	10	28-30	100/1"			
30						
-						
-						
35						

Remarks: WH=Weight of Hammer Boring B-5 Refusal @ 28'1" on 5/12/2021

Client: Neglia Engineering Associates

Hollow Stem Auger

Site: 360-484 5th Avenue
Elizabeth, NJ

Portable

Driller: RV Drilling

Mud Rotary



**LOG OF BORING
B-6**

Sheet 1 of 1
JSC #11-247.E.1
Completed: 5/14/2021
Water Level : 2'

Depth (Feet)	Sample #	Depth (Feet)	Sample/Spoon Blows/6"	Symbol USCS	Depth	Description
0	1	0-2	2-6-7-8		0-6"	Topsoil.
-					6"-6'	Fill - Sand, silt, Gravel & Organic.
-	2	2-4	AUGER			
-						
-	3	4-6	5-5-5-5			
5						
-	4	6-8	1-1-1-1	PT	6'-9'	Black Peat
-						
-	5	8-10	WH-WH-WH-WH	SM	9'-26'½"	Redbrown fine to medium Sand, some Silt, little Gravel, trace Clay. (wet, medium dense)
-						
10	6	10-12	7-8-6-4			
-						
-						
-						
15	7	15-17	5-6-6-8			
-						
-						
-						
20	8	20-22	8-9-8-8			
-						
-						
-						
25	9	25-27	20-99-100/1/2"			-grading to very dense@25'
-						
-						
-						
30						
-						
-						
-						
35						

Remarks: WH=Weight of Hammer Boring B-6 Refusal @ 26'1/2" on 5/14/2021

Client: Neglia Engineering Associates	<input checked="" type="checkbox"/> X	Hollow Stem Auger
Site: 360-484 5th Avenue Elizabeth, NJ	<input type="checkbox"/>	Portable
Driller: RV Drilling	<input type="checkbox"/>	Mud Rotary



**LOG OF BORING
B-7**

Sheet 1 of 1
JSC #11-247.E.1
Completed: 5/14/2021
Water Level : 2'

Depth (Feet)	Sample #	Depth (Feet)	Sample/Spoon Blows/6"	Symbol USCS	Depth	Description
0	1	0-2	AUGER		0-5'	Fill - Sand, Cinder & Organic Silt.
-	2	2-4				
-	3	4-6				
5	4	6-8	WH-WH-WH-WH	PT	5'-8'	Black Peat.
-	5	8-10	2-3-3-4	SM	8'-20'4"	Redbrown fine to medium Sand, some Silt, little Gravel, trace Clay. (wet, loose) -grading to medium dense@15'
-	6	10-12	4-5-5-6			
-	7	15-17	6-8-10-30			
20	8	20-22	100/4"			
-						
-						
-						
25						
-						
-						
-						
30						
-						
-						
35						

Remarks: WH=Weight of Hammer Boring B-7 Refusal @ 20'4" on 5/14/2021

Client: Neglia Engineering Associates	<input checked="" type="checkbox"/> Hollow Stem Auger
Site: 360-484 5th Avenue Elizabeth, NJ	<input type="checkbox"/> Portable
Driller: RV Drilling	<input type="checkbox"/> Mud Rotary



**LOG OF BORING
B-8**

Sheet 1 of 1
JSC #11-247.E.1
Completed: 5/14/2021
Water Level : 2'

Depth (Feet)	Sample #	Depth (Feet)	Sample/Spoon Blows/6"	Symbol USCS	Depth	Description
0	1	0-2	2-3-4-4		0-6"	Topsoil.
-					6"-3'	Fill - Sand, Bricks, Gravel & Organic.
-	2	2-4	2-2-2-2	PT	3'-5'	Black Peat.
-						
5	3	4-6	WH-WH-WH-WH	SM	5'-15'	Redbrown fine to medium Sand, some Silt, trace Gravel. (wet, loose)
-						
-						
-	4	6-8	2-4-5-7			
-						
-	5	8-10	4-5-5-5			
-						
10	6	10-12	5-5-5-7			
-						
-						
-						
15	7	15-17	19-38-25-35	SM-GM	15'-18'2"	Redbrown fine to medium Sand and Gravel, little Silt. (wet, very dense)
-						
-	8	18-20	100/2"			
-						
20						
-						
-						
-						
25						
-						
-						
-						
30						
-						
-						
-						
35						
-						

Remarks: WH=Weight of Hammer Boring B-8 Refusal @ 18'2" on 5/14/2021

Client: Neglia Engineering Associates	<input checked="" type="checkbox"/>	Hollow Stem Auger
Site: 360-484 5th Avenue Elizabeth, NJ	<input type="checkbox"/>	Portable
Driller: RV Drilling	<input type="checkbox"/>	Mud Rotary



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UNIFIED SOIL CLASSIFICATION SYSTEM

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			LETTER SYMBOL	TYPICAL DESCRIPTIONS	
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)	GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	
	SAND AND SANDY SOILS	CLEAN SAND (LITTLE OR NO FINES)	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES	
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)	GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES	
	MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	MORE THAN 50% OF COURSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN SAND (LITTLE OR NO FINES)	SW	WELL-GRADED SANDS, GRAVELLY-SANDS LITTLE OR NO FINES
			SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)	SP	POORLY-GRADED SANDS, GRAVELLY SANDS LITTLE OR NO FINES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50	SM	SILTY SANDS, SAND-SILT MIXTURES	
			SC	CLAYEY SANDS, SAND-CLAY MIXTURES	
			ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50	CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDS CLAYS, SILTY CLAYS, LEAN CLAYS	
			OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
			MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS	
HIGHLY ORGANIC SOILS	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50	CH	INORGANIC CLAYS OF HIGH PLASTICITY FAT CLAYS	
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
HIGHLY ORGANIC SOILS			PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS	

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS.

GRADUATION*

COMPACTNESS*
SAND AND/OR GRAVEL

CONSISTENCY*
CLAY AND/OR SILT

% FINER BY WEIGHT

RELATIVE DENSITY

RANGE OF SHEARING STRENGTH
IN POUND PER SQUARE FOOT

TRACE.....0% TO 10%
 LITTLE.....10% TO 20%
 SOME.....20% TO 35%
 AND.....35% TO 50%

LOOSE.....0% TO 40%
 MEDIUM DENSE.....40% TO 70%
 DENSE.....70% TO 90%
 VERY DENSE.....90% TO 100%

VERY SOFT.....LESS THAN 250
 SOFT.....250 TO 500
 MEDIUM.....500 TO 1000
 STIFF.....1000 TO 2000
 VERY STIFF.....2000 TO 4000
 HARD.....GREATER THAN 4000

VALUES ARE FROM LABORATORY OR FIELD TEST DATA WHERE APPLICABLE WHEN NO TESTING WAS PERFORMED, VALUES ARE ESTIMATED.

APPENDIX C

LSRP Test Results

- Table 1 – Soil Sample Analytical Results
- Figure 1 – Soil Sample Location Map

Table 1 - Soil Analytical Results

Mattano Park
Elizabeth, New Jersey
Block 527, Lot 1

CLIENT ID (sample depth in ft bgs): Lab ID: COLLECTION DATE: SAMPLE MATRIX: SAMPLE UNITS:	NJDEP Non-Residential Ingestion Dermal SRS mg/Kg	NJDEP Residential Ingestion Dermal SRS mg/Kg	NJDEP Non-Residential Inhalation Pathway SRS mg/Kg	NJDEP Residential Inhalation Pathway SRS mg/Kg	NJDEP Migration to Groundwater SRS mg/Kg	SB-1 (0.5-1.0)		SB-2 (0.5-1.0)		SB-3 (0.5-1.0)		SB-4 (0.5-1.0)		SB-5 (0.5-1.0)		SB-6 (0.5-1.0)		SB-7 (0.5-1.0)		SB-8 (0.5-1.0)	
						AD43257-001		AD43257-002		AD43257-003		AD43257-004		AD43257-005		AD43257-006		AD43257-007		AD43257-008	
						03/13/2024		03/13/2024		03/13/2024		03/13/2024		03/13/2024		03/13/2024		03/13/2024		03/13/2024	
						Soil/Encore mg/Kg		Soil mg/Kg		Soil/Encore mg/Kg		Soil mg/Kg		Soil mg/Kg		Soil mg/Kg		Soil mg/Kg		Soil mg/Kg	
Analyte	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	
Metals																					
Mercury	390	23	NA	520000	0.10	ND	0.094	0.29	0.098	0.32	0.10	0.90	0.10	0.23	0.098	1.1	0.11	1.3	0.099	0.62	0.10
Aluminum	NA	78000	NA	NA	NA	8800	22	7300	24	9100	25	8000	25	6000	24	8100	26	8700	24	8600	25
Antimony	520	31	NA	NA	5.4	ND	0.34	1.7	0.35	0.56	0.37	0.73	0.37	0.49	0.35	0.47	0.39	0.66	0.36	0.57	0.37
Arsenic	19	19	5200	1100	19	3.1	0.22	7.9	0.24	5.8	0.25	6.8	0.25	6.4	0.24	5.0	0.26	5.9	0.24	5.1	0.25
Barium	260000	16000	NA	870000	2100	66	0.56	150	0.59	150	0.62	140	0.62	93	0.59	96	0.66	120	0.60	120	0.62
Beryllium	2600	160	9300	2000	0.70	0.43	0.11	0.48	0.12	0.54	0.12	0.40	0.12	0.33	0.12	0.45	0.13	0.39	0.12	0.48	0.12
Cadmium	1100	71	12000	2600	1.9	ND	0.22	0.51	0.24	0.33	0.25	0.37	0.25	0.69	0.24	0.38	0.26	0.32	0.24	0.44	0.25
Calcium	NA	NA	NA	NA	NA	2600	110	7700	120	3700	120	3300	120	22000	120	4000	130	3000	120	3400	120
Chromium	NA	NA	NA	NA	NA	15	0.22	24	0.24	20	0.25	25	0.25	20	0.24	16	0.26	20	0.24	20	0.25
Cobalt	390	23	2500	520	90	7.8	0.22	6.4	0.24	7.5	0.25	6.1	0.25	4.8	0.24	6.5	0.26	10	0.24	7.9	0.25
Copper	52000	3100	NA	NA	910	23	1.1	940	5.9	62	1.2	110	1.2	78	1.2	65	1.3	70	1.2	59	1.2
Cyanide	780	47	NA	NA	20	ND	0.27			ND	0.30										
Iron	NA	NA	NA	NA	NA	14000	34	29000	35	18000	37	22000	37	16000	35	14000	39	20000	36	17000	37
Lead	800	400	NA	NA	90	19	0.34	190	0.35	130	0.37	110	0.37	130	0.35	86	0.39	110	0.36	84	0.37
Magnesium	NA	NA	NA	NA	NA	4600	110	2600	120	4000	120	3100	120	10000	120	3500	130	2800	120	4000	120
Manganese	31000	1900	400000	87000	NA	290	1.1	610	1.2	400	1.2	370	1.2	340	1.2	410	1.3	470	1.2	660	1.2
Nickel	26000	1600	93000	20000	48	16	1.1	29	1.2	21	1.2	24	1.2	16	1.2	18	1.3	21	1.2	24	1.2
Potassium	NA	NA	NA	NA	NA	1400	110	790	120	1100	120	850	120	660	120	940	130	710	120	960	120
Selenium	6500	390	NA	NA	11	2.2	1.1	1.7	1.2	2.6	1.2	1.9	1.2	1.7	1.2	2.4	1.3	1.9	1.2	2.6	1.2
Silver	6500	390	NA	NA	0.50	ND	0.22	0.38	0.24	ND	0.25	0.32	0.25	0.51	0.24	ND	0.26	ND	0.24	ND	0.25
Sodium	NA	NA	NA	NA	NA	540	110	180	120	240	120	140	120	190	120	220	130	ND	120	ND	120
Thallium	NA	NA	NA	NA	NA	ND	0.22	ND	0.24	ND	0.25	ND	0.25	ND	0.24	ND	0.26	ND	0.24	ND	0.25
Vanadium	6500	390	800000	170000	NA	25	0.22	24	0.24	28	0.25	27	0.25	23	0.24	23	0.26	23	0.24	27	0.25
Zinc	390000	23000	NA	NA	930	35	4.5	200	4.7	130	4.9	170	4.9	130	4.7	110	5.3	140	4.8	150	4.9
PCBs																					
Aroclor (Total)	1.1	0.25	NA	NA	1.6	ND	0.028			0.13	0.031										
Aroclor-1016	1.1	0.25	NA	NA	1.6	ND	0.028			ND	0.031										
Aroclor-1221	1.1	0.25	NA	NA	1.6	ND	0.028			ND	0.031										
Aroclor-1232	1.1	0.25	NA	NA	1.6	ND	0.028			ND	0.031										
Aroclor-1242	1.1	0.25	NA	NA	1.6	ND	0.028			ND	0.031										
Aroclor-1248	1.1	0.25	NA	NA	1.6	ND	0.028			ND	0.031										
Aroclor-1254	1.1	0.25	NA	NA	1.6	ND	0.028			0.075	0.031										
Aroclor-1260	1.1	0.25	NA	NA	1.6	ND	0.028			ND	0.031										
Aroclor-1262	1.1	0.25	NA	NA	1.6	ND	0.028			0.055	0.031										
Aroclor-1268	1.1	0.25	NA	NA	1.6	ND	0.028			ND	0.031										
Pesticides																					
alpha-Chlordane	1.4	0.27	NA	NA	1.4	ND	0.0056			ND	0.0062										
Aldrin	0.21	0.041	NA	NA	0.13	ND	0.0056			ND	0.0062										
Alpha-BHC	0.41	0.086	NA	NA	0.0023	ND	0.0011			ND	0.0012										
beta-BHC	1.4	0.30	NA	NA	0.0046	ND	0.0011			ND	0.0012										
Chlordane (Total)	1.4	0.27	NA	NA	1.4	ND	0.0056			ND	0.0062										
delta-BHC	NA	NA	NA	NA	NA	ND	0.0056			ND	0.0062										
Dieldrin	0.16	0.034	NA	NA	0.024	ND	0.0011			ND	0.0012										
Endosulfan I	7800	470	NA	NA	NA	ND	0.0056			ND	0.0062										
Endosulfan II	7800	470	NA	NA	NA	ND	0.0056			ND	0.0062										
Endosulfan Sulfate	NA	NA	NA	NA	NA	ND	0.0056			ND	0.0062										
Endrin	270	19	NA	NA	1.6	ND	0.0056			ND	0.0062										
Endrin Aldehyde	NA	NA	NA	NA	NA	ND	0.0056			ND	0.0062										
Endrin Ketone	NA	NA	NA	NA	NA	ND	0.0056			ND	0.0062										
gamma-BHC	2.8	0.57	NA	NA	0.0035	ND	0.0011			ND	0.0012										
Heptachlor	0.81	0.15	NA	NA	0.083	ND	0.0056			ND	0.0062										
Heptachlor Epoxide	0.40	0.076	NA	NA	0.081	ND	0.0056			ND	0.0062										
Methoxychlor	4600	320	NA	NA	NA	ND	0.0056			ND	0.0062										
p,p'-DDD	11	2.3	NA	NA	0.47	ND	0.0028			ND	0.0031										
p,p'-DDE	11	2.0	NA	NA	0.47	0.0061	0.0028			0.010	0.0031										
p,p'-DDT	9.5	1.9	NA	NA	0.67	ND	0.0028			ND	0.0031										
Toxaphene	2.3	0.49	NA	NA	6.2	ND	0.028			ND	0.031										
gamma-Chlordane	1.4	0.27	NA	NA	1.4	ND	0.0056			ND	0.0062										

Table 1 - Soil Analytical Results

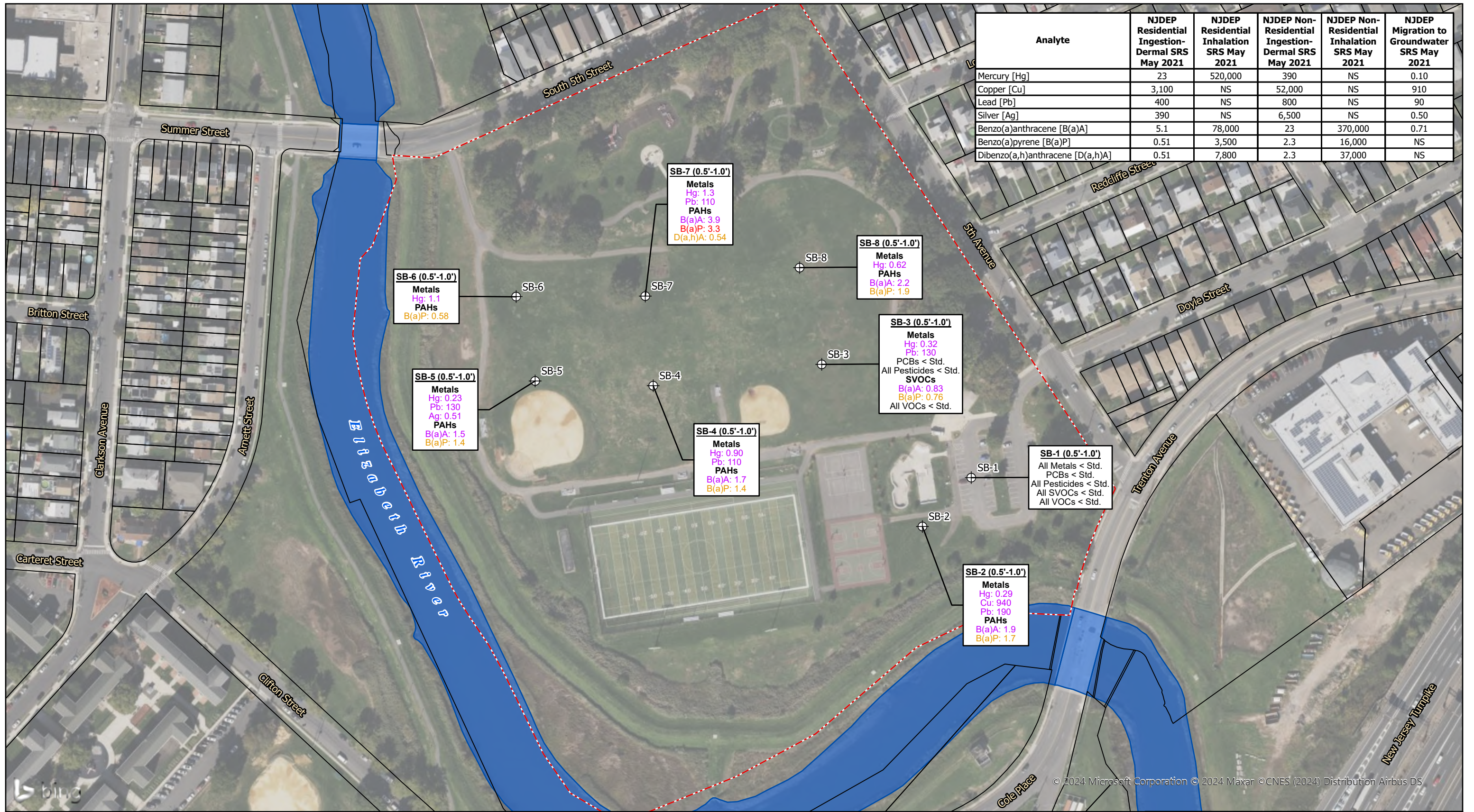
Mattano Park
Elizabeth, New Jersey
Block 527, Lot 1

CLIENT ID (sample depth in ft bgs): Lab ID: COLLECTION DATE: SAMPLE MATRIX: SAMPLE UNITS:	NJDEP Non-Residential Ingestion Dermal SRS	NJDEP Residential Ingestion Dermal SRS	NJDEP Non-Residential Inhalation Pathway SRS	NJDEP Residential Inhalation Pathway SRS	NJDEP Migration to Groundwater SRS	SB-1 (0.5-1.0)		SB-2 (0.5-1.0)		SB-3 (0.5-1.0)		SB-4 (0.5-1.0)		SB-5 (0.5-1.0)		SB-6 (0.5-1.0)		SB-7 (0.5-1.0)		SB-8 (0.5-1.0)		
						AD43257-001		AD43257-002		AD43257-003		AD43257-004		AD43257-005		AD43257-006		AD43257-007		AD43257-008		
						03/13/2024		03/13/2024		03/13/2024		03/13/2024		03/13/2024		03/13/2024		03/13/2024		03/13/2024		
						Soil/Encore		Soil		Soil/Encore		Soil		Soil		Soil		Soil		Soil		Soil
Analyte	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	
SemiVolatiles																						
TotalSemiVolatileTic	NA	NA	NA	NA	NA	21J	NA			21J	NA											
1,1'-Biphenyl	450	87	NA	NA	NA	ND	0.19			ND	0.041											
1,2,4,5-Tetrachlorobenzene	390	23	NA	NA	NA	ND	0.19			ND	0.041											
1,4-Dioxane	36	7.0	210	45	0.067	ND	0.053			ND	0.012											
2,3,4,6-Tetrachlorophenol	27000	1900	NA	NA	26	ND	0.19			ND	0.041											
2,4,5-Trichlorophenol	91000	6300	NA	NA	68	ND	0.19			ND	0.041											
2,4,6-Trichlorophenol	230	49	NA	NA	0.86	ND	0.19			ND	0.041											
2,4-Dichlorophenol	2700	190	NA	NA	0.19	ND	0.061			ND	0.013											
2,4-Dimethylphenol	18000	1300	NA	NA	2.3	ND	0.10			ND	0.023											
2,4-Dinitrophenol	1800	130	NA	NA	0.33	ND	0.94			ND	0.21											
2,4-Dinitrotoluene	3.8	0.80	NA	NA	0.27	ND	0.19			ND	0.041											
2,6-Dinitrotoluene	3.8	0.80	NA	NA	0.27	ND	0.19			ND	0.041											
2-Chloronaphthalene	67000	4800	NA	NA	NA	ND	0.19			ND	0.041											
2-Chlorophenol	6500	390	NA	NA	0.76	ND	0.19			ND	0.041											
2-Methylnaphthalene	3300	240	NA	NA	3.1	ND	0.19			ND	0.041											
2-Methylphenol	4600	320	NA	NA	0.77	ND	0.058			ND	0.013											
2-Nitroaniline	NA	NA	NA	NA	NA	ND	0.19			ND	0.041											
2-Nitrophenol	NA	NA	NA	NA	NA	ND	0.19			ND	0.041											
3&4-Methylphenol	9100	630	NA	NA	0.75	ND	0.062			ND	0.014											
3,3'-Dichlorobenzidine	5.7	1.2	NA	NA	3.9	ND	0.19			ND	0.041											
3-Nitroaniline	NA	NA	NA	NA	NA	ND	0.19			ND	0.041											
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	NA	ND	0.94			ND	0.21											
4-Bromophenyl-phenylether	NA	NA	NA	NA	NA	ND	0.19			ND	0.041											
4-Chloro-3-methylphenol	NA	NA	NA	NA	NA	ND	0.19			ND	0.041											
4-Chloroaniline	13	2.7	NA	NA	0.23	ND	0.064			ND	0.014											
4-Chlorophenyl-phenylether	NA	NA	NA	NA	NA	ND	0.19			ND	0.041											
4-Nitroaniline	130	27	NA	NA	NA	ND	0.19			ND	0.041											
4-Nitrophenol	NA	NA	NA	NA	NA	ND	0.19			ND	0.041											
Acenaphthene	50000	3600	NA	NA	NA	ND	0.19			0.051	0.041											
Acenaphthylene	NA	NA	NA	NA	NA	ND	0.19			0.049	0.041											
Acetophenone	130000	7800	NA	NA	3.6	ND	0.19			ND	0.041											
Anthracene	250000	18000	NA	NA	NA	ND	0.19			0.19	0.041											
Atrazine	3200	220	NA	NA	0.33	ND	0.19			ND	0.041											
Benzaldehyde	910	170	NA	NA	NA	ND	0.19			ND	0.041											
Benzo[a]anthracene	23	5.1	370000	78000	0.71	ND	0.19			0.83	0.041											
Benzo[a]pyrene	2.3	0.51	16000	3500	NA	ND	0.19			0.76	0.041											
Benzo[b]fluoranthene	23	5.1	370000	78000	NA	ND	0.19			1.1	0.041											
Benzo[g,h,i]perylene	NA	NA	NA	NA	NA	0.070	0.050			0.38	0.011											
Benzo[k]fluoranthene	230	51	NA	780000	NA	ND	0.19			0.35	0.041											
bis(2-Chloroethoxy)methane	2700	190	NA	NA	NA	ND	0.19			ND	0.041											
bis(2-Chloroethyl)ether	3.3	0.63	NA	NA	0.33	ND	0.060			ND	0.013											
bis(2-Chloroisopropyl)ether	52000	3100	NA	NA	1.9	ND	0.19			ND	0.041											
bis(2-Ethylhexyl)phthalate	180	39	NA	NA	14	ND	1.7			ND	0.38											
Butylbenzylphthalate	1300	290	NA	NA	29	ND	0.19			ND	0.041											
Caprolactam	460000	32000	1300	290	16	ND	0.19			ND	0.041											
Carbazole	NA	NA	NA	NA	NA	ND	0.19			0.065	0.041											
Chrysene	2300	510	NA	NA	NA	ND	0.19			0.79	0.041											
Dibenzo[a,h]anthracene	2.3	0.51	37000	7800	NA	ND	0.19			0.12	0.041											
Dibenzofuran	NA	NA	NA	NA	NA	ND	0.049			0.023	0.011											
Diethylphthalate	730000	51000	NA	NA	44	ND	3.3			ND	0.73											
Dimethylphthalate	NA	NA	NA	NA	NA	ND	0.19			ND	0.041											
Di-n-butylphthalate	91000	6300	NA	NA	NA	ND	4.5			ND	0.99											
Di-n-octylphthalate	9100	630	NA	NA	NA	ND	0.19			ND	0.041											
Fluoranthene	33000	2400	NA	NA	NA	0.21	0.19			1.4	0.041											
Fluorene	33000	2400	NA	NA	NA	ND	0.19			0.054	0.041											
Hexachlorobenzene	2.3	0.43	NA	NA	0.17	ND	0.19			ND	0.041											
Hexachlorobutadiene	47	8.9	NA	NA	0.17	ND	0.19			ND	0.041											
Hexachlorocyclopentadiene	7800	470	NA	2.7	2.5	ND	0.62			ND	0.14											
Hexachloroethane	91	17	NA	NA	0.17	ND	0.19			ND	0.041											
Indeno[1,2,3-cd]pyrene	23	5.1	370000	78000	NA	ND	0.19			0.33	0.041											
Isophorone	2700	570	NA	NA	0.23	ND	0.19			ND	0.041											
Naphthalene	34000	2500	27	5.7	19	ND	0.047			0.026	0.010											
Nitrobenzene	2600	160	36	7.5	0.17	ND	0.19			ND	0.041											
N-Nitroso-di-n-propylamine	0.36	0.17	NA	NA	0.17	ND	0.048			ND	0.011											
N-Nitrosodiphenylamine	520	110	NA	NA	1.1	ND	0.19			ND	0.041											
Pentachlorophenol	4.4	1.0	NA	NA	0.33	ND	0.94			ND	0.21											
Phenanthrene	NA	NA	NA	NA	NA	ND	0.19			0.72	0.041											
Phenol	270000	19000	NA	39000	21	ND	0.19			ND	0.041											
Pyrene	25000	1800	NA	NA	NA	0.21	0.19			1.4	0.041											

Table 1 - Soil Analytical Results

Mattano Park
Elizabeth, New Jersey
Block 527, Lot 1

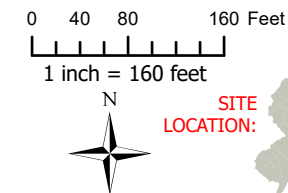
CLIENT ID (sample depth in ft bgs): Lab ID: COLLECTION DATE: SAMPLE MATRIX: SAMPLE UNITS:	NJDEP Non-Residential Ingestion Dermal SRS	NJDEP Residential Ingestion Dermal SRS	NJDEP Non-Residential Inhalation Pathway SRS	NJDEP Residential Inhalation Pathway SRS	NJDEP Migration to Groundwater SRS	SB-1 (0.5-1.0)		SB-2 (0.5-1.0)		SB-3 (0.5-1.0)		SB-4 (0.5-1.0)		SB-5 (0.5-1.0)		SB-6 (0.5-1.0)		SB-7 (0.5-1.0)		SB-8 (0.5-1.0)	
						AD43257-001		AD43257-002		AD43257-003		AD43257-004		AD43257-005		AD43257-006		AD43257-007		AD43257-008	
						03/13/2024		03/13/2024		03/13/2024		03/13/2024		03/13/2024		03/13/2024		03/13/2024		03/13/2024	
						Soil/Encore		Soil		Soil/Encore		Soil		Soil		Soil		Soil		Soil	
	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
PAHs																					
2-Methylnaphthalene	3300	240	NA	NA	3.1	ND	0.20	ND	0.21	ND	0.12	ND	0.044	ND	0.12	ND	0.041	0.12	0.13	0.041	0.041
Acenaphthene	50000	3600	NA	NA	NA	ND	0.20	ND	0.21	ND	0.12	ND	0.044	0.40	0.12	0.13	0.041	0.12	0.13	0.041	0.041
Acenaphthylene	NA	NA	NA	NA	NA	ND	0.20	ND	0.21	0.12	0.063	0.044	ND	0.12	0.13	0.041	0.12	0.13	0.041	0.041	0.041
Anthracene	250000	18000	NA	NA	NA	0.58	0.20	0.45	0.21	0.33	0.12	0.12	0.044	1.1	0.12	0.58	0.041	0.12	0.58	0.041	0.041
Benzo[a]anthracene	23	5.1	370000	78000	0.71	1.9	0.20	1.7	0.21	1.5	0.12	0.54	0.044	3.9	0.12	2.2	0.041	0.12	2.2	0.041	0.041
Benzo[a]pyrene	2.3	0.51	16000	3500	NA	1.7	0.20	1.4	0.21	1.4	0.12	0.58	0.044	3.3	0.12	1.9	0.041	0.12	1.9	0.041	0.041
Benzo[b]fluoranthene	23	5.1	370000	78000	NA	2.3	0.20	2.0	0.21	2.0	0.12	0.88	0.044	4.6	0.12	2.6	0.041	0.12	2.6	0.041	0.041
Benzo[g,h,i]perylene	NA	NA	NA	NA	NA	0.84	0.052	0.61	0.055	0.73	0.031	0.31	0.012	1.9	0.032	0.82	0.011	0.032	0.82	0.011	0.011
Benzo[k]fluoranthene	230	51	NA	780000	NA	0.89	0.20	0.70	0.21	0.60	0.12	0.23	0.044	1.8	0.12	0.95	0.041	0.12	0.95	0.041	0.041
Chrysene	2300	510	NA	NA	NA	1.9	0.20	1.6	0.21	1.4	0.12	0.58	0.044	3.7	0.12	2.0	0.041	0.12	2.0	0.041	0.041
Dibenzo[a,h]anthracene	2.3	0.51	37000	7800	NA	0.24	0.20	ND	0.21	0.20	0.12	0.082	0.044	0.54	0.12	0.25	0.041	0.12	0.25	0.041	0.041
Fluoranthene	33000	2400	NA	NA	NA	3.9	0.20	3.1	0.21	2.5	0.12	0.84	0.044	6.9	0.12	3.6	0.041	0.12	3.6	0.041	0.041
Fluorene	33000	2400	NA	NA	NA	ND	0.20	ND	0.21	ND	0.12	ND	0.044	0.41	0.12	0.15	0.041	0.12	0.15	0.041	0.041
Indeno[1,2,3-cd]pyrene	23	5.1	370000	78000	NA	0.76	0.20	0.54	0.21	0.64	0.12	0.26	0.044	1.6	0.12	0.75	0.041	0.12	0.75	0.041	0.041
Naphthalene	34000	2500	27	5.7	19	ND	0.049	ND	0.051	ND	0.029	ND	0.011	0.11	0.030	0.056	0.010	0.030	0.056	0.010	0.010
Phenanthrene	NA	NA	NA	NA	NA	2.6	0.20	1.6	0.21	1.2	0.12	0.43	0.044	4.3	0.12	2.1	0.041	0.12	2.1	0.041	0.041
Pyrene	25000	1800	NA	NA	NA	3.7	0.20	3.1	0.21	2.6	0.12	0.94	0.044	6.2	0.12	3.7	0.041	0.12	3.7	0.041	0.041
Volatiles																					
TotalVolatileTic	NA	NA	NA	NA	NA	ND	NA	ND	NA	ND	NA	ND	NA	ND	NA	ND	NA	ND	NA	ND	NA
1,1,1-Trichloroethane	NA	160000	NA	NA	0.20	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
1,1,2,2-Tetrachloroethane	18	3.5	NA	NA	0.0069	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
1,1,2-Trichloro-1,2,2-trifluoroethane	NA	NA	NA	NA	NA	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
1,1,2-Trichloroethane	64	12	NA	NA	0.017	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
1,1-Dichloroethane	640	120	NA	NA	0.24	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
1,1-Dichloroethene	180	11	240	52	0.0069	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
1,2,3-Trichlorobenzene	NA	NA	NA	NA	NA	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
1,2,4-Trichlorobenzene	13000	780	NA	94	0.52	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
1,2-Dibromo-3-chloropropane	4.5	0.87	0.12	0.026	0.0050	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
1,2-Dibromoethane	1.8	0.35	0.41	0.085	0.005	ND	0.00065	ND	0.00071	ND	0.00071	ND	0.00071	ND	0.00071	ND	0.00071	ND	0.00071	ND	0.00071
1,2-Dichlorobenzene	110000	6700	NA	NA	11	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
1,2-Dichloroethane	30	5.8	320	71	0.0095	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
1,2-Dichloropropane	98	19	27	5.7	0.0058	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
1,3-Dichlorobenzene	110000	6700	NA	NA	11	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
1,4-Dichlorobenzene	13000	780	NA	NA	1.4	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
1,4-Dioxane	36	7.0	210	45	0.067	ND	0.10	ND	0.10	ND	0.11	ND	0.11	ND	0.11	ND	0.11	ND	0.11	ND	0.11
2-Butanone	780000	47000	NA	NA	0.98	0.0064	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
2-Hexanone	6500	390	NA	1000	0.15	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
4-Methyl-2-pentanone	NA	NA	NA	NA	NA	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
Acetone	NA	70000	NA	NA	19	0.035	0.010	ND	0.010	ND	0.011	ND	0.011	ND	0.011	ND	0.011	ND	0.011	ND	0.011
Benzene	16	3.0	11	2.2	0.0094	ND	0.0010	ND	0.0010	ND	0.0011	ND	0.0011	ND	0.0011	ND	0.0011	ND	0.0011	ND	0.0011
Bromochloromethane	NA	NA	NA	NA	NA	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
Bromodichloromethane	59	11	NA	NA	0.0050	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
Bromoform	460	88	NA	NA	0.018	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
Bromomethane	1800	110	82	18	0.043	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
Carbon disulfide	NA	NA	NA	NA	3.7	0.0021	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
Carbon tetrachloride	40	7.6	6.9	1.4	0.0075	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
Chlorobenzene	8400	510	NA	NA	0.64	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
Chloroethane	NA	NA	NA	NA	NA	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
Chloroform	13000	780	NA	590	0.33	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
Chloromethane	NA	NA	1200	270	NA	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
cis-1,2-Dichloroethene	13000	780	NA	NA	0.35	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
cis-1,3-Dichloropropene	36	7.0	23	4.8	0.0063	ND	0.0020	ND	0.0020	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022	ND	0.0022
Cyclohexane	NA	NA	NA	NA	NA	ND	0.0020	ND</													



- Legend**
- Parcel
 - Property Boundary
 - Stream/River
 - Soil Sample Location

Notes:
 Concentration above NJDEP Migration to Groundwater SRS
 Concentration above NJDEP Residential SRS
 Concentration above NJDEP Non-Residential SRS
 Only compounds exceeding applicable criteria are presented
 Depth is feet below ground surface (ft bgs)
 PAHs - Polycyclic Aromatic Hydrocarbons

PCBs - Polychlorinated Biphenyls
 SVOCs - Semi-Volatile Organic Compounds
 VOCs - Volatile Organic Compounds
 ND - Non-Detect
 NS - No Standard
 SRS - Soil Remediation Standard
 < Std. - All analytes were ND or detected below applicable SRS



DELTA
 ENVIRONMENTAL SERVICES
 FAIRFIELD, NEW JERSEY

MATTANO PARK
 360-484 5th Avenue
 ELIZABETH NEW JERSEY

FIGURE 1
 SOIL SAMPLE LOCATION MAP

REVISED	DRAWN	APPROVED	DATE
	ES	DL	03/26/24



MATTANO PARK IMPROVEMENTS

BA# 50-2024; UNION COUNTY ENGINEERING PROJECT NO. 2019-012



BLOCK 527, LOT 1 (MATTANO PARK) CITY OF ELIZABETH, UNION COUNTY, NEW JERSEY

SEPTEMBER 27, 2024

PERMITTING & CONSTRUCTION TIMING NOTES

THIS PROJECT HAS RECEIVED APPROVAL OF LAND USE PERMITTING FROM THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION (NJDEP). THE PERMITS LISTED BELOW HAVE BEEN APPLIED FOR AND APPROVED BY THE NJDEP:

1. WATERFRONT DEVELOPMENT INDIVIDUAL PERMIT - COMMERCIAL/INDUSTRY/PUBLIC (LANDWARD) AND FLOOD HAZARD AREA INDIVIDUAL PERMIT (No. 2004-11-0007.1 LUP230002) - APPROVED DECEMBER 8, 2023, EXPIRES DECEMBER 7, 2028;
2. FRESHWATER WETLANDS GENERAL PERMIT No. 11 AND TAW - SPECIAL ACTIVITY REDEVELOPMENT (No. 2004-11-0007.1 LUP230001) - APPROVED AUGUST 1, 2024, EXPIRES JULY 31, 2029; AND
3. FRESHWATER WETLANDS LETTER OF INTERPRETATION: LINE VERIFICATION (No. 2004-11-0007.1, LL1230001) - APPROVED JULY 31, 2024.

THIS PROJECT IS SUBJECT TO CONSTRUCTION TIMING RESTRICTIONS IMPOSED BY THE NJDEP, AS FOLLOWS:

- IN ORDER TO PROTECT ANADROMOUS FISH SPECIES WITHIN THE ELIZABETH RIVER FROM SEDIMENT GENERATING ACTIVITIES, ANY GRADING, EXCAVATION, OR CONSTRUCTION ACTIVITIES WITHIN THE STREAM OR THE BANKS OF THE STREAM ARE PROHIBITED BETWEEN APRIL 1 THROUGH JUNE 30 OF EACH YEAR.

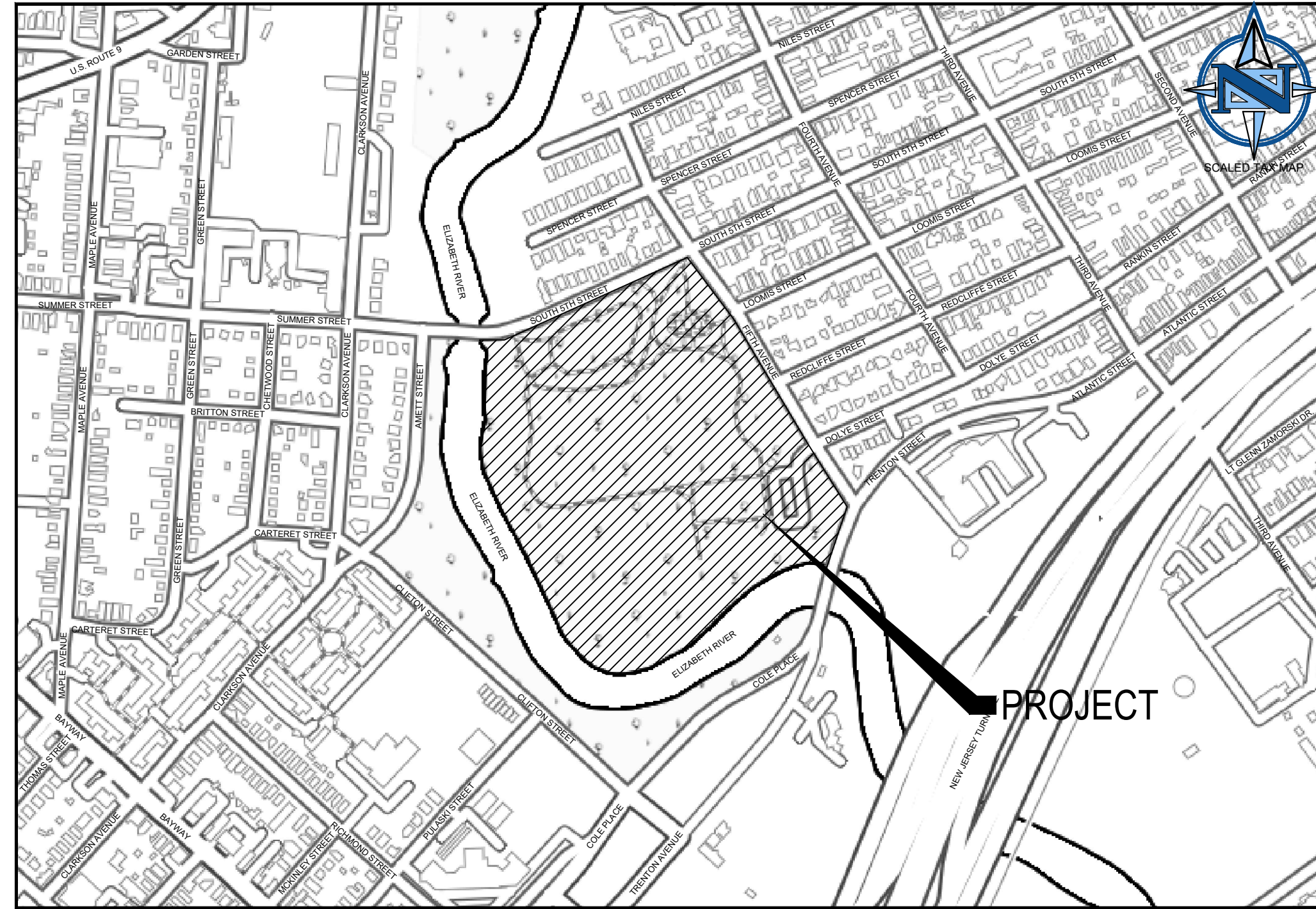
THE OWNER HAS RECEIVED AN APPROVAL FROM THE SOMERSET-UNION SOIL CONSERVATION DISTRICT (SUSCD) FOR SOIL EROSION AND SEDIMENT CONTROL PLAN CERTIFICATION:

1. SOIL EROSION AND SEDIMENT CONTROL PLAN CERTIFICATION, BY THE SUSCD (No. 2024-6449), DATED JULY 10, 2024.

THE OWNER WILL PROVIDE AN APPROVAL FROM THE NJDEP, BUREAU OF NONPOINT POLLUTION CONTROL, WATER POLLUTION MANAGEMENT ELEMENT, FOR AN AUTHORIZATION TO DISCHARGE STORMWATER DURING CONSTRUCTION:

AUTHORIZATION TO DISCHARGE, 5G3 - CONSTRUCTION ACTIVITY STORMWATER GENERAL PERMIT.

"THE CONTRACTOR SHALL BE RESPONSIBLE TO COMPLY WITH ALL CONDITIONS AND REGULATIONS OF THE APPROVED PERMITS. A COPY OF THE APPROVED PERMITS, AND ASSOCIATED CONDITIONS, HAS BEEN PROVIDED IN THE CONSTRUCTION DOCUMENTS, AND MUST REMAIN ON-SITE AT ALL TIMES."



KEY MAP (1"=500')
SOURCE: REF. TAX MAPS

COUNTY OF UNION

10 ELIZABETHTOWN PLAZA, ELIZABETH, NEW JERSEY 07207
PHONE: (908) 527-4000

COMMISSIONERS

KIMBERLY PALMIERI-MOUDED, CHAIRWOMAN	LOURDES M. LEON, VICE CHAIRWOMAN
JAMES R. BAKER, JR.	JOSEPH BODEK
MICHELE S. DELISFORT	SERGIO GRANADOS
BETTE JANE KOWALSKI	ALEXANDER MIRABELLA
	REBECCA WILLIAMS

SHEET INDEX

DRAWING NO.	DRAWING TITLE
1.00	COVER SHEET / KEY MAP
2.00	GENERAL NOTES AND STANDARD LEGEND
3.00	DEMOLITION PLAN
4.00	SITE PLAN
5.00	GRADING PLAN
5.01 - 5.06	SECTIONS PLAN I - VI
6.00	DRAINAGE PLAN
6.01	OUTFALL PIPES
7.00	SOIL EROSION & SEDIMENT CONTROL PLAN
8.00	PERMITTING PLAN - FLOOD HAZARD AREA
8.01	PERMITTING PLAN - FRESHWATER WETLANDS
9.00	LANDSCAPING PLAN
10.00	LIGHTING PLAN
11.00	SOIL EROSION SEDIMENT CONTROL DETAILS
11.01 - 11.10	CONSTRUCTION DETAILS I - X
1 OF 2	TOPOGRAPHIC SURVEY
2 OF 2	TOPOGRAPHIC SURVEY

UTILITY COMPANY CONTACTS

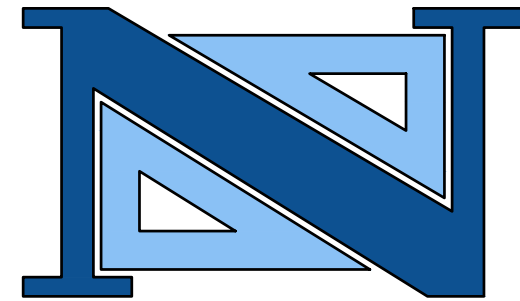
COMPANY	ADDRESS
P.S.E. & G. - GAS	80 PARK PLAZA T24 NEWARK, NJ 07101 (732) 764 - 3067
ELIZABETH TOWN GAS COMPANY	1 ELIZABETHTOWN PLAZA, P.O. BOX 3175, UNION, NJ 07083 (908) 662 - 8321
CABLEVISION	536 NORTH BROAD STREET ELIZABETH, NJ 07208 (888) 467-8468
P.S.E. & G. - ELECTRIC	80 PARK PLAZA T12 NEWARK, NJ (973) 297 - 2128
NEW JERSEY AMERICAN WATER	1341 NORTH AVENUE PLAINFIELD, NJ 07061 (973) 564 - 5701
VERIZON	175 WESTMAIN STREET FREEHOLD, NJ (732) 357 - 2313



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CERTIFICATE OF AUTHORIZATION (N.J.S.A. 45:8-56) 24GA27927000

REVISIONS			DRAWN	DESIGNED	CHECKED
NO.	DATE	DESCRIPTION			



DAVID R. ATKINSON, P.E., C.M.E.
PROFESSIONAL ENGINEER
N.J. LICENSE NO. BE45505

THOMAS R. SOLFARO, P.E., C.M.E.
PROFESSIONAL ENGINEER
N.J. LICENSE NO. 41935

A PROJECT OF
NEGLIA ENGINEERING ASSOCIATES
34 PARK AVENUE
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LYNDHURST NEW JERSEY
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E-MAIL: NEA@NEGLIAENGINEERING.COM

MICHAEL J. NEGLIA, P.E., P.L.S., P.P.
PROFESSIONAL ENGINEER
N.J. LICENSE NO. 38604
PROFESSIONAL LAND SURVEYOR
N.J. LICENSE NO. 38604
PROFESSIONAL PLANNER
N.J. LICENSE NO. 33L00569800

COVER SHEET / KEY MAP
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY NEW JERSEY

DRAWN BY: JV
DESIGNED BY: JV
FIELD BOOK NO:

CHECKED BY: DRANH
SCALE: N.T.S.
PAGE:

PROJECT NO: UNIOCTY20.011
SHEET NO: 1.00
DATE: AUGUST 1, 2024

m:\union-county\uniocty2011\mattano-park\cover-key-map.dwg (24GA27927000) - Key Map (1"=500') - September 30, 2024 8:39:31 AM

GENERAL NOTES:

A. Legal

- A1. The most current editions of the Standard Specifications for Road and Bridge Construction, Standard Inputs, and Standard Details, as published by the New Jersey Department of Transportation (NJDOT), the Plans, Technical Specifications, Advertisement, Contractor's Proposal and including but not limited to the amendments contained hereinafter shall comprise the Contract Documents. The Contractor shall read and understand the project specifications prior to construction. The municipality is under the jurisdiction of the state central law and the government.
- A2. The Contractor shall visit the site and familiarize himself with the existing conditions prior to submitting his bid. Any discrepancies between these plans and the actual conditions at the site shall be immediately reported to the Professional Engineer.
- A3. The Contractor shall comply with all laws, ordinances, rules, orders and regulations relating to the performance of the work, the protection of adjacent property and the maintenance of passageways.
- A4. The Contractor's attention is directed to the safety requirements as outlined in the General Conditions of the Construction Specifications. Neither the Engineer nor the Owner shall be held responsible and/or liable for the safety of the work site. The Contractor is responsible for maintaining a safe work site at all times.
- A5. The Contractor is responsible to obey all the safety and health regulations. The Owner assumes no responsibility for the health and safety of the work performed.

B. Site Clearing and Construction

- B1. The Contractor shall obtain all required local, County, State, Federal opening permits and shall bare the cost of all accompanying fees. All permits must be secured prior to the commencement of work.
- B2. Whenever a question arises regarding the specifications or drawings or any supplementary drawings or instructions of the Field Engineer, same shall be immediately brought to the attention of the Professional Engineer responsible for the design.
- B3. One copy of the approved construction plans and specifications furnished to the Contractor must be kept on the project site. All work and materials necessary for the completion of the work according to the intent and meaning of the Contract Documents, shall be furnished, performed and done in accordance with the specifications and plans. Any conflict or inconsistency between the plans and specifications, or any discrepancy between the figures and scale of drawings shall be submitted by the Contractor to the Engineer, whose decision thereon shall be final. The decision of the Engineer as to which specification will govern will be final.
- B4. The Contractor is responsible to construct the project in accordance with the contract documents. All proposed field changes must be approved in writing by the Professional Engineer responsible for the design (Project Manager, PE) prior to the construction of any field changes.
- B5. All information shown or noted for existing facilities, grades, roadways and materials is approximate. The Contractor shall be responsible to verify all information which may affect his work.
- B6. All disturbed shrubs, fencing, walkways, signs, mailboxes, driveways, etc., shall be restored to their original condition and to the satisfaction of the Engineer and/or the Owner. No separate payment shall be made for this restoration work unless same is clearly specified elsewhere in the construction documents. The Contractor shall take prudent measures to protect all existing property evidence (monuments, iron pipe, pins, etc.) during construction.
- B7. All property corners or monuments removed or damaged during construction shall be replaced by a NJ Licensed Land surveyor at no additional cost to the Owner.
- B8. Reconstructed curb shall be installed to match existing curb elevations and alignment unless otherwise specified on grading plans, profiles or cross sections. Separate payment will not be made for removal of existing curb in reconstructed areas. Payment for the removal of existing curb shall be included in the unit price bid for the Curb line item.
- B9. The Contractor shall sawcut and repair the pavement adjacent to newly constructed curb prior to proceeding on to subsequent stages of work. Curb trenches will not be left open overnight in areas where the roadway is to be opened to traffic. No separate payment will be given for such saw cutting and restoration, the cost of which shall be included in the unit price bid for the Curb line item.
- B10. All asphalt material removed from the project must be transported to an approved recycling center and the tonnage certified to the Owner. No separate payment will be made for this work but shall be included in the various items in the proposal.
- B11. The Contractor shall be responsible for the disposal of all excess materials excavated, whatever nature, at his own expense. The Owner is not obligated to supply a disposal site. The Contractor must not deposit the excess materials within the municipal limits without express permission of the Professional Engineer. Excavated material may not be stored on site and shall be removed at the end of each day.
- B12. All excavated materials are to be disposed of in accordance with approved NJDOT/NJDEP methods and means, or transported at the direction of the Owner.
- B13. All disturbed areas outside the project limits or not intended to be included in this project, shall be restored to their original condition, and to the satisfaction of the Owner. No separate payment shall be made for this restoration, unless specified elsewhere.
- B14. The Contractor must provide a smooth sawcut edge in all cases where proposed pavement of whatever nature, concrete curbs or concrete sidewalks abut existing pavements, curbs or sidewalks. No separate payment will be made for sawcutting. The cost shall be included in the various items in the proposal.
- B15. The Contractor may discover that existing roadway may contain existing concrete base or cobble stone and shall make all necessary requirements for its removal where required. The cost for this work shall be included in the cost of Roadway Excavation, Unclassified.
- B16. The replacement of any sidewalk within the project area may require that sidewalk slabs be sawcut from the surrounding concrete walk. No specific payment for saw cutting will be made and therefore shall be included under prices bid for concrete sidewalk items in the proposal.
- B17. As part of this Contract, the Contractor is required to prepare the existing pavement and seal all cracks and joints per Section 404 of the NJDOT Specifications prior to resurfacing. This work shall include, but is not limited to, all labor, materials and equipment necessary to clean cracks prior to the installation of surface course and apply a sealant as outlined in the NJDOT Specification. Prior to commencement, the Contractor shall obtain approval from the Professional Engineer as to the intended methods and materials that will be used for this project. This item shall not be measured for payment, but the cost thereof shall be included in the unit price bids for the Hot Mix Asphalt Surface Course line item.
- B18. No construction, maintenance or utility work on, under or above the project road that will obstruct, interfere with and/or detour traffic on the road, shall be performed before the hour of 9:00 AM or after 4:00 PM. The Contractor's work hours shall conform to local Ordinance requirements.
- B19. All trenches in the existing pavement shall be saw cut. No separate payment will be made for saw cutting and the cost thereof shall be included under prices bid for various items in the proposal.
- B20. The Contractor shall be responsible for restoration and maintenance of all access driveways at all times during construction at no additional cost to the Owner.
- B21. All sediment and soil erosion control practices are to be installed in conformance with Soil Conservation District standards prior to any major soil disturbances. All work shall be completed in proper sequence and all erosion control devices shall be maintained until permanent protection is established.
- B22. Contractor shall maintain access to all properties at all times during construction.
- B23. The Contractor shall take all necessary measures to maintain dust control as required or directed by the Professional Engineer. All vehicles shall be clean and all roadways shall be maintained as directed by the Field Engineer.
- B24. Contractor shall keep the site clean at all times and sweep the street at the end of each work day.

B. Site Clearing and Construction/Cont.

- B25. All material encountered within the work zone area that must be removed to construct the project as directed by the Field Engineer, shall be included in the unit price bid for Clearing Site. This is inclusive of but not limited to the removal of all curbed edging and concrete gutter.
- B26. All trees are to be saved and protected from harm during construction with the exception of the trees marked with an X on the construction plans. If any trees are damaged during construction, the Contractor will be responsible for the removal and replacement as determined by the Municipality.
- B27. All trees to be removed shall be marked by the Contractor and approved by the Owner before any tree removal commences. Each Tree designated for removal shall be completely removed, except for stumps that cannot be removed by grubbing which shall be grinded to twelve (12) inches below the existing ground surface.
- B28. The Contractor shall install protective blocking, bracing or sheeting to support any exposed gas, water, sanitary, telecommunications, or electric utilities in accordance with the respective utility company's regulations.
- B29. The Contractor shall be responsible for tapering proposed work to meet existing conditions in a uniform manner.

C. Utility Permits

- C1. Prior to the start of construction, the Contractor shall have all underground utilities located and physically marked out within the limits of the project (call 1-800-272-1000). The Contractor shall provide test holes in areas of possible conflict to verify the depth and location of the utility. No separate payment shall be made for delays that may be necessary to relocate utilities or the proposed location of underground utilities. No separate payment will be made for test pits but the cost shall be included in the various items in the proposal.
- C2. Location and depth of existing utilities are only indicated to bring attention to possible conflicts. Any damage to utilities shall be the sole responsibility of the Contractor and all costs for repairs shall be borne by the Contractor.
- C3. Any damage to utilities shall be the sole responsibility of the Contractor and all costs for repair shall be borne by the Contractor. All disturbed or damaged walkways, signs, curbing, trees, hydrants, utilities, paved surfaces, driveways, building facades, etc. shall be restored to their original condition and to the satisfaction of the Owner. No separate payment will be made for this restoration unless specified elsewhere in the Contract.
- C4. The locations of utilities shown are approximate. The Contractor is responsible for verifying the exact locations of the utilities prior to the start of construction.
- C5. All gas and water valves and various manholes to remain shall be reset to finish grade.
- C6. The Contractor shall coordinate his work with the public utility companies. Electric, telephone, gas & cable utility manhole castings and valve box covers shall be reset by the respective utility companies.
- C7. Private utility companies must be contacted by the Contractor so that privately owned castings will be reset as required.
- C8. Water service valve boxes, gas service valve boxes, junction boxes, electric boxes, basement vault doors and all other appurtenances located in the sidewalk area shall be reset to the new sidewalk elevation. The cost for resetting any and all of these castings shall not be paid separately but shall be included in the various concrete sidewalk line items in the proposal.
- C9. The Contractor is responsible for accurately locating existing traffic signal loop detector and leads. The Contractor will only be compensated for the replacement of loop detectors and leads which have been removed at the direction of the Professional Engineer. The Contractor shall not remove loop detectors and leads unless he is directed to do so by the Professional Engineer.
- C10. Trenches shall be backfilled without delay. Open excavations shall be kept to a minimum and made safe at all times. All trenches shall be adequately compacted by approved methods and with materials approved by the Field Engineer. Any trench settlement shall be immediately brought to grade and temporary paving shall be placed where required. No trench (including curbs) shall be left open overnight.
- C11. The Contractor shall provide and maintain temporary ramps around all exposed utility castings, both public and private which have been uncovered during construction.

D. Drainage

- D1. The Contractor is responsible to clean and maintain all existing drainage structures prior to the start of construction within the project limits.
- D2. All existing storm sewer pipes within project limits must be cleaned by the Contractor after completion of construction. The cost for cleaning shall not be paid separately but shall be included in the various drainage items in the proposal.
- D3. All roof leaders and curb drains are to remain free flowing, during construction.
- D4. All roof drain pipes in curbs/sidewalk area to be maintained and reconnected, and shall be extended under the sidewalk and through the curb.
- D5. All inlets, manholes and vault castings to be reset shall be reset to the proposed finished grade as directed by the Field Engineer. These castings must be reset flush to the proposed grade and the new pavement shall not be rounded up or feathered down to meet these castings. All castings reset to the improper grade or not to the satisfaction of the Field Engineer shall be reset to the new grade at no additional expense to the Owner.
- D6. Existing grates are the property of the Municipality or utility authority and will be delivered, at no additional cost to the Owner, to the local Department of Public Works or utility authority yard. Payment will not be made for new grates unless the existing grates are returned to the Owner.
- D7. All open drainage excavations shall be backfilled at the end of each day and protected from pedestrian and vehicular traffic.
- D8. The Contractor will be responsible for maintaining positive drainage during and after construction. If a situation arises where water will pond at a particular location, the Professional Engineer responsible for the design must be notified immediately in order to make corrective measures in writing.
- D9. The Contractor is fully responsible for verifying that all proposed storm sewer connections are to the existing storm sewer systems.

E. Traffic Control

- E1. The Contractor shall be responsible for coordination of traffic control measures.
- E2. Maintenance and Protection of Pedestrian Traffic Control must conform to NJDOT and MUTCD standards along with the requirements of the municipality. Police Traffic Directors shall be coordinated with the municipality, as needed.
- E3. The Contractor shall be responsible to prepare a detour plan as needed or required by the Owner and/or local Police department for review and approval prior to starting work.

F. Signs

- F1. Any signs located within the sidewalk areas should be reset/relocated in accordance with the standard NJDOT Standard Details. Separate payment will not be made for resetting objects located in the sidewalk. The cost shall be included in the unit price bid for the replacement of sidewalks, unless payment for such work is specified in the proposal.
- F2. The Contractor shall relocate/reset signs as shown on the plans or directed by the Professional Engineer. No separate payment will be made for this work but the cost shall be included in the various items in the proposal.
- F3. Signs for parking prohibition must be posted at least 48 hours in advance of construction. Contractor shall coordinate, obtain and place signs as directed by the Owner.

G. Survey

- G1. Layout of all work shall be adjusted in the field to meet site conditions as approved in writing by the Professional Engineer responsible for the design.
- G2. The Contractor is responsible to layout all new work prior to construction for Field Engineer's approval. Any locations not approved by the Field Engineer and installed by the Contractor shall be removed and replaced as per the Field Engineer's instructions at no additional cost to the Owner.
- G3. All layout work shall be done by a New Jersey Licensed Land Surveyor.
- G4. All existing locations taken from a survey prepared by Neglia Engineering Associates.

H. Trees

- H1. Contractor must retain a certified tree expert for tree evaluation where necessary. No additional payment will be made for tree expert; price to be included in site clearing.
- H2. All trees that have roots that encroach into the proposed curbs or pavement and are to be saved shall be evaluated by the Contractor's certified tree expert. All evaluations shall be in writing and shall accurately identify the tree in question by station and offset (left or right). All evaluations shall be submitted to the Professional Engineer for review and consultation with the Municipality's tree experts prior to cutting any roots. No separate payment will be made for this work but the cost thereof shall be included in the clearing site item.
- H3. Trees that are to be saved, where it is determined that root cutting may severely damage the tree, shall have a curb break and steel curb face plates installed as shown on the details.
- H4. The Contractor is responsible for the timely evaluation of all trees and there will not be change orders for delays resulting from root cutting.
- H5. In areas where the roots encroach into the curb line, the full pavement section shall be removed prior to removing the curb. Then the existing curb shall be removed by pulling it away from the tree towards the roadway to minimize root damage during the removal of the existing curb. No separate payment shall be made for this work but the cost thereof shall be included in the Clearing Site line item.

I. ADA Requirements

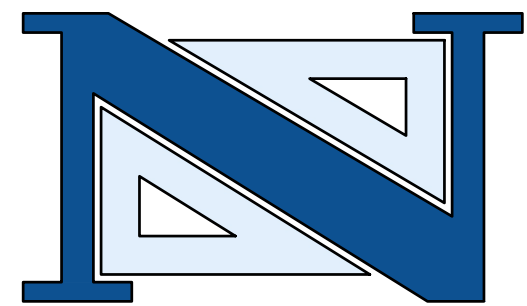
- I1. The Contractor shall be fully responsible for complying with NJDOT and ADA requirements related to the installation of handicap accessible ramps and the associated slopes. The ramps and alignments illustrated on these plans shall be used for schematic purposes only. The Contractor shall be fully responsible for proper construction and alignment in the field.
- I2. It is the Contractor's responsibility to verify that the proposed drop curb ramps meet current NJDOT and ADA Standards. Those ramps that do not meet standards, once constructed, shall be replaced to meet said standards at no additional cost to the owner.
- I3. The Contractor is responsible for determining the extent of improvements required for those ramp locations identified and completing said work to ensure ramps are in conformance with current NJDOT and ADA Standards.
- I4. Contractor shall not begin site clearing operations on a ramp until he verifies that ramp can be constructed to comply with applicable standards. The Contractor shall be responsible for all corrections to a ramp should he proceed with demolition prior to confirmation of constructability at no additional cost to the owner.

ESTIMATE OF QUANTITIES			
ITEM NO	DESCRIPTION	APPROX.	
		QTY	UNIT
1	Mobilization / Demobilization	1	L.S.
2	Site Clearing / Demolition	1	L.S.
3	Maintenance and Protection of Traffic	1	L.S.
4	Construction Layout	1	L.S.
5	Furnish and Install Soil Erosion and Sediment Control Devices	1	L.S.
6	Earthwork	1	L.S.
7	Tree Removal (Over 6" - 12" Diameter)	1	UNIT
8	Tree Removal (Over 12" - 20" Diameter)	4	UNIT
9	Tree Removal (Over 24" - 30" Diameter)	3	UNIT
10	Tree Removal (Over 30" - 48" Diameter)	1	UNIT
11	Test Pits (If and Where Directed)	500	C.Y.
12	Construct 9" x 18" Concrete Vertical Curb	1,260	L.F.
13	Construct 12" x 18" Concrete Curb	465	L.F.
14	Construct 12" x 27" High Concrete Curb	25	L.F.
15	Mountable Concrete Curb	40	L.F.
16	Construct Concrete Sidewalk, 4" Thick	380	S.Y.
17	Construct Concrete Sidewalk, Reinforced, 6" Thick	635	S.Y.
18	Hot Mix Asphalt Surface Course, Mix 9.5M64, 2" Thick	575	TONS
19	Hot Mix Asphalt Base Course, Mix 19M64, 2" Thick	575	TONS
20	Dense-Graded Aggregate Base Course, 6" Thick	4,855	S.Y.
21	Detectable Warning Surface	7	S.Y.
22	Traffic Signs	25	UNIT
23	Traffic Marking Lines, 4"	3,350	L.F.
24	Traffic Marking Lines, 12"	15	L.F.
25	Traffic Markings Symbols	900	S.F.
26	Locking Removable Bollards	8	UNIT
27	Concrete Bumper Block	5	UNIT
28	Furnish and Install Tennis Court Netting System, Complete	2	UNIT
29	Furnish and Install Two Tone Acrylic Tennis Court Coating System	1,445	S.Y.
30	Furnish and Install Tennis Court Striping, Complete	2	UNIT
31	Furnish and Install 135' x 225' Natural Grass Soccer Field Striping, Complete	1	UNIT
32	Furnish and Install Soccer Corner Flags, Set of 4	5	UNIT
33	Furnish and Install 7' x 21' Portable Soccer Goal	10	UNIT
34	Furnish and Install 8' x 24' Portable Soccer Goal	4	UNIT
35	Furnish and Install 5-Row ADA Accessible Bleacher System	3	UNIT
36	Furnish and Install 5-Row Bleacher System	3	UNIT
37	Furnish and Install Player Bench With Shelf, 15' Long	6	UNIT
38	Furnish and Install 4' High, Black Vinyl Coated Chain-Link Fence	390	L.F.
39	Furnish and Install 4' High, Black Vinyl Coated Chain-Link Fence With 16' High Athletic Netting System Mounted Above (Total Height: 20')	1,410	L.F.
40	Furnish and Install 10' High, 1 3/4" Mesh, Black Vinyl Coated Chain-Link Gate	465	L.F.
41	Furnish and Install 4' High, 4' Wide Single-Swing, Black Vinyl Coated Chain-Link Gate	2	UNIT
42	Furnish and Install 4' High, 4' Wide Single-Swing, Black Vinyl Coated Chain-Link Transom Gate With 16' High Athletic Netting System Mounted Above (Total Height: 20')	1	UNIT
43	Furnish and Install 10' High, 4' Wide Single-Swing, Black Vinyl Coated Chain-Link Gate	2	UNIT
44	Furnish and Install 4' High, 12' Wide Double-Swing, Black Vinyl Coated Chain-Link Gate	1	UNIT
45	Furnish and Install 4' High, 12' Wide Double-Swing, Black Vinyl Coated Chain-Link Transom Gate With 16' High Athletic Netting System Mounted Above (Total Height: 20')	1	UNIT
46	Furnish and Install 10' High, 12' Wide Double-Swing, Black Vinyl Coated Chain-Link Gate	1	UNIT
47	Furnish and Install Sports Netting System, 20' Height	150	L.F.
48	Furnish and Install Aluminum Hand Railing	60	L.F.
49	Furnish and Install Pervious Asphalt Pavement System with Stone, and Geotextile Fabric	4,930	S.Y.
50	Furnish and Install Artificial Turf Field Stone Base, Curb, and Geotextile Fabric System	19,395	S.Y.
51	PVC Pipe, 6"	170	L.F.
52	PVC Pipe, Perforated, 8"	850	L.F.
53	HDPE Pipe, 12"	340	L.F.
54	HDPE Pipe, 18"	195	L.F.
55	HDPE Pipe, Perforated, 24"	1,160	L.F.
56	RCP, Class V, 12"	260	L.F.
57	RCP, Class V, 15"	590	L.F.
58	RCP, Class V, 24"	20	L.F.
59	RCP, Class V, 36"	35	L.F.
60	Construct Stormwater Manhole, Standard, Furnish and Install Casting and Cover	7	UNIT
61	Construct Stormwater Manhole (W/ Open Gate), Standard, Furnish and Install Casting and Pedestrian Safe Gate	1	UNIT
62	Construct Stormwater Cleanout	7	UNIT
63	Construct Type 'A' Inlet, Furnish and Install Casting and Bicycle Safe Gate	2	UNIT
64	Construct Type 'B' Inlet, Furnish and Install Casting, N-Eco Curb Piece and Bicycle Safe Gate	3	UNIT
65	Construct Yard Inlet, Furnish and Install Casting and Pedestrian Gate	5	UNIT
66	Construct Outfall Structure with Scour Hole, Outlet Protection, Complete	2	UNIT
67	Construct Outlet Control Structure, Complete	1	UNIT
68	Furnish and Install 36-inch In-Line Stormwater Backflow Preventer	1	UNIT
69	Furnish and Install 36-inch In-Line Stormwater Backflow Preventer	1	UNIT
70	Reset Sanitary Cleanout	1	UNIT
71	Furnish and Install 1-Inch Water Valve	1	UNIT
72	Furnish and Install 1-Inch Copper Type 'K' Water Line	120	L.F.
73	Furnish and Install Hose Ground Hydrant	1	UNIT
74	Furnish and Install Flagpole with Uplights (Excluding Electrification)	1	UNIT
75	Furnish and Install Pole Mounted Solar LED Perimeter Path Lighting, Complete	47	UNIT
76	Furnish and Install Parking Lot Lighting (Excluding Electrification)	1	L.S.
77	Furnish and Install Sports Lighting System, Complete (Excluding Electrification)	1	L.S.
78	Furnish and Install Electrification of Parking Lot Lighting, Sports Lighting, and Flagpole	1	L.S.
79	Furnish and Install Storage Shed, Complete (If and Where Directed)	1	L.S.
80	Sunset Red Maple, 2 1/2" - 3" Cal. B&B	4	UNIT
81	Black Gym, 2 1/2" - 3" Cal. B&B	6	UNIT
82	Swamp White Oak, 2 1/2" - 3" Cal. B&B	14	UNIT
83	Cherokee Brave Dogwood, 7'-8' B&B	12	UNIT
84	June Saucer Magnolia, 7'-8' B&B	7	UNIT
85	Thundercloud Flowering Plum, 7'-8' B&B	4	UNIT
86	Pennsylvania Sedge, 2 Gal.	48	UNIT
87	Bright Edge Yucca, 5 Gal.	22	UNIT
88	Topsoil, Hydroseed, and Straw Mulch	26,500	S.Y.
89	Demarcation Layer	48,000	S.Y.
90	Contract Allowance for Testing and Disposal of Unsuitable Soils	1	ALLOW
91	Contract Allowance for Site Signage	1	ALLOW
92	Final Cleanup / Site Restoration	1	L.S.
93	Bid Contingency	1	ALLOW

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NO.	DATE	DESCRIPTION			



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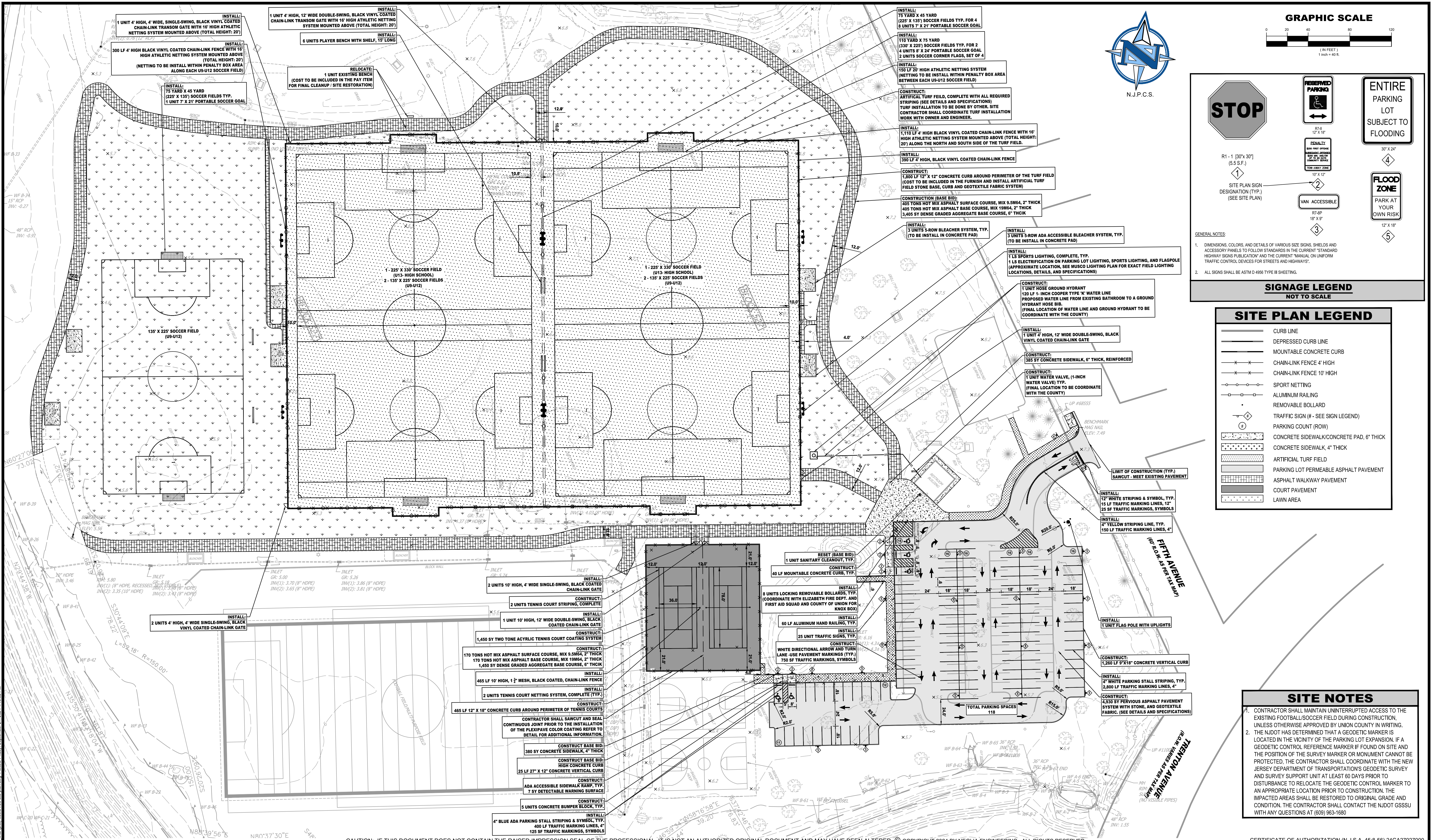
GENERAL NOTES AND STANDARD LEGEND
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY NEW JERSEY

DRAWN BY: JV
 DESIGNED BY: JV
 FIELD BOOK NO:

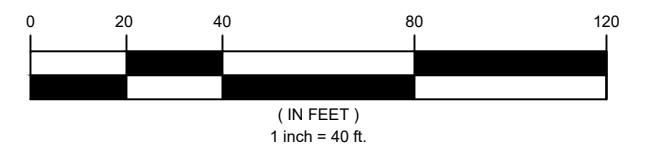
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PROJECT NO: UNIOCTY20.011
 SHEET NO: 2.00
 DATE: AUGUST 1, 2023

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GRAPHIC SCALE



R1 - 1 (30" x 30") (5.5 S.F.)

SITE PLAN SIGN DESIGNATION (TYP.) (SEE SITE PLAN)

- GENERAL NOTES:**
- DIMENSIONS, COLORS, AND DETAILS OF VARIOUS SIZE SIGNS, SHIELDS AND ACCESSORY PANELS TO FOLLOW STANDARDS IN THE CURRENT STANDARD HIGHWAY SIGN PUBLICATION AND THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS.
 - ALL SIGNS SHALL BE ASTM D 4666 TYPE III SHEETING.

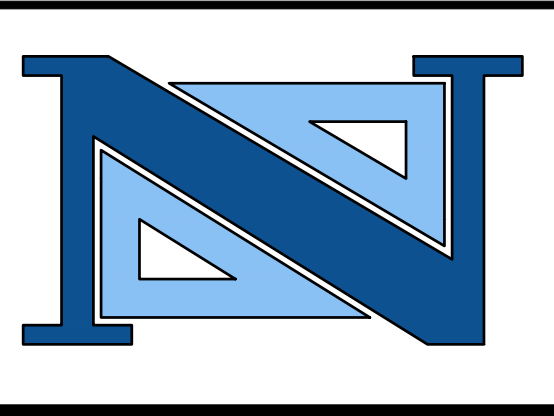
SIGNAGE LEGEND
NOT TO SCALE

- SITE PLAN LEGEND**
- CURB LINE
 - DEPRESSED CURB LINE
 - MOUNTABLE CONCRETE CURB
 - CHAIN-LINK FENCE 4' HIGH
 - CHAIN-LINK FENCE 10' HIGH
 - SPORT NETTING
 - ALUMINUM RAILING
 - REMOVABLE BOLLARD
 - TRAFFIC SIGN (# - SEE SIGN LEGEND)
 - PARKING COUNT (ROW)
 - CONCRETE SIDEWALK/CONCRETE PAD, 6" THICK
 - CONCRETE SIDEWALK, 4" THICK
 - ARTIFICIAL TURF FIELD
 - PARKING LOT PERMEABLE ASPHALT PAVEMENT
 - ASPHALT WALKWAY PAVEMENT
 - COURT PAVEMENT
 - LAWN AREA

SITE NOTES

- CONTRACTOR SHALL MAINTAIN UNINTERRUPTED ACCESS TO THE EXISTING FOOTBALL/SOCCER FIELD DURING CONSTRUCTION, UNLESS OTHERWISE APPROVED BY UNION COUNTY IN WRITING.
- THE N.J.O.T HAS DETERMINED THAT A GEODETIC MARKER IS LOCATED IN THE VICINITY OF THE PARKING LOT EXPANSION. IF A GEODETIC CONTROL REFERENCE MARKER IS FOUND ON SITE AND THE POSITION OF THE SURVEY MARKER OR MONUMENT CANNOT BE PROTECTED, THE CONTRACTOR SHALL COORDINATE WITH THE NEW JERSEY DEPARTMENT OF TRANSPORTATION'S GEODETIC SURVEY AND SURVEY SUPPORT UNIT AT LEAST 60 DAYS PRIOR TO DISTURBANCE TO RELOCATE THE GEODETIC CONTROL MARKER TO AN APPROPRIATE LOCATION PRIOR TO CONSTRUCTION. THE IMPACTED AREAS SHALL BE RESTORED TO ORIGINAL GRADE AND CONDITION. THE CONTRACTOR SHALL CONTACT THE N.J.O.T GSSSU WITH ANY QUESTIONS AT (809) 963-1680

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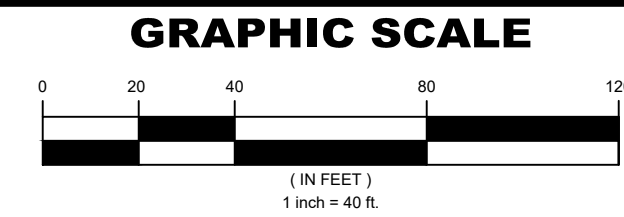
SITE PLAN
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY
NEW JERSEY

DRAWN BY: JV
 DESIGNED BY: JV
 FIELD BOOK NO:

CHECKED BY: DR/ANH
 SCALE: 1" = 40'
 PAGE:

PROJECT NO.: UNIOCTY20.011
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ELEVATION DATUM
 ELEVATION DATA SHOWN HEREON IS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). TO CONVERT TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 1929), ADD 1.093 FEET TO THE ELEVATIONS SHOWN ON THIS PLAN (IN NAVD 88).

GRADING LEGEND

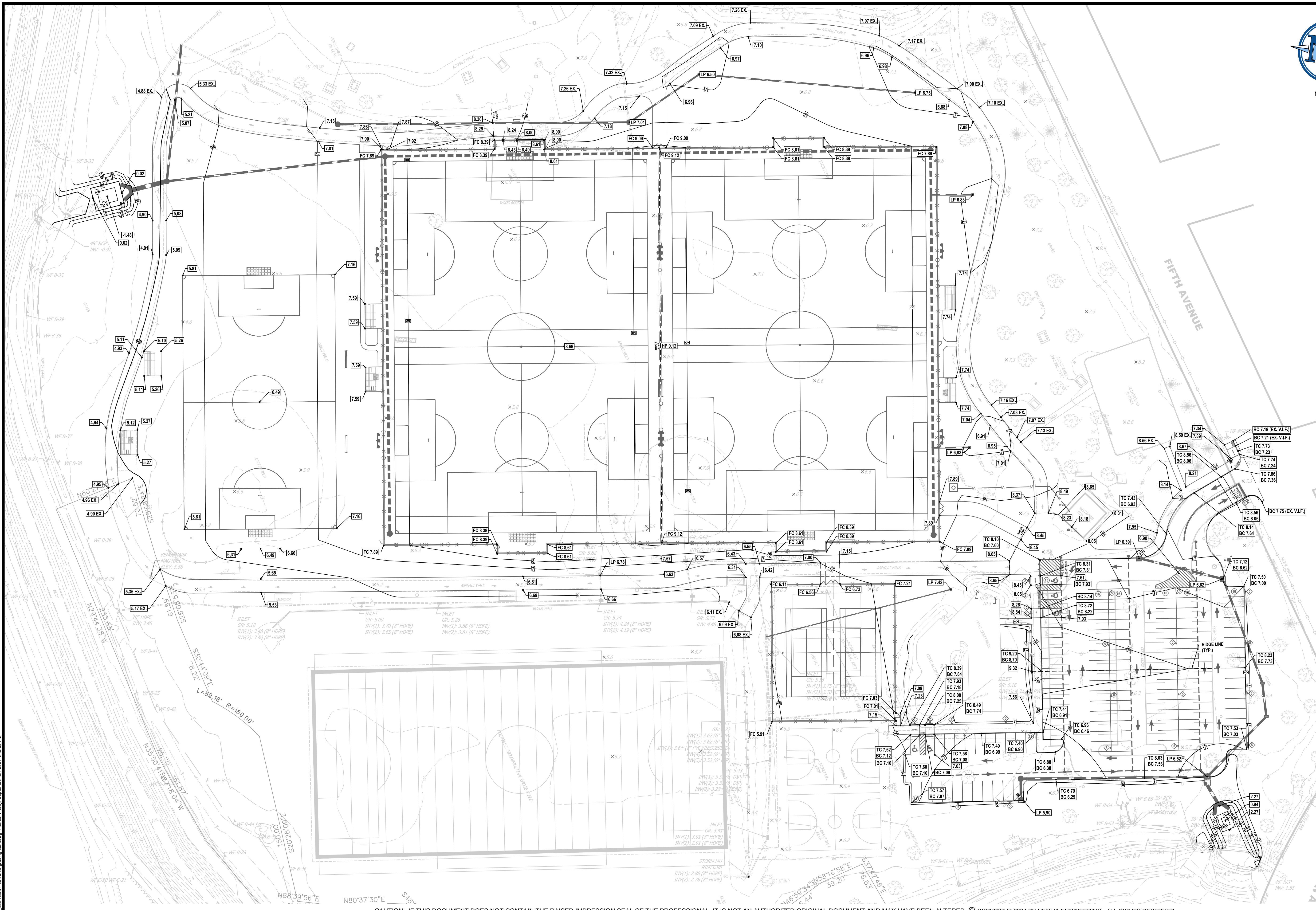
	PROPOSED CONTOUR LINE
	TOP / BOTTOM OF CURB ELEVATION
	TOP / BOTTOM OF WALL ELEVATION
	SPOT ELEVATION - HIGH POINT SPOT ELEVATION - LOW POINT
	SPOT ELEVATION SPOT ELEVATION - FLUSH CURB
	RIDGE LINE

SITE OVER-EXCAVATION NOTE
 DUE TO THE PRESENCE OF FILL MATERIAL LOCATED ON THE SITE, THE GEOTECHNICAL REPORT CALLS FOR A REMOVAL OF A MINIMUM TWO (2) FEET UNDERNEATH THE PROPOSED SUBGRADE AREA IN THE PARKING LOT AREAS. ALL OTHER AREAS WILL HAVE ONE (1) FEET OF FILL MATERIAL REMOVAL.

THE OVERALL SCOPE OF OVER-EXCAVATION INCLUDES EXCAVATION OF THE FILL MATERIAL TO THE DEPTH DESCRIBED ABOVE, STOCKPILING ON SITE AND SUBSEQUENT COMPACTION TO 95% MODIFIED PROCTOR 8-12 INCHES TESTING AND DISPOSAL OF MATERIAL, IMPORT OF CERTIFIED CLEAN FILL, LIFTS UP TO THE PROPOSED SUBGRADE AS INDICATED WITHIN THE GEOTECHNICAL REPORT, SPECIFICATIONS AND AS DIRECTED BY THE PROJECT GEOTECHNICAL ENGINEER. BACKFILL WITHIN CONFINED AREAS SHOULD BE PLACED IN LAYERS OF SIX TO EIGHT (6-8) INCHES IN LOOSE THICKNESS AND COMPACTION TO THE SAME 95% OF MAXIMUM DRY DENSITY USING PORTABLE COMPACTION EQUIPMENT. EXISTING FILL SHALL REMAIN ON-SITE TO THE MAXIMUM EXTENT PRACTICABLE UNTIL REMOVAL IS REQUIRED TO CONSTRUCT TO THE PROPOSED GRADES.

SITE ENVIRONMENTAL CAPPING NOTE
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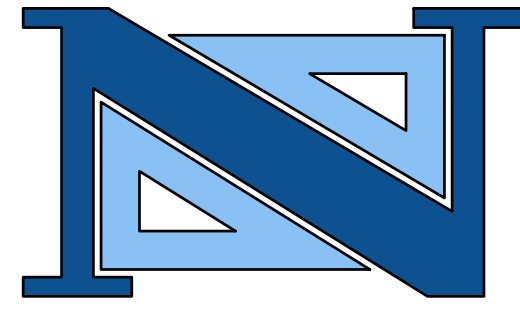
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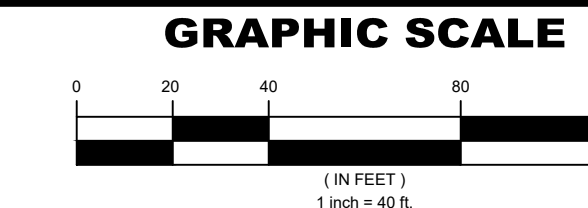
GRADING PLAN
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
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UNION COUNTY
NEW JERSEY

DRAWN BY: JV
 DESIGNED BY: JV
 FIELD BOOK NO:

CHECKED BY: DR/HH
 SCALE: 1"=40'
 PAGE:

PROJECT NO.: UNIOCTY20.011
 SHEET NO.: 5.00
 DATE: AUGUST 1, 2023

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SITE OVER-EXCAVATION NOTE

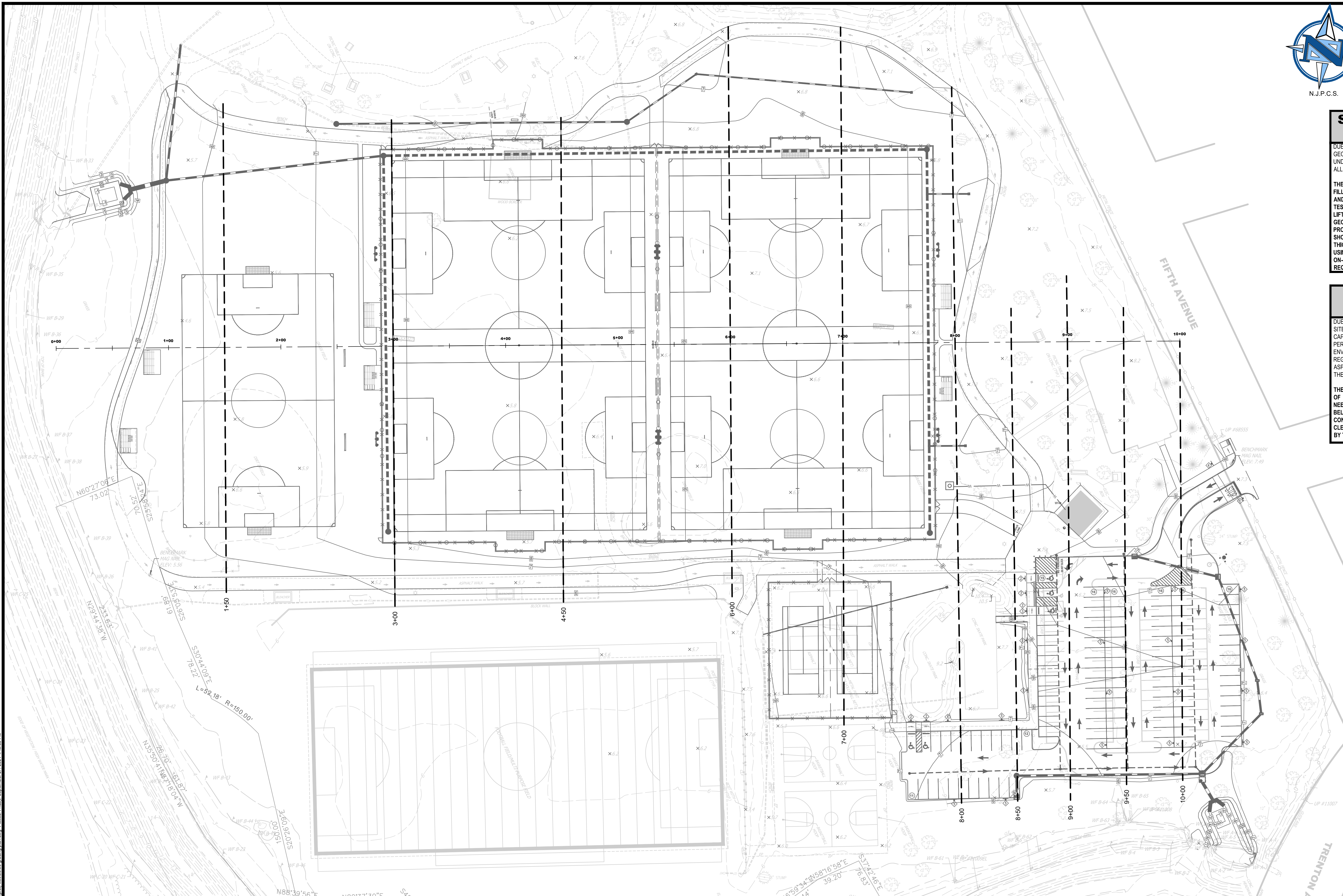
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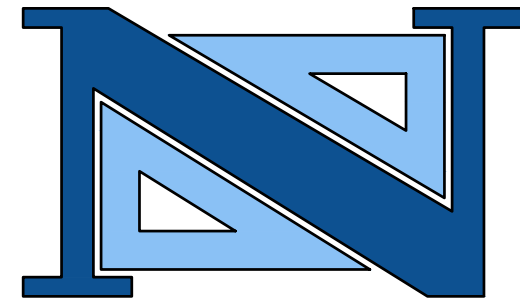
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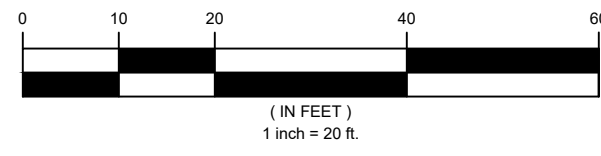
SECTION PLAN I
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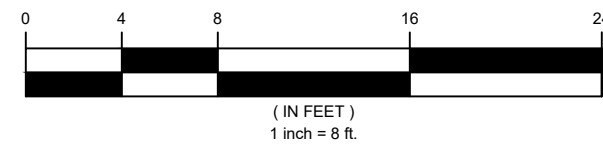
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HORIZONTAL SCALE



VERTICAL SCALE



SITE OVER-EXCAVATION NOTE

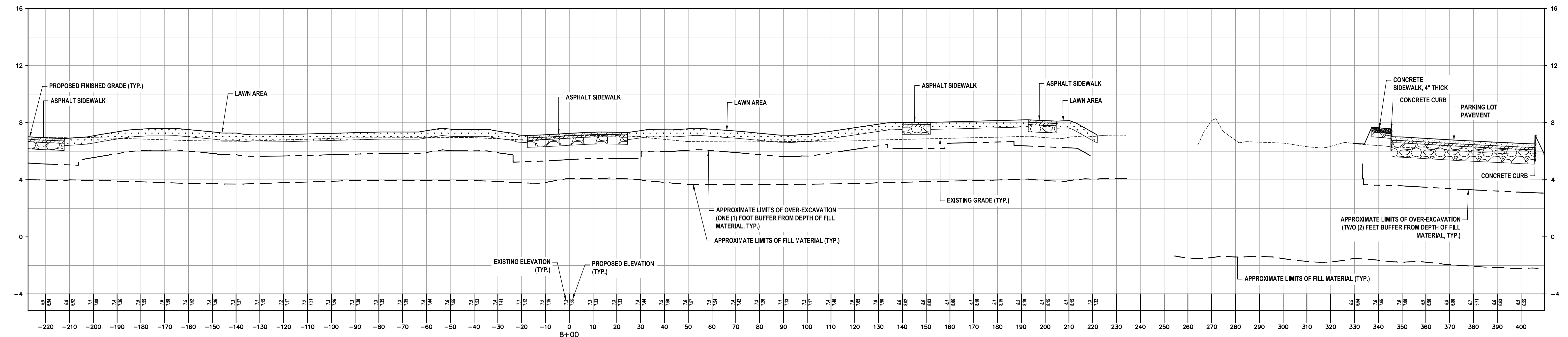
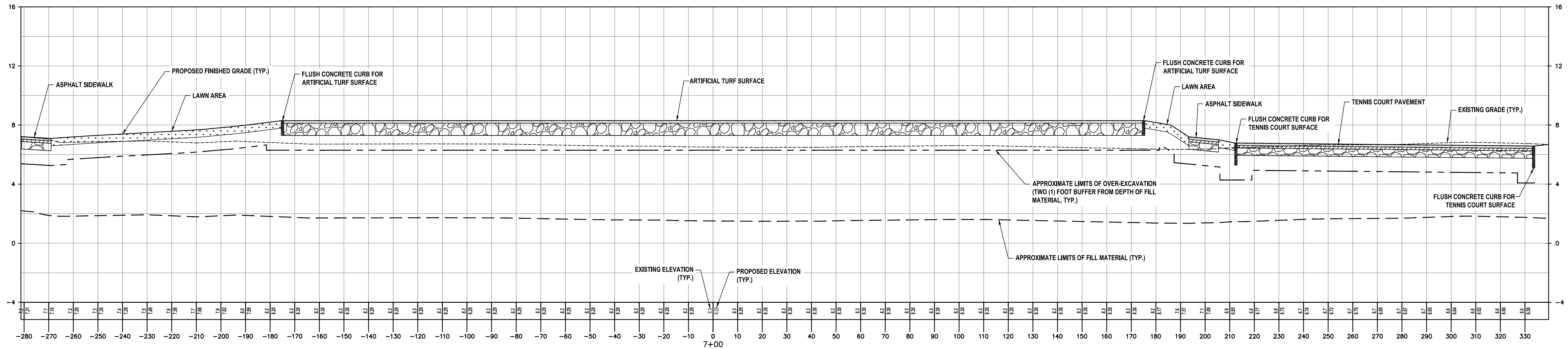
DUE TO THE PRESENCE OF FILL MATERIAL LOCATED ON THE SITE, THE GEOTECHNICAL REPORT CALLS FOR A REMOVAL OF A MINIMUM TWO (2) FEET UNDERNEATH THE PROPOSED SUBGRADE AREA IN THE PARKING LOT AREAS. ALL OTHER AREAS WILL HAVE ONE (1) FEET OF FILL MATERIAL REMOVAL.

THE OVERALL SCOPE OF OVER-EXCAVATION INCLUDES EXCAVATION OF THE FILL MATERIAL TO THE DEPTH DESCRIBED ABOVE, STOCKPILING ON SITE AND SUBSEQUENT COMPACTION TO 95% MODIFIED PROCTOR 8-12 INCHES TESTING AND DISPOSAL OF MATERIAL, IMPORT OF CERTIFIED CLEAN FILL, LIFTS UP TO THE PROPOSED SUBGRADE AS INDICATED WITHIN THE GEOTECHNICAL REPORT, SPECIFICATIONS AND AS DIRECTED BY THE PROJECT GEOTECHNICAL ENGINEER. BACKFILL WITHIN CONFINED AREAS SHOULD BE PLACED IN LAYERS OF SIX TO EIGHT (6-8) INCHES IN LOOSE THICKNESS AND COMPACTED TO THE SAME 95% OF MAXIMUM DRY DENSITY USING PORTABLE COMPACTION EQUIPMENT. EXISTING FILL SHALL REMAIN ON-SITE TO THE MAXIMUM EXTENT PRACTICABLE UNTIL REMOVAL IS REQUIRED TO CONSTRUCT TO THE PROPOSED GRADES.

SITE ENVIRONMENTAL CAPPING NOTE

DUE TO THE PRESENCE OF COMPROMISED SOIL (I.E. HISTORIC FILL) AT THE SITE, THE PROPOSED PROJECT SCOPE INCLUDES SITE ENVIRONMENTAL CAPPING. ALL EXCAVATION, DISPOSAL AND BACKFILLING WORK MUST BE PERFORMED IN ACCORDANCE WITH NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND SITE REMEDIATION PROGRAM REGULATIONS AND GUIDANCE. THE CONTRACTOR SHALL COORDINATE ALL ASPECTS OF THE PROJECT RELATED TO THE ENVIRONMENTAL IMPACTS WITH THE PROPERTY LICENSED SITE REMEDIATION PROFESSIONAL (LSRP).

THE OVERALL SCOPE OF ENVIRONMENTAL CAPPING INCLUDES PROVISION OF A DEMARCATION LAYER. THE DEMARCATION LAYER WILL ONLY BE NEEDED FOR DISTURBED AREAS ONLY AND IF FILL MATERIAL IS PRESENT BELOW THE DISTURBED AREA, AS INDICATED WITHIN THE PROJECT CONSTRUCTION PLANS AND SPECIFICATIONS, AND 1-FOOT OF CERTIFIED CLEAN FILL WITHIN ALL LANDSCAPE AND LAWN AREAS, AND AS DIRECTED BY THE PROJECT LSRP.

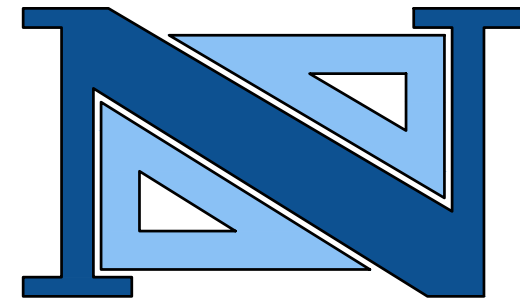


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REVISIONS

NO.	DATE	DESCRIPTION	DRAWN	DESIGNED	CHECKED



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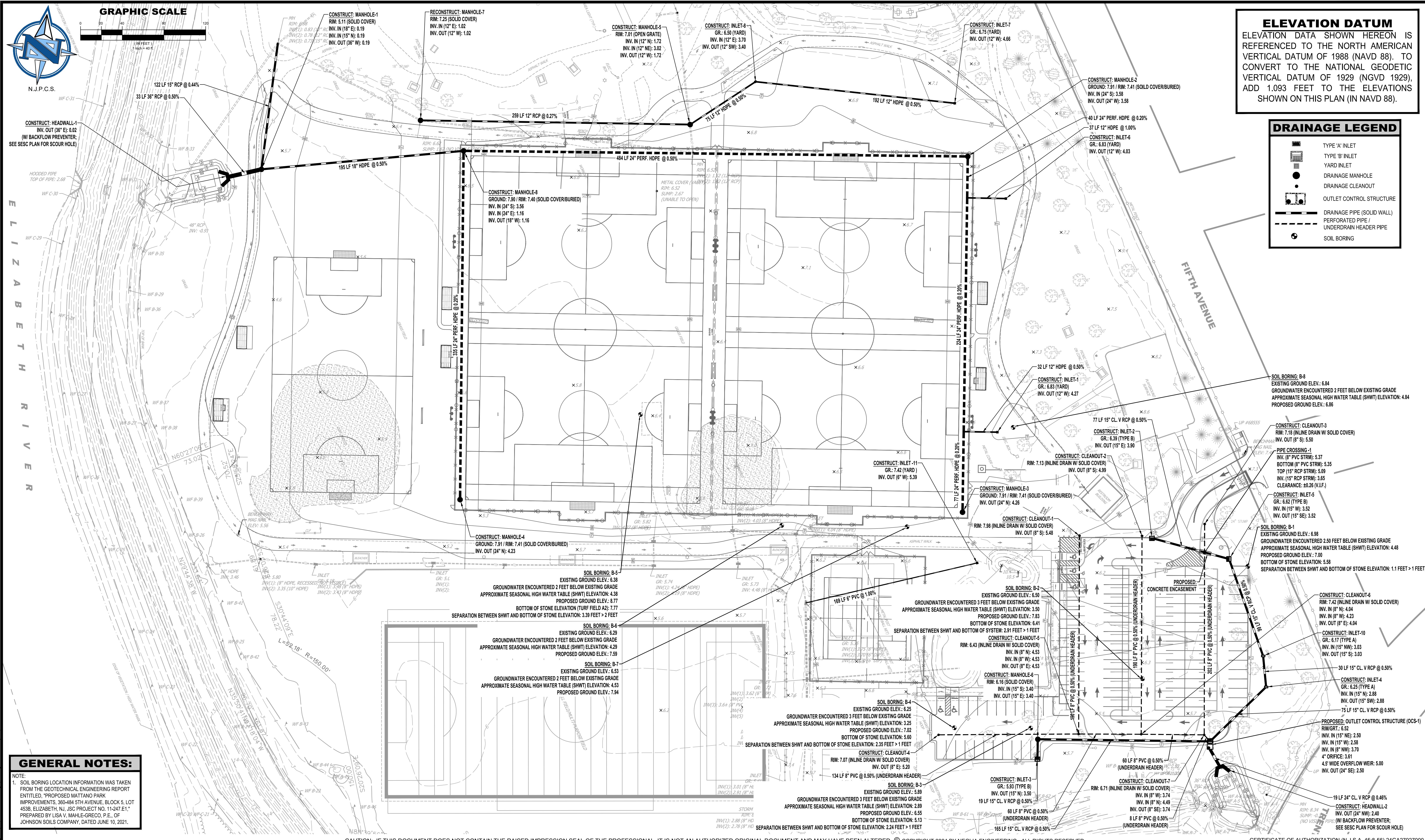
PROFESSIONAL PLANNER
N.J. LICENSE NO. 33L100569800

SECTIONS PLAN IV
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY NEW JERSEY

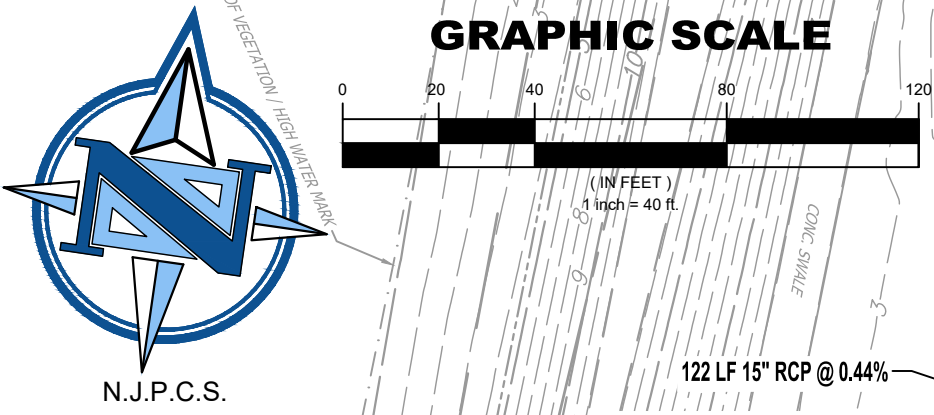
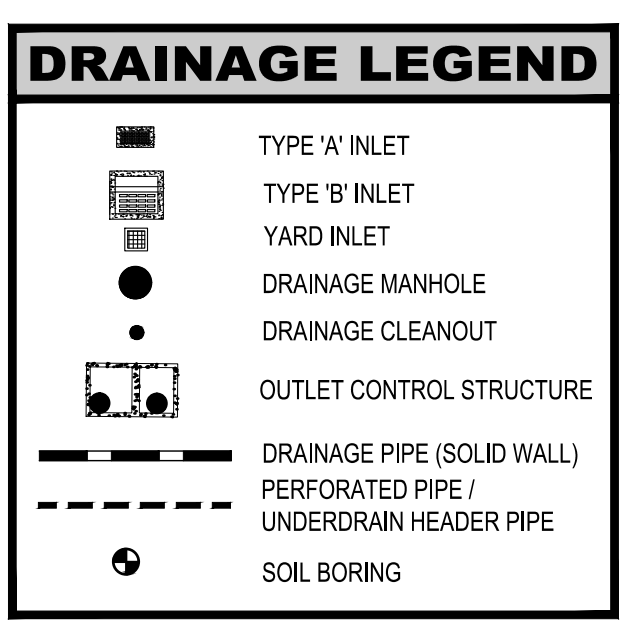
DESIGNED BY: JV
CHECKED BY: DR/HH
SCALE: 1"=20'
FIELD BOOK NO.:
PAGE:

PROJECT NO.: UNIOCTY20.011
SHEET NO.: 5.04
DATE: AUGUST 1, 2023

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ELEVATION DATUM
 ELEVATION DATA SHOWN HEREON IS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). TO CONVERT TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 1929), ADD 1.093 FEET TO THE ELEVATIONS SHOWN ON THIS PLAN (IN NAVD 88).



CONSTRUCT: HEADWALL-1
 INV. OUT (36" E): 0.02
 (W/ BACKFLOW PREVENTER;
 SEE SESC PLAN FOR SCOUR HOLE)

ELIZABETH RIVER

FIFTH AVENUE

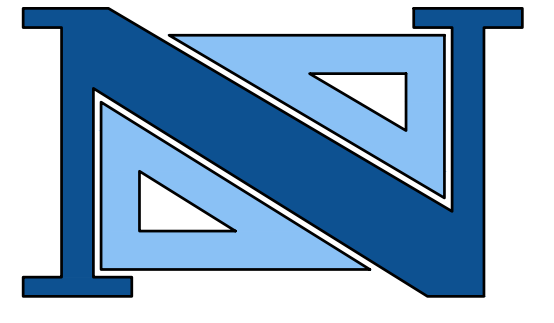
GENERAL NOTES:

NOTE:
 1. SOIL BORING LOCATION INFORMATION WAS TAKEN FROM THE GEOTECHNICAL ENGINEERING REPORT ENTITLED, "PROPOSED MATTANO PARK IMPROVEMENTS, 360-484 5TH AVENUE, BLOCK 5, LOT 483B, ELIZABETH, N.J. JSC PROJECT NO. 11-247.E1," PREPARED BY LISA V. MAHLE-GRECO, P.E., OF JOHNSON SOILS COMPANY, DATED JUNE 10, 2021.

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NO.	DATE	REVISIONS	DRAWN	DESIGNED	CHECKED
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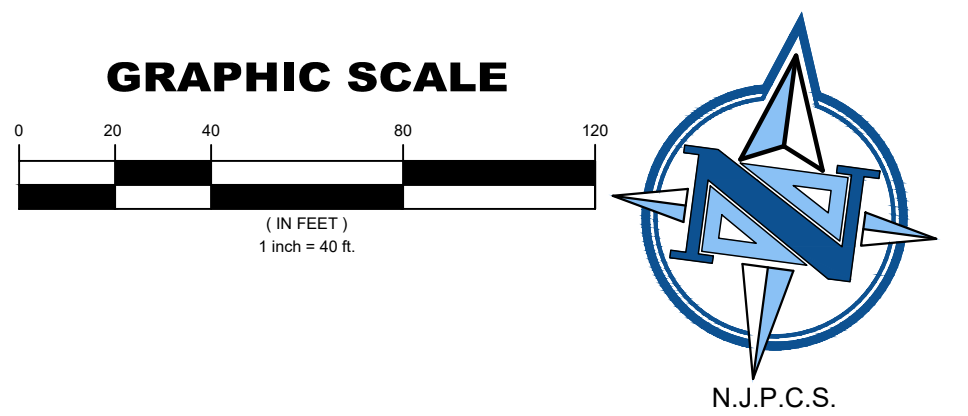
PROFESSIONAL LAND SURVEYOR
 N.J. LICENSE NO. 38604

PROFESSIONAL PLANNER
 N.J. LICENSE NO. 33100569800

DRAINAGE PLAN
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY
NEW JERSEY

CERTIFICATE OF AUTHORIZATION (N.J.S.A. 45:8-56) 24GA2927000

PROJECT NO: UNIOCTY20.011
 SHEET NO: 6.00
 DATE: AUGUST 1, 2023



GENERAL NOTES

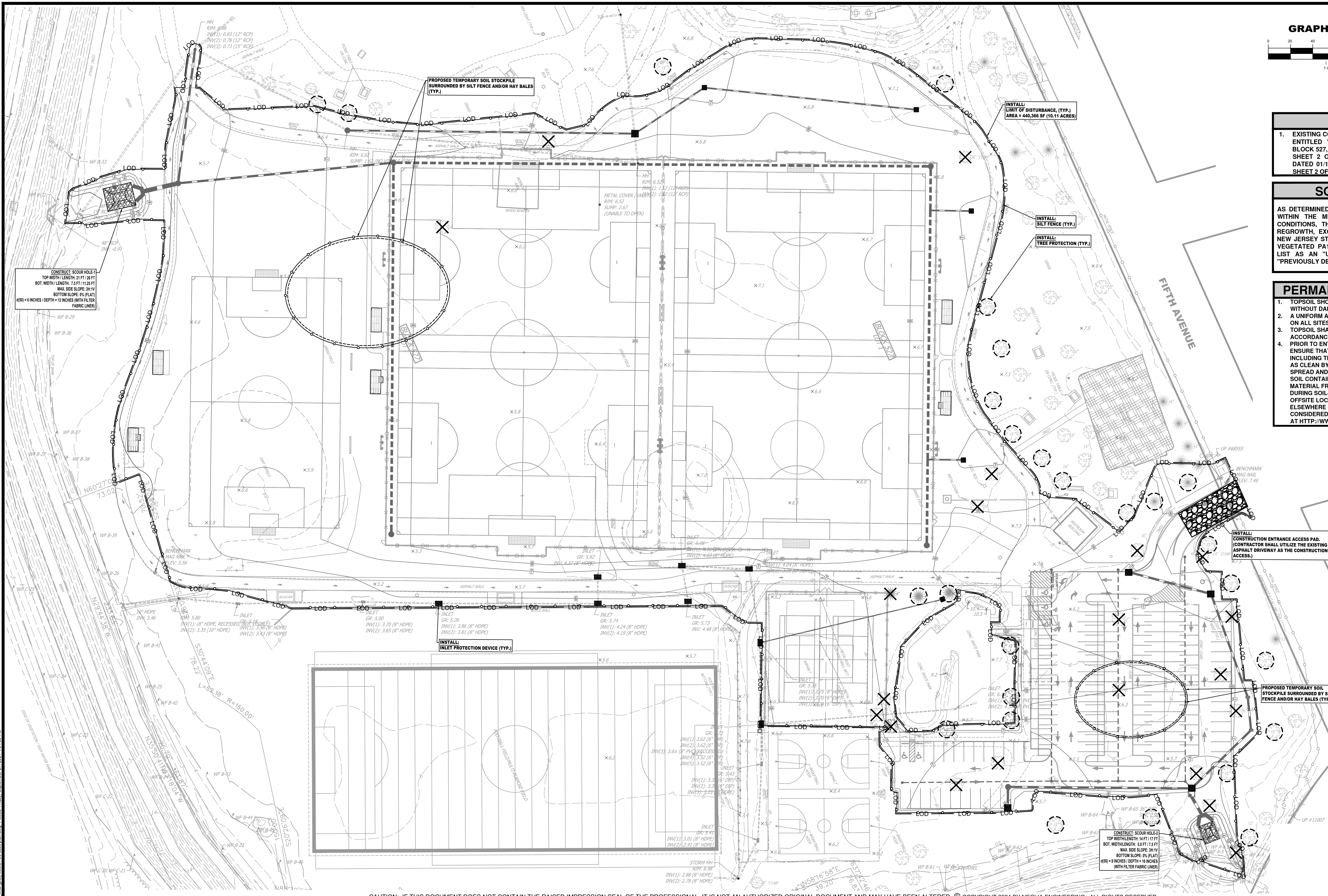
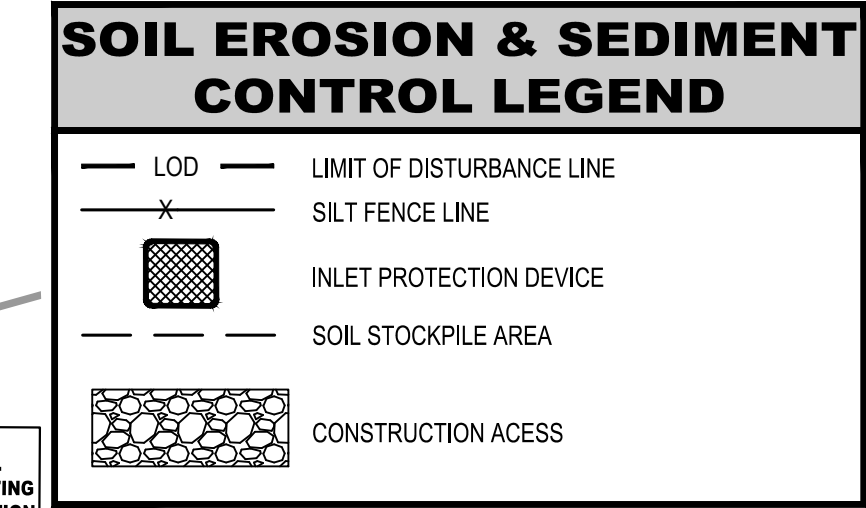
- EXISTING CONDITIONS ARE PER THE TOPOGRAPHIC SURVEY PER PLAN ENTITLED "TOPOGRAPHIC SURVEY MATTANO PARK, PORTION OF BLOCK 527, LOT 1, CITY OF ELIZABETH, UNION COUNTY, NEW JERSEY," SHEET 2 OF 2, PREPARED BY NEGLIA ENGINEERING ASSOCIATES, DATED 01/18/2021, LAST REVISED 7/06/2023 WITH THE EXCEPTION OF SHEET 2 OF 2 LAST REVISED 03/11/2024.

SOIL DECOMPACTION NOTE

AS DETERMINED BY THE STATE POLICY MAP, THE PROJECT AREA FALLS WITHIN THE METROPOLITAN PLANNING AREA (PA1). UNDER EXISTING CONDITIONS, THE SITE IS NOT COVERED IN WOODY VEGETATION NOR REGROWTH, EXCEPT WHERE INDICATED HEREON. IN ACCORDANCE WITH NEW JERSEY STANDARD FOR LAND GRADING (REVISED 2017), NON-WOODY VEGETATED PA1 AREAS FALL UNDER THE SOIL COMPACTION EXEMPTION LIST AS AN "URBAN DEVELOPMENT" AND IS DEFINED BY NJDEP AS "PREVIOUSLY DEVELOPED".

PERMANENT STABILIZATION NOTES

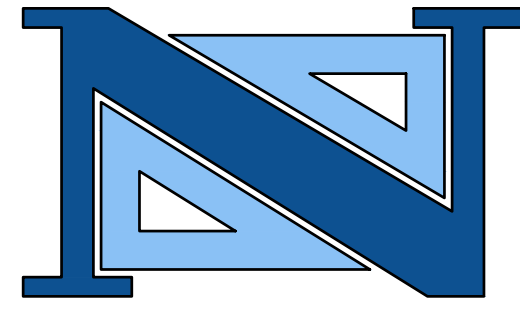
- TOPSOIL SHOULD BE HANDLED ONLY WHEN IT IS DRY ENOUGH TO WORK WITHOUT DAMAGING THE SOIL STRUCTURE.
- A UNIFORM APPLICATION TO A DEPTH OF 5 INCHES (UNSETTLED) IS REQUIRED ON ALL SITES.
- TOPSOIL SHALL BE AMENDED WITH ORGANIC MATTER, AS NEEDED, IN ACCORDANCE WITH THE STANDARD FOR TOPSOILING.
- PRIOR TO ENTRANCE INTO THE PROJECT LOCATION, THE CONTRACTOR SHALL ENSURE THAT ALL MATTING MATERIAL AND CONSTRUCTION EQUIPMENT, INCLUDING TRACKS AND TIRES, SHALL BE WASHED, CLEANED, AND CERTIFIED AS CLEAN BY NEGLIA'S ENVIRONMENTAL INSPECTOR TO MINIMIZE THE SPREAD AND COLONIZATION OF INVASIVE PLANTS AND ORGANISMS. ADDITION SOIL CONTAINING ROOT FRAGMENTS AND ABOVE-GROUND VEGETATIVE MATERIAL FROM INVASIVE PLANT SPECIES SHALL BE CAREFULLY MANAGED DURING SOIL-DISTURBING ACTIVITIES AND DISPOSED OF AT A SUITABLE OFFSITE LOCATION RATHER THAN MULCHED AND REUSED OR STOCKPILED ELSEWHERE ONSITE. FOR INFORMATION ON THE SPECIFIC SPECIES THAT ARE CONSIDERED TO BE INVASIVE, PLEASE REFER TO THE INVASIVE PLANT ATLAS AT [HTTP://WWW.INVASIVPLANTATLAS.ORG/INDEX.HTML](http://www.invasivplantatlas.org/index.html).



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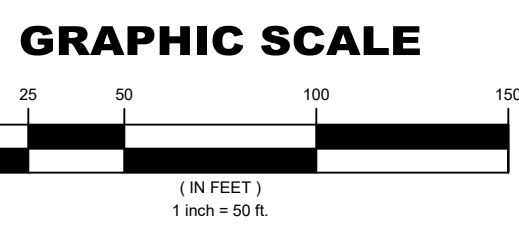
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PROFESSIONAL PLANNER
N.J. LICENSE NO. 33L00569800

SOIL EROSION & SEDIMENT CONTROL PLAN
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY **NEW JERSEY**

DESIGNED BY: JV CHECKED BY: DR/ANH PROJECT NO.: UNIOCTY20.011 SHEET NO.: 7.00
SCALE: 1" = 40' PAGE: DATE: AUGUST 1, 2023

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APPROXIMATE LOCATION OF FLOODWAY (TYP.)

MEAN HIGH WATER LINE/ TOP OF BANK (TYP.)

FEMA FLOOD HAZARD LINE (TYP.) (1 PCT ANNUAL CHANCE FLOOD HAZARD)

50.0' RIPARIAN ZONE

RIPARIAN ZONE LIMITS (TYP.)

RIPARIAN ZONE DISTURBANCE CALCULATIONS	
FHA INDIVIDUAL PERMIT - 50-FOOT RIPARIAN ZONE	
1. STORMWATER DISCHARGE	
1.1. HEADWALL AND OUTLET PROTECTION	
1.1.1. TOTAL RIPARIAN DISTURBANCE =	0 SF / 0 AC.
1.1.2. MAXIMUM PERMITTED DISTURBANCE =	2,000 SF / 0.046 AC.
1.1.3. DISTURBANCE FOR HEADWALL AND OUTLET PROTECTION IS LESS THAN THE MAXIMUM (N.J.A.C. 7:13-11.2(i))	
1.2. STORMWATER PIPE	
1.2.1. TOTAL RIPARIAN DISTURBANCE =	0 SF / 0 AC.
1.2.2. MAXIMUM PERMITTED DISTURBANCE =	1,000 SF / 0.023 AC.
1.2.3. DISTURBANCE FOR STORMWATER PIPE IS LESS THAN THE MAXIMUM (N.J.A.C. 7:13-11.2(i))	
2. REGULATED ACTIVITY NOT LISTED IN TABLE 11.2	
2.1. CONSTRUCTION ASPHALT PATH, EXPANSION OF PARKING LOT AND PROPOSED GRADING	
2.1.1. TOTAL PROPOSED TEMPORARY AND PERMANENT RIPARIAN DISTURBANCE =	0 SF / 0 AC.
2.1.2. MAXIMUM PERMITTED DISTURBANCE =	10,890 SF / 0.250 AC.
2.1.3. DISTURBANCE FOR PARKING LOT/ASPHALT PATH AND GRADING IS LESS THAN THE MAXIMUM (N.J.A.C. 7:13-11.2(i))	

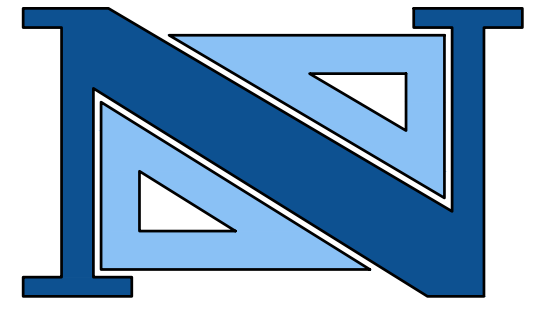
PERMITTING PLAN LEGEND	
	LIMIT OF DISTURBANCE LINE
	TOP OF BANK LINE / MEAN HIGH WATER LINE (SEE NOTE NO.1)
	RIPARIAN BUFFER LINE
	CONSERVATION RESTRICTION AREA (TO REMAIN UNDISTURBED)

- NOTES:
- PER EMAIL CORRESPONDENCE FROM BECKY MAZZEI OF THE NJ DEPARTMENT OF ENVIRONMENTAL PROTECTION DATED NOVEMBER 22, 2023, IT WAS DETERMINED THAT THE SURVEYED MEAN HIGH WATER LINE (MHWL) BE UTILIZED TO REPRESENT THE TOP OF BANK FOR THE ELIZABETH RIVER.
 - THIS PROJECT DOES NOT PROPOSE ANY DISTURBANCE TO DESIGNATED RIPARIAN BUFFER ZONES OR THE ESTABLISHED CONSERVATION RESTRICTED AREA.

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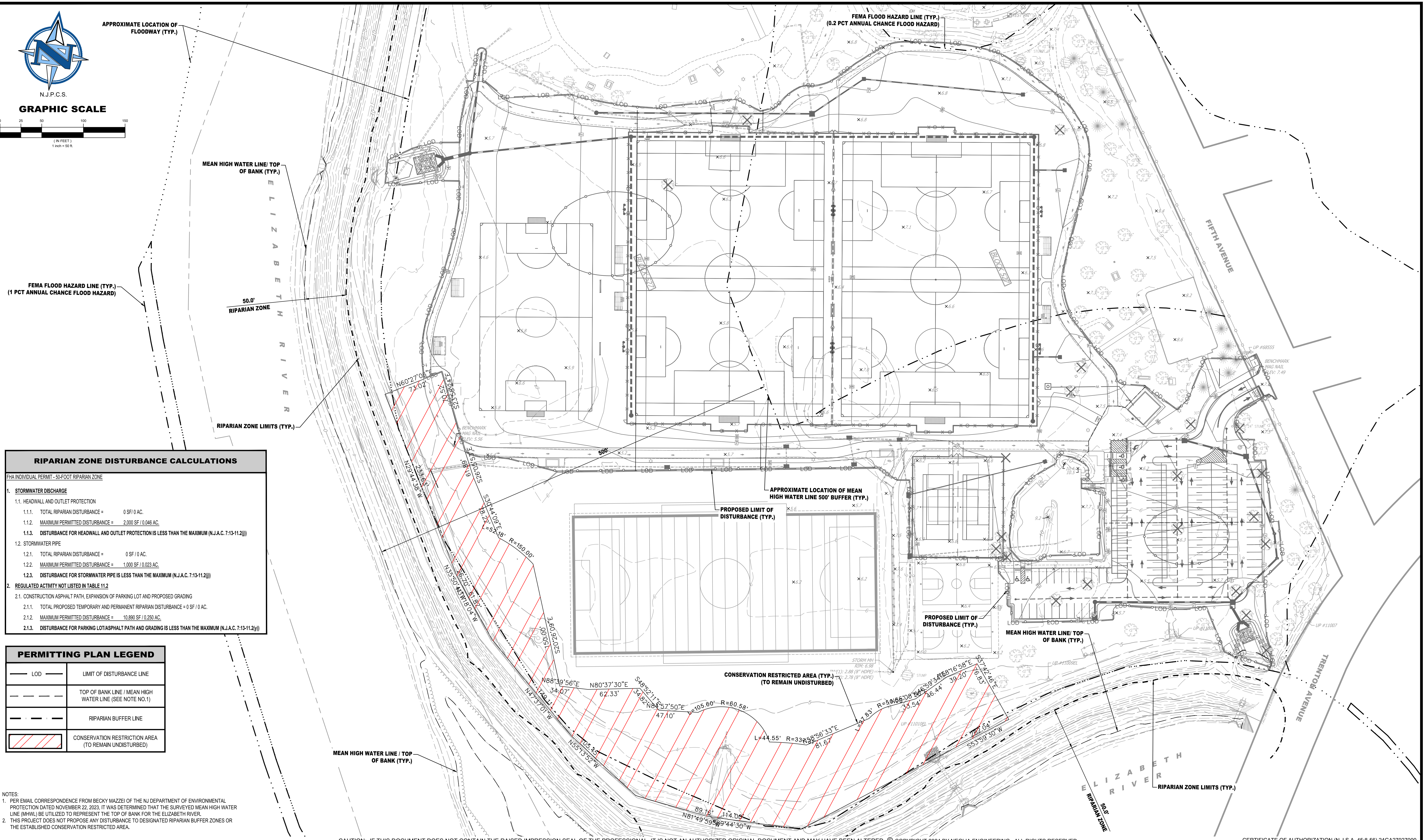
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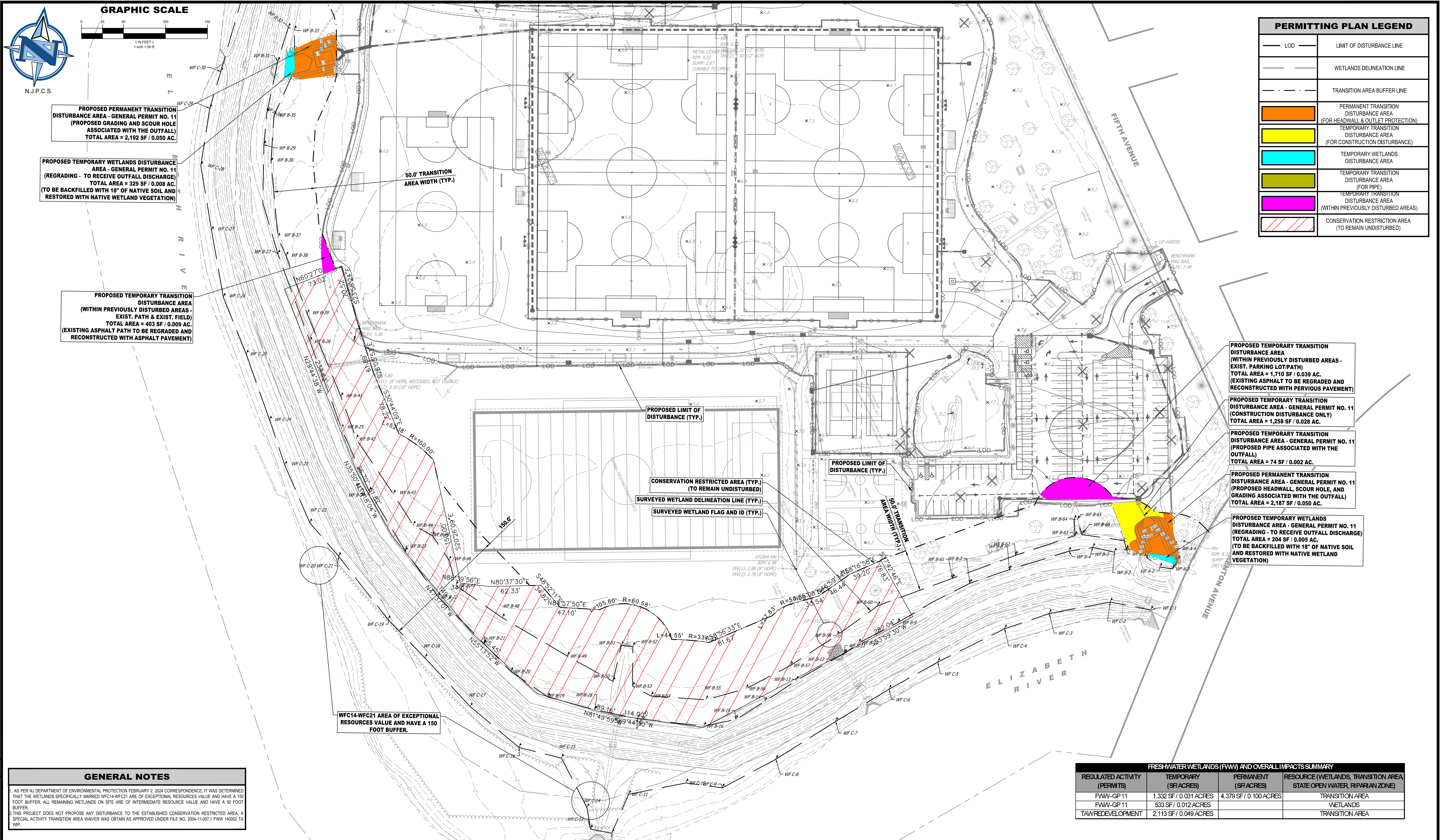
PROFESSIONAL PLANNER
N.J. LICENSE NO. 33LI00569800

PERMITTING PLAN - FLOOD HAZARD AREA
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY **NEW JERSEY**

PROJECT NO.: UNIOCTY20.011 SHEET NO.: 8.00
DATE: AUGUST 1, 2023

DRAWN BY: JV CHECKED BY: DRAWN
DESIGNED BY: JV SCALE: 1"=50'
FIELD BOOK NO.: PAGE:





PERMITTING PLAN LEGEND	
	LIMIT OF DISTURBANCE LINE
	WETLANDS DELINEATION LINE
	TRANSITION AREA BUFFER LINE
	PERMANENT TRANSITION DISTURBANCE AREA (FOR HEADWALL & OUTLET PROTECTION)
	TEMPORARY TRANSITION DISTURBANCE AREA (FOR CONSTRUCTION DISTURBANCE)
	TEMPORARY WETLANDS DISTURBANCE AREA
	TEMPORARY TRANSITION DISTURBANCE AREA (FOR PIPE)
	TEMPORARY TRANSITION DISTURBANCE AREA (WITHIN PREVIOUSLY DISTURBED AREAS)
	CONSERVATION RESTRICTION AREA (TO REMAIN UNDISTURBED)

PROPOSED PERMANENT TRANSITION DISTURBANCE AREA - GENERAL PERMIT NO. 11 (PROPOSED GRADING AND SCOUR HOLE ASSOCIATED WITH THE OUTFALL) TOTAL AREA = 2,192 SF / 0.050 AC.

PROPOSED TEMPORARY WETLANDS DISTURBANCE AREA - GENERAL PERMIT NO. 11 (REGRADING - TO RECEIVE OUTFALL DISCHARGE) TOTAL AREA = 329 SF / 0.008 AC. (TO BE BACKFILLED WITH 18" OF NATIVE SOIL AND RESTORED WITH NATIVE WETLAND VEGETATION)

PROPOSED TEMPORARY TRANSITION DISTURBANCE AREA (WITHIN PREVIOUSLY DISTURBED AREAS - EXIST. PATH & EXIST. FIELD) TOTAL AREA = 403 SF / 0.009 AC. (EXISTING ASPHALT PATH TO BE REGRADED AND RECONSTRUCTED WITH ASPHALT PAVEMENT)

PROPOSED TEMPORARY TRANSITION DISTURBANCE AREA (WITHIN PREVIOUSLY DISTURBED AREAS - EXIST. PARKING LOT/PATH) TOTAL AREA = 1,710 SF / 0.039 AC. (EXISTING ASPHALT TO BE REGRADED AND RECONSTRUCTED WITH PERVIOUS PAVEMENT)

PROPOSED TEMPORARY TRANSITION DISTURBANCE AREA - GENERAL PERMIT NO. 11 (CONSTRUCTION DISTURBANCE ONLY) TOTAL AREA = 1,258 SF / 0.028 AC.

PROPOSED TEMPORARY TRANSITION DISTURBANCE AREA - GENERAL PERMIT NO. 11 (PROPOSED PIPE ASSOCIATED WITH THE OUTFALL) TOTAL AREA = 74 SF / 0.002 AC.

PROPOSED PERMANENT TRANSITION DISTURBANCE AREA - GENERAL PERMIT NO. 11 (PROPOSED HEADWALL, SCOUR HOLE, AND GRADING ASSOCIATED WITH THE OUTFALL) TOTAL AREA = 2,187 SF / 0.050 AC.

PROPOSED TEMPORARY WETLANDS DISTURBANCE AREA - GENERAL PERMIT NO. 11 (REGRADING - TO RECEIVE OUTFALL DISCHARGE) TOTAL AREA = 204 SF / 0.005 AC. (TO BE BACKFILLED WITH 18" OF NATIVE SOIL AND RESTORED WITH NATIVE WETLAND VEGETATION)

WFC14-WFC21 AREA OF EXCEPTIONAL RESOURCES VALUE AND HAVE A 150 FOOT BUFFER.

GENERAL NOTES

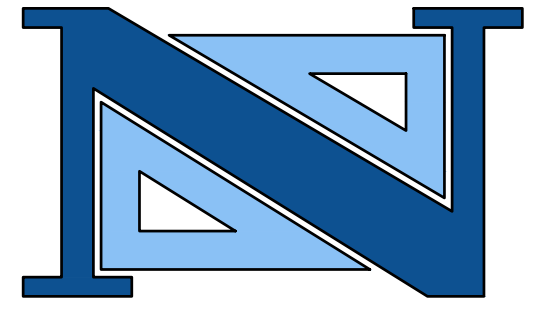
- AS PER NJ DEPARTMENT OF ENVIRONMENTAL PROTECTION FEBRUARY 2, 2024 CORRESPONDENCE, IT WAS DETERMINED THAT THE WETLANDS SPECIFICALLY MARKED WFC14-WFC21 ARE OF EXCEPTIONAL RESOURCES VALUE AND HAVE A 150 FOOT BUFFER. ALL REMAINING WETLANDS ON SITE ARE OF INTERMEDIATE RESOURCE VALUE AND HAVE A 50 FOOT BUFFER.
- THIS PROJECT DOES NOT PROPOSE ANY DISTURBANCE TO THE ESTABLISHED CONSERVATION RESTRICTED AREA. A SPECIAL ACTIVITY TRANSITION AREA WAIVER WAS OBTAIN AS APPROVED UNDER FILE NO. 2004-11-007.1 FWW 140002 TA WIP.

FRESHWATER WETLANDS (FWW) AND OVERALL IMPACTS SUMMARY			
REGULATED ACTIVITY (PERMITS)	TEMPORARY (SF/ACRES)	PERMANENT (SF/ACRES)	RESOURCE (WETLANDS, TRANSITION AREA, STATE OPEN WATER, RIPARIAN ZONE)
FWW-GP 11	1,332 SF / 0.031 ACRES	4,379 SF / 0.100 ACRES	TRANSITION AREA
FWW-GP 11	533 SF / 0.012 ACRES		WETLANDS
TAW/REDEVELOPMENT	2,113 SF / 0.049 ACRES		TRANSITION AREA

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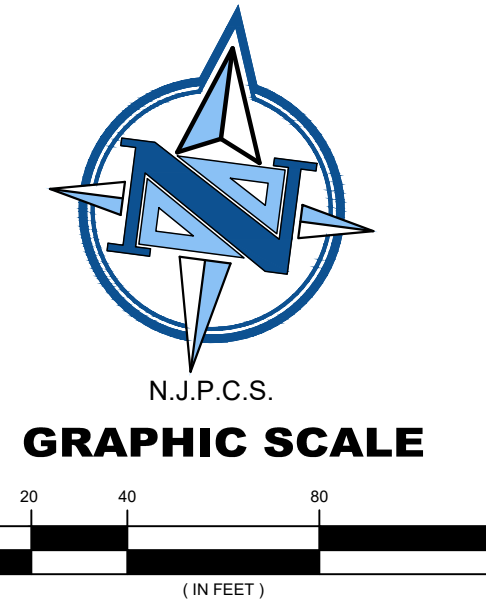
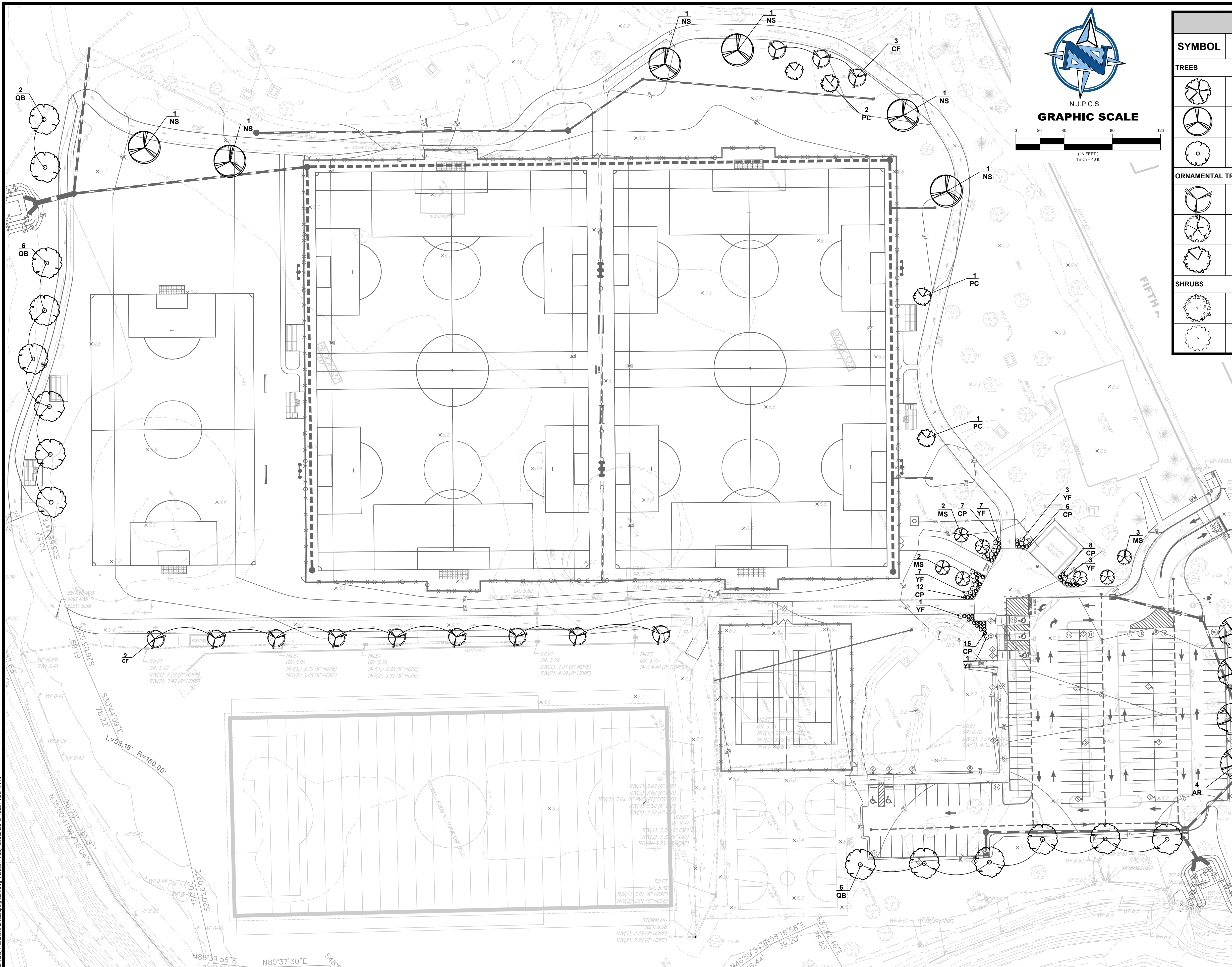
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PROFESSIONAL PLANNER N.J. LICENSE NO. 33L00569800

PERMITTING PLAN - FRESHWATER WETLANDS
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY NEW JERSEY

DRAWN BY: JV CHECKED BY: DRANH PROJECT NO.: UNIOCTY20.011 SHEET NO.: 8.01
DESIGNED BY: JV SCALE: 1" = 50' FIELD BOOK NO.: DATE: AUGUST 1, 2023



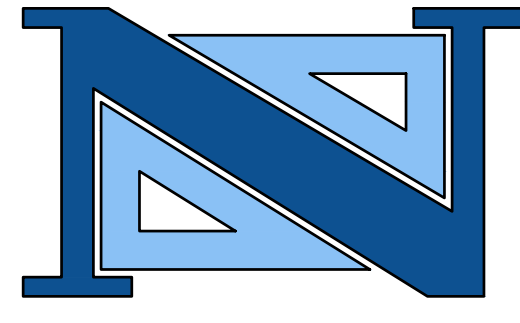
PLANTING SCHEDULE						
SYMBOL	KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE	NOTES
TREES						
	AR	4	ACER RUBRUM 'RED SUNSET'	SUNSET RED MAPLE	2 1/2" - 3" Cal.	B&B
	NS	6	NYSSA SYLVATICA	BLACK GYM	2 1/2" - 3" Cal.	B&B
	QB	14	QUERCUS BICOLOR	SWAMP WHITE OAK	2 1/2" - 3" Cal.	B&B
ORNAMENTAL TREES						
	CF	12	CORNUS FLORIDA 'CHEROKEE BRAVE'	CHEROKEE BRAVE DOGWOOD	7' - 8'	B&B
	MS	7	MAGNOLIA SOULANGIANA 'JUNE'	JUNE SAUCER MAGNOLIA	7' - 8'	B&B
	PC	4	PRUNUS CERASIFERA 'THUNDERCLOUD'	THUNDERCLOUD FLOWERING PLUM	7' - 8'	B&B
SHRUBS						
	CP	48	CAREX PENNSYLVANICA	PENNSYLVANIA SEDGE	2 gallon	
	YF	22	YUCCA FILAMENTOSA 'BRIGHT EDGE'	BRIGHT EDGE YUCCA	5 gallon	

- ### LANDSCAPE NOTES
- THIS PLAN SHALL BE USED FOR LANDSCAPE PLANTING PURPOSES ONLY. EXAMINE ALL ENGINEERING DRAWINGS AND FIELD CONDITIONS FOR SPECIFIC LOCATIONS OF UTILITIES, STRUCTURES, ETC. AND NOTIFY THE PROJECT PROFESSIONAL IN REFERENCE TO ANY DISCREPANCIES OR LOCATION CONFLICTS PRIOR TO PLANTING INSTALLATION.
 - ALL PLANT MATERIAL SHALL CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK, ANSI Z60.1 CURRENT EDITION. THE PLANT MATERIAL SHALL BE TRUE TO SPECIES, VARIETY, SIZE AND BE CERTIFIED DISEASE AND INSECT FREE. THE PROJECT PROFESSIONAL RESERVES THE RIGHT TO REJECT PLANT MATERIAL WHEN DELIVERED TO THE SITE AND UP TO THE TIME OF FINAL ACCEPTANCE.
 - NO PLANT SUBSTITUTIONS SHALL BE PERMITTED WITH REGARDS TO SIZE, SPECIES VARIETY, ETC. WITHOUT WRITTEN PERMISSION OF THE PROJECT PROFESSIONAL. WRITTEN PROOF OF PLANT MATERIAL UNAVAILABILITY MUST BE PROVIDED.
 - LOCATION AND SPACING FOR PROPOSED VEGETATION IS AS SHOWN ON LANDSCAPE PLANS. FINAL ADJUSTMENTS TO BE MADE IN THE FIELD AND AS DIRECTED BY PROJECT PROFESSIONAL TO REFLECT EXISTING SITE CONDITIONS.
 - THE PLANTING PLAN SHALL TAKE PRECEDENCE OVER THE PLANT SCHEDULE SHOULD ANY PLANT QUANTITY DISCREPANCIES OCCUR.
 - ALL PLANT MATERIAL SHALL BE PLANTED IN CONFORMANCE WITH THE TYPICAL PLANTING DETAILS AND ACCEPTED HORTICULTURAL PRACTICES. INSTALL ALL PLANT MATERIAL ON UNDISTURBED GRADE. CUT AND REMOVE BURLAP FROM THE TOP ONE-THIRD OF THE ROOT BALL. NO SYNTHETIC MATERIAL IS TO REMAIN IN PLANTING HOLE. SEE DETAIL SHEET D-2 FOR PLANTING DETAILS.
 - PROJECT PROFESSIONAL SHALL HAVE FINAL ACCEPTANCE OF ALL PLANT MATERIAL.
 - PROVIDE PLANTING PITS AS INDICATED ON PLANTING DETAILS.
 - PLANT ROOT FLAIR SHALL BE EXPOSED AT TIME OF PLANTING. PLANTS SHALL BE INSTALLED AT SAME GRADE AS GROWN IN NURSERY.
 - NEWLY INSTALLED PLANT MATERIAL SHALL BE THOROUGHLY WATERED AT THE TIME OF INSTALLATION BY THE LANDSCAPE CONTRACTOR. LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR THE REGULAR WATERING OF PLANT MATERIAL UNTIL IRRIGATION SYSTEM HAS BEEN INSTALLED AND OPERATING NORMALLY.
 - ALL PLANT MATERIAL SHALL BE GUARANTEED BY THE CONTRACTOR FOR TWO (2) YEAR AFTER THE DATE OF FINAL ACCEPTANCE.
 - ALL DISTURBED AREAS SHALL RECEIVE TEMPORARY AND PERMANENT STABILIZATION DEPENDING UPON STAGE OF WORK AND TIME OF YEAR (REFER TO N.J. SOIL EROSION AND SEDIMENT CONTROL REGULATIONS).
 - WIRE BASKETS ARE TO BE CUT AND FOLDED TO BOTTOM OF PLANTING HOLE AWAY FROM SIDES OF ROOT BALL.
 - PROVIDE SUSTAINED RELEASE 5-10-5 FERTILIZER FOR ALL PLANT MATERIAL IN QUANTITIES AS PER MANUFACTURERS RECOMMENDATIONS. THOROUGHLY MIX IN TOP 12" OF ALL PLANTING AREAS.
 - ALL PLANTS ARE SHOWN SEMI-MATURE SIZE ON PLANS. SIZES INDICATED IN PLANT LIST ARE SIZES AT TIME OF INSTALLATION.
 - PLANTING PITS ARE TO BE 3X ROOT BALL DIAMETER.
 - TREES TO BE HANDLED BY ROOT BALL ONLY. HANDLING OF TREES BY THE TRUNK OR THE PLACING OF STRAPS AROUND THE TRUNK WILL BE CAUSE FOR IMMEDIATE REJECTION OF PLANT MATERIAL.
 - TREES ARE TO BE LABELED WITH PERMANENT TAG. LABEL TO INCLUDE BOTANICAL NAME AND DATE OF INSTALLATION.
 - ALL DISTURBED AREAS TO BE RESTORED TO THE SATISFACTION OF THE PROJECT PROFESSIONAL.
 - TREES TO BE INSTALLED WITH SAME ORIENTATION AS AT PLACE GROWN. NORTH SIDE OF TREE TO BE IDENTIFIED PRIOR TO DIGGING.
 - CONTRACTOR IS RESPONSIBLE FOR THE INITIAL PRUNING OF TREES. PRUNING TO BE LIMITED TO CROSSOVER LIMBS, CO-DOMINANT LEADERS, AND BROKEN OR DEAD BRANCHES. SOME INTERIOR TWIGS AND LATERAL BRANCHES MAY BE PRUNED; HOWEVER, DO NOT REMOVE THE TERMINAL BUDS OF BRANCHES THAT EXTEND TO THE EDGE OF THE CROWN.
 - CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL OF TREE STAKES 1 YEAR FROM THE DATE OF FINAL ACCEPTANCE.

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CERTIFICATE OF AUTHORIZATION (N.J.S.A. 45:8-56) 24GA27927000

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LANDSCAPE PLAN
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY
NEW JERSEY

PROJECT NO.: UNIOCTY20.011
SHEET NO.: 9.00
DATE: AUGUST 1, 2023

DRAWN BY: JV
DESIGNED BY: JV
FIELD BOOK NO:

CHECKED BY: DR/WH
SCALE: 1"=40'
PAGE:

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**SOMERSET-UNION COUNTIES SOIL CONSERVATION DISTRICT
SOIL EROSION & SEDIMENT CONTROL NOTES**

- ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE INSTALLED PRIOR TO ANY MAJOR SOIL DISTURBANCES, OR IN THEIR PROPER SEQUENCE AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.
- ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN 30 DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, WILL IMMEDIATELY RECEIVE A TEMPORARY SEEDING. IF THE SEASON PREVENTS THE ESTABLISHMENT OF A TEMPORARY COVER, THE DISTURBED AREAS WILL BE MULCHED WITH STRAW, OR EQUIVALENT MATERIAL, AT A RATE OF TWO (2) TONS PER ACRE, ACCORDING TO NJ STATE STANDARDS.
- PERMANENT VEGETATION SHALL BE SEED OR SODDED ON ALL EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL GRADING. MULCH WILL BE USED FOR PROTECTION UNTIL SEEDING IS ESTABLISHED.
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE NJ STATE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY, 7TH EDITION LAST REVISED JANUARY 2014.
- A SUB-BASE COURSE WILL BE APPLIED IMMEDIATELY FOLLOWING ROUGH GRADING AND INSTALLATION OF IMPROVEMENTS IN ORDER TO STABILIZE STREETS, ROADS, DRIVEWAYS AND PARKING AREAS. IN AREAS WHERE NO UTILITIES ARE PRESENT, THE SUB-BASE SHALL BE INSTALLED WITHIN 15 DAYS OR PRELIMINARY GRADING.
- IMMEDIATELY FOLLOWING INITIAL DISTURBANCE OR ROUGH GRADING ALL CRITICAL AREAS SUBJECT TO EROSION (I.E.: STEEP SLOPES, ROADWAY EMBANKMENTS) WILL RECEIVE A TEMPORARY SEEDING IN COMBINATION WITH STRAW MULCH OR A SUITABLE EQUIVALENT, AT A RATE OF TWO (2) TONS PER ACRE, ACCORDING TO THE NJ STATE STANDARDS.
- ANY STEEP SLOPES RECEIVING PIPELINE INSTALLATION WILL BE BACKFILLED AND STABILIZED DAILY, AS THE INSTALLATION PROCEEDS (I.E.: SLOPES GREATER THAN 3:1).
- TRAFFIC CONTROL STANDARDS REQUIRE THE INSTALLATION OF A 50'X30'X6" PAD OF 1 1/2" OR 2" STONE, AT ALL CONSTRUCTION DRIVEWAYS, IMMEDIATELY AFTER INITIAL SITE DISTURBANCE.
- THE SOMERSET-UNION SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED IN WRITING 48 HOURS IN ADVANCE OF ANY LAND DISTURBING ACTIVITY.
- AT THE TIME WHEN THE SITE PREPARATION FOR PERMANENT VEGETATIVE STABILIZATION IS GOING TO BE ACCOMPLISHED, ANY SOIL THAT WILL NOT PROVIDE A SUITABLE ENVIRONMENT TO SUPPORT ADEQUATE VEGETATIVE GROUND COVER, SHALL BE REMOVED OR TREATED IN SUCH A WAY THAT WILL PERMANENTLY ADJUST THE SOIL CONDITIONS AND RENDER IT SUITABLE FOR VEGETATIVE GROUND COVER. IF THE REMOVAL OR TREATMENT OF THE SOIL WILL NOT PROVIDE SUITABLE CONDITIONS, NON-VEGETATIVE MEANS OF PERMANENT GROUND STABILIZATION WILL HAVE TO BE EMPLOYED. TOPSOIL SHOULD BE HANDLED ONLY WHEN IT IS DRY ENOUGH TO WORK WITHOUT DAMAGING THE SOIL STRUCTURE. A UNIFORM APPLICATION TO A DEPTH OF 5 INCHES (UNSETTLED) IS REQUIRED ON ALL SITES.
- IN THAT NJSA 4:24-39 ET SEQ., REQUIRES THAT NO CERTIFICATE OF OCCUPANCY BE ISSUED BEFORE THE PROVISIONS OF THE CERTIFIED PLAN FOR SOIL EROSION AND SEDIMENT CONTROL HAVE BEEN COMPLIED WITH FOR PERMANENT MEASURES. ALL SITE WORK FOR SITE PLANS AND ALL WORK AROUND INDIVIDUAL LOTS IN SUBDIVISIONS, WILL HAVE TO BE COMPLETED PRIOR TO THE DISTRICT ISSUING A REPORT OF COMPLIANCE FOR THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY BY THE MUNICIPALITY.
- CONDUIT OUTLET PROTECTION MUST BE INSTALLED AT ALL REQUIRED OUTFALLS PRIOR TO THE DRAINAGE SYSTEM BECOMING OPERATIONAL.
- ANY CHANGES TO THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN WILL REQUIRE THE SUBMISSION OF REVISED SOIL EROSION AND SEDIMENT CONTROL PLANS TO THE DISTRICT FOR RE-CERTIFICATION. THE REVISED PLANS MUST MEET ALL CURRENT NJ STATE SOIL EROSION & SEDIMENT CONTROL STANDARDS.
- THE SOMERSET-UNION SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED OF ANY CHANGES IN OWNERSHIP.
- MULCHING TO THE NJ STANDARDS IS REQUIRED FOR OBTAINING A CONDITIONAL REPORT OF COMPLIANCE. CONDITIONALS ARE ONLY ISSUED WHEN THE SEASON PROHIBITS SEEDING.
- CONTRACTOR IS RESPONSIBLE FOR KEEPING ALL ADJACENT ROADS CLEAN DURING LIFE OF CONSTRUCTION PROJECT.
- THE DEVELOPER SHALL BE RESPONSIBLE FOR REMEDIATING ANY EROSION OR SEDIMENT PROBLEMS THAT ARISE AS A RESULT OF ONGOING CONSTRUCTION AT THE REQUEST OF THE SOMERSET-UNION SOIL CONSERVATION DISTRICT.
- HYDRO SEEDING IS A TWO-STEP PROCESS. THE FIRST STEP INCLUDES SEED, FERTILIZER, LIME, ETC., ALONG WITH MINIMAL AMOUNTS OF MULCH TO PROMOTE CONSISTENCY, GOOD SEED TO SOIL CONTACT, AND GIVE A VISUAL INDICATION OF COVERAGE. UPON COMPLETION OF SEEDING OPERATION, HYDRO-MULCH SHOULD BE APPLIED AT A RATE OF 1500 LBS. PER ACRE IN SECOND STEP. THE USE OF HYDRO-MULCH, AS OPPOSED TO STRAW, IS LIMITED TO OPTIMUM SEEDING DATES AS LISTED IN THE NJ STANDARDS.

INLET PROTECTION STANDARDS

DEFINITION

A TEMPORARY BARRIER AND SETTLING FACILITY INSTALLED AT A STORM SEWER INLET.

PURPOSE

THE PURPOSE OF STORM SEWER INLET PROTECTION IS TO INTERCEPT AND RETAIN SEDIMENT, THUS PREVENTING THE ENTRANCE OF SEDIMENT INTO THE STORM SEWER SYSTEM.

CONDITIONS WHERE PRACTICE APPLIES

- CONTRIBUTING DRAINAGE AREA IS 3 ACRES OR LESS.
- A STORM SEWER OR THE OUTLET CHANNEL OF A STORM SEWER NEEDS PROTECTION FROM SEDIMENT.
- TRAFFIC WILL NOT DESTROY OR CAUSE CONSTANT MAINTENANCE OF THE STORM SEWER INLET PROTECTION.
- A TRAFFIC HAZARD WILL NOT BE CREATED.
- A FLOODING PROBLEM WILL NOT BE CREATED.

WATER QUALITY ENHANCEMENT

THE PRIMARY BENEFIT TO WATER QUALITY IS REMOVAL OF SEDIMENT FROM STORMWATER RUNOFF PRIOR TO ENTERING THE STORM SEWER SYSTEM. AS AN ADDED BENEFIT, OTHER FLOATABLE DEBRIS, SUCH AS VEGETATIVE MATTER AND LITTER MAY ALSO BE FILTERED OUT OF THE RUNOFF.

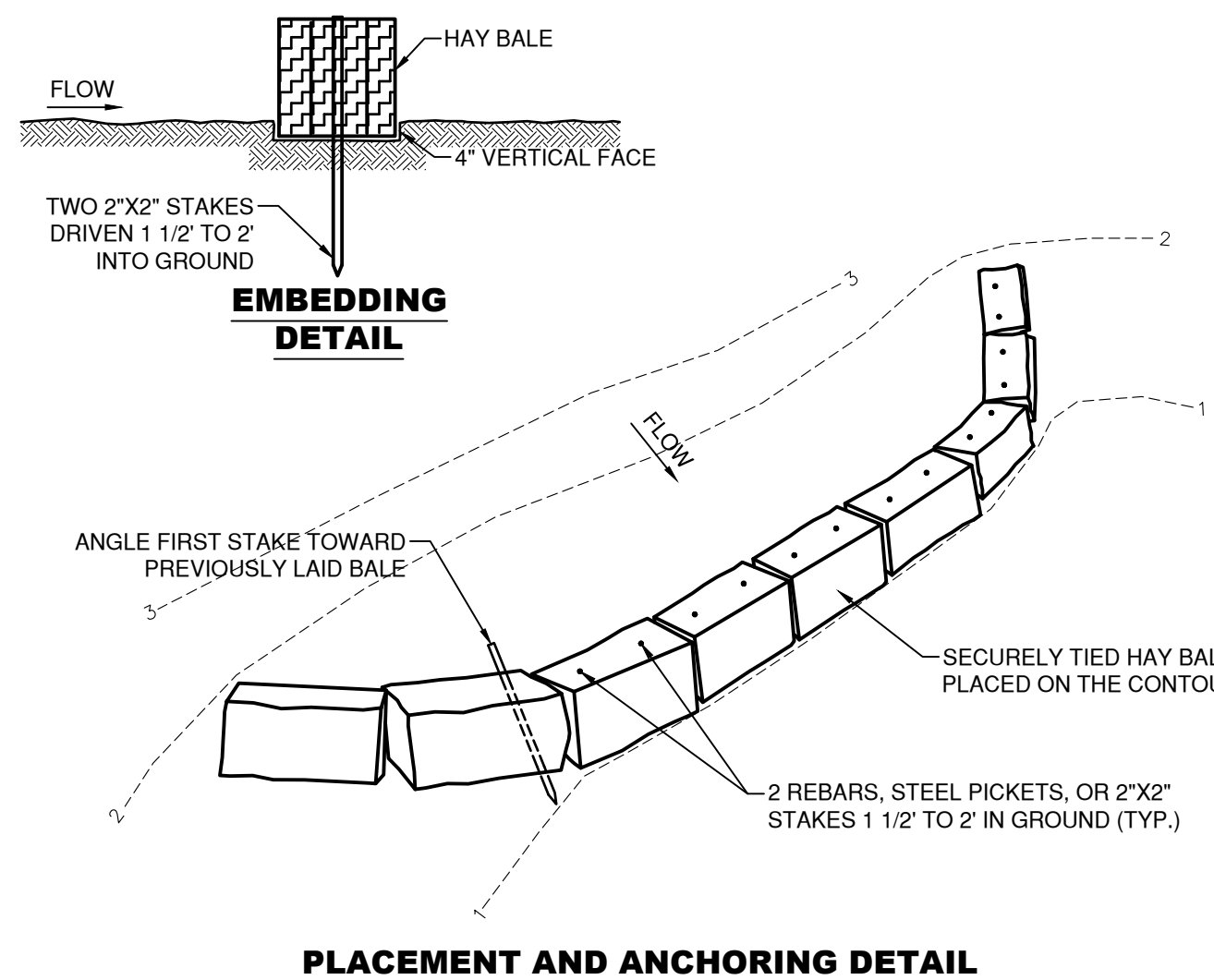
DESIGN CRITERIA

THE FOLLOWING APPLIES TO ALL METHODS OF STORM SEWER INLET PROTECTION:

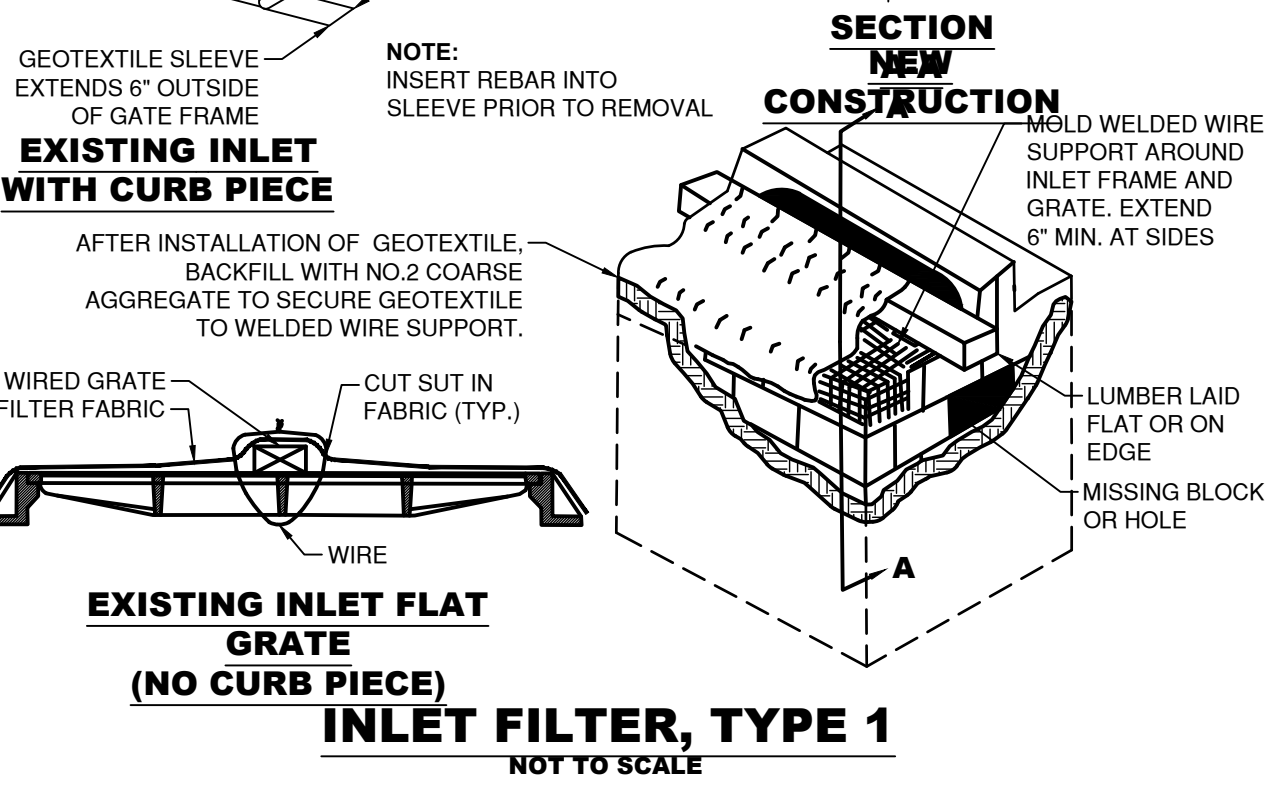
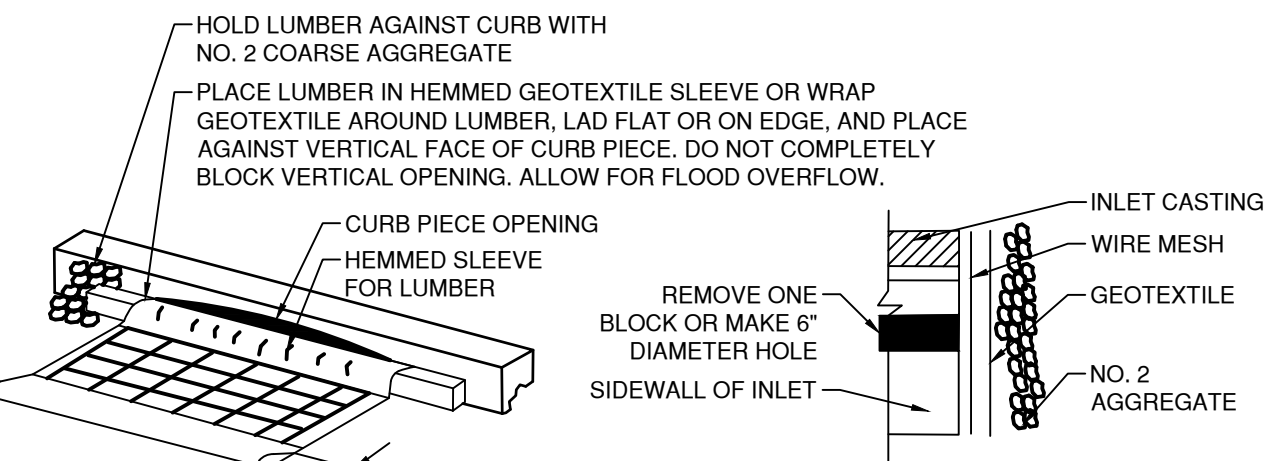
- MUST SLOW THE STORM WATER, PROVIDE THE COARSE SEDIMENT PARTICLES A CHANCE TO SETTLE, AND PROVIDE AN AREA TO RETAIN THE PARTICLES THAT HAVE SETTLED.
- IN ALL CASES, THE INLET PROTECTION SHOULD NOT COMPLETELY CLOSE OFF THE INLET.
- THE PROTECTION DEVICE WILL BE DESIGNED TO CAPTURE OR FILTER RUNOFF FROM THE 1 YEAR, 24 HOUR STORM EVENT AND SHALL SAFELY CONVEY HIGHER FLOWS DIRECTLY INTO THE STORM SEWER SYSTEM.

OTHER METHODS THAT ACCOMPLISH THE PURPOSE OF STORM SEWER INLET PROTECTION MAY BE USED IF APPROVED BY THE SOIL CONSERVATION DISTRICT.

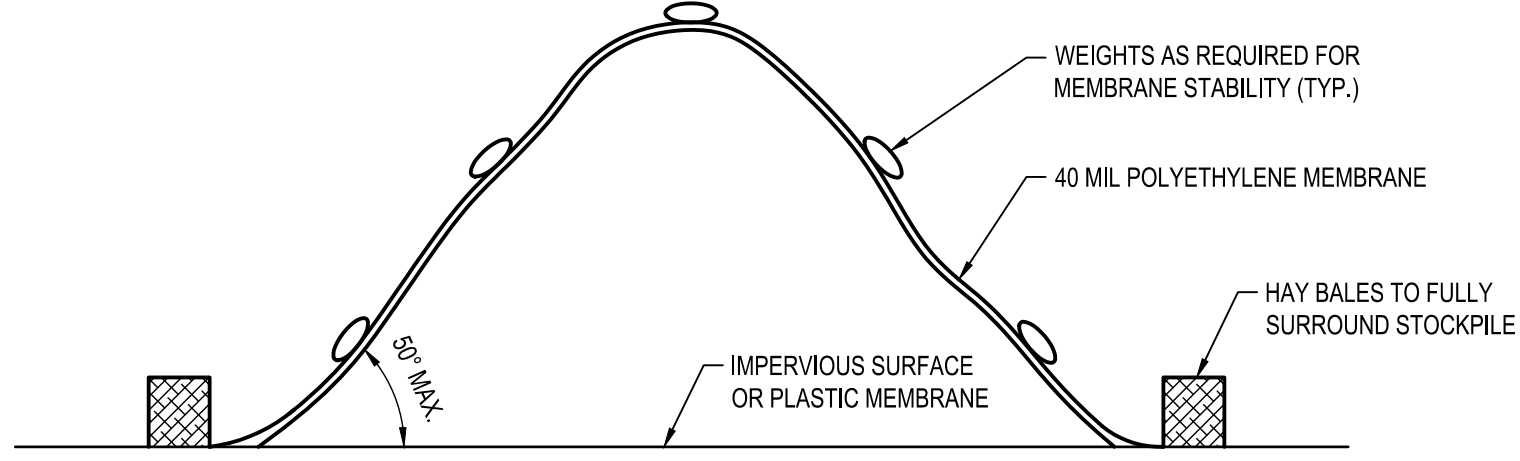
INSPECTIONS SHALL BE FREQUENT. MAINTENANCE, REPAIR, AND REPLACEMENT SHALL BE MADE PROMPTLY, AS NEEDED. THE BARRIER SHALL BE REMOVED WHEN THE AREA DRAINING TOWARD THE INLET HAS BEEN STABILIZED.



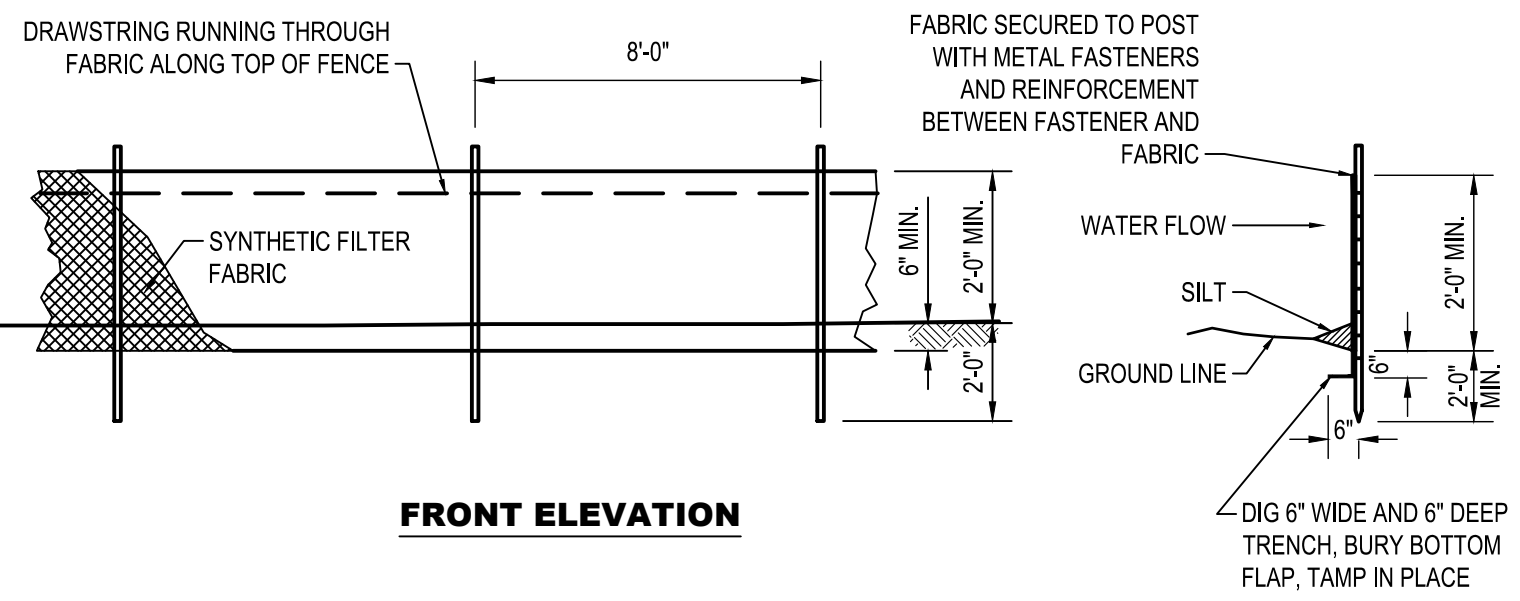
HAY BALE SEDIMENT BARRIER
NOT TO SCALE



EXISTING INLET FLAT GRATE (NO CURB PIECE) INLET FILTER, TYPE 1
NOT TO SCALE



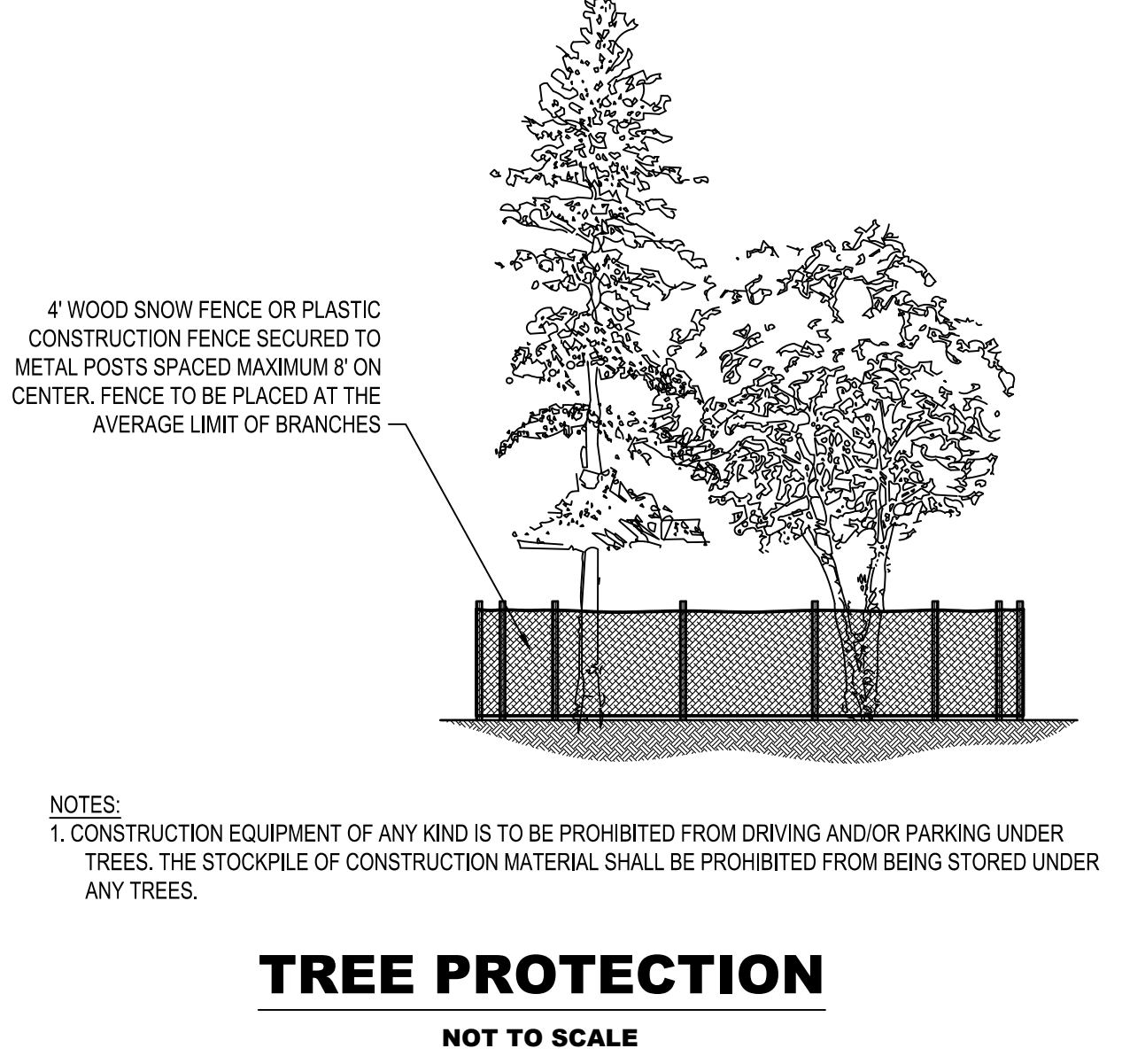
SOIL STOCKPILE
NOT TO SCALE



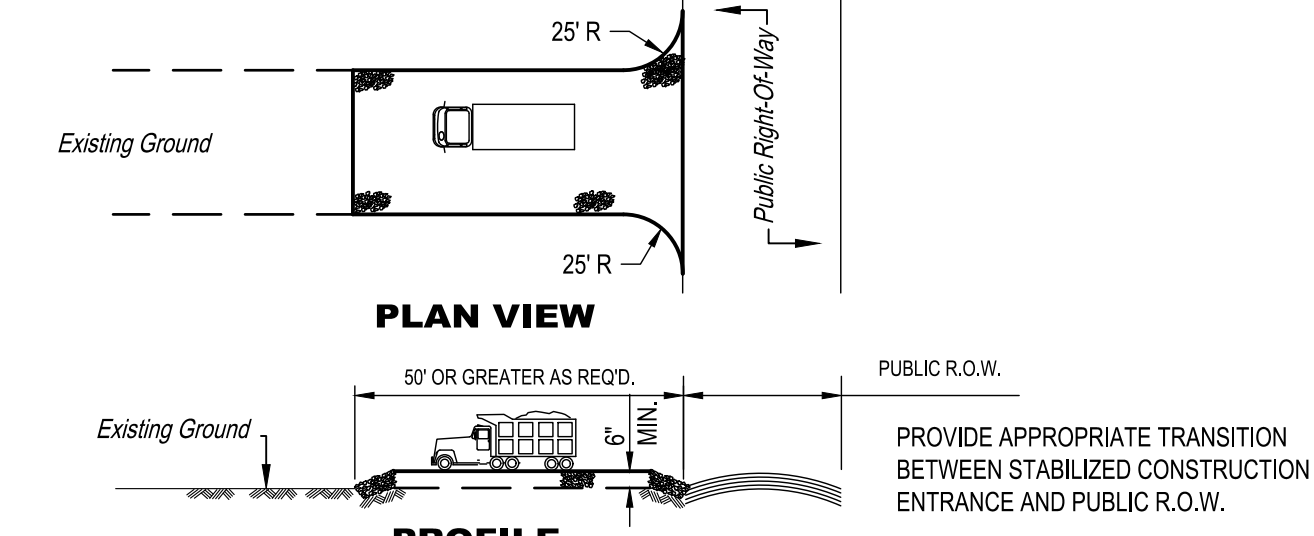
FILTER FENCE DETAIL
NOT TO SCALE

SEEDING SPECIFICATIONS

- SELECT A MIXTURE FROM TABLE 4-3 (PG. 4-7) OR USE MIXTURE RECOMMENDED BY Rutgers Cooperative Extension or NATURAL RESOURCES CONSERVATION SERVICE WHICH IS APPROVED BY THE SOIL CONSERVATION DISTRICT. SEED GERMINATION SHALL HAVE BEEN TESTED WITHIN 12 MONTHS OF THE PLANTING DATE. NO SEED SHALL BE ACCEPTED WITH A GERMINATION TEST DATE MORE THAN 12 MONTHS OLD UNLESS RETESTED.
- SEEDING RATES SPECIFIED ARE REQUIRED WHEN A REPORT OF COMPLIANCE IS REQUESTED PRIOR TO ACTUAL ESTABLISHMENT OF PERMANENT VEGETATION. UP TO 50% REDUCTION IN RATES MAY BE USED WHEN PERMANENT VEGETATION IS ESTABLISHED PRIOR TO A REPORT OF COMPLIANCE INSPECTION. THESE RATES APPLY TO ALL METHODS OF SEEDING. ESTABLISHING PERMANENT VEGETATION MEANS 80% VEGETATIVE COVERAGE WITH THE SPECIFIED SEED MIXTURE FOR THE SEEDING AREA AND MOWED ONCE.
- WARM SEASON MIXTURES ARE GRASSES AND LEGUMES WHICH MAXIMIZE GROWTH AT HIGH TEMPERATURES, GENERALLY 80°F AND ABOVE. SEE TABLE 4-3 (PG. 4-7), MIXTURES 1 TO 7. PLANTING RATES FOR WARM SEASON GRASSES SHALL BE THE AMOUNT OF PURE LIVE SEED (PLS) AS DETERMINED BY GERMINATION TESTING RESULTS.
- COOL SEASON MIXTURES ARE GRASSES AND LEGUMES WHICH MAXIMIZE GROWTH AT TEMPERATURES BELOW 80°F. MANY GRASSES BECOME ACTIVE AT 60°F. SEE TABLE 4-3, MIXTURES 8-20. ADJUSTMENT OF PLANTING RATES TO COMPENSATE FOR THE AMOUNT OF PURE LIVE SEED IS NOT REQUIRED FOR COOL SEASON GRASSES.
- CONVENTIONAL SEEDING IS PERFORMED BY APPLYING SEED UNIFORMLY BY HAND, CYCLONE (CENTRIFUGAL) SEEDER, DROP SEEDER, DRILL OR CULTIPACKER SEEDER. EXCEPT FOR DRILLED, HYDROSEEDER OR CULTIPACKED SEEDINGS, SEED SHALL BE INCORPORATED INTO THE SOIL WITHIN 24 HOURS OF SEEDING PREPARATION TO A DEPTH OF 1/4 TO 1/2 INCH, BY RAKING OR DRAGGING. DEPTH OF SEED PLACEMENT MAY BE 1/4 INCH DEEPER ON COARSE TEXTURED SOIL.
- HYDROSEEDING IS A BROADCAST SEEDING METHOD USUALLY INVOLVING A TRUCK OR TRAILER MOUNTED TANK, WITH AN AGITATION SYSTEM AND HYDRAULIC PUMP FOR MIXING SEED, WATER AND FERTILIZER AND SPRAYING THE MIX ONTO THE PREPARED SEEDBED. MULCH SHALL NOT BE INCLUDED IN THE TANK WITH SEED. SHORT FIBERED MULCH MAY BE APPLIED WITH A HYDROSEEDER FOLLOWING SEEDING. (ALSO SEE SECTION IV (MULCHING BELOW)) HYDROSEEDING IS NOT A PREFERRED SEEDING METHOD BECAUSE SEED AND FERTILIZER ARE APPLIED TO THE SURFACE AND NOT INCORPORATED INTO THE SOIL. POOR SEED TO SOIL CONTACT OCCURS REDUCING SEED GERMINATION AND GROWTH. HYDROSEEDING MAY BE USED FOR AREAS TOO STEEP FOR CONVENTIONAL EQUIPMENT TO TRAVERSE OR TOO OBSTRUCTED WITH ROCKS, STUMPS, ETC.
- AFTER SEEDING, FIRING THE SOIL WITH A CORRUGATED ROLLER WILL ASSURE GOOD SEED-TO-SOIL CONTACT, RESTORE CAPILLARITY, AND IMPROVE SEEDING EMERGENCE. THIS IS THE PREFERRED METHOD. WHEN PERFORMED ON THE CONTOUR, SHEET EROSION WILL BE MINIMIZED AND WATER CONSERVATION ON SITE WILL BE MAXIMIZED.



TREE PROTECTION
NOT TO SCALE

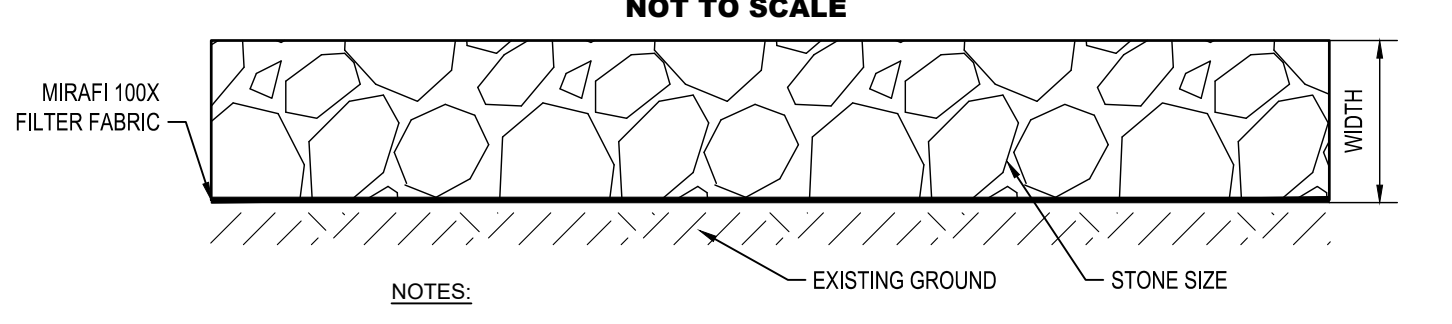


- NOTES:
- PLACE STABILIZED CONSTRUCTION ENTRANCE AT LOCATION(S) AS SHOWN ON THE SOIL EROSION AND SEDIMENT CONTROL PLAN.
 - STONE SIZE SHALL BE ASTM C-33, SIZE NO. 2 OR 3, CRUSHED STONE.
 - THE THICKNESS OF THE STABILIZED CONSTRUCTION ENTRANCE SHALL NOT BE LESS THAN 6\".
 - THE WIDTH AT THE EXIST. PAVEMENT SHALL NOT BE LESS THAN THE FULL WIDTH OF POINTS OF INGRESS AND EGRESS.
 - THE STAB. CONST. ENT. SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO THE R.O.W./PAVEMENT. THIS REQUIRES PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURE USED TO TRAP SEDIMENT.
 - ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO THE PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
 - APPROPRIATE TRANSITION BETWEEN STAB. CONST. ENT. & PUBLIC R.O.W. MUST BE PROVIDED.
 - THE RATIO OF STONE SIZE TO WIDTH MUST BE 9:27.

PERCENT SLOPE OF ROADWAY	LENGTH OF STONE REQUIRED	
	COARSE GRAINED SOILS	FINE GRAINED SOILS
0 TO 2%	50 FT.	100 FT.
2 TO 5%	100 FT.	200 FT.
>5%	ENTIRE SURFACE STABILIZED WITH FABC BASE COURSE*	

* AS PRESCRIBED BY LOCAL ORDINANCE OR OTHER GOVERNING AUTHORITY.

STABILIZED CONSTRUCTION ACCESS
NOT TO SCALE



- NOTES:
- APPROPRIATE TRANSITION BETWEEN STABILIZED CONSTRUCTION ENTRANCE AND PUBLIC R.O.W. MUST BE PROVIDED.
 - THE RATIO OF STONE SIZE TO WIDTH MUST BE 9:27.

STABILIZED CONSTRUCTION PAD
NOT TO SCALE

SEEDING SPECIFICATIONS

TEMPORARY SEEDING

TEMPORARY VEGETATIVE COVER SHALL CONSIST OF PERENNIAL RYEGRASS APPLIED UNIFORMLY AT A RATE OF 1.0 POUND PER 1,000 SQ. FT. (40 LBS/AC), IN ACCORDANCE WITH TABLE 7-2, PAGE 7-3. LIMESTONE (PULVERIZED DOLOMITIC EQUIVALENT TO 60 PERCENT CALCIUM PLUS MAGNESIUM OXIDES) SHALL BE APPLIED AT THE RATE OF 45 LBS/1,000 SQ. FT. (1 TON/AC), IN ACCORDANCE WITH TABLE 7-1, PAGE 7-2. FERTILIZER (10-20-10 OR EQUIVALENT) AT THE RATE OF 11 LBS/1,000 SQ. FT. (500 LBS/AC) OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN, IN ACCORDANCE WITH PARAGRAPH 2A, PAGE 7-1. MULCHING IS REQUIRED ON ALL SEEDING AND SHALL BE ACCOMPLISHED AS FOLLOWS:

- MULCH MATERIALS SHOULD BE UNROTTED SALT HAY, HAY, OR SMALL GRAIN STRAW AT A RATE OF 1-1/2 TO 2 TONS PER ACRE, OR 70 TO 90 POUNDS PER 1,000 SQUARE FOOT. MULCH BLOWERS SHOULD NOT GRIND OR CHOP THE MATERIAL.
- SPREAD UNIFORMLY BY HAND OR MECHANICALLY SO THAT APPROXIMATELY 85 PERCENT OF THE SOIL SURFACE WILL BE COVERED. FOR UNIFORM DISTRIBUTION OF HAND SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1,000 SQUARE FOOT SECTIONS AND DISTRIBUTE 70 TO 90 POUNDS WITHIN EACH SECTION.
- MULCH ANCHORING SHALL BE ACCOMPLISHED USING EITHER PEG AND TWINE, MULCH NETTING, MULCH-ANCHORING COULTER TOOL OR LIQUID MULCH-BINDERS, PER THE ACCOMPANYING "STABILIZATION WITH MULCH ONLY" SPECIFICATION. * OPTIMUM SEEDING DATES: 3/1 - 5/15 AND 8/15 - 10/1

PERMANENT SEEDING

- TOPSOIL TO BE PLACED TO A DEPTH OF 4 INCHES ON EXPOSED SOILS UPON COMPLETION OF FINAL GRADING.
- SEED IS TO BE UNIFORMLY APPLIED TO THE NORMAL DEPTH OF 1/4 INCH TO 1/2 INCH (EXCEPT HYDRO SEEDING). ZONE 6b SEED MIXTURE 17, AS SHOWN ON PAGE 4-12 IN THE SOIL EROSION STANDARDS. THE SEEDING RATE SHALL BE:

SEED MIXTURE	PLANTING RATE	
	LBS PER ACRE	LBS PER 1,000 SF
HARD FESCUE	120	2.7
CREEPING FESCUE	30	0.7
PERENNIAL RYEGRASS	10	0.25

* OPTIMAL SEEDING DATES: 3/1 - 4/30 AND 8/15 - 10/15

- MULCHING WILL BE ACCOMPLISHED PER THE BELOW TEMPORARY SEEDING SPECIFICATION.
- *MAY BE PLANTED THROUGHOUT SUMMER IF SOIL MOISTURE IS ADEQUATE OR SOIL CAN BE IRRIGATED.

SOIL PREPARATION

SUITABLE EQUIPMENT WILL BE USED TO PREPARE A REASONABLE, UNIFORM, FINE SEED BED TO A MINIMUM DEPTH OF 4 INCHES.

APPLY GROUND LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS. FERTILIZER SHALL BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE OR 11 POUNDS PER 1,000 SQUARE FEET USING 10-20-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN UNLESS A SOIL TEST INDICATES OTHERWISE. LIME SHALL BE PULVERIZED DOLOMITIC LIMESTONE. CALCIUM CARBONATE IS THE EQUIVALENT AND STANDARD FOR MEASURING THE ABILITY OF LIMING MATERIALS TO NEUTRALIZE SOIL ACIDITY AND SUPPLY CALCIUM AND MAGNESIUM TO GRASSES AND LEGUMES. THE FOLLOWING TABLE IS A GENERAL GUIDELINE FOR LIMESTONE APPLICATION RATES:

SOIL TEXTURE	TONS/ACRE	LBS/1000 SQ. FT.
CLAY, CLAY LOAM, & HIGHLY ORGANIC SOIL	3	135
SANDY LOAM, LOAM, SILT LOAM	2	90
LOAMY SAND, SAND	1	45

WORK LIME AND FERTILIZER INTO THE TOPSOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRINGTOOTH HARROW, OR OTHER SUITABLE EQUIPMENT.

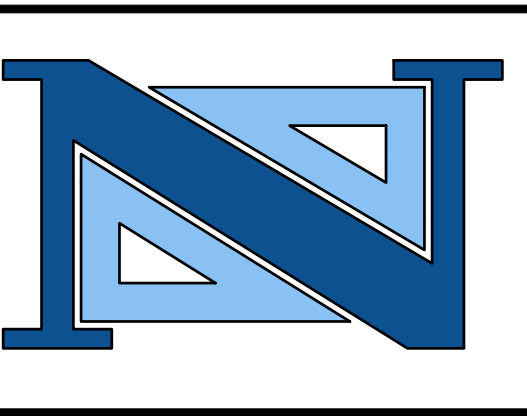
SEQUENCE OF CONSTRUCTION

ACTIVITY	APPROXIMATE DURATION, (days)
1. INSTALL CONSTRUCTION ENTRANCES AND FENCING.	1 DAY
2. INSTALL SEDIMENT CONTROL MEASURES AND TREE PROTECTION.	3 DAYS
3. BEGIN SITE PREPARATION AND DEMOLITION.	30 DAYS
4. BEGIN EARTHWORK.	90 DAYS
5. INSTALL NEW DRAINAGE SYSTEM, PLACE INLET SEDIMENT CONTROL DEVICE AS STRUCTURES ARE COMPLETED, SITE ENVIRONMENTAL CAPPING ASSOCIATES WITH DRAINAGE IMPROVEMENTS TO BE COMPLETED IN CONJUNCTION WITH THE SAME.	40 DAYS
6. CONSTRUCT LIGHT POLE FOUNDATIONS.	10 DAYS
7. BEGIN FINAL GRADING.	20 DAYS
8. CONSTRUCT PROPOSED FIELDS, WALKING PATHS, CONCRETE PADS, TENNIS COURTS, AND PARKING LOT IMPROVEMENTS.	50 DAYS
9. INSTALL ALL SPORTS LIGHTING.	5 DAYS
10. INSTALL NEW FENCING, BLEACHERS.	10 DAYS
11. TOPSOIL, SEED AND MULCH AS AREAS OF SITE ARE COMPLETED (UNIFORMLY APPLY TOPSOIL TO AN AVERAGE DEPTH OF 5\", MINIMUM OF 4\" FIRMED IN PLACE)	10 DAYS
12. REMOVE SOIL EROSION MEASURES.	1 DAY
TOTAL DURATION	±270 DAYS

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CERTIFICATE OF AUTHORIZATION (N.J.S.A. 45:8-56) 24GA27927000

REVISIONS			DRAWN	DESIGNED	CHECKED
NO.	DATE	DESCRIPTION			



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PROFESSIONAL PLANNER
N.J. LICENSE NO. 33L00598900

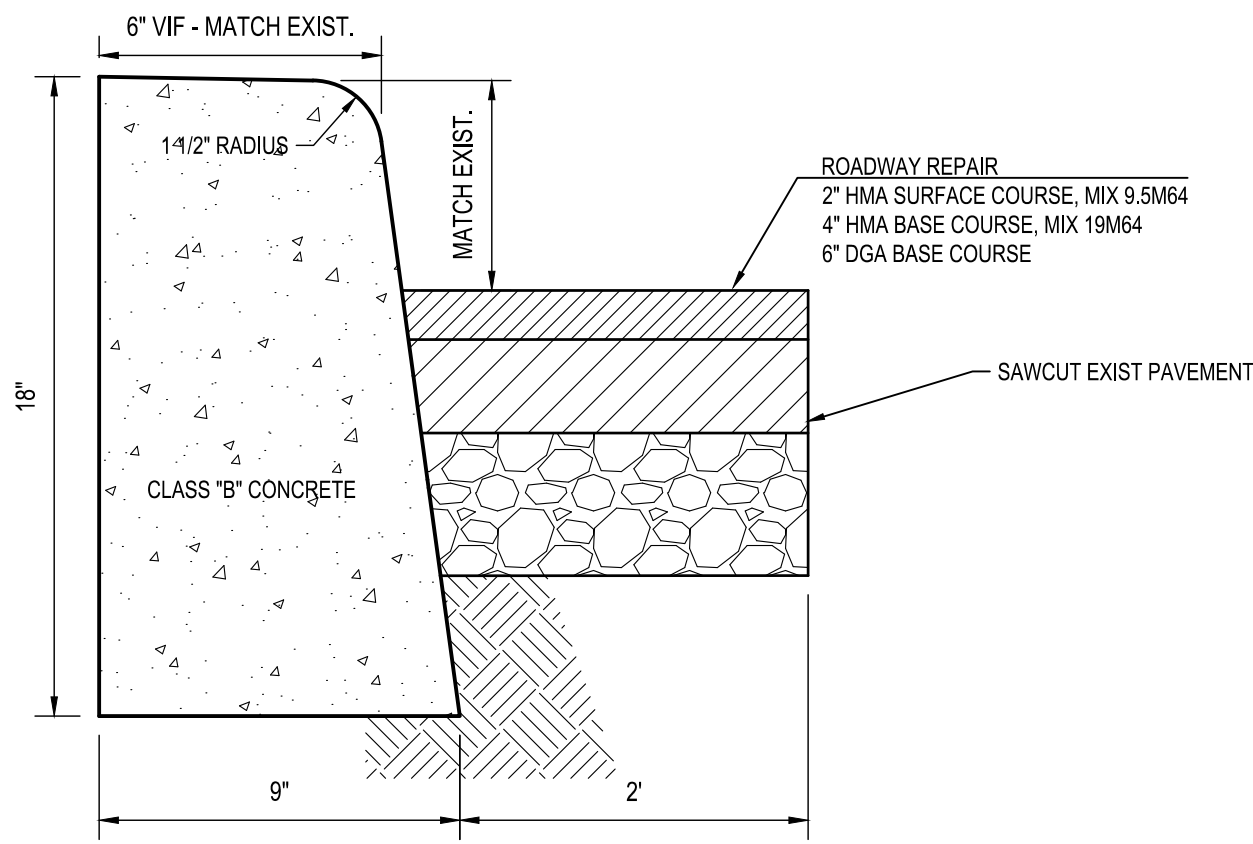
SOIL EROSION SEDIMENT CONTROL DETAILS
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY **NEW JERSEY**

DRAWN BY: JV
DESIGNED BY: JV
FIELD BOOK NO:

CHECKED BY: DRAWH
SCALE: N.T.S.
PAGE:

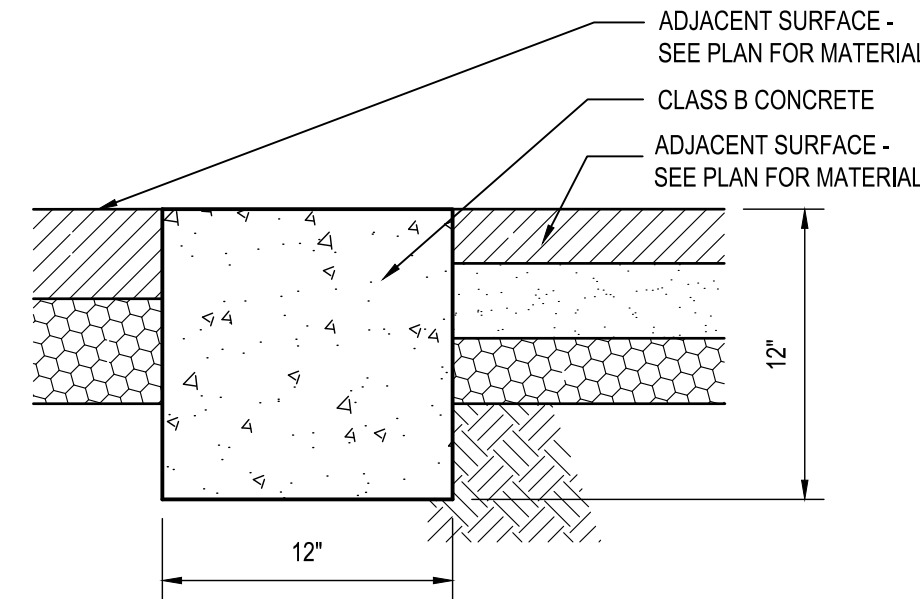
PROJECT NO: UNIOCTY20.011
SHEET NO: 11.00
DATE: AUGUST 1, 2023

m:\uniocty20\uniocty20.011 (mattano park)24.dwg, Final (50%) Rev11.00 construction details.dwg, Plotted: Friday, September 27, 2024 4:53:59 PM

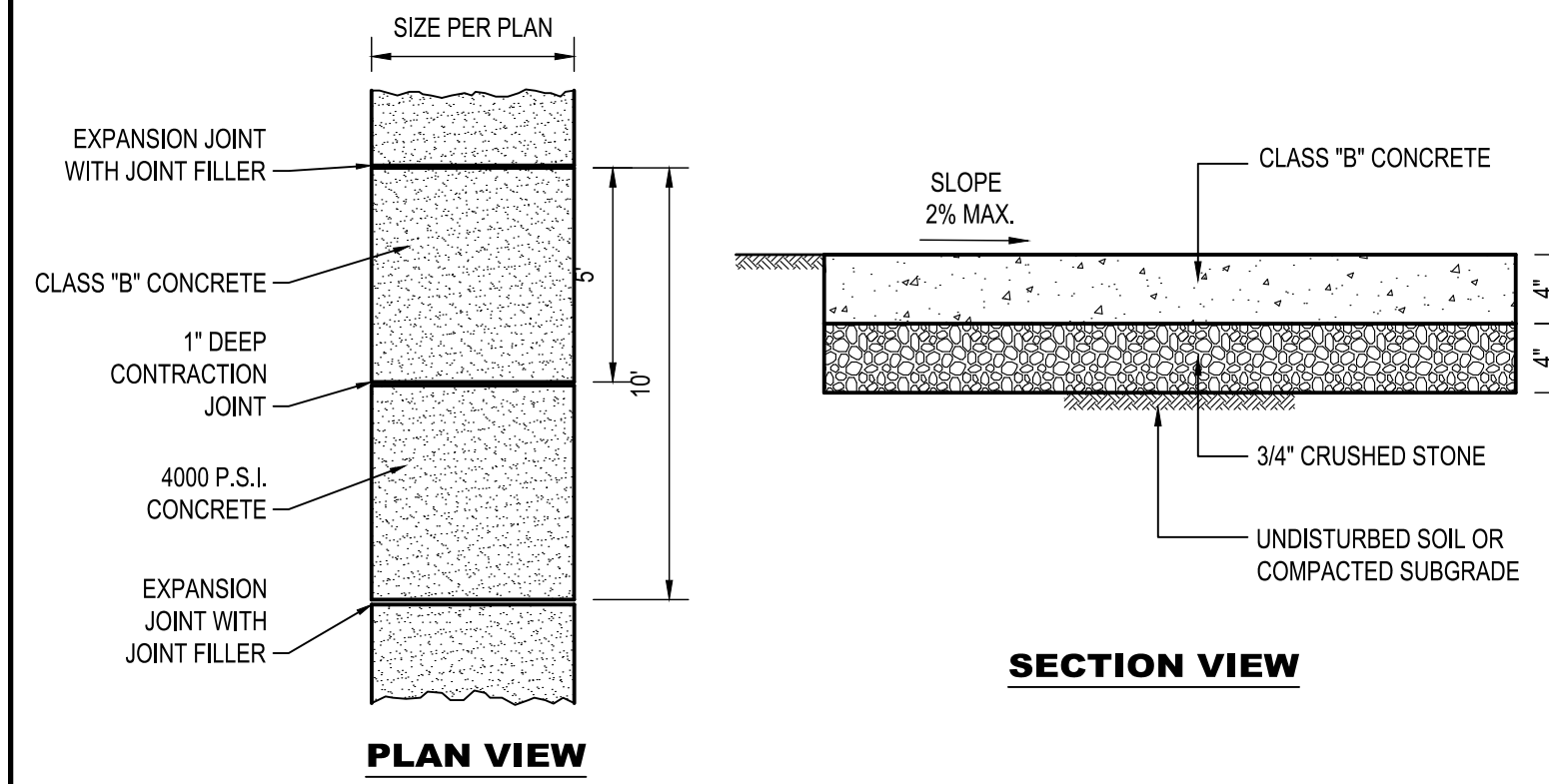


NOTES:
 TRANSVERSE JOINTS 1/2" WIDE SHALL BE INSTALLED IN THE CURB 20 FT. APART AND SHALL BE FILLED WITH PREFORMED BITUMINOUS-IMPREGNATED FIBER JOINT FILLER RECESSED 1/4" IN FROM FRONT FACE AND TOP OF CURB.
 EXPANSION JOINTS THRU AND ADJACENT TO THE CURB SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CURB.

9" X 18" CONCRETE VERTICAL CURB
 NOT TO SCALE

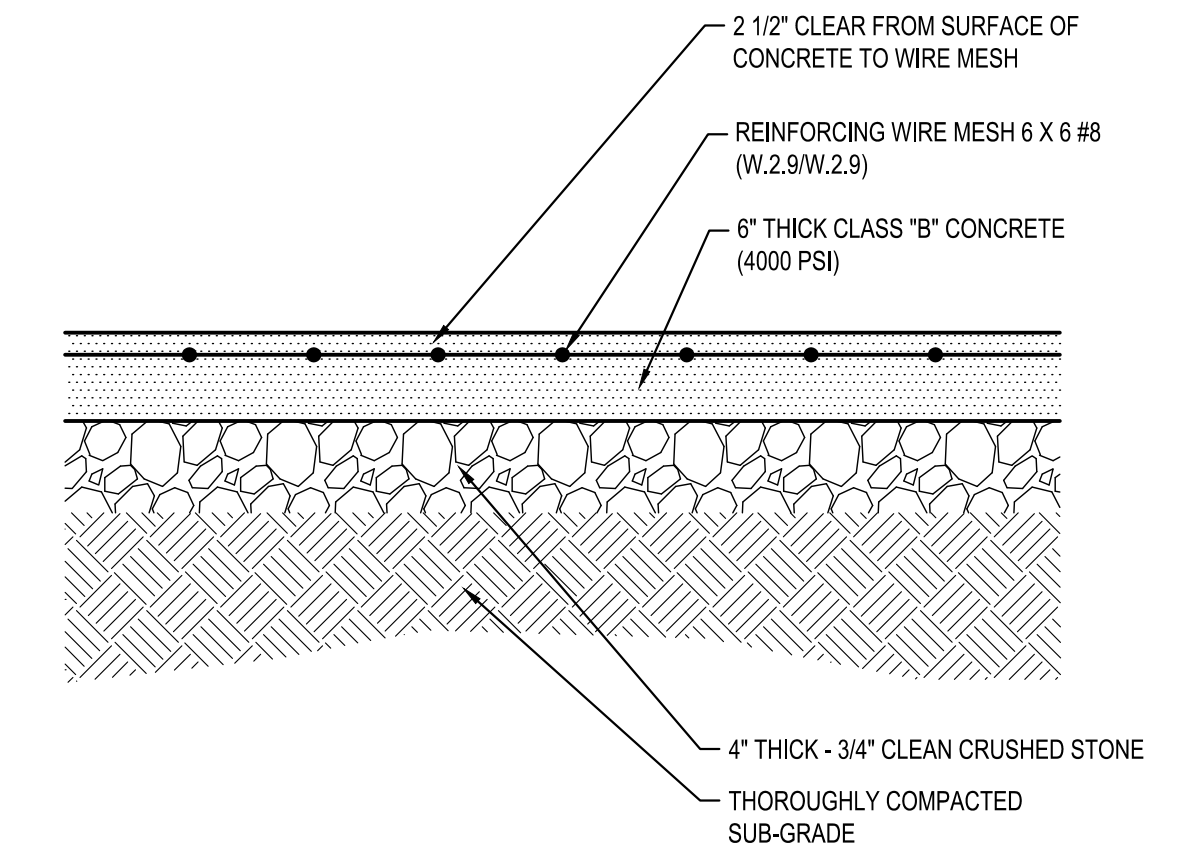


12"x12" FLUSH CONCRETE CURB FOR ARTIFICIAL TURF SURFACE
 NOT TO SCALE



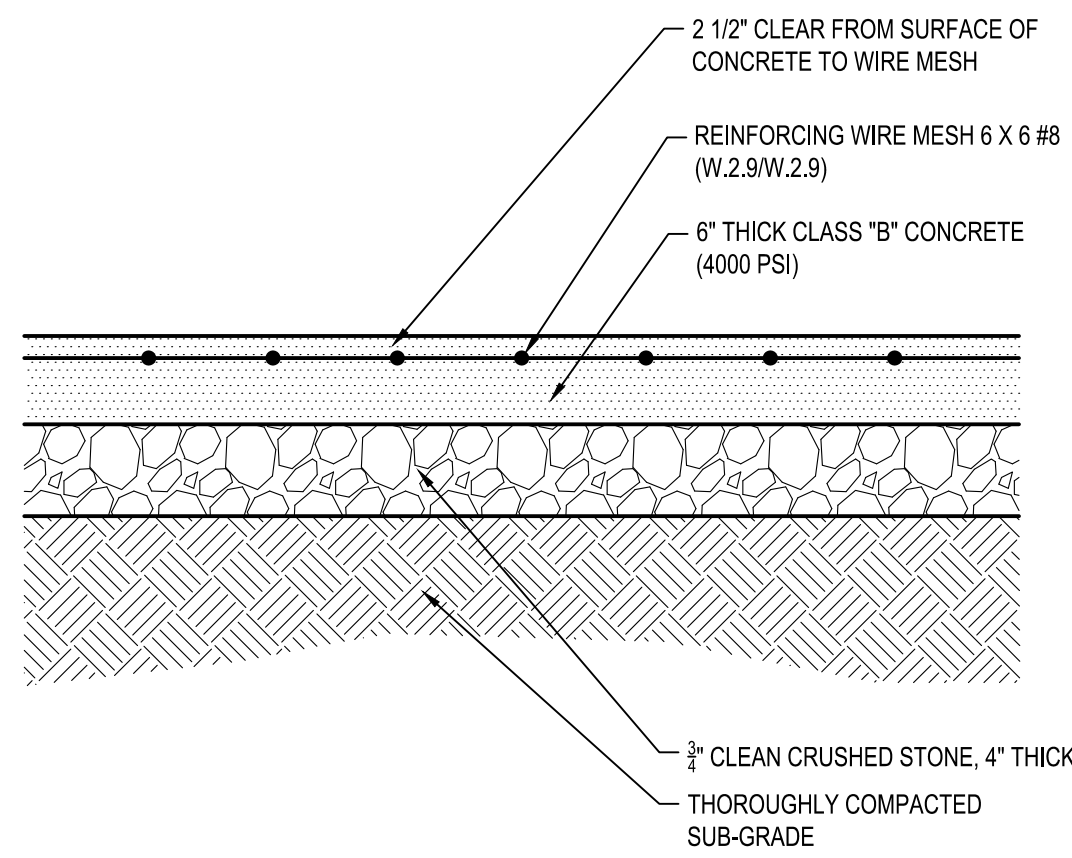
NOTES:
 1. UNIT PRICE FOR SIDEWALK INCLUDES EXCAVATION, GRADING, CONCRETE REMOVAL, CONC., SAWCUTTING AND DISPOSAL, AND D.G.A.
 2. EXISTING GREEN BELT MATERIALS (GRASS, BRICK CONCRETE, ETC.) TO BE REPLACED WITH SAME MATERIAL UNLESS OTHERWISE APPROVED OR DIRECTED BY THE BOROUGH ENGINEER.
 3. PAY LIMIT FOR TOPSOIL, SEED, & MULCHING IS AS SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER.

4" THICK CONCRETE SIDEWALK
 NOT TO SCALE

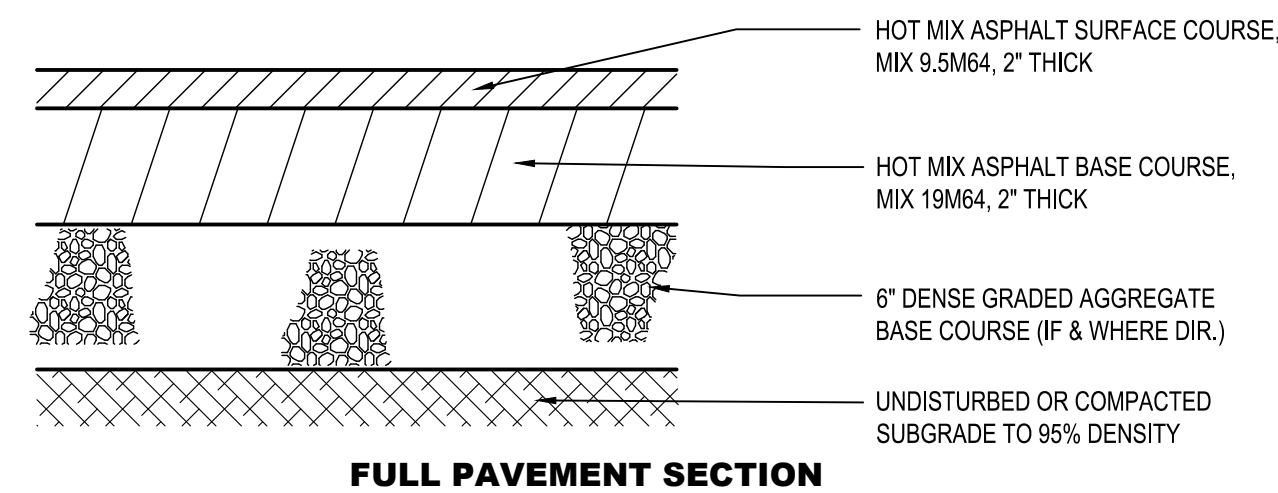


NOTES:
 REINFORCED CONCRETE PAD, 6" THICK SHALL BE USED FOR PROPOSED BLEACHERS.

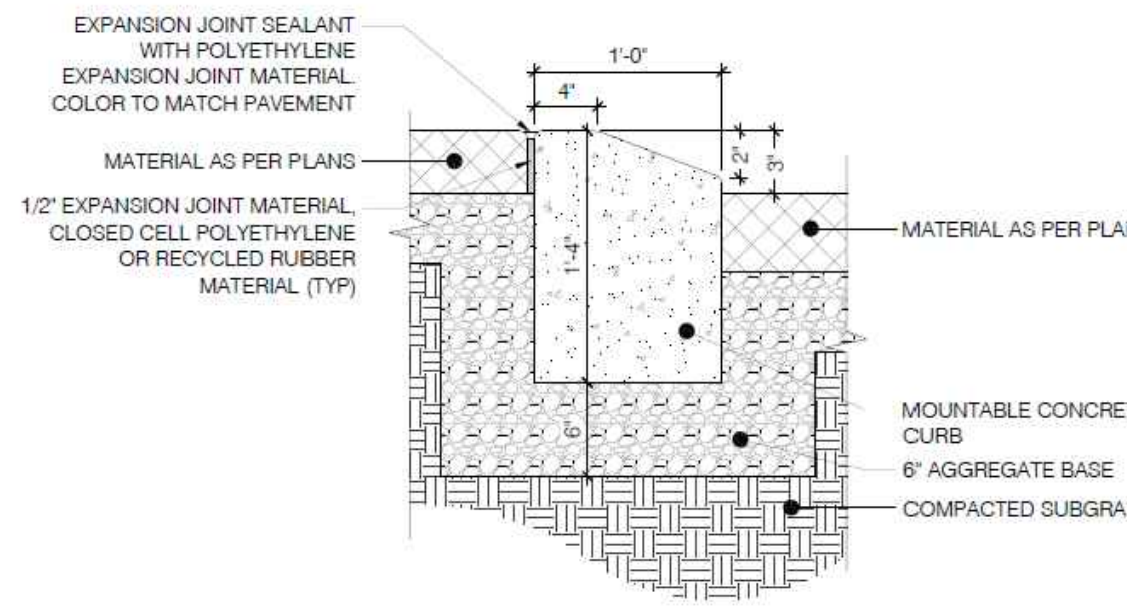
REINFORCED CONCRETE PAD, 6" THICK
 NOT TO SCALE



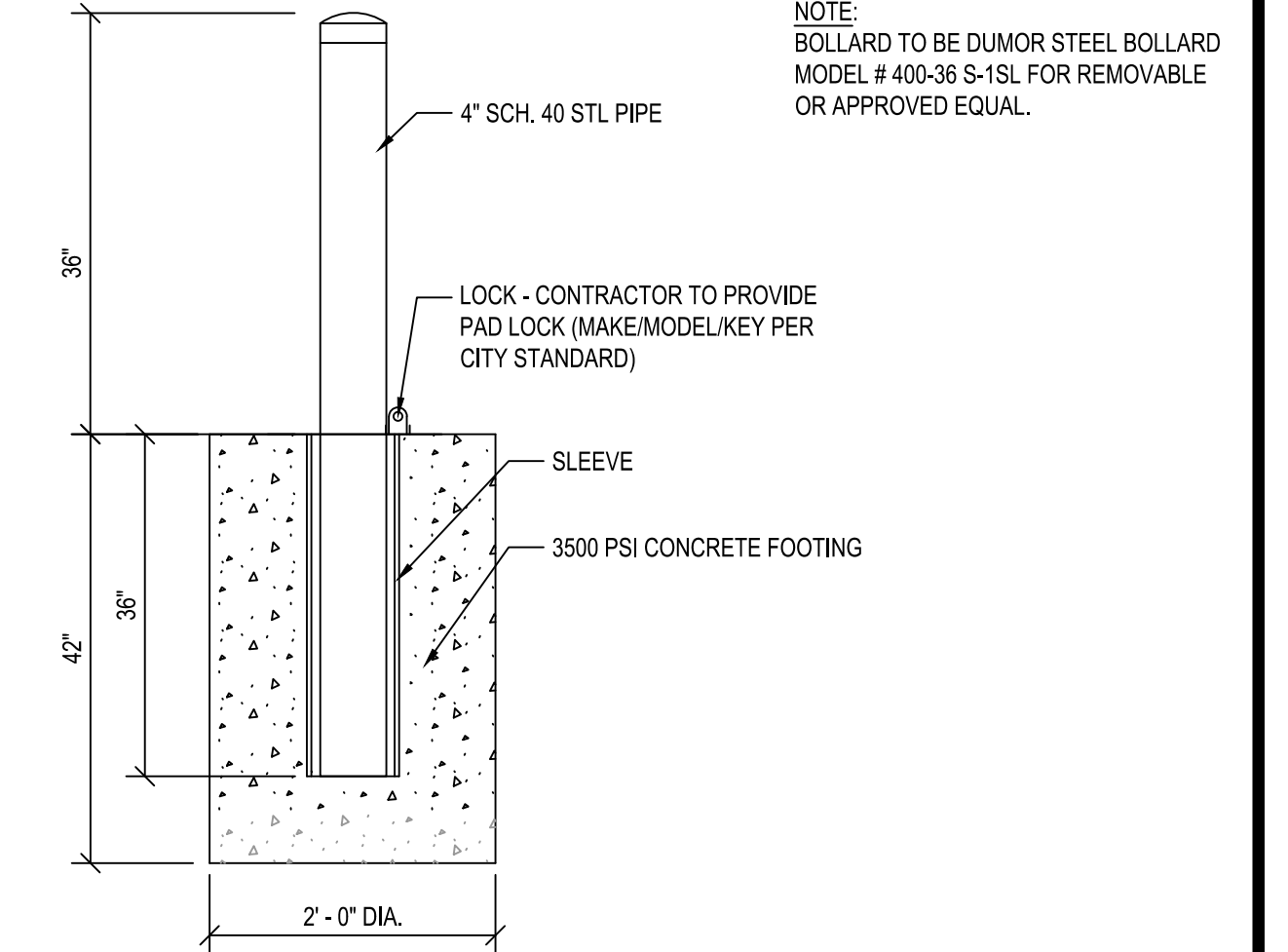
CONCRETE SIDEWALK REINFORCED, 6" THICK
 NOT TO SCALE



ASPHALT WALKWAY
 NOT TO SCALE

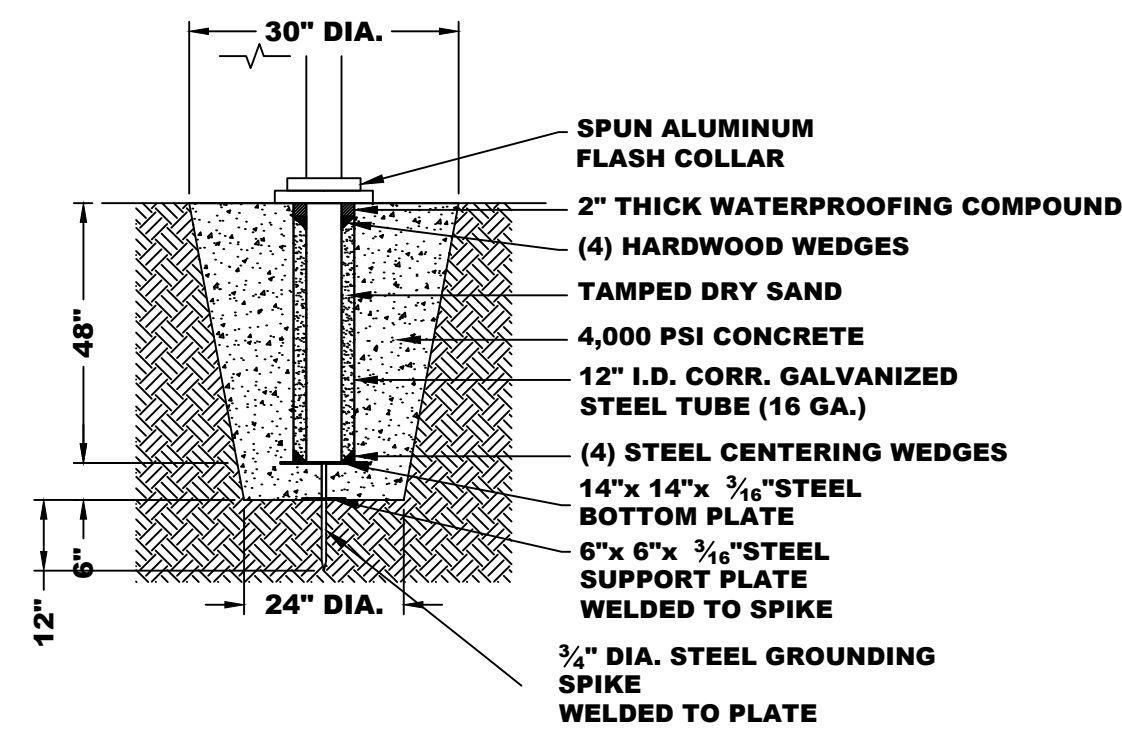


MOUNTABLE CONCRETE CURB
 NOT TO SCALE



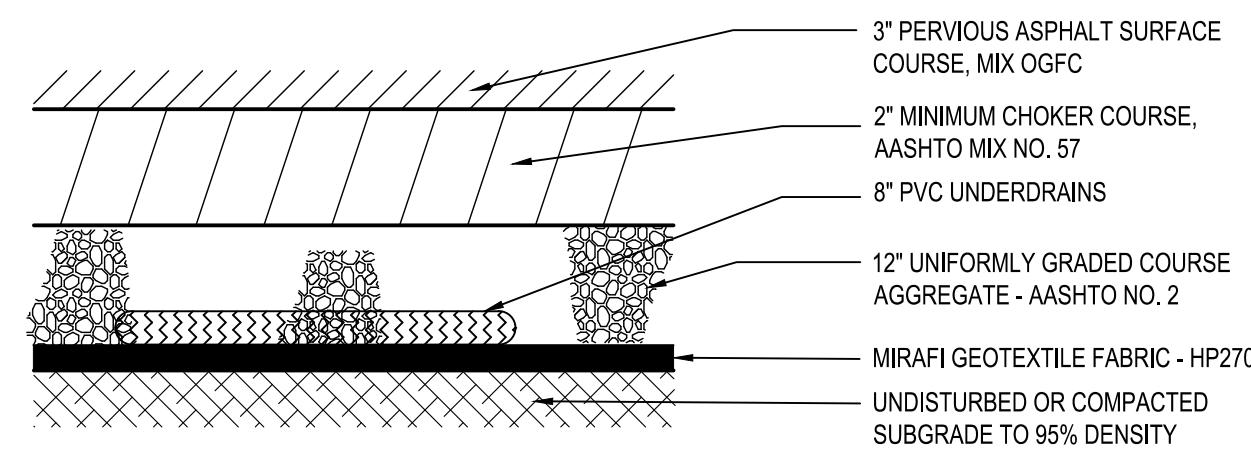
LOCKING REMOVABLE BOLLARD
 NOT TO SCALE

OVERALL POLE HEIGHT 44'
HEIGHT ABOVE GROUND 40'
BUTT DIAMETER 8.0"
TOP DIAMETER 3.5"



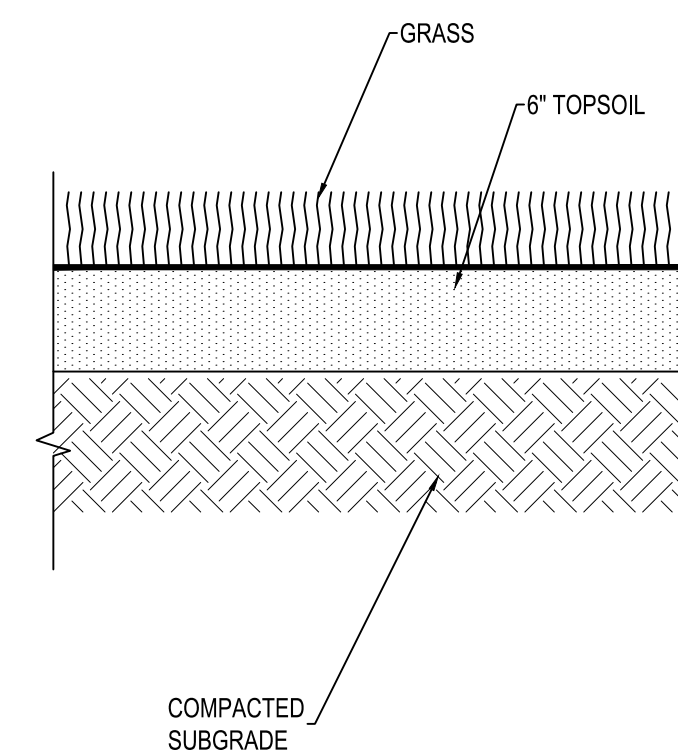
NOTE:
 1. CONTRACTOR SHALL PROVIDE NECESSARY ELECTRICAL SOURCE, ELECTRIFICATION DRAWINGS AND CONSTRUCTION OF A COMPLETE WORKING SYSTEM.
 2. ROCK GUARD TO BE PROVIDED WITH A BRONZE FINISH.
 3. CONTRACTOR TO PROVIDE 1 FLAGPOLE OF 40 FEET IN HEIGHT.
 4. UPLIGHT TO BE PROVIDED PER SPECIFICATIONS.

40' FLAGPOLE W/ UPLIGHTS
 NOT TO SCALE

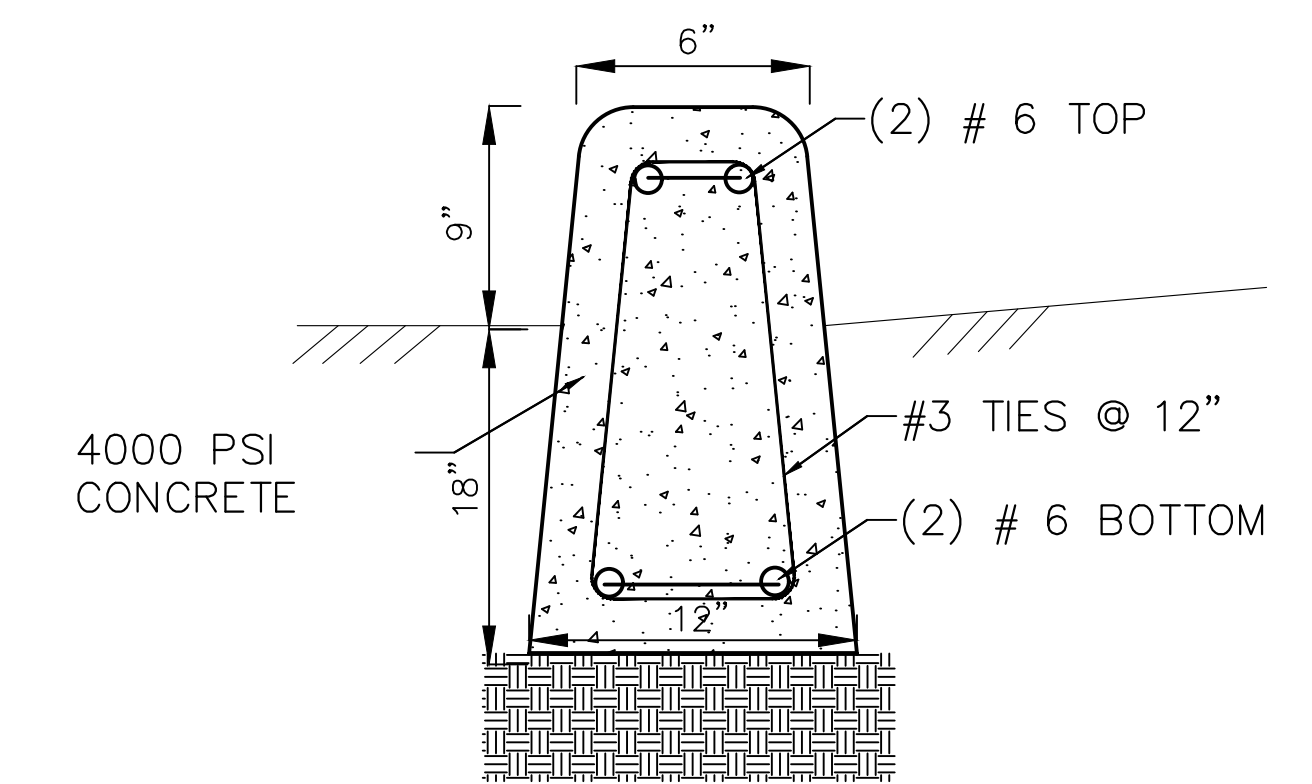


NOTES:
 1. CONTRACTOR SHALL ENSURE TO USE MIRAFI GEOTEXTILE FABRIC - HP270 AS SPECIFIED WITHIN THE GEOTECHNICAL ENGINEERING REPORT "PROPOSED MATTANO PARK IMPROVEMENTS, 393-484 5TH AVENUE, BLOCK 5, LOT 433B, ELIZABETH, NJ, JSC PROJECT NO. 11-241-E1, PREPARED BY JOHNSON SOILS COMPANY, DATED JUNE 10, 2021". IF SETTLEMENT AND CRACKING OCCURS DUE TO STABILIZATION FABRIC NOT BEING PLACED, THE CONTRACTOR WILL BE REQUIRED TO RE-CONSTRUCT THE PARKING LOT AT NO ADDITIONAL COST TO THE OWNER.

POROUS PAVEMENT FULL-DEPTH CONSTRUCTION
 NOT TO SCALE



TOPSOIL/SEED RESTORATION
 NOT TO SCALE

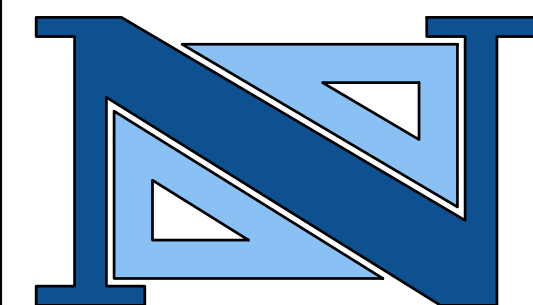


HIGH CURB
 NOT TO SCALE

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REVISIONS				DRAWN	DESIGNED	CHECKED
NO.	DATE	DESCRIPTION		J.V.	J.V.	N.H.
1.	2023/12/06	REVISED PER NJDEP COMMENTS				



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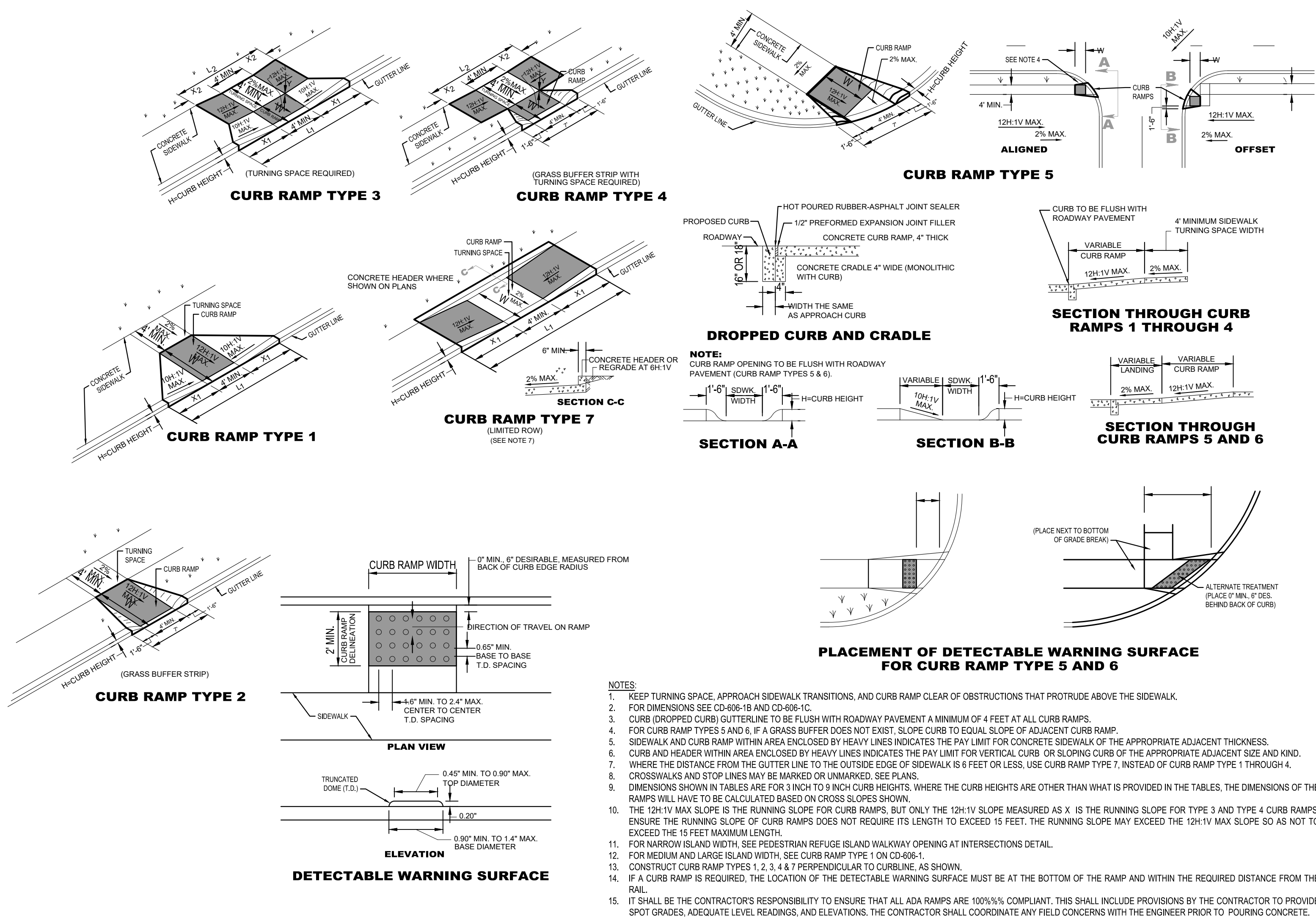
CONSTRUCTION DETAILS I
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY NEW JERSEY

DRAWN BY: JV
 DESIGNED BY: JV
 FIELD BOOK NO:

CHECKED BY: DRANH
 SCALE: N.T.S.
 PAGE:

PROJECT NO: UNIOCTY20.011
 SHEET NO: 11.01
 DATE: AUGUST 1, 2023

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ADA ACCESSIBLE CURB RAMPS

ADA ACCESSIBLE CURB RAMPS

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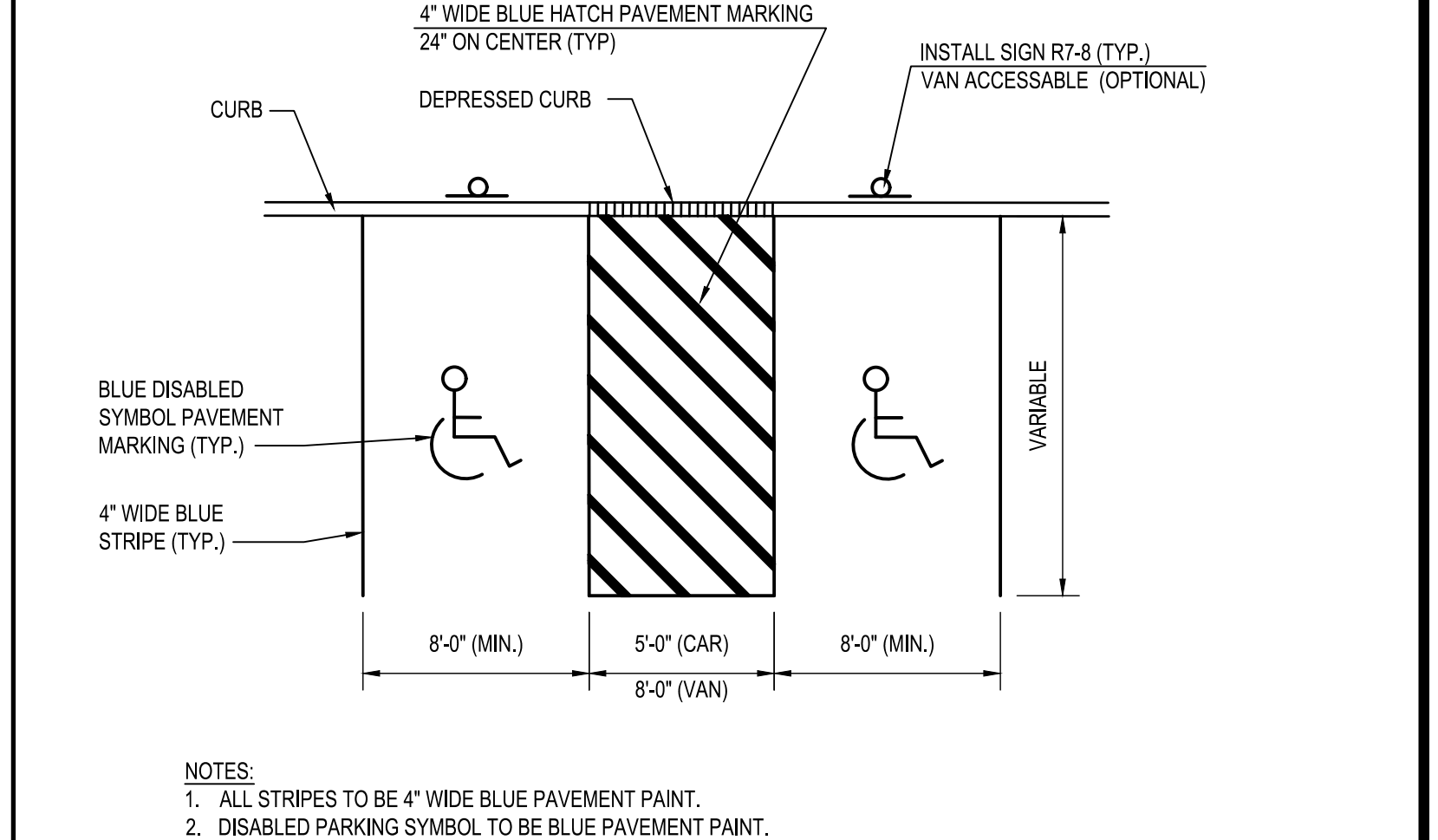
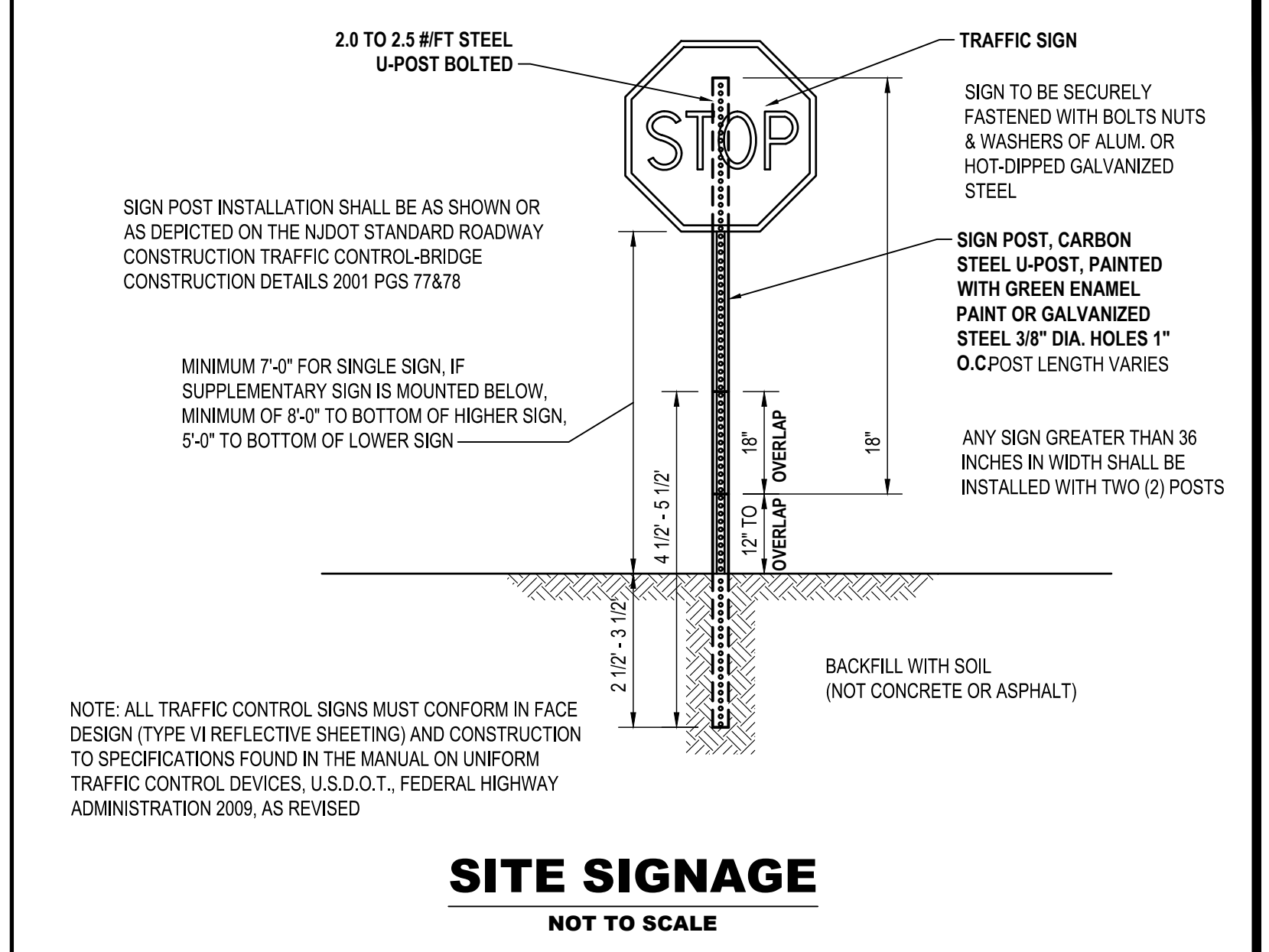
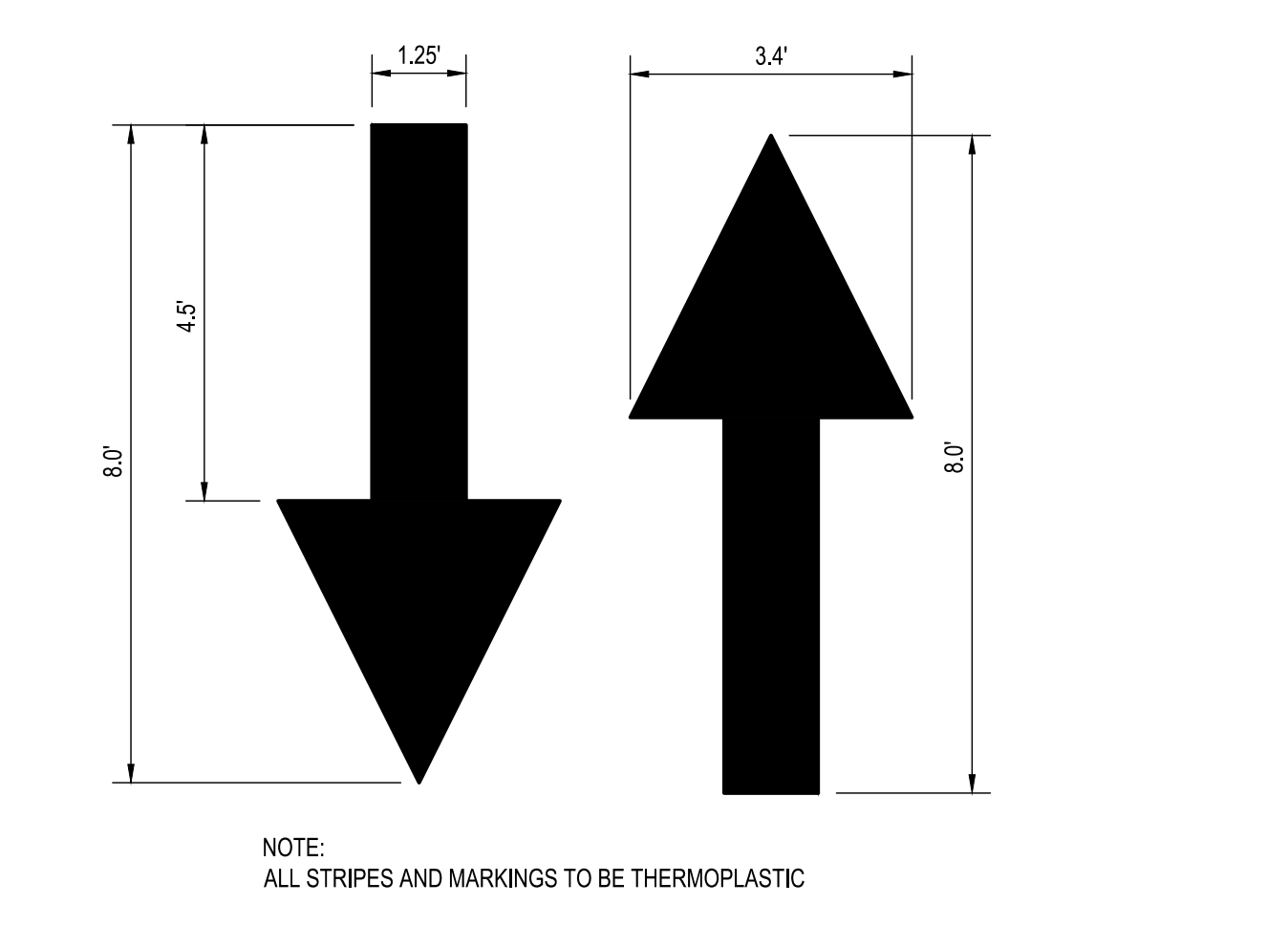
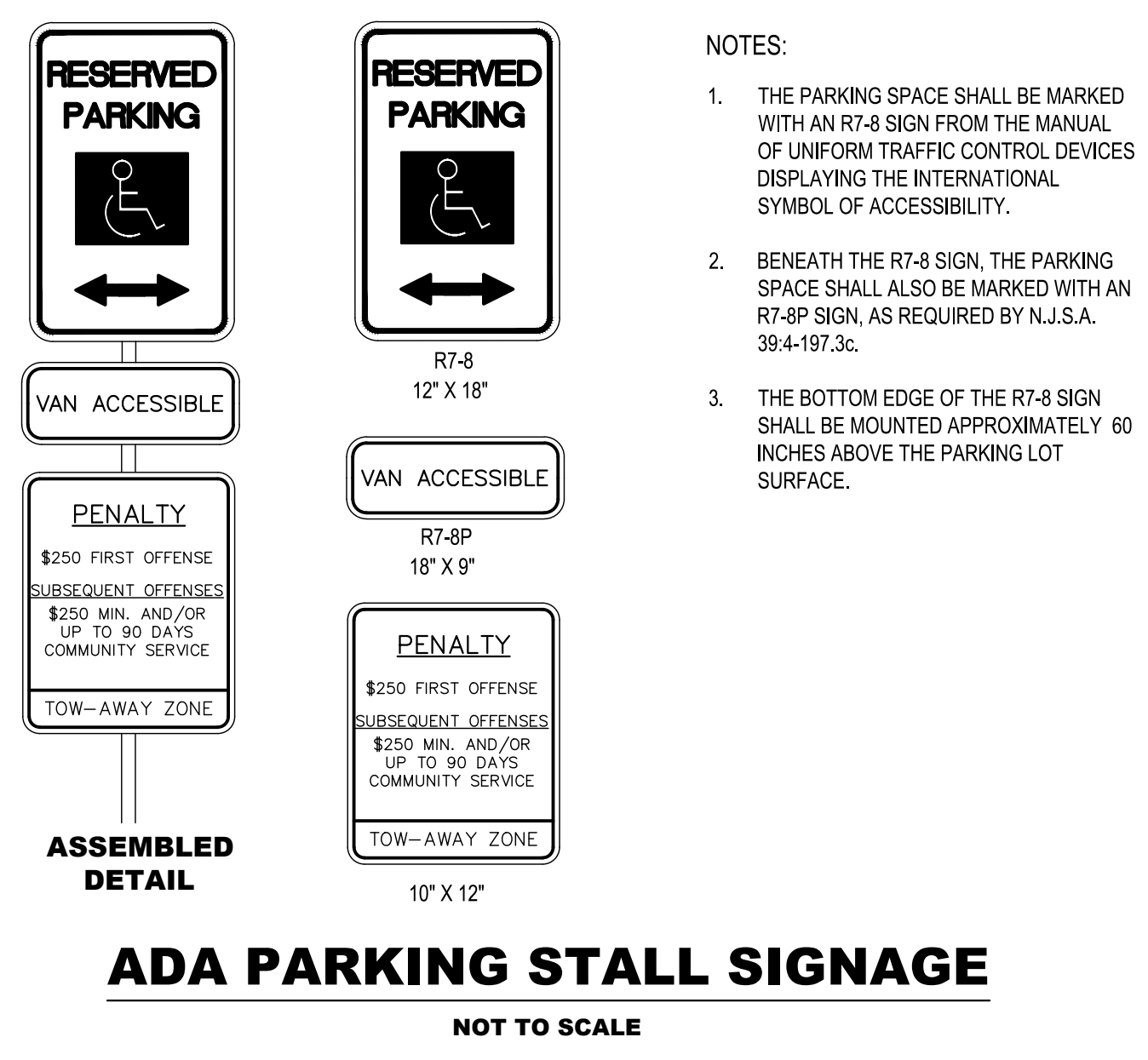
ADA ACCESSIBLE CURB RAMPS

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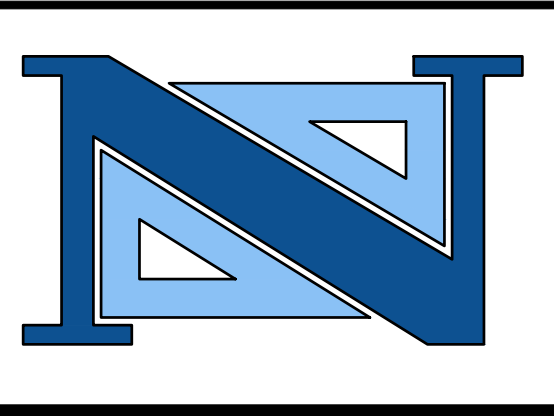


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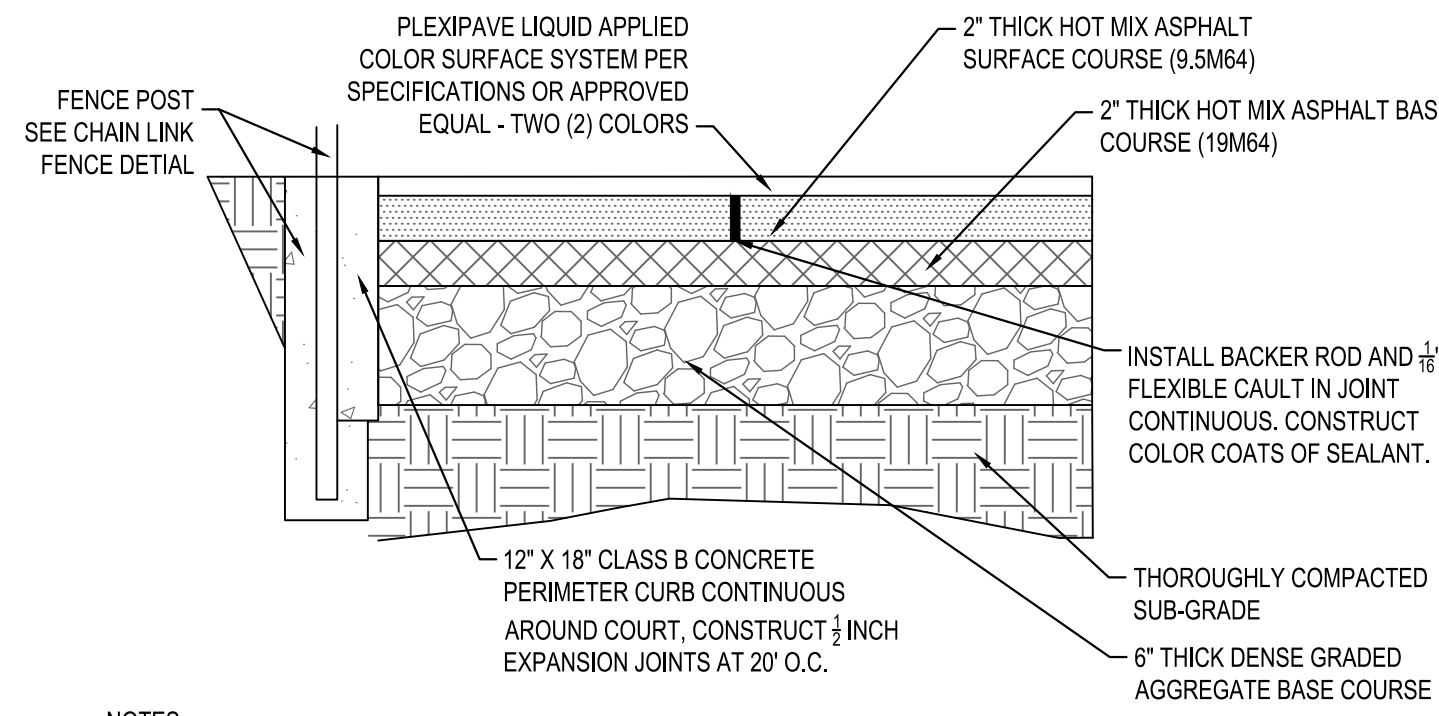
MICHAEL J. NEGLIA, P.E., P.L.S., P.P.
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CONSTRUCTION DETAILS I
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY NEW JERSEY

DRAWN BY: JV CHECKED BY: DRANH PROJECT NO.: UNIOCTY20.011 SHEET NO.: 11.02
DESIGNED BY: JV SCALE: N.T.S. DATE: AUGUST 1, 2023
FIELD BOOK NO.: PAGE:

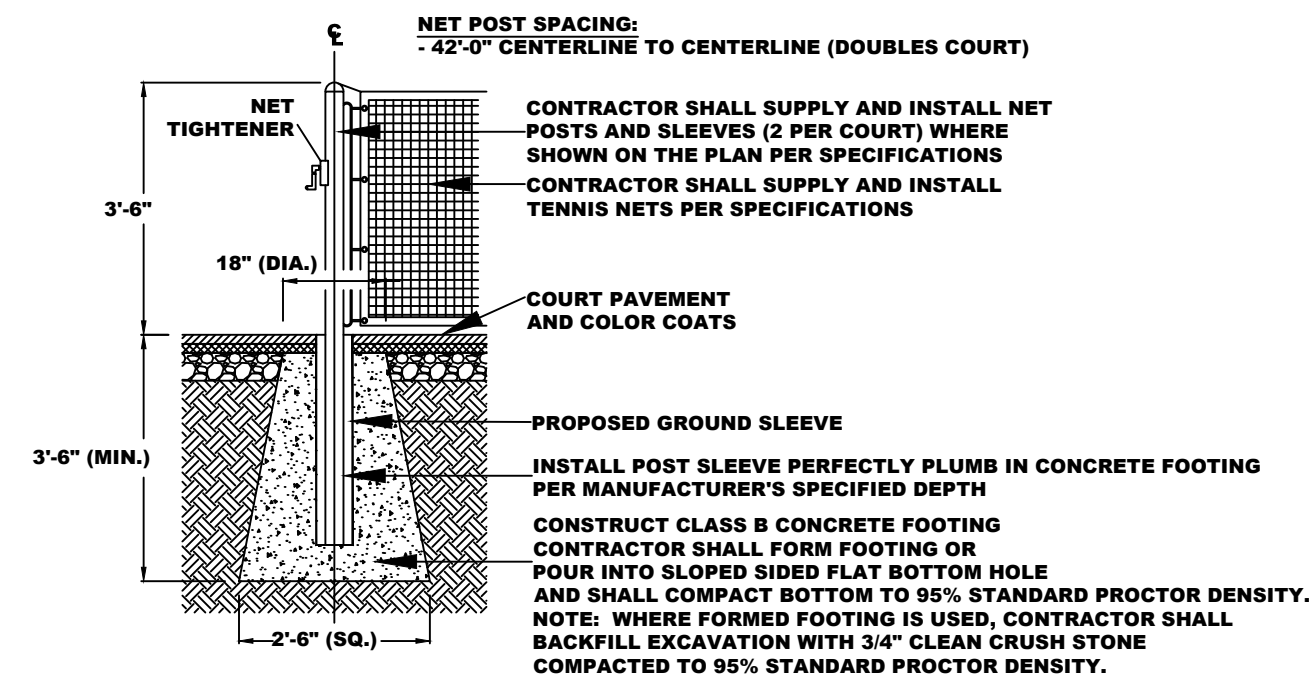


NOTES:

- ASPHALT PAVING SHALL BE DONE UTILIZING LASER CONTROLLED PAVER EQUIPMENT. COURTS SHALL BE SLOPED IN ONE PLANE ONLY. SEE GRADING PLAN.
- TENNIS COURT SHALL BE PAINTED WITH 2 COLORS PLEXI PAVE SYSTEM AND WHITE LINE STRIPING. CONTRACTOR SHALL SUBMIT COLOR SAMPLES FOR REVIEW PRIOR TO CONSTRUCTION.
- COLORS TO BE SELECTED BY OWNER.

TENNIS COURT PAVING SECTION / PERIMETER EDGE

NOT TO SCALE



NET POST SPACING:
-42\"/>

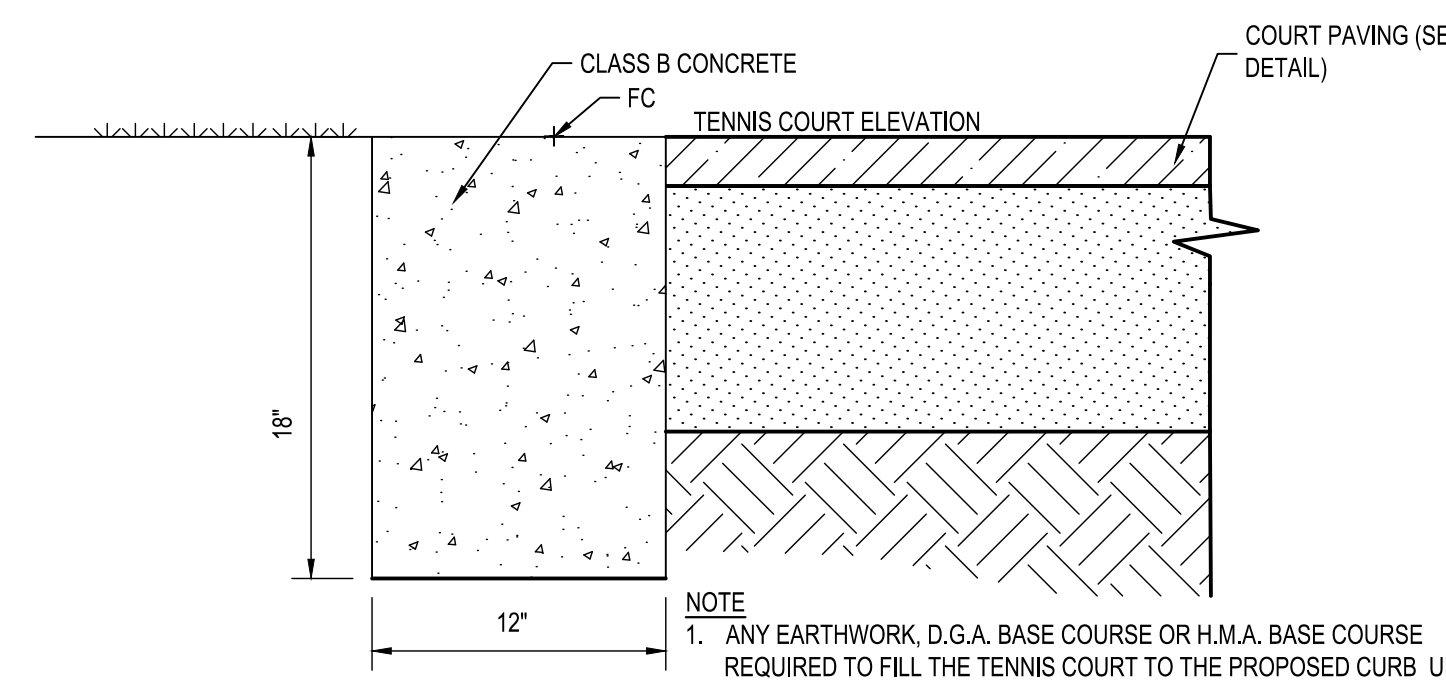
NET SHALL BE:
3.5mm Braided Polyethylene net body, heavy duty polyester headband with 6 rows of double netting
MODEL # SE162462 (W HEAVY DUTY POLYESTER HEADBAND)
LENGTH: 42'-0\"/>

A: ALL AS MANUFACTURED BY EDWARDS SPORTS PRODUCTS OR APPROVED EQUAL AND PROVIDED BY SPORTS EDGE
B: 1-800-334-6057
www.sportsedge.com

NOTES:
1. TENNIS POST GROUND SLEEVE AND CENTER STRAP ANCHOR INSTALLATION SHALL BE IN ACCORDANCE WITH ALL MANUFACTURER'S SPECIFICATIONS.
2. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR ALL TENNIS EQUIPMENT AND HARDWARE PRIOR TO CONSTRUCTION.

TENNIS NET AND POST/FOOTING SYSTEM DETAIL

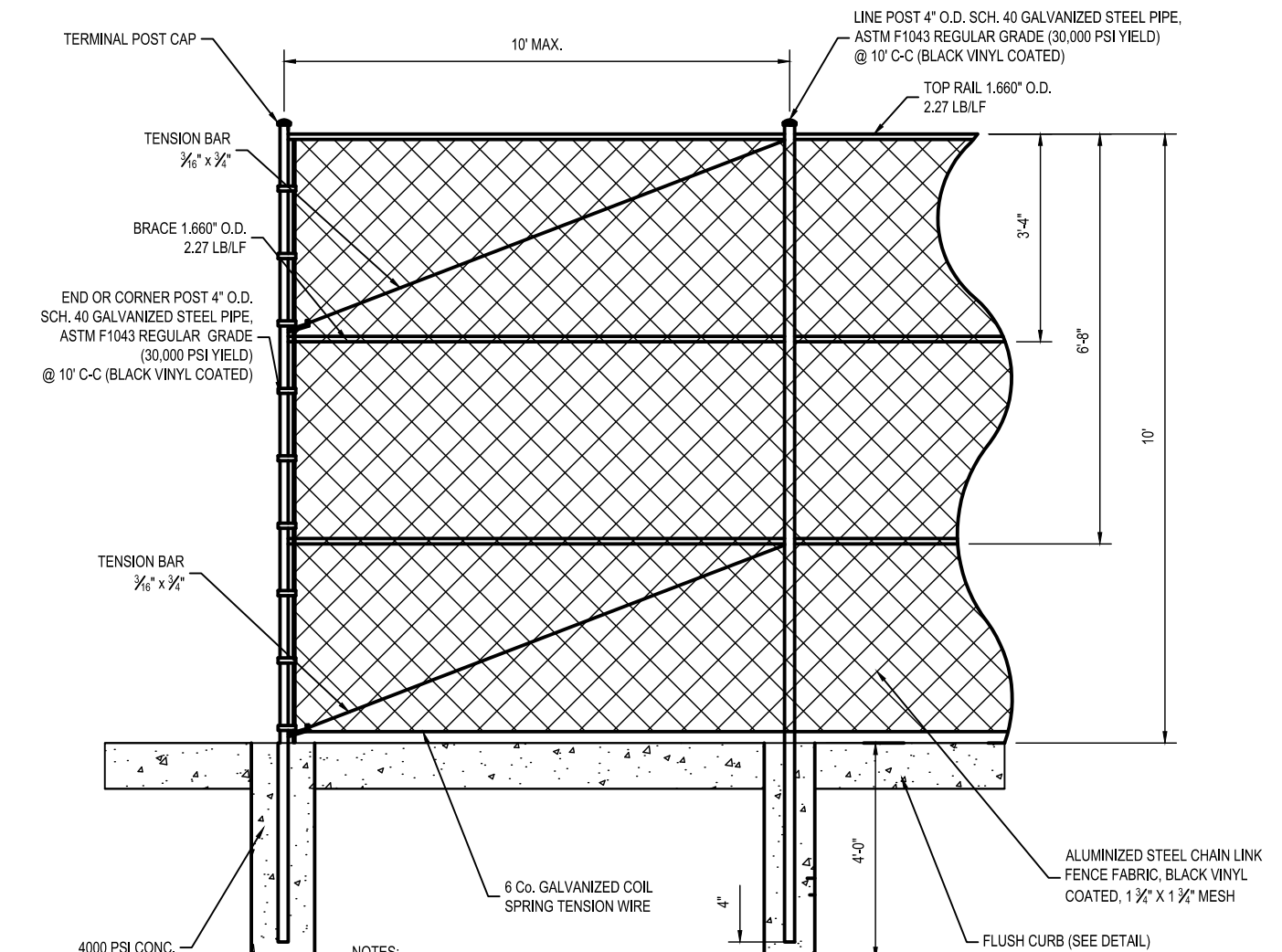
NOT TO SCALE



12\"/>

NOT TO SCALE

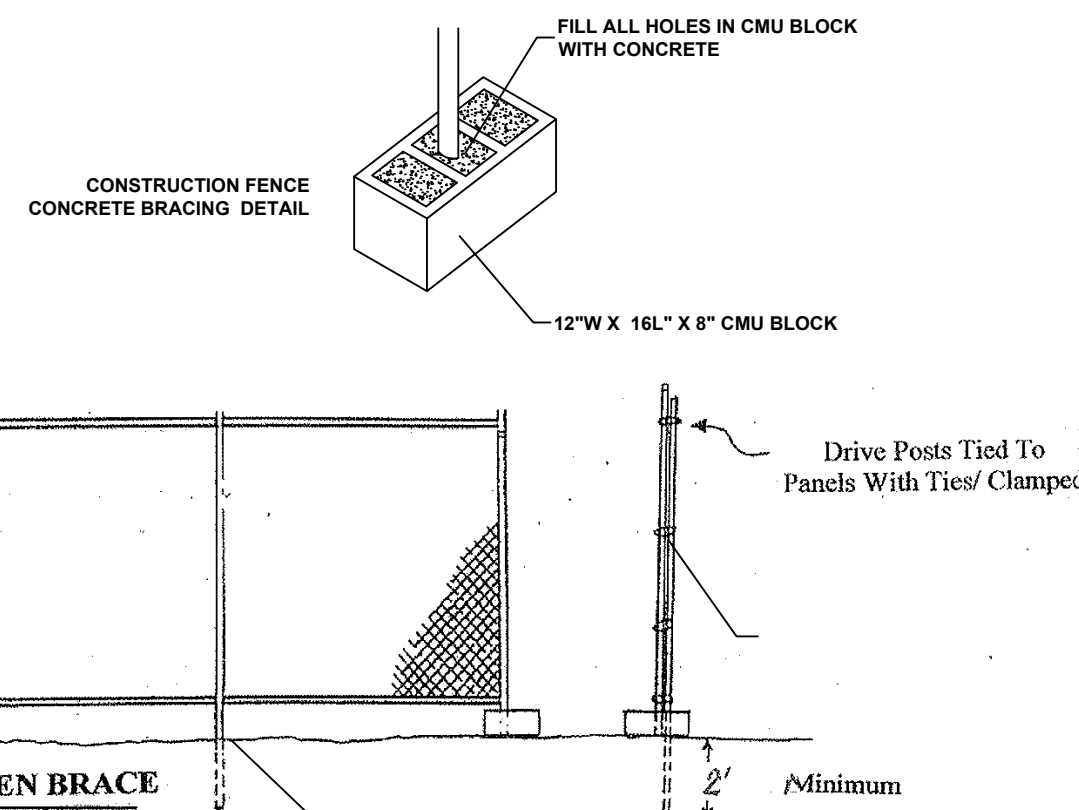
- NOTE**
- ANY EARTHWORK, D.G.A. BASE COURSE OR H.I.M.A. BASE COURSE REQUIRED TO FILL THE TENNIS COURT TO THE PROPOSED CURB UP TO 2' FROM THE PROPOSED CURB SHALL BE INCLUDED IN THE UNIT PRICE OF THE CURB.
 - SEE GRADING PLAN FOR CURB ELEVATIONS AND LIMITS OF FLUSH CURB (TC = BC).
 - AROUND COURT, CONSTRUCT 1/2\"/>



10' HIGH CHAIN-LINK FENCE DETAIL

NOT TO SCALE

- NOTES:**
1. ALL FENCE AND GATE MATERIALS AND HARDWARE SHALL BE BLACK VINYL COATED.
2. FENCE GAGE SHALL BE PRIOR TO COATING.

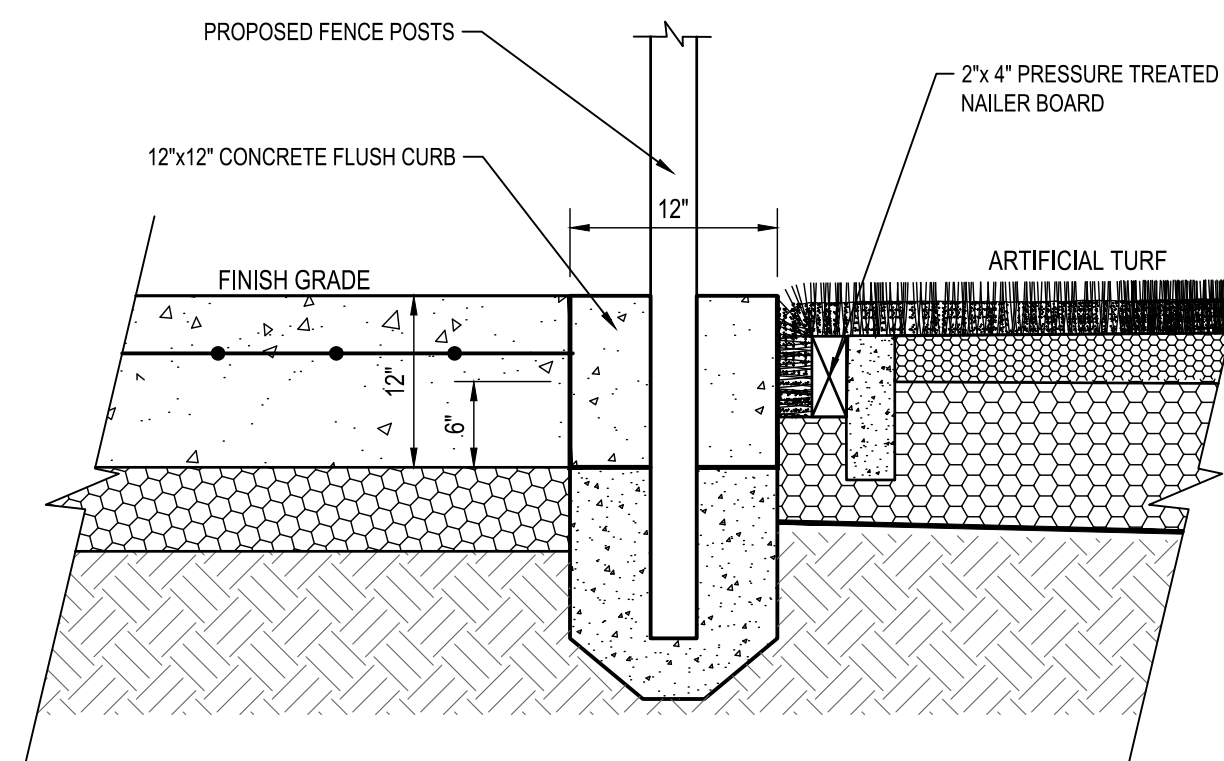


NOTE:

- CONSTRUCTION FENCE SHALL BE 8' HIGH WITH DRIVEN POSTS AS SHOWN OR APPROVED EQUAL.
- FENCE SHALL BE INSTALLED WITH 0% VISIBILITY WIND SCREENING AS SHOWN OR APPROVED EQUAL.
- CONCRETE BRACING SHALL BE AS SHOWN OR APPROVED EQUAL.
- SHOP DRAWINGS SHALL BE PROVIDED PRIOR TO CONSTRUCTION.
- SECURE GATED ACCESS SHALL BE PROVIDED.
- LOCATION OF FENCING IS APPROXIMATE AND SHALL BE APPROVED BY COUNTY AND ENGINEER PRIOR TO INSTALLATION.

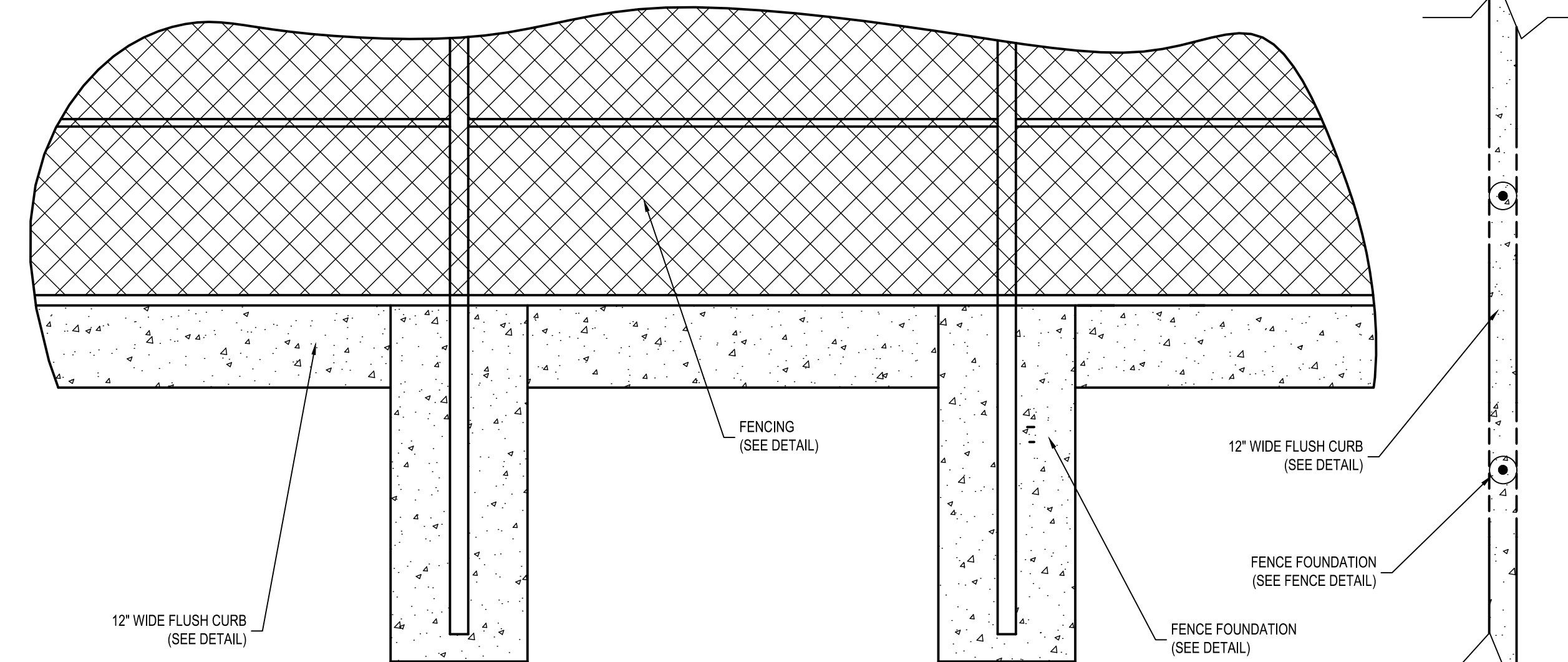
DRIVEN POST CHAIN LINK CONSTRUCTION FENCE - 8' HIGH

NOT TO SCALE



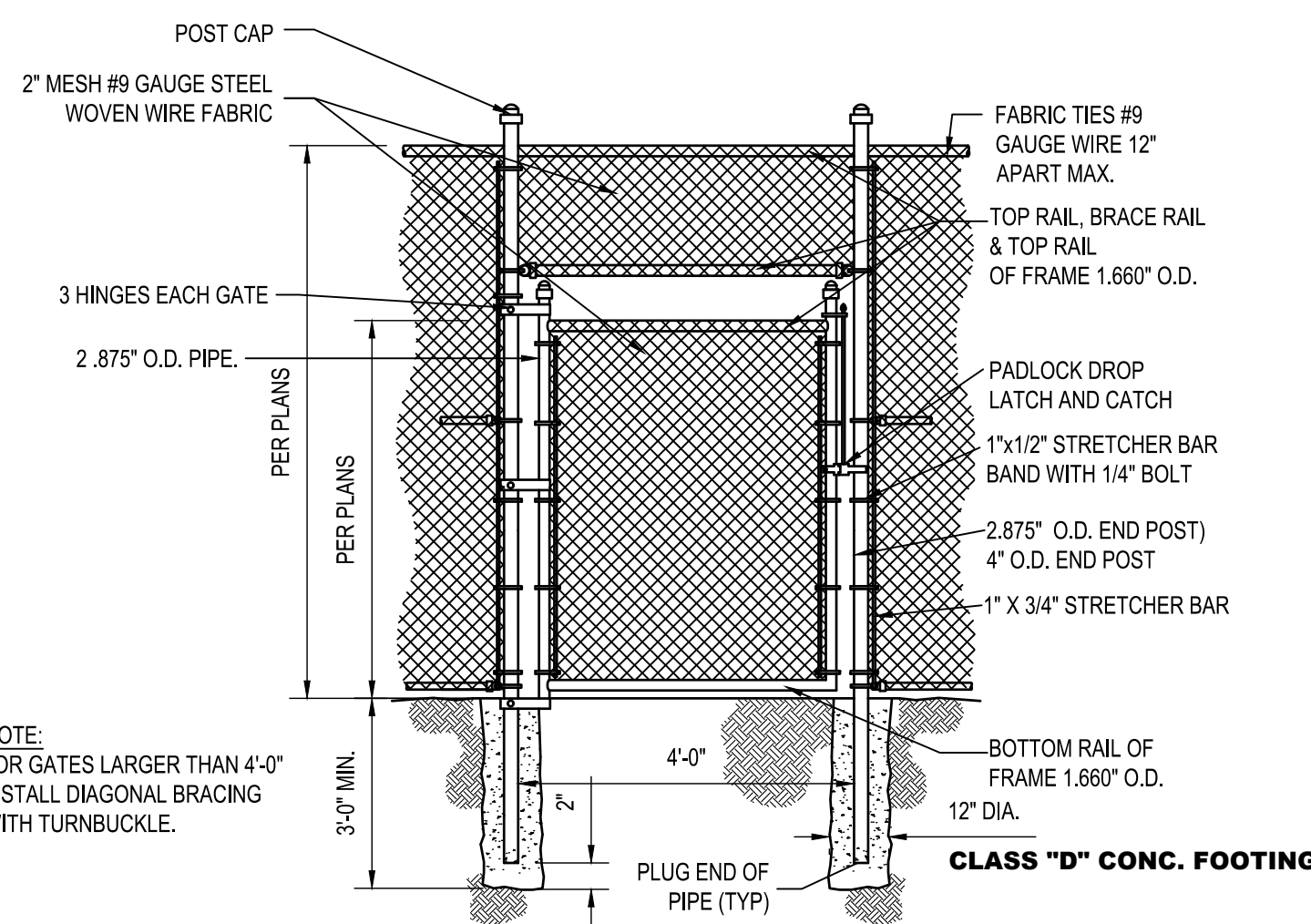
FENCE POST INSTALLED IN 12\"/>

NOT TO SCALE



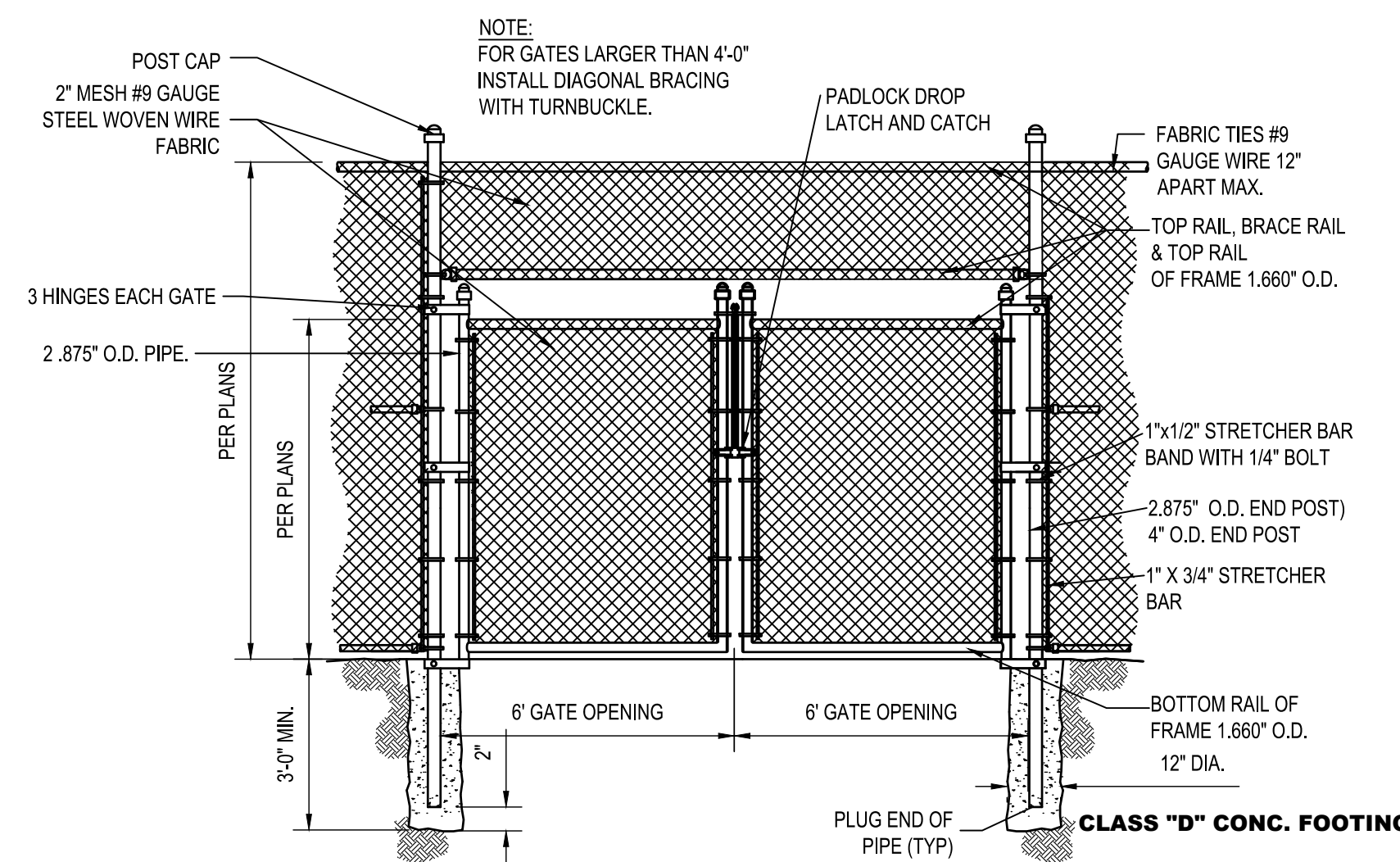
FLUSH CURB LOCATION DETAIL

NOT TO SCALE



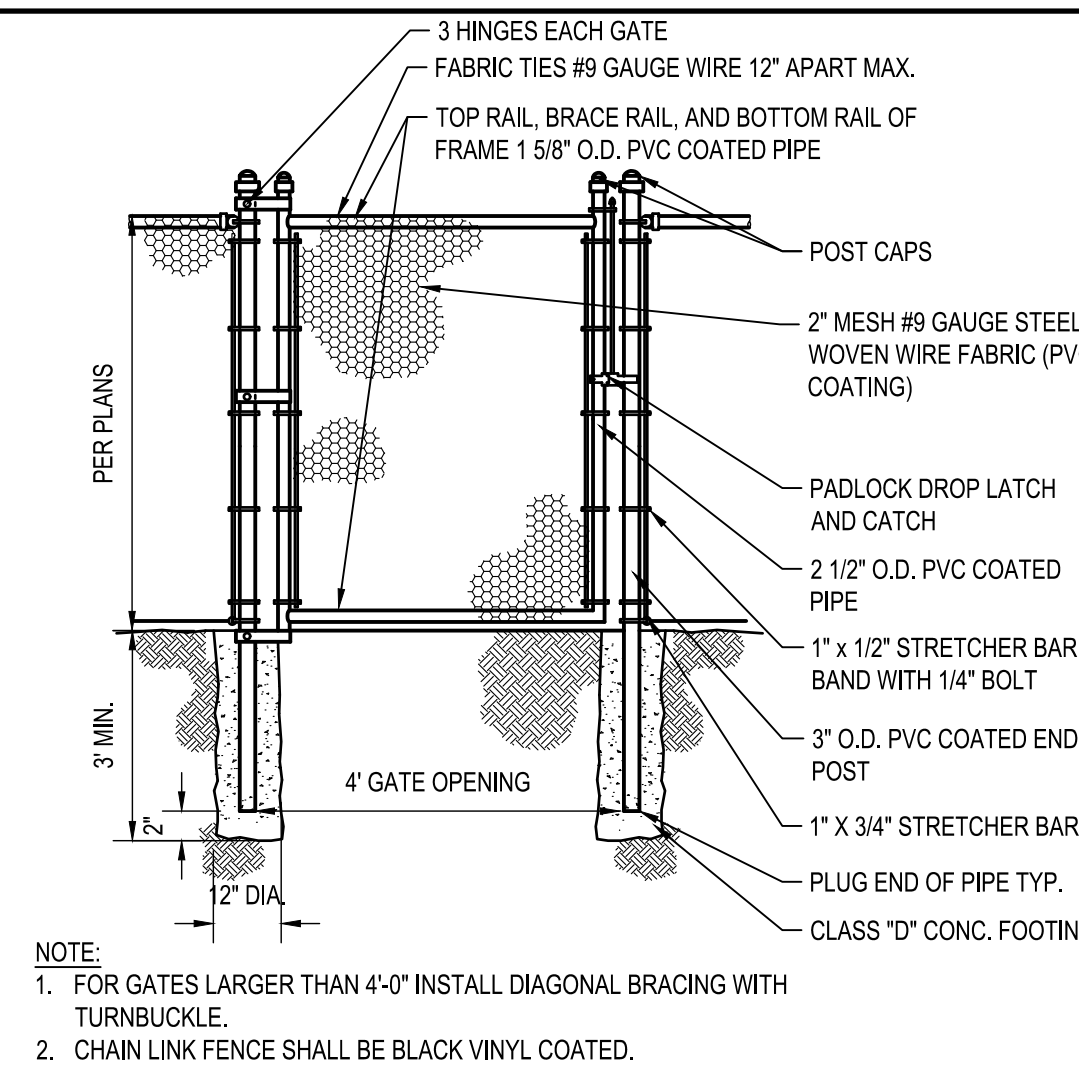
CHAIN LINK SINGLE GATE WITH TRANSOM

NOT TO SCALE



CHAIN LINK DOUBLE GATE WITH TRANSOM

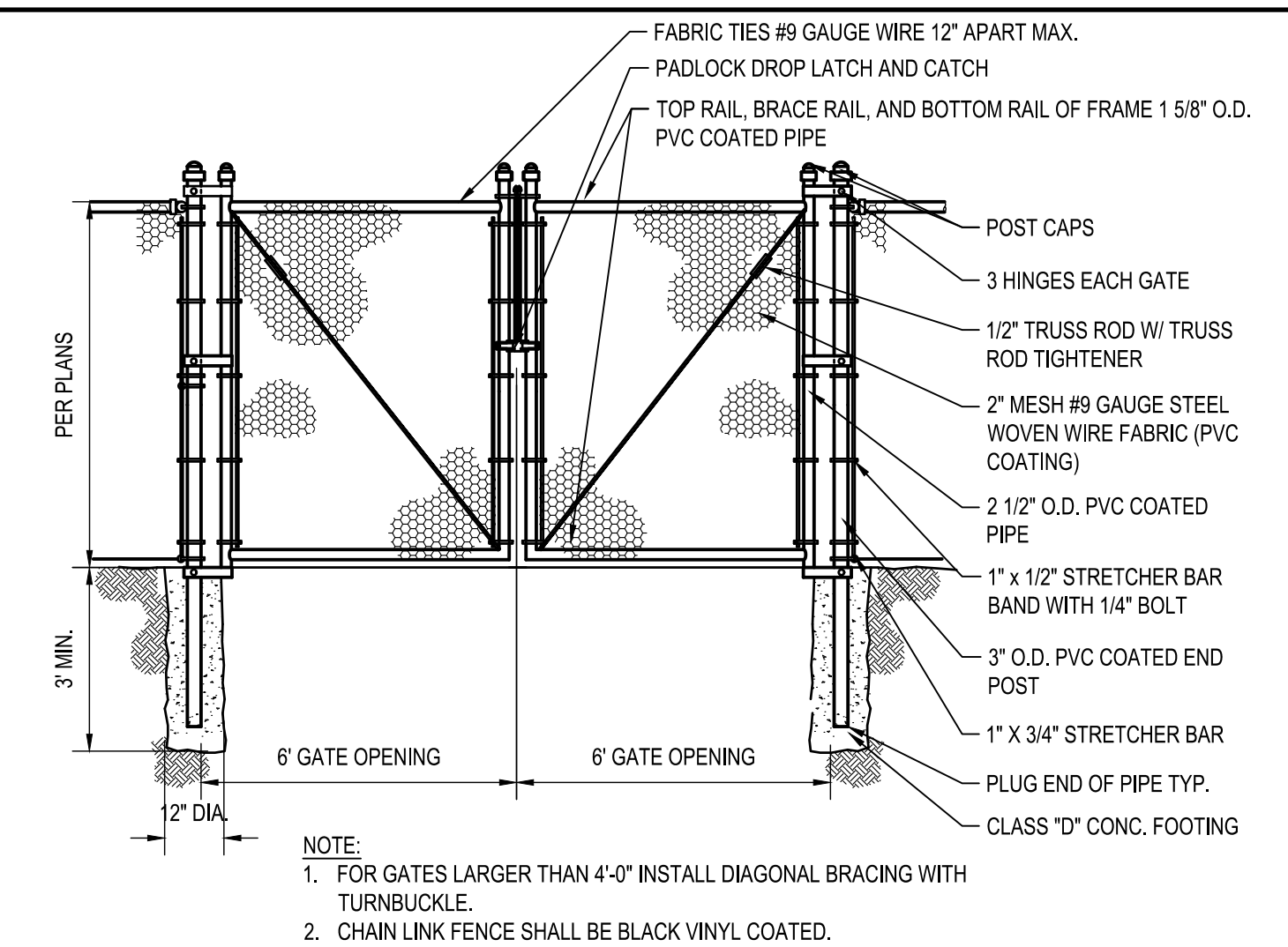
NOT TO SCALE



SINGLE - LEAF SWING GATE

NOT TO SCALE

- NOTE:**
- FOR GATES LARGER THAN 4'-0\"/>



DOUBLE - LEAF SWING GATE

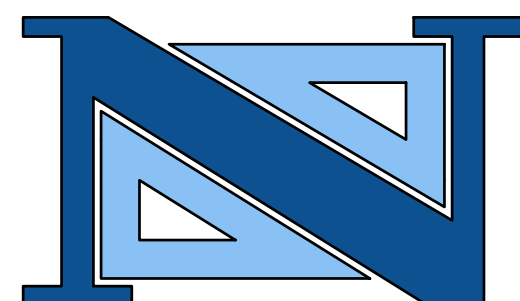
NOT TO SCALE

- NOTE:**
- FOR GATES LARGER THAN 4'-0\"/>

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N.J. LICENSE NO. 33L00569800

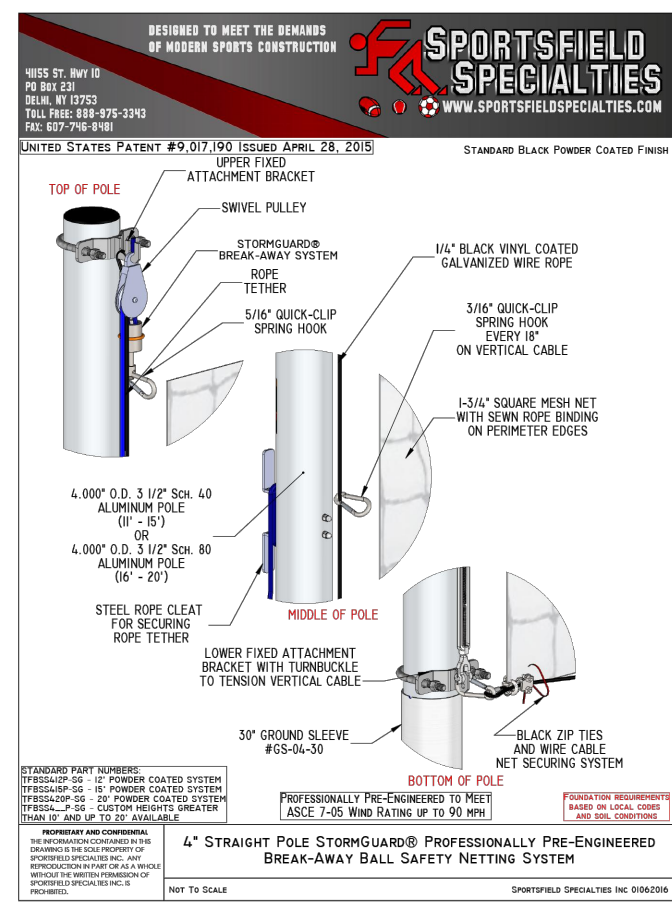
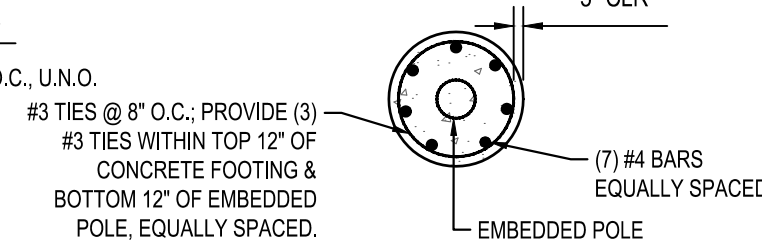
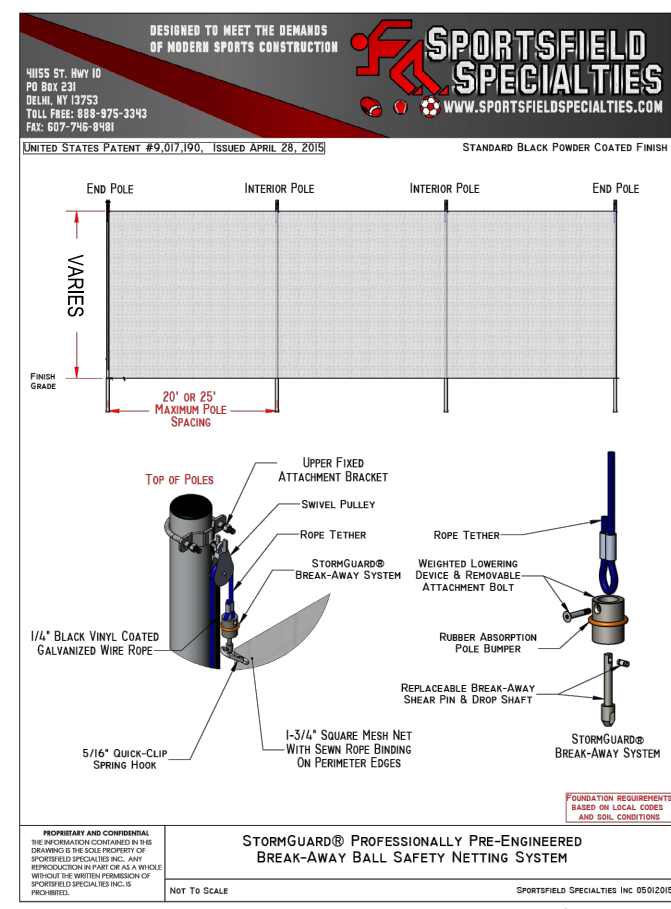
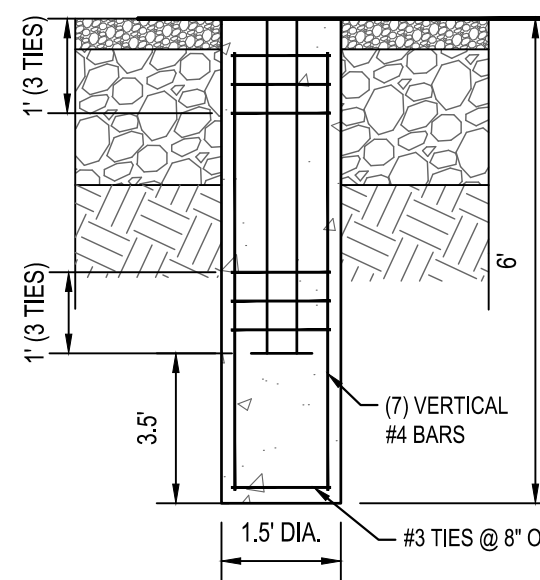
CONSTRUCTION DETAILS III
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY NEW JERSEY

DESIGNED BY: JV
CHECKED BY: DRAWH
FIELD BOOK NO.:
SCALE: N.T.S.
PAGE:

PROJECT NO.: UNIOCTY20.011
SHEET NO.: 11.03
DATE: AUGUST 1, 2023

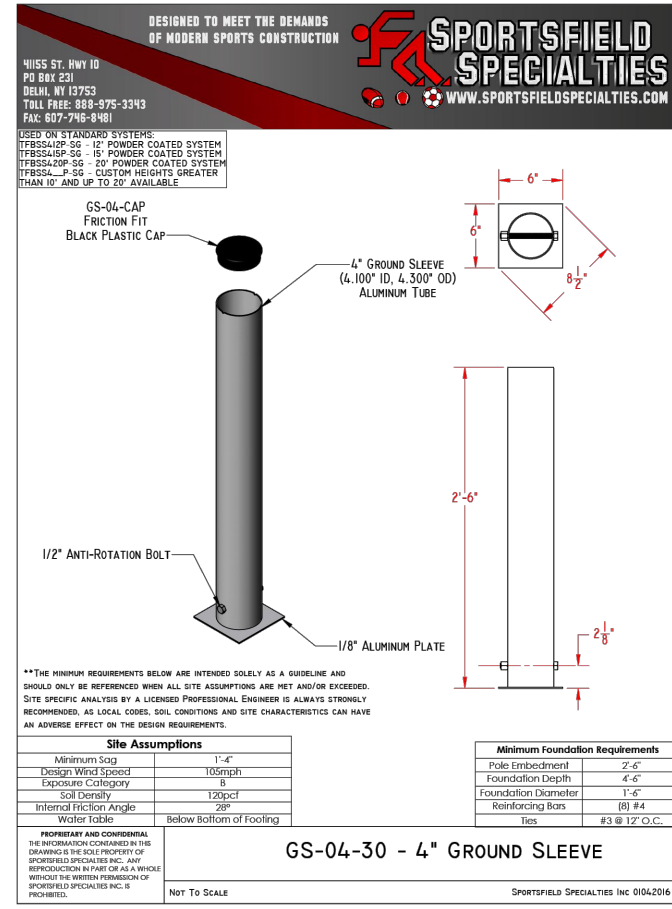
NOTES:

1. NETTING SYSTEM SHALL BE MODEL #TFBS5420P-SG-20' POWDER COATED SYSTEM AS MANUFACTURED BY: SPORTSFIELD SPECIALTIES, DELHI, NEW YORK, 13753, OR APPROVED EQUAL.
2. SEE CHAIN-LINK FENCE HEIGHTS ON FENCING PLAN FOR ONE COMPLETE SYSTEM.
3. CONCRETE FOOTING SHALL MEET 28-DAY STRENGTH OF 4,000 PSI.

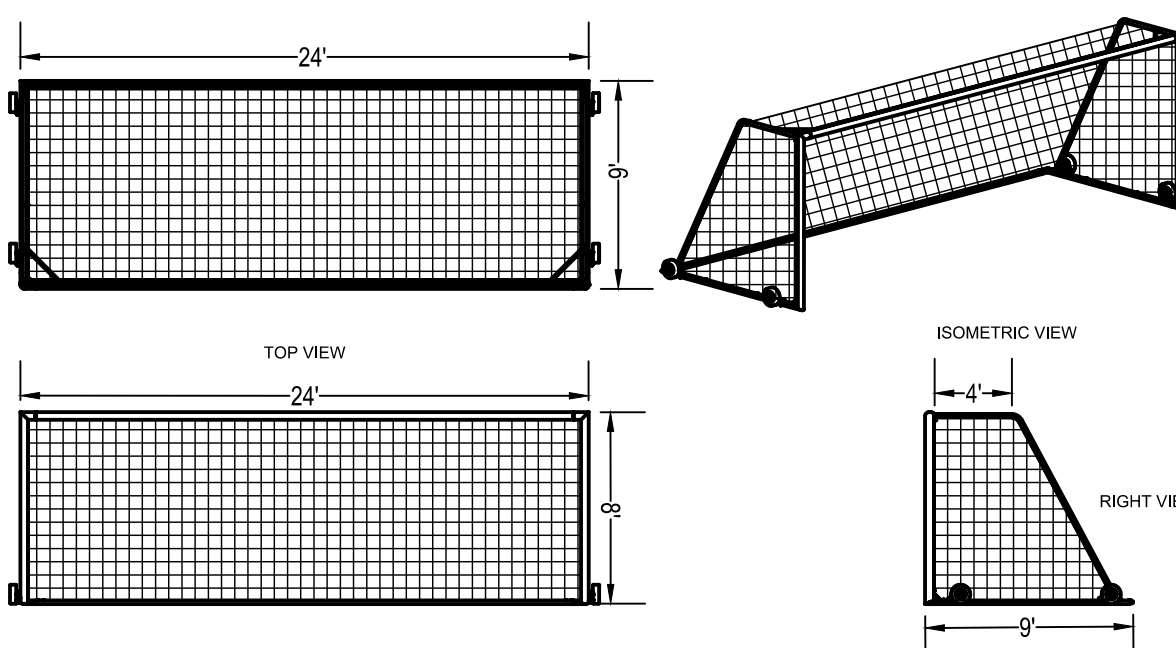


ARTIFICIAL TURF NETTING SYSTEM

NOT TO SCALE



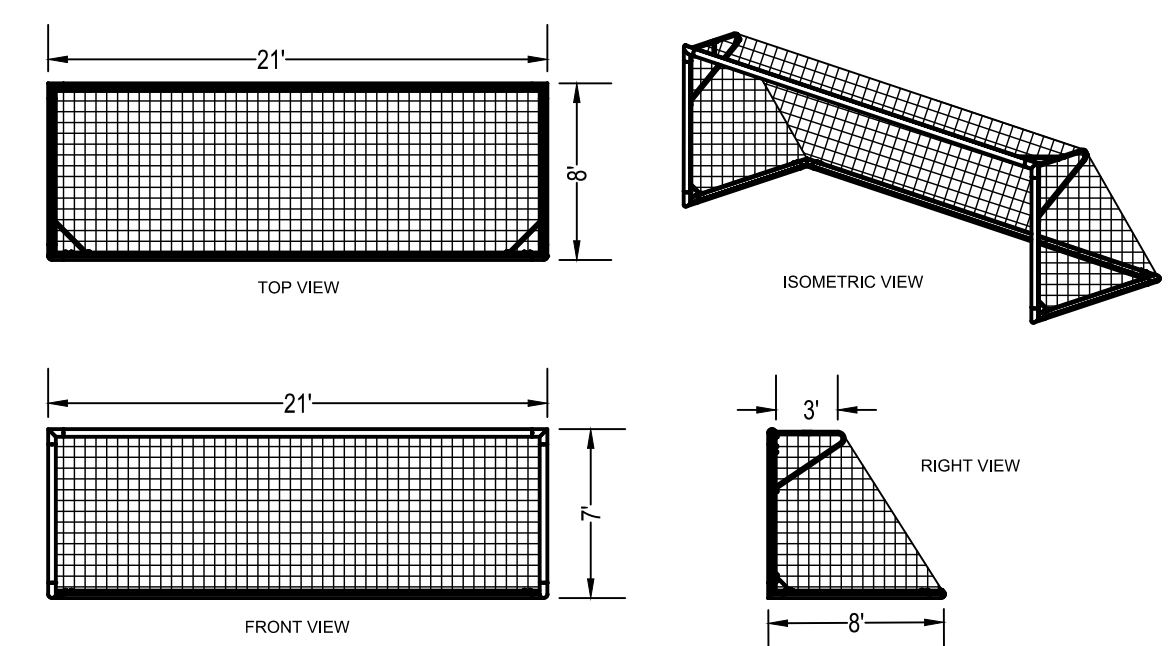
GS-04-30 - 4" GROUND SLEEVE



- NOTES:**
1. 8' X 24' PORTABLE SOCCER GOAL MODEL# CC24S AS MANUFACTURED BY JAYPRO SPORTS, 976 HARTFORD TURNPIKE, WATERFORD, CT 06395 USA, OR APPROVED EQUAL.
 2. INSTALL AS PER MANUFACTURER'S SPECIFICATIONS. ALL GOALS TO BE EQUIPPED WITH WHEEL OPTION (CSGWK) FOR PORTABILITY.
 3. 8' X 24' PORTABLE SOCCER GOAL FOR 33' X 225' (110YD X 75YD) SOCCER FIELD.

8' X 24' PORTABLE SOCCER GOAL

NOT TO SCALE



- NOTES:**
1. 7' X 21' PORTABLE SOCCER GOAL MODEL# CC21S AS MANUFACTURED BY JAYPRO SPORTS, 976 HARTFORD TURNPIKE, WATERFORD, CT 06395 USA, OR APPROVED EQUAL.
 2. INSTALL AS PER MANUFACTURER'S SPECIFICATIONS. ALL GOALS TO BE EQUIPPED WITH WHEEL OPTION (CSGWK) FOR PORTABILITY.
 3. 7' X 21' PORTABLE SOCCER GOAL FOR 135' X 225' (45YD X 75YD) SOCCER FIELDS.

7' X 21' PORTABLE SOCCER GOAL

NOT TO SCALE

Notes

1. Backfill shall be composed of clean, well drained granular soils. Backfill shall be placed in lifts of a maximum of 8 inch thickness and be uniformly compacted to at least 95% percent of the maximum dry density as determined by the ASTM D-1557 test procedure and the total unit weight of the backfill in place shall not exceed 125 pcf as determined by aforesaid standard.
2. All concrete shall be controlled stone concrete complying with ACI Building Code requirements and shall have a minimum 28 day compressive strength of 4,000 psi or as noted in specifications
3. All pours shall be terminated by forms and keys shall be provided between adjacent pours as directed by the
4. All reinforcing bars shall be as noted in specifications and shall comply with all ACI code requirements. All detailing, fabrication and erection of reinforcing bars shall follow the "ACI Detailing Manual (ACI 315)." Unless otherwise noted in the specifications.
5. Provide clearances from face of concrete to reinforcement as follows or as specified in the specifications or structural documents.
 - a) Cast against earth-3 inches
 - b) Exposed to earth or weather-2 inches
6. All concrete, including footing work, shall be vibrated with methods approved by the Engineer. All concrete shall be placed in accordance with ACI 304 and concrete shall not be exposed to drops in excess of 5 feet



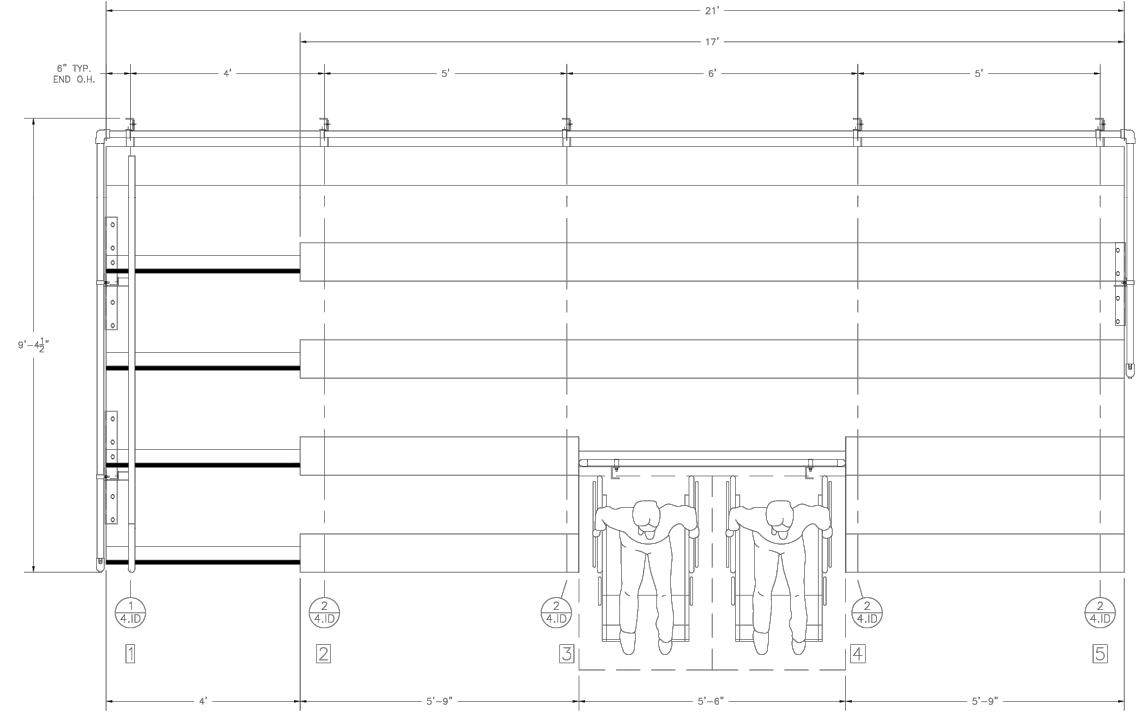
7. Detailed shop drawings showing reinforcing and formwork shall be submitted to the Engineer for review.
8. There shall be a watertight finish (connection) where new meets existing concrete.

RAILING Notes

1. Railing system shall be manufactured by Superior Aluminum Products, Inc. 555 East Main, PO Box 430 Russia, Ohio 45363, 937-526-4065 or APPROVED EQUAL.
2. Railing system shall be Model 5P Series complete as shown in image or approved equal.
3. Railing system finish shall be powder coated black, but samples of full available spectrum of colors shall be submitted to owner for review and approval.
4. Railing system shall be embedded in concrete stairs & wall. Wall railing to be bolted to wall where possible.
5. Railing system to include intermediate hand rails.
6. All handrails shall fully conform to the current ADA Standards for Accessible Design provided by the US Department of Justice, latest revised.

HANDRAILS

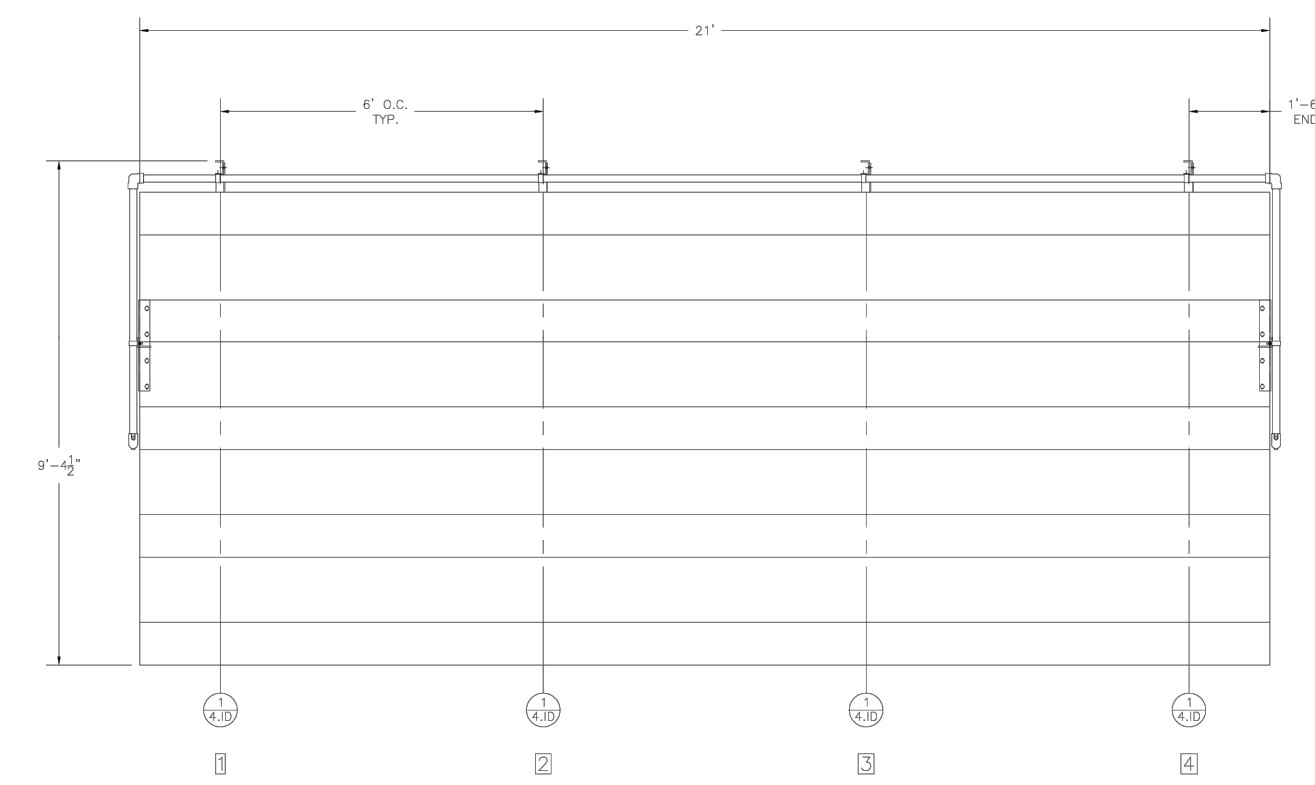
NOT TO SCALE



- NOTES:**
1. BLEACHERS SHALL BE MODEL BD-U0521CR AS MANUFACTURED BY BELSON OUTDOORS, 627 AMERSALE DRIVE, NAPERVILLE, IL 60563, OR APPROVED EQUAL.
 2. INSTALL PER MANUFACTURE'S SPECIFICATIONS.
 3. BLEACHERS TO BE INSTALL ON A CONCRETE PAD.

5 ROW X 21' BLEACHER (ADA COMPLIANT)

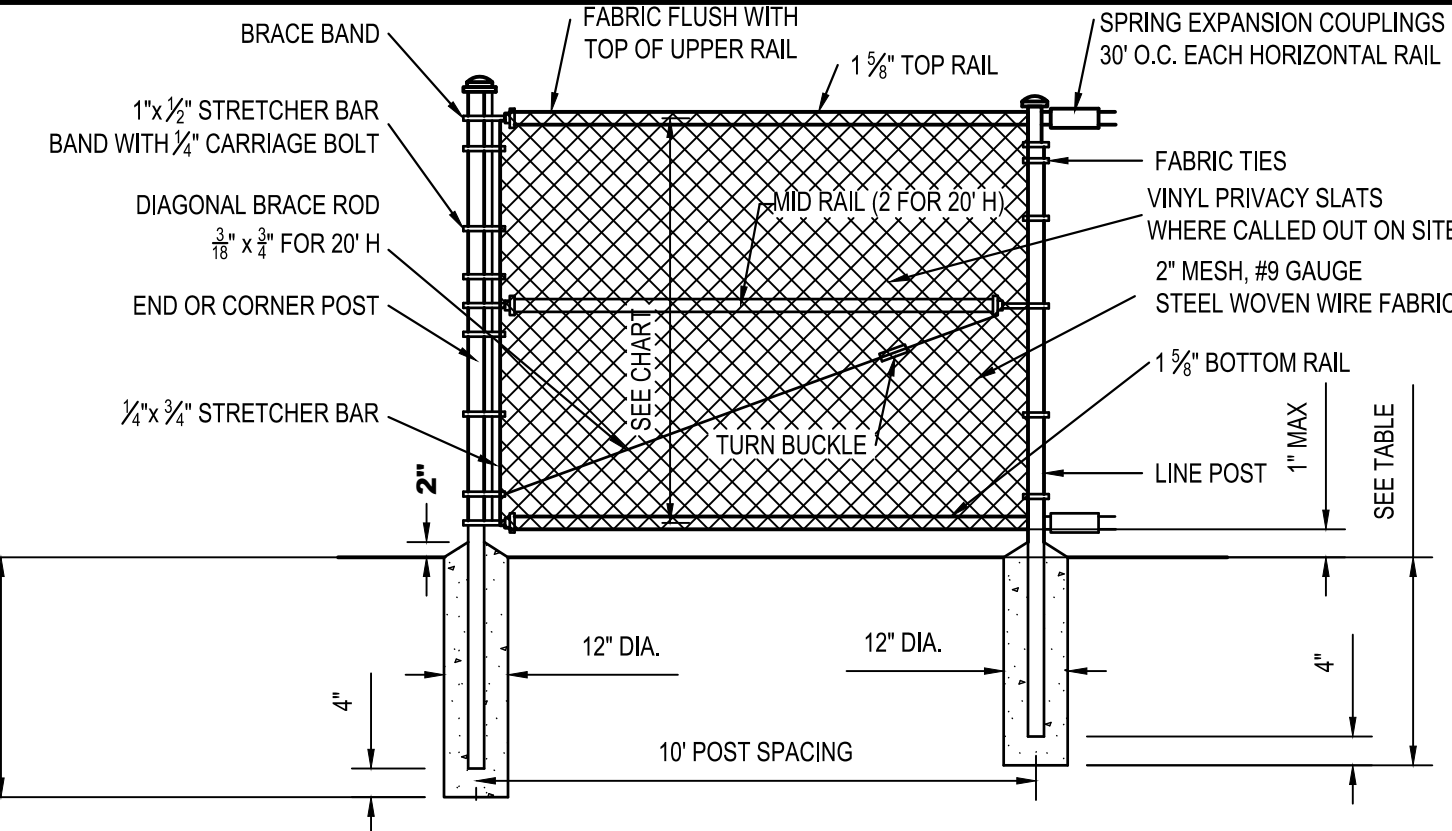
NOT TO SCALE



- NOTES:**
1. BLEACHERS SHALL BE MODEL BS-0521C AS MANUFACTURED BY BELSON OUTDOORS, 627 AMERSALE DRIVE, NAPERVILLE, IL 60563, OR APPROVED EQUAL.
 2. INSTALL PER MANUFACTURE'S SPECIFICATIONS.
 3. BLEACHERS TO BE INSTALL ON A CONCRETE PAD.

5 ROW X 21' BLEACHER (NON-ADA)

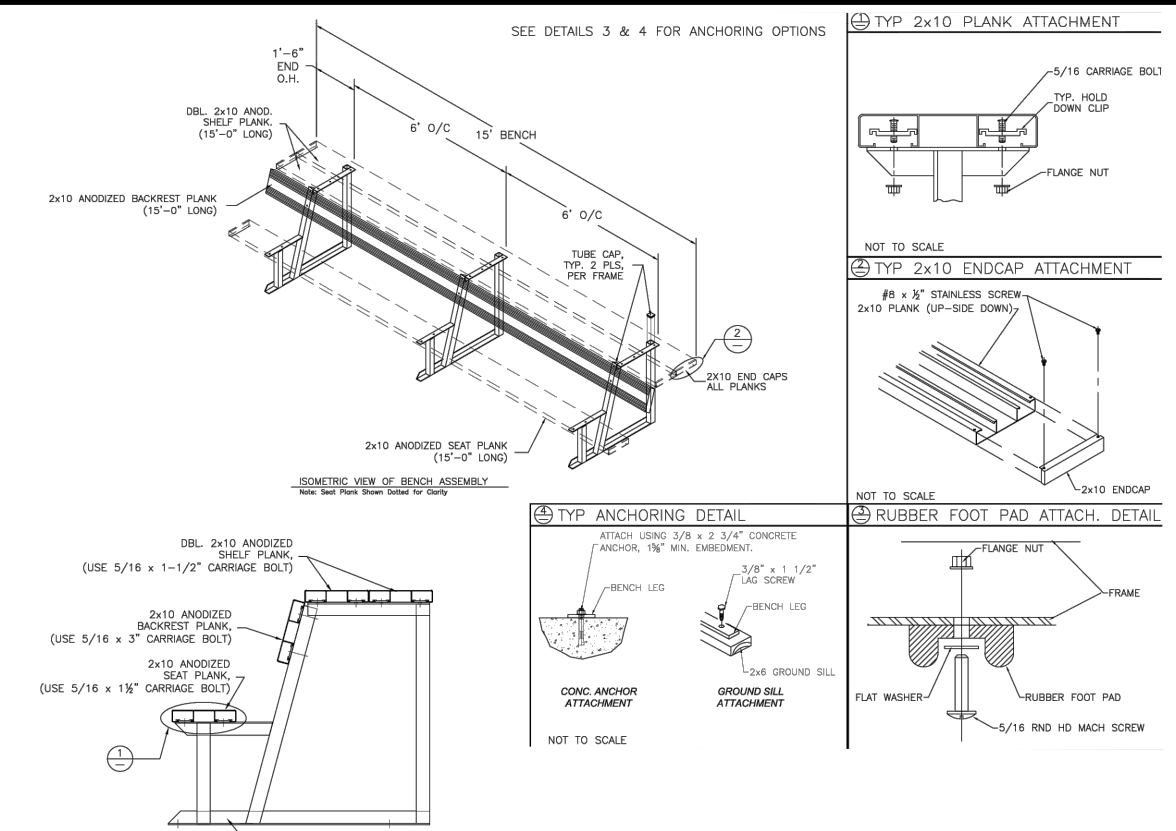
NOT TO SCALE



FENCE HEIGHT	END & CORNER POSTS			LINE POSTS			MID-RAIL
	NOMINAL HEIGHT	BAR LENGTH	HEIGHT ABOVE GRADE	BAR LENGTH	HEIGHT ABOVE GRADE	SIZE (DIA.)	
4'-0"	7'-0"	4'-0 5/8"	3"	3'-0"	7'-0"	3/4 7/8"	2 1/2"
6'-0"	9'-0"	6'-0 5/8"	3"	3'-0"	9'-0"	5/8 7/8"	2 1/2"
8'-0"	11'-0"	8'-0 5/8"	3"	3'-0"	11'-0"	7/8 7/8"	2 1/2"
20'-0"	24'-0"	24'-0 5/8"	4"	4'-0"	24'-0"	1 1/2 7/8"	4'-0"

BLACK COATED CHAIN LINK FENCE

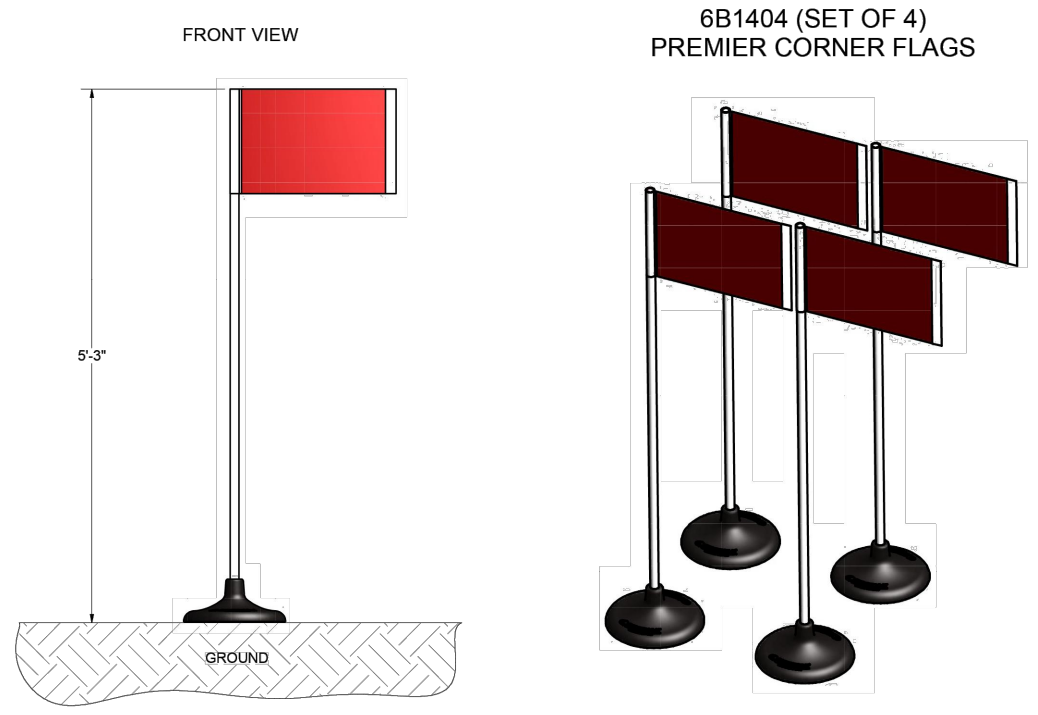
NOT TO SCALE



- NOTES:**
1. BENCH SHALL BE MODEL BE-DGS01500 - 15' LONG ALUMINUM TEAM BENCH W/ SHELF AS MANUFACTURED BY NATIONAL RECREATION SYSTEMS, INC., 5120 INVESTMENT DRIVE, P.O. BOX 11487, FORT WAYNE, INDIANA 46858, OR APPROVED EQUAL.
 2. BENCHES WITHIN THE SOCCER FIELDS SHALL NOT BE ANCHORED.

PLAYER BENCHES WITH SHELF

NOT TO SCALE



- NOTES:**
1. CORNER FLAGS SHALL BE THE KWINGOAL CORNER FLAGS, MODEL NO. SGB8140A AS MANUFACTURED BY SPORTSFIELD SPECIALTIES, INC. OR APPROVED EQUAL.
 2. ALL SOCCER FIELDS ARE TO BE EQUIPPED WITH ONE FULL SET OF FOUR (4) CORNER FLAGS, ONE PER EACH CORNER.
 3. FEATURES:
 - i.1. HIGH IMPACT PVC CONSTRUCTION, IDEAL FOR TURF, INDOOR/OUTDOOR USE.
 - i.2. FINISH COLOR: TO BE SELECTED BY OWNER, CONTRACTOR SHALL FURNISH COLOR SAMPLES TO OWNER PRIOR TO ORDERING.
 - i.3. INCLUDED:
 - i.3.1. 12" DIA. HIGH DENSITY, UV RESISTANT RUBBER, STACKABLE BASES
 - i.3.2. ASSEMBLED WEIGHT: 34 LBS. PER SET, SINGLE FLAG POLE WEIGHT: 8.5 LBS.

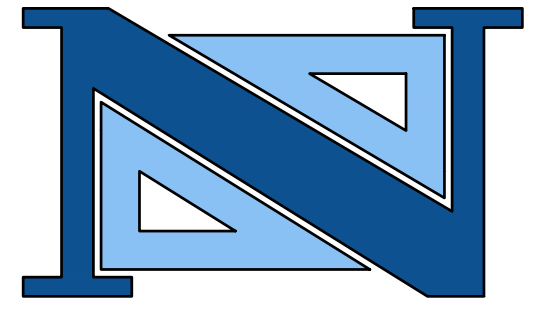
SOCCER CORNER FLAGS

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CERTIFICATE OF AUTHORIZATION (N.J.S.A. 45:8-56) 24GA27927000

REVISIONS				DRAWN	DESIGNED	CHECKED
NO.	DATE	DESCRIPTION				



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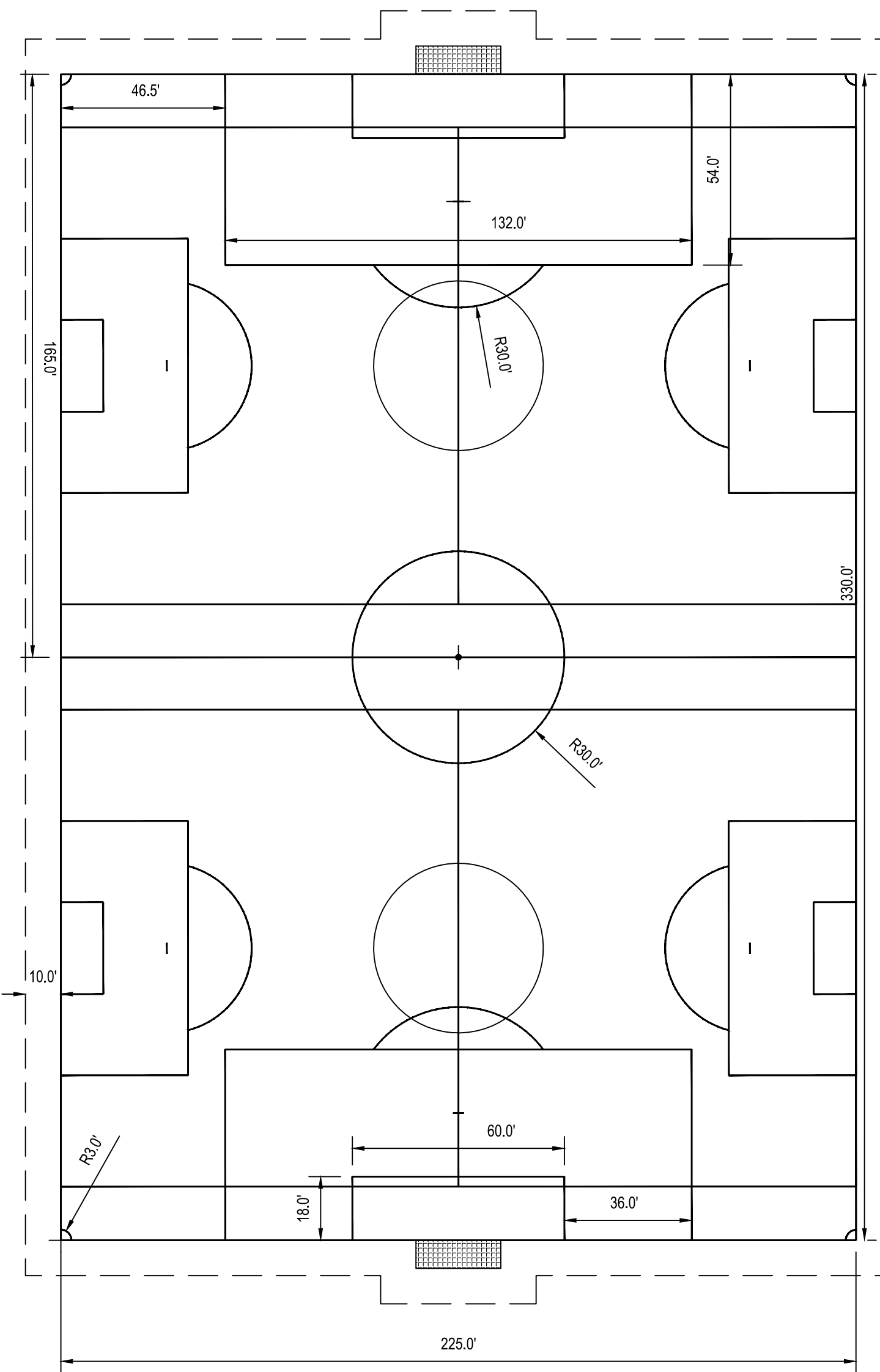
PROFESSIONAL PLANNER
N.J. LICENSE NO. 33LI00569800

CONSTRUCTION DETAILS IV
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY
NEW JERSEY

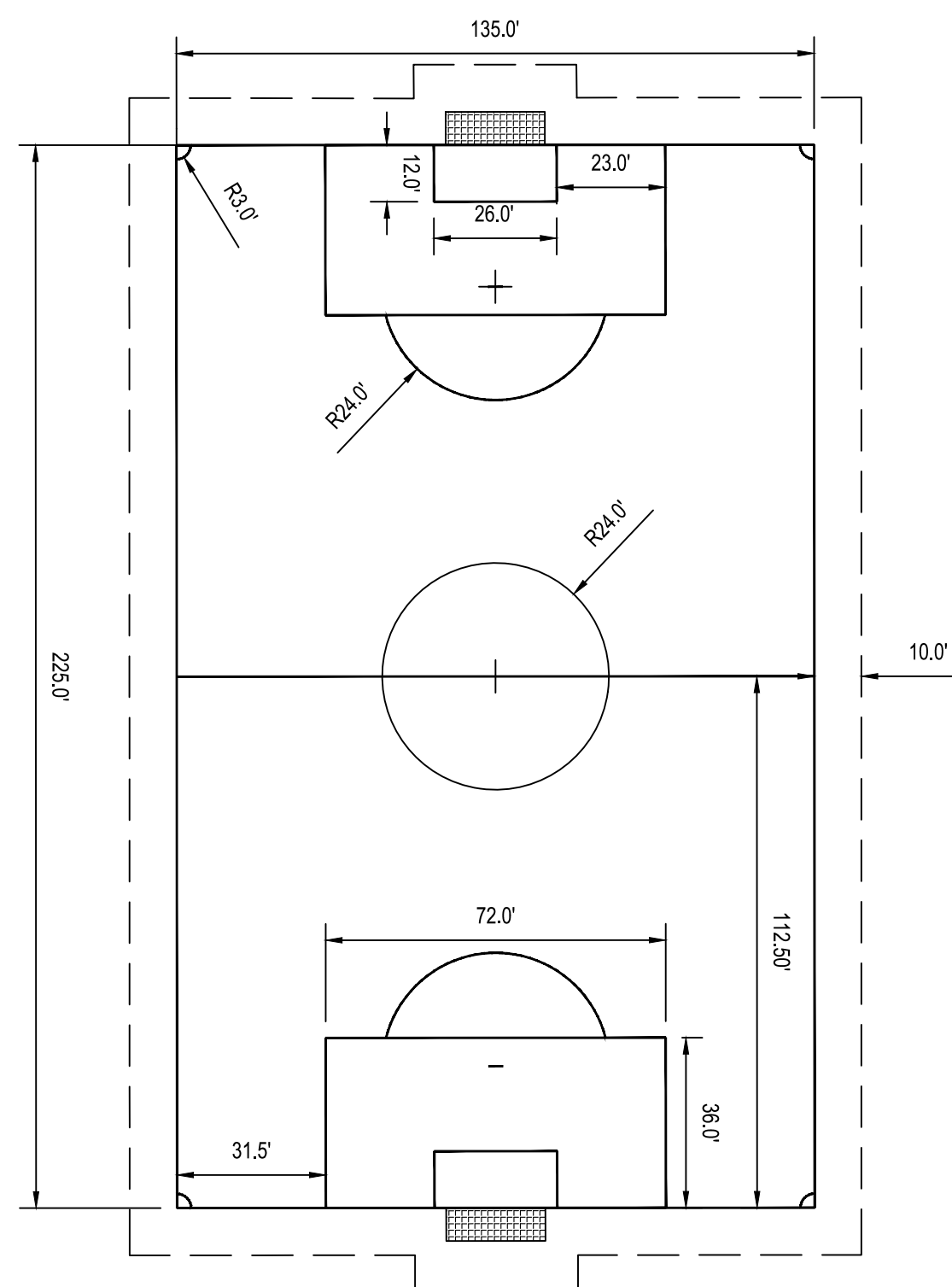
DRAWN BY: JV
DESIGNED BY: JV
FIELD BOOK NO:

CHECKED BY: DRANH
SCALE: N.T.S.
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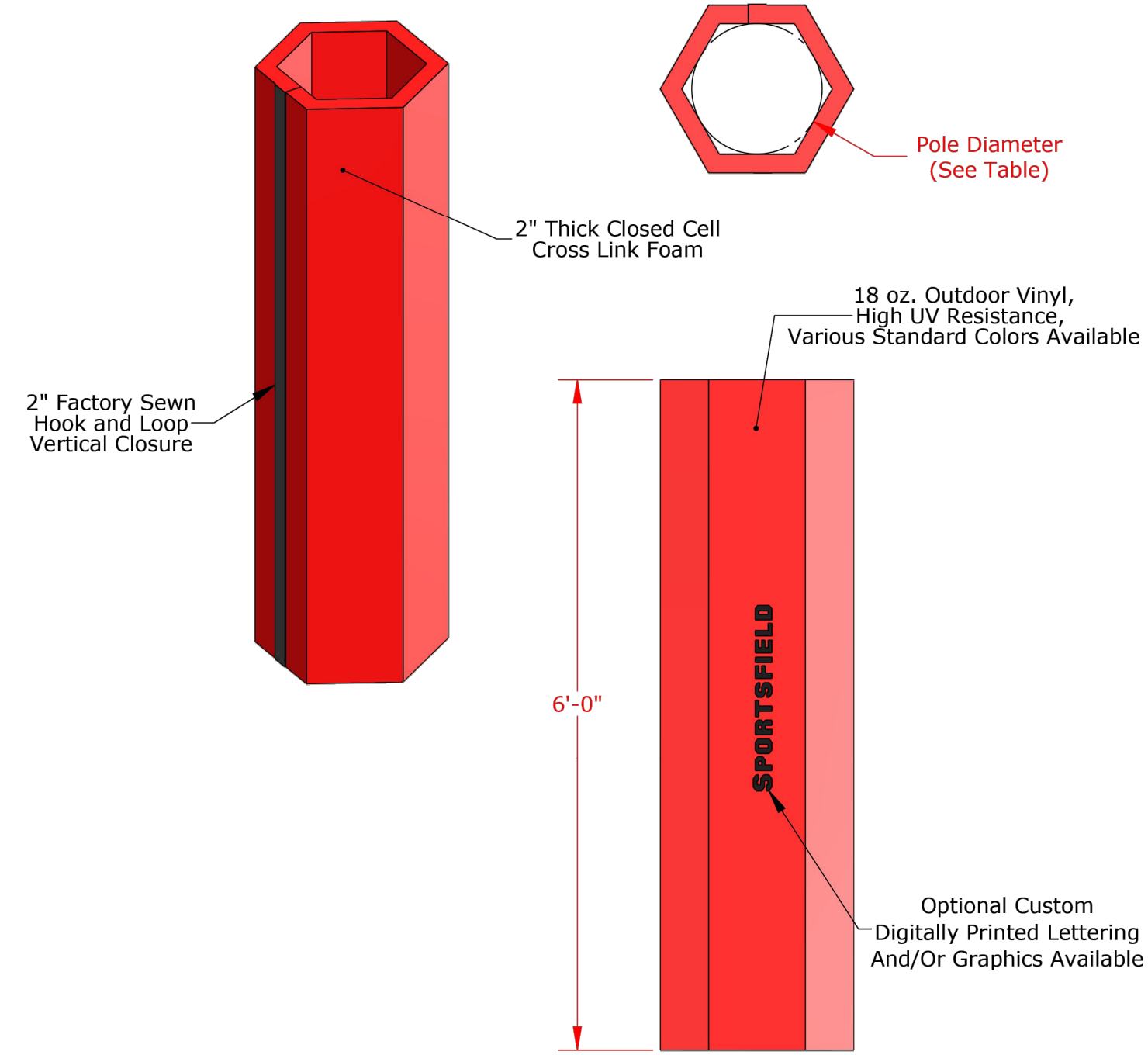
PROJECT NO: UNIOCTY20.011
SHEET NO: 11.04
DATE: AUGUST 1, 2023



TURF SOCCER FIELD LAYOUT
NOT TO SCALE

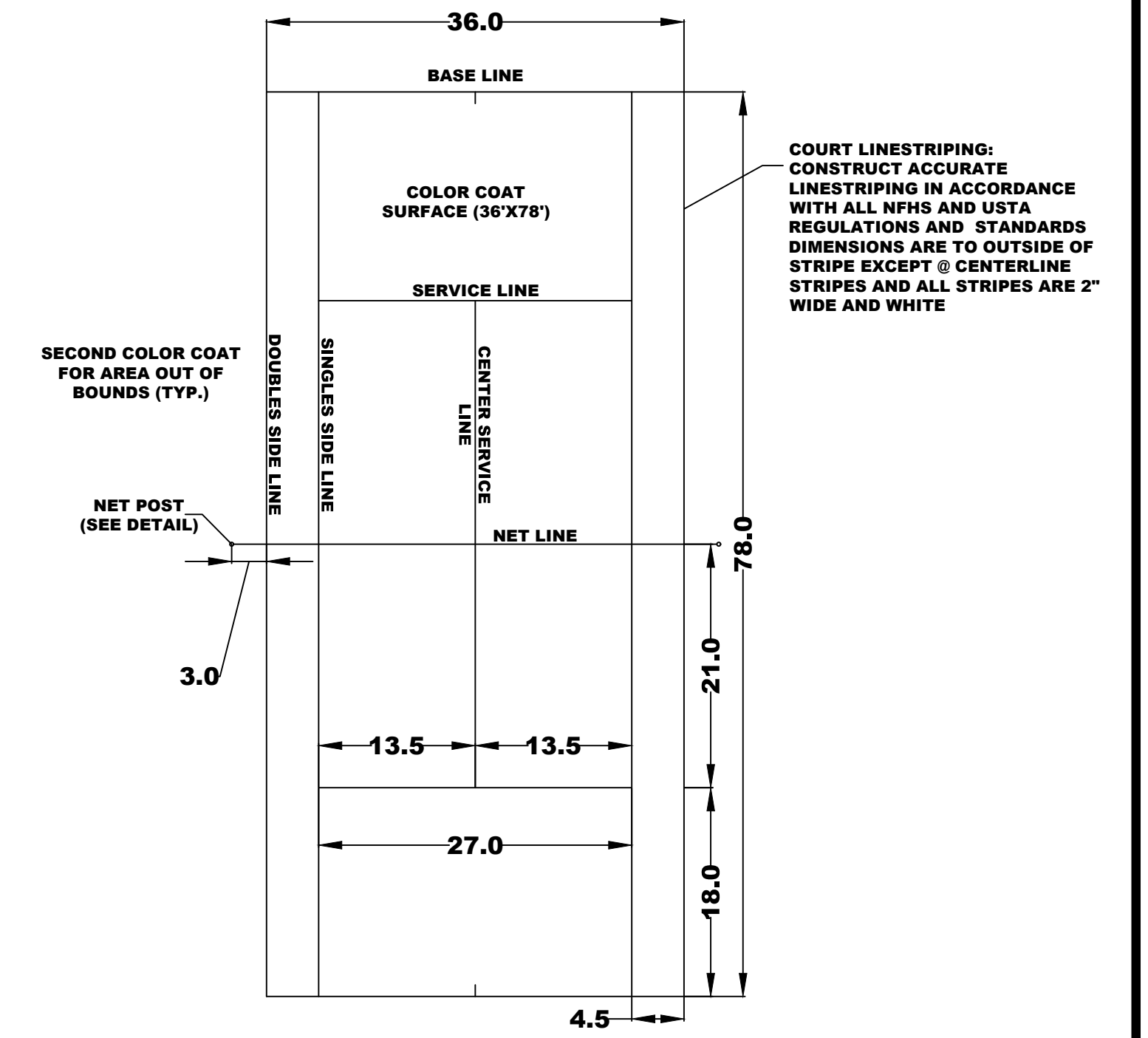


GRASS SOCCER FIELD LAYOUT
NOT TO SCALE



LIGHT POLE PADDING
NOT TO SCALE

- NOTES**
- TENNIS COURT INSTALLATION, INCLUDING STRIPING DIMENSIONS, NET INSTALLATION, AND CLEAR ZONES SHALL BE IN COMPLIANCE WITH ALL NFHS AND USTA REGULATIONS AND STANDARDS.
 - SEE SITE IMPROVEMENTS PLAN FOR PROPOSED LAYOUT OF TENNIS COURT AND ALL PROPOSED FENCING AND GATES.
 - ALL TENNIS COURT LINESTRIPING SHALL BE 2" WIDE WHITE PAINT.
 - COLORS OF COURT TO BE SELECTED BY OWNER PRIOR TO CONSTRUCTION.

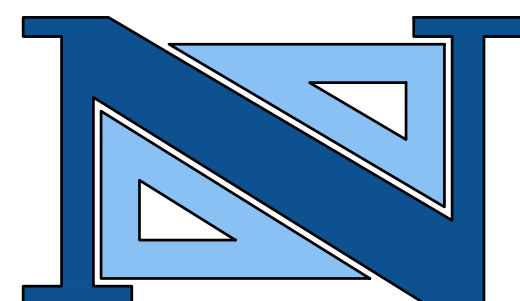


TENNIS COURT LAYOUT
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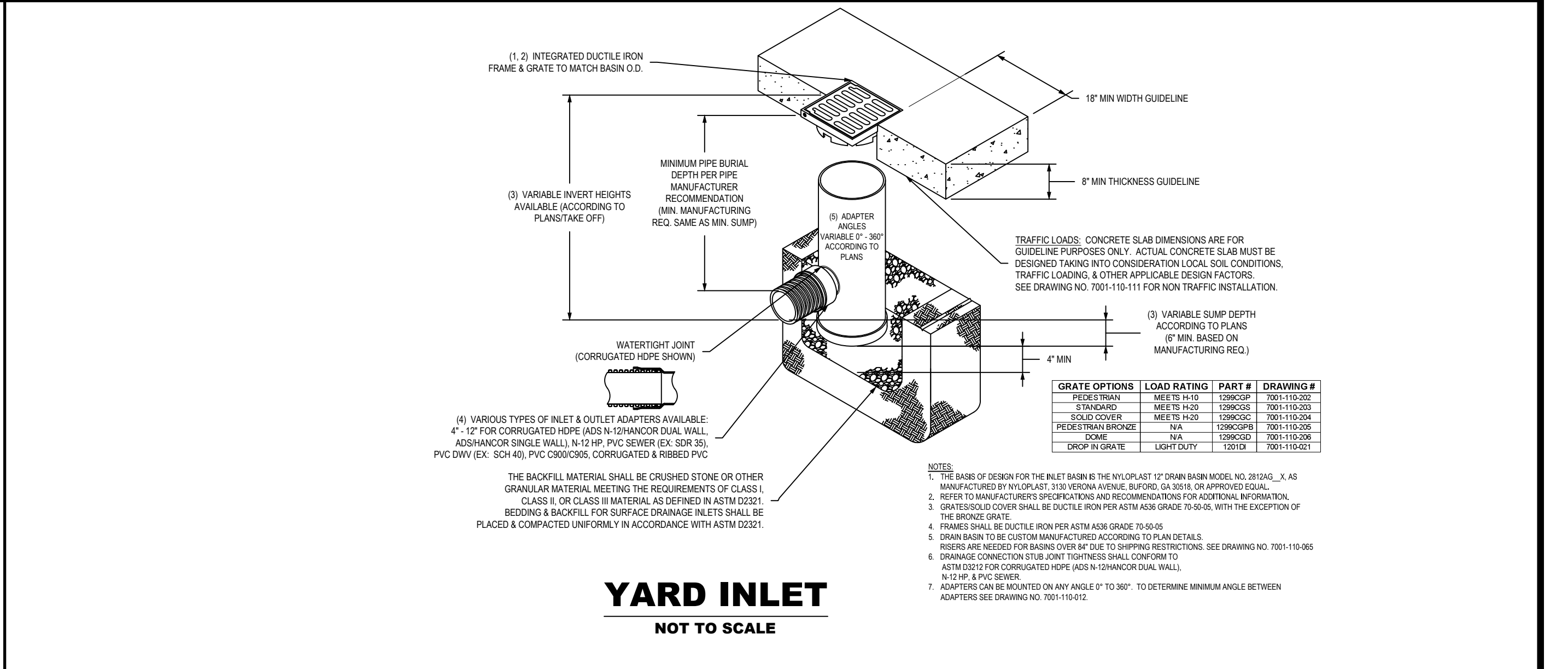
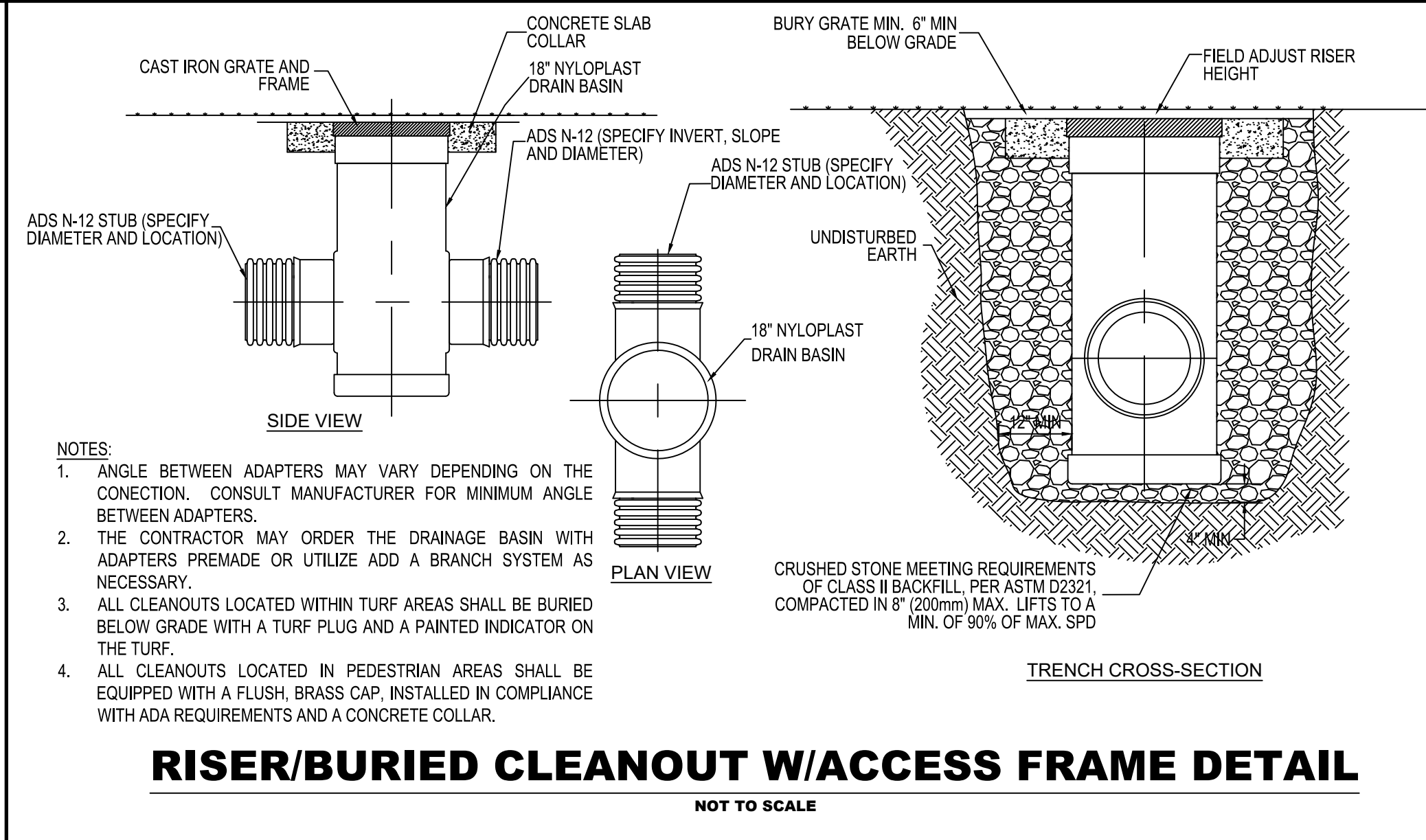
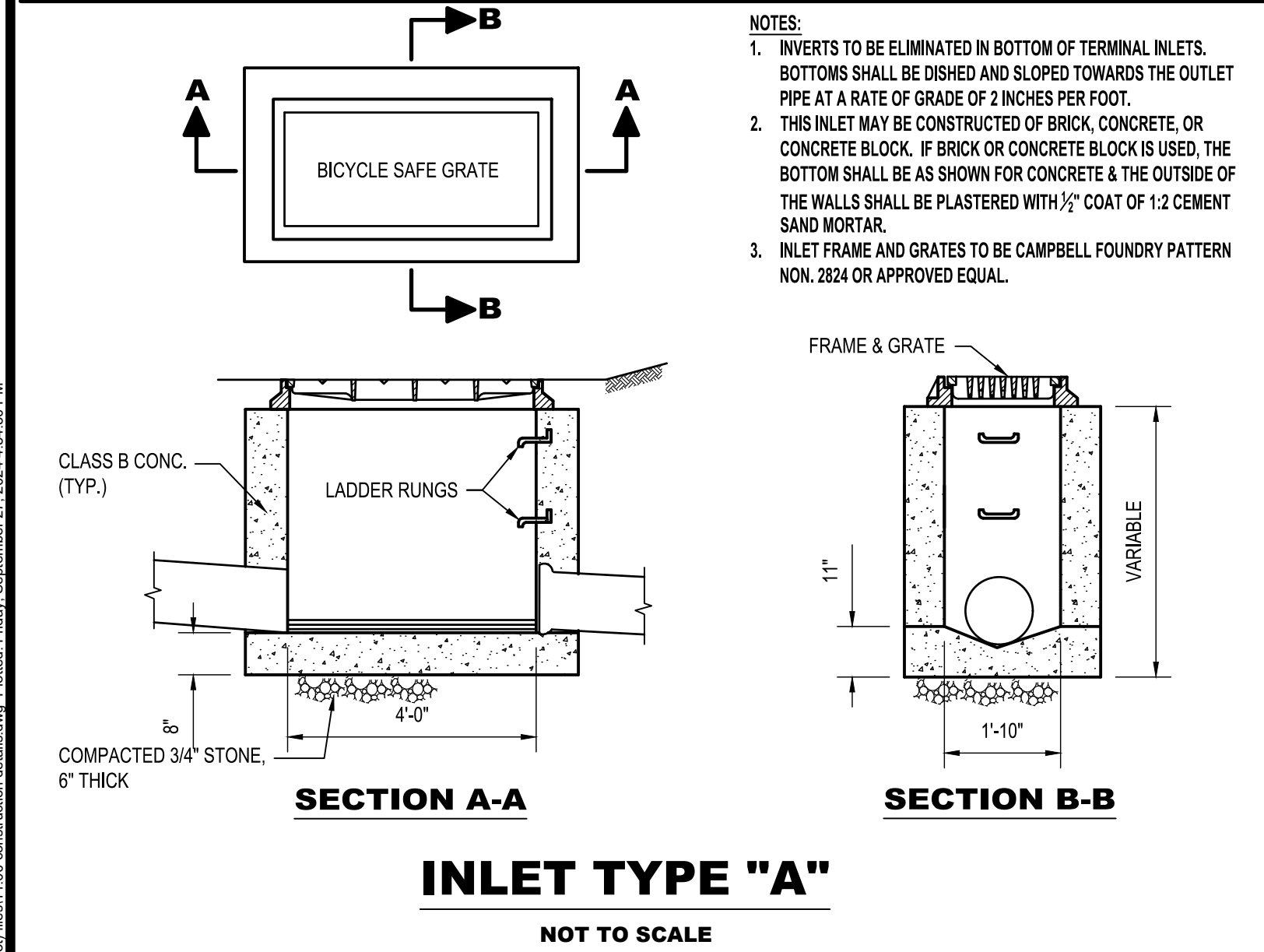
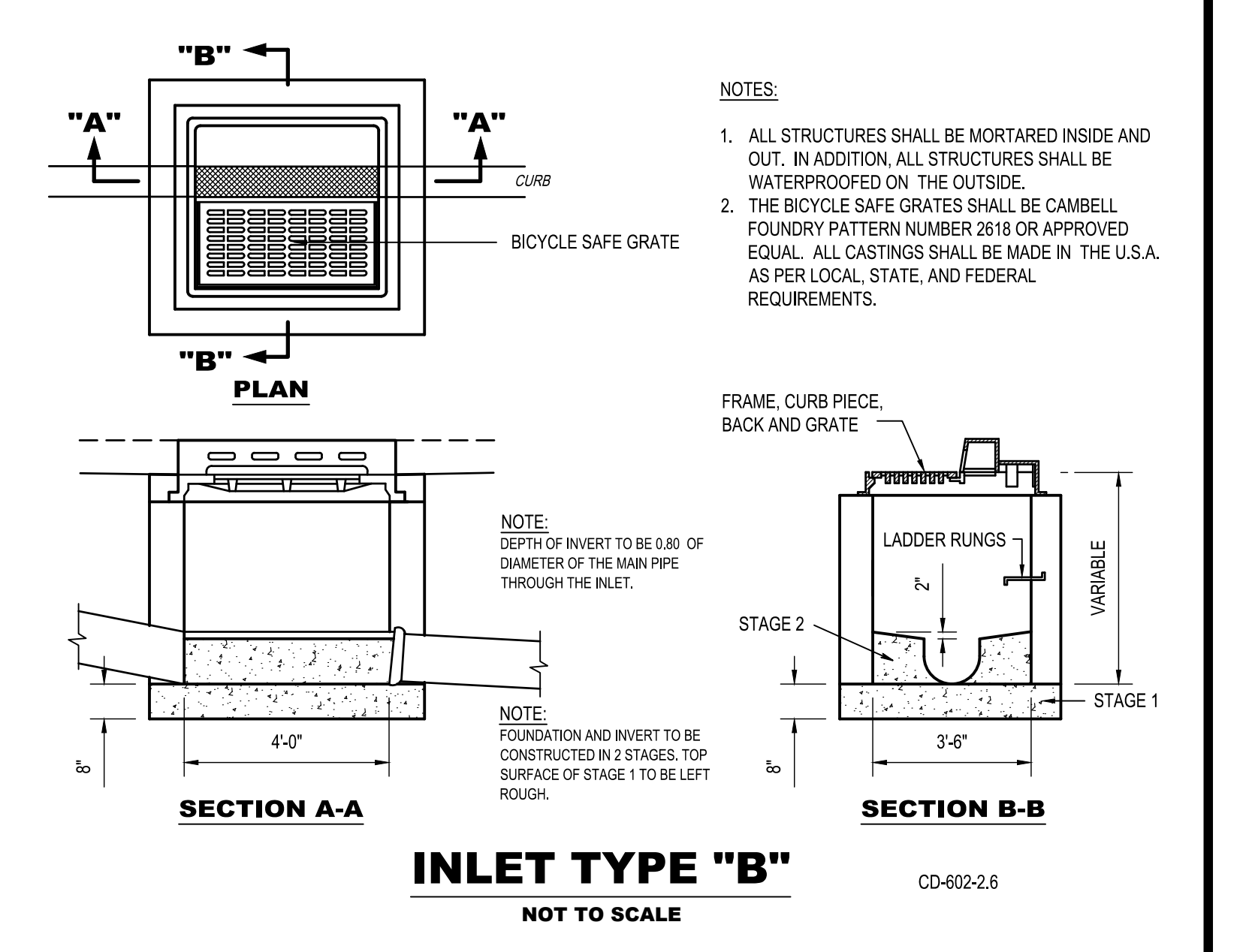
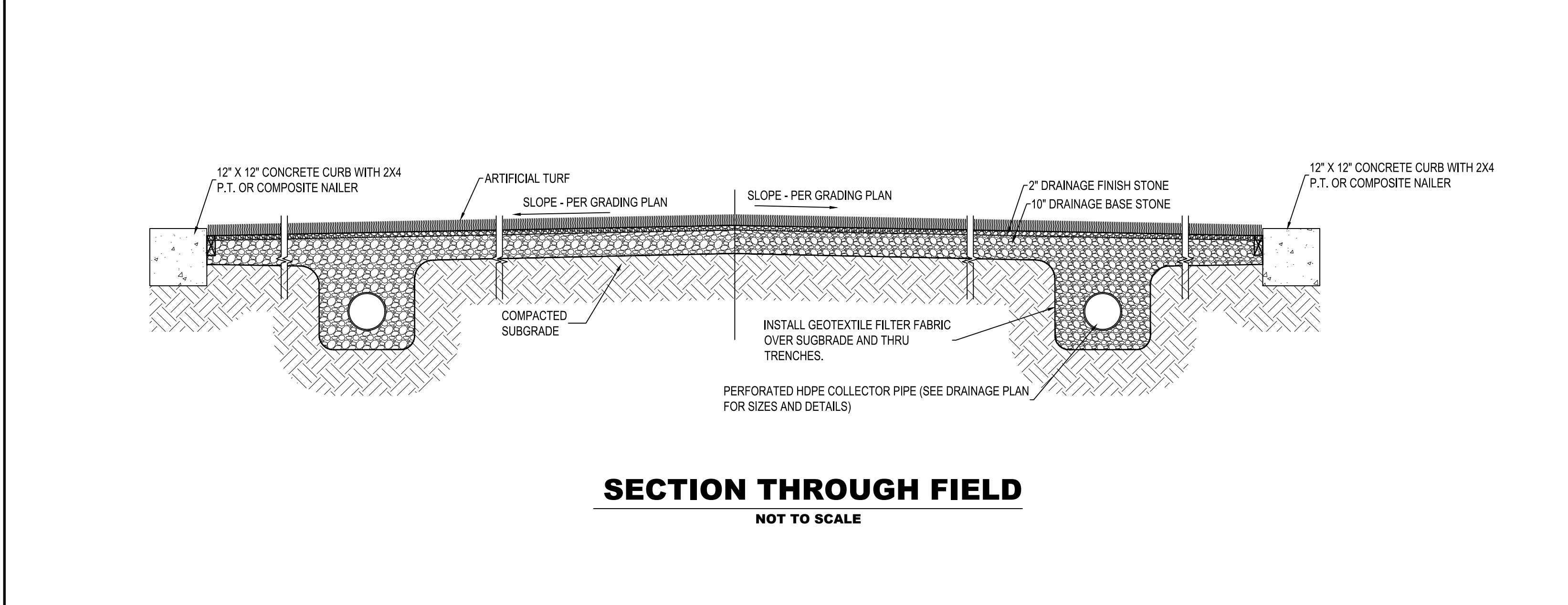
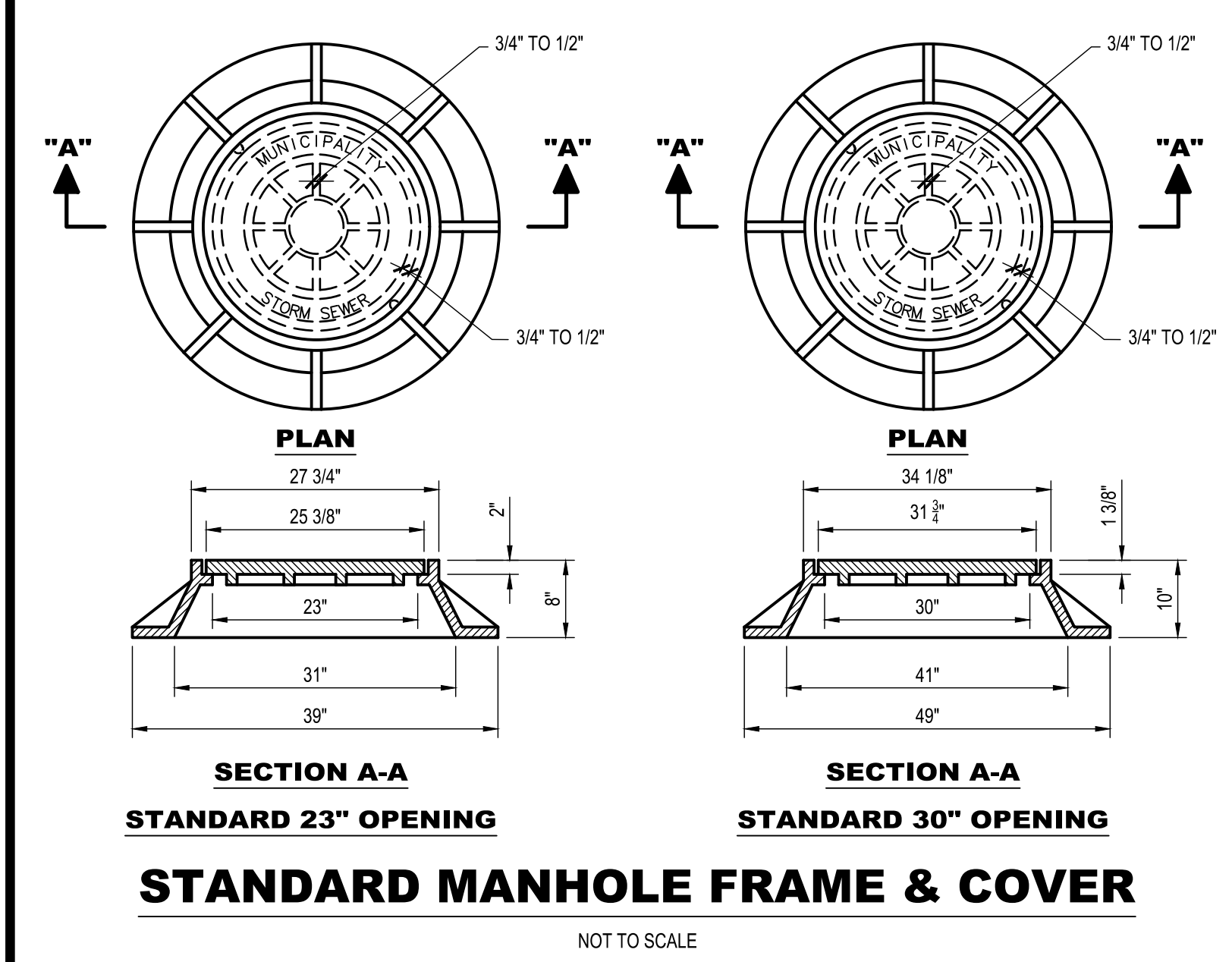
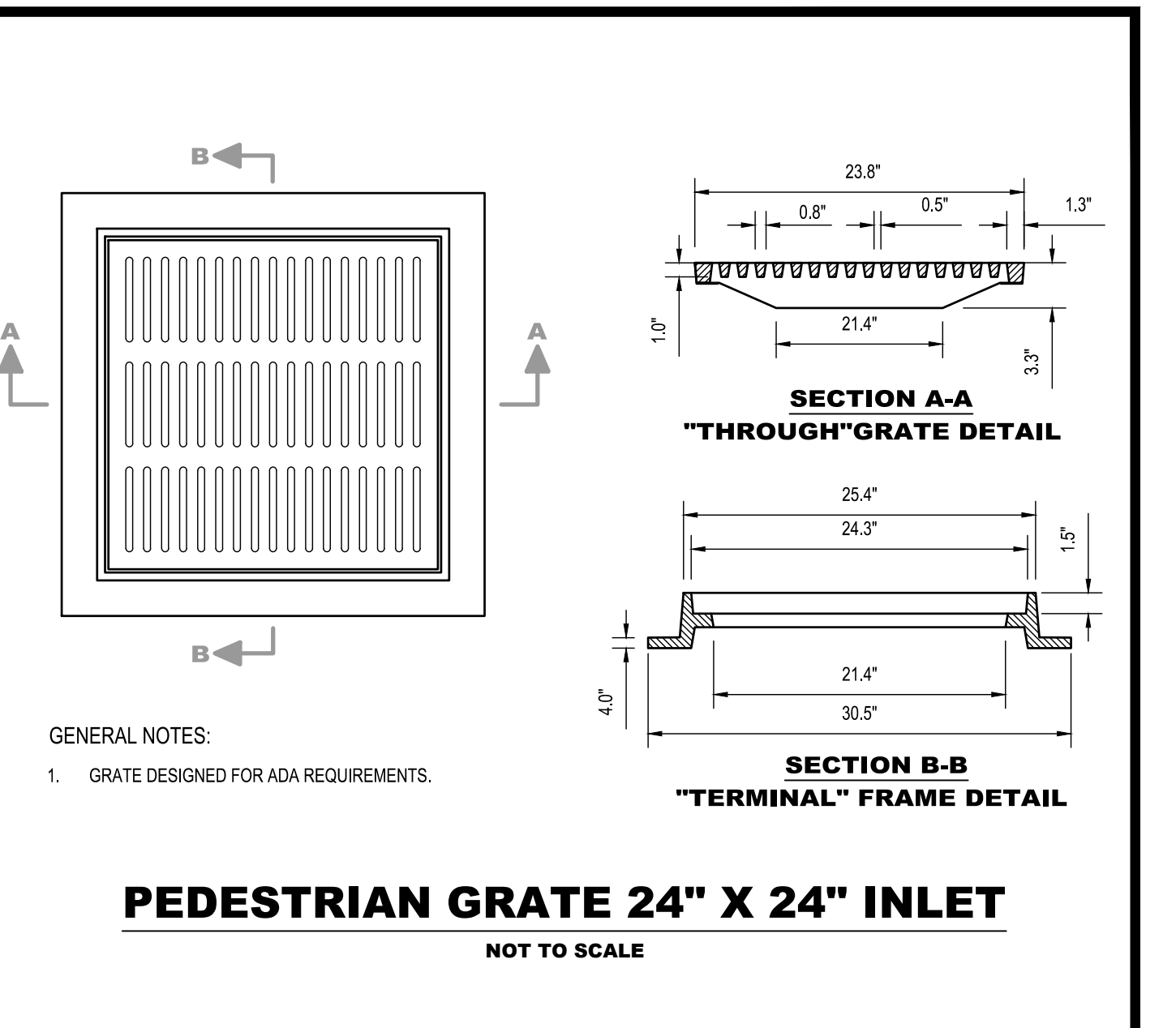
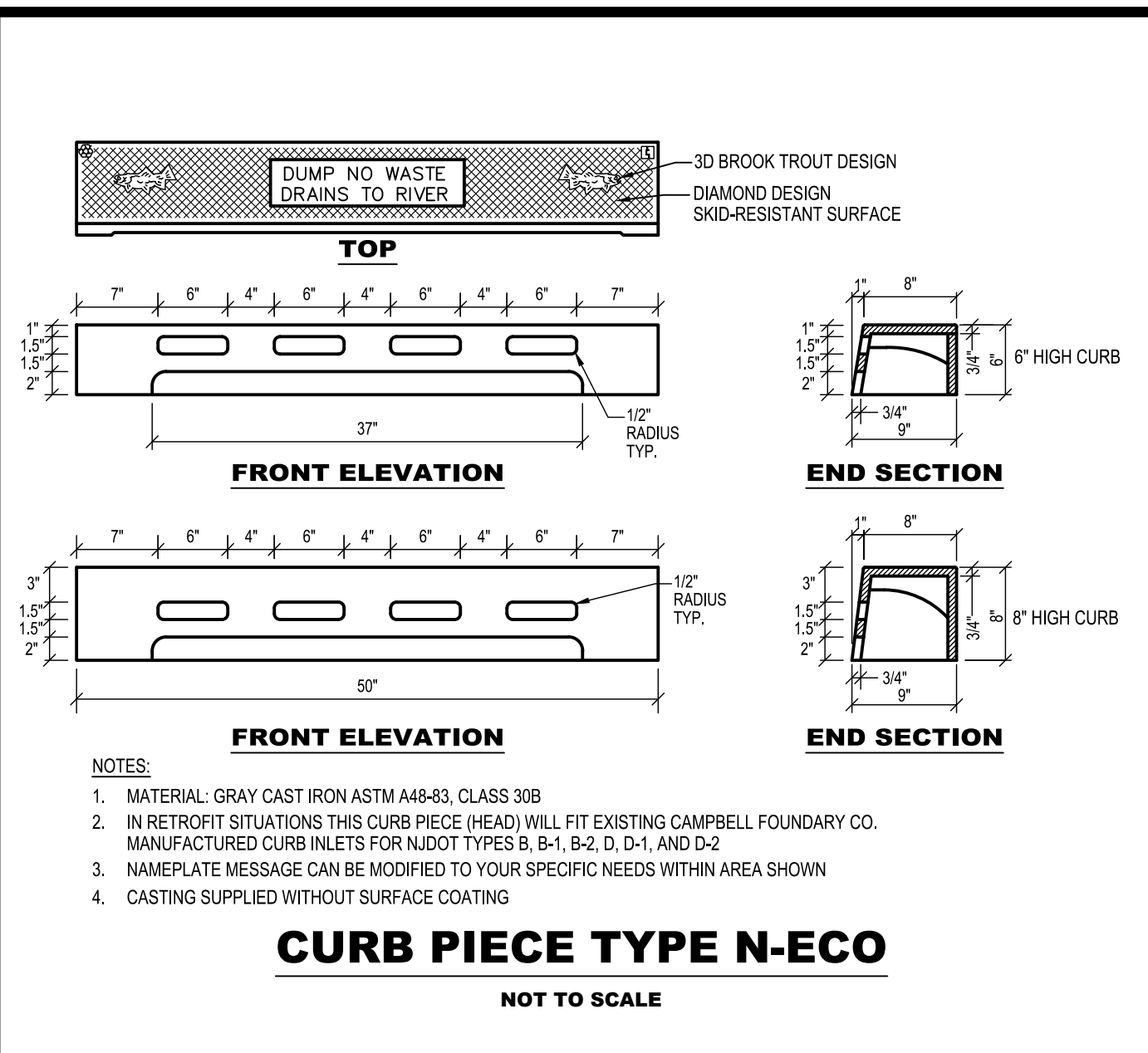
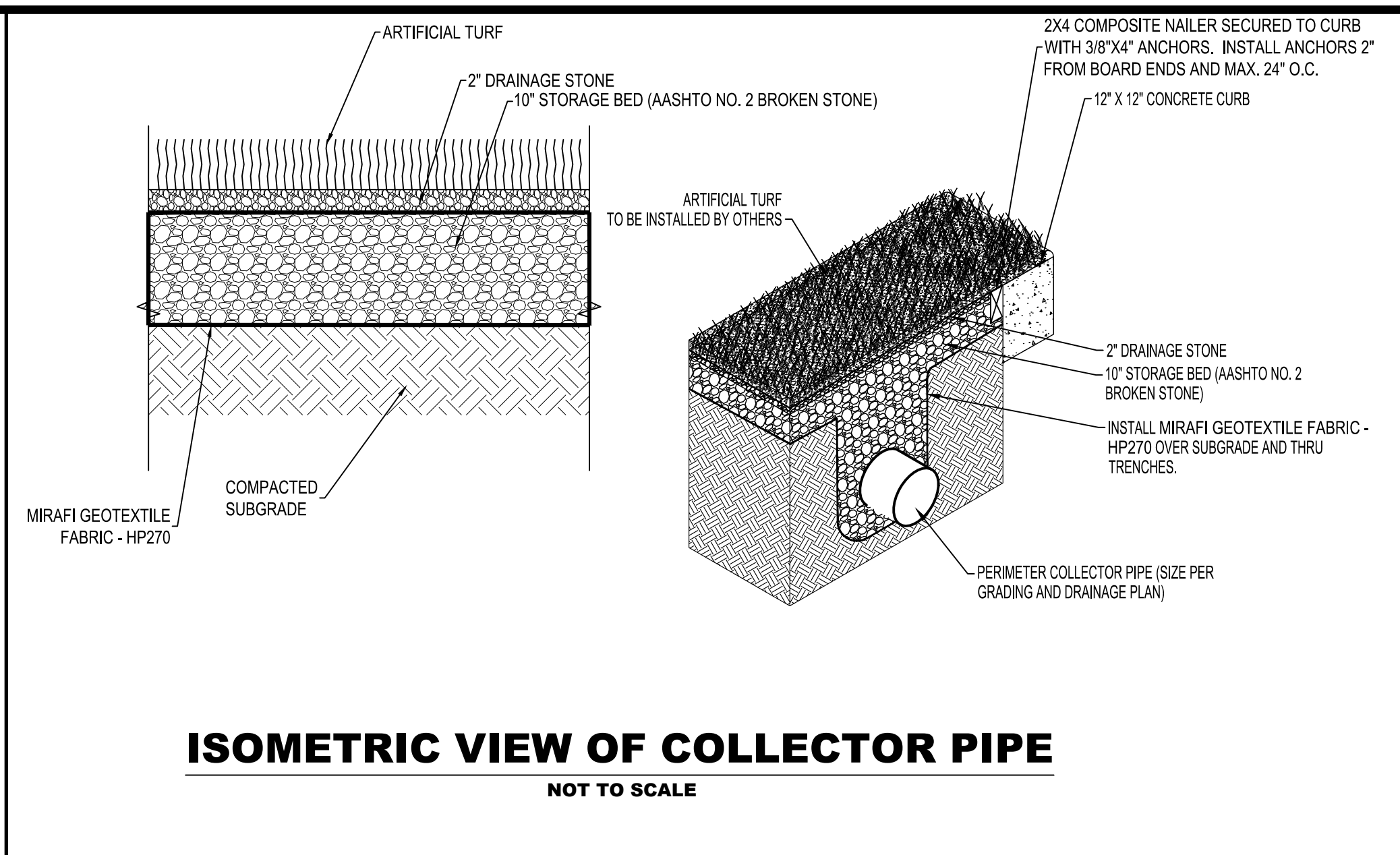
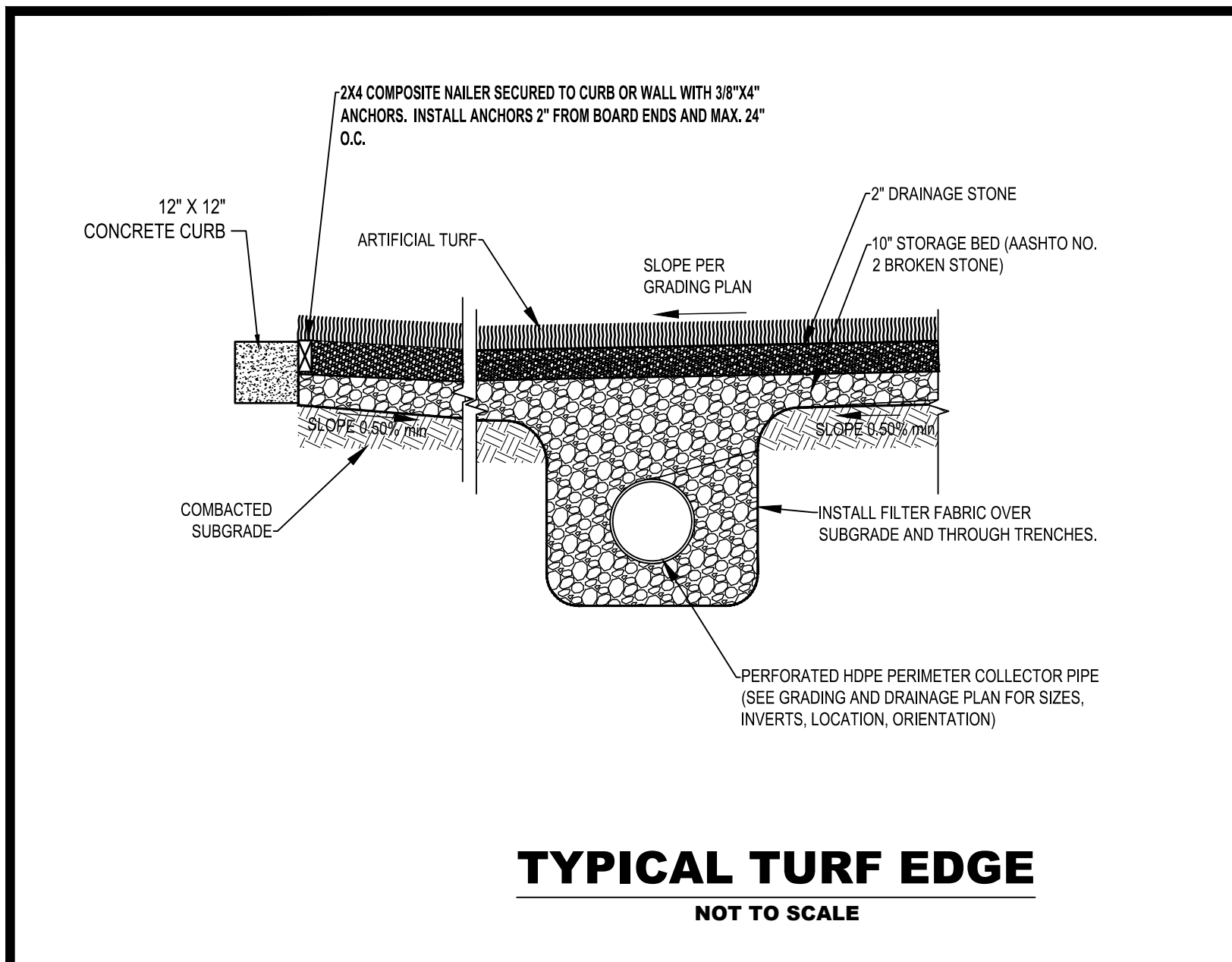
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PROFESSIONAL PLANNER N.J. LICENSE NO. 33L000569800

CONSTRUCTION DETAILS V
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY NEW JERSEY

DRAWN BY: JV CHECKED BY: DRAH PROJECT NO: UNIOCTY20.011 SHEET NO: 11.05
DESIGNED BY: JV SCALE: N.T.S. DATE: AUGUST 1, 2023
FIELD BOOK NO: PAGE:

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REVISIONS				
NO.	DATE	DESCRIPTION	DRAWN	CHECKED
1.	2023/12/06	REVISED PER NJDEP COMMENTS	J.V.	N.H.

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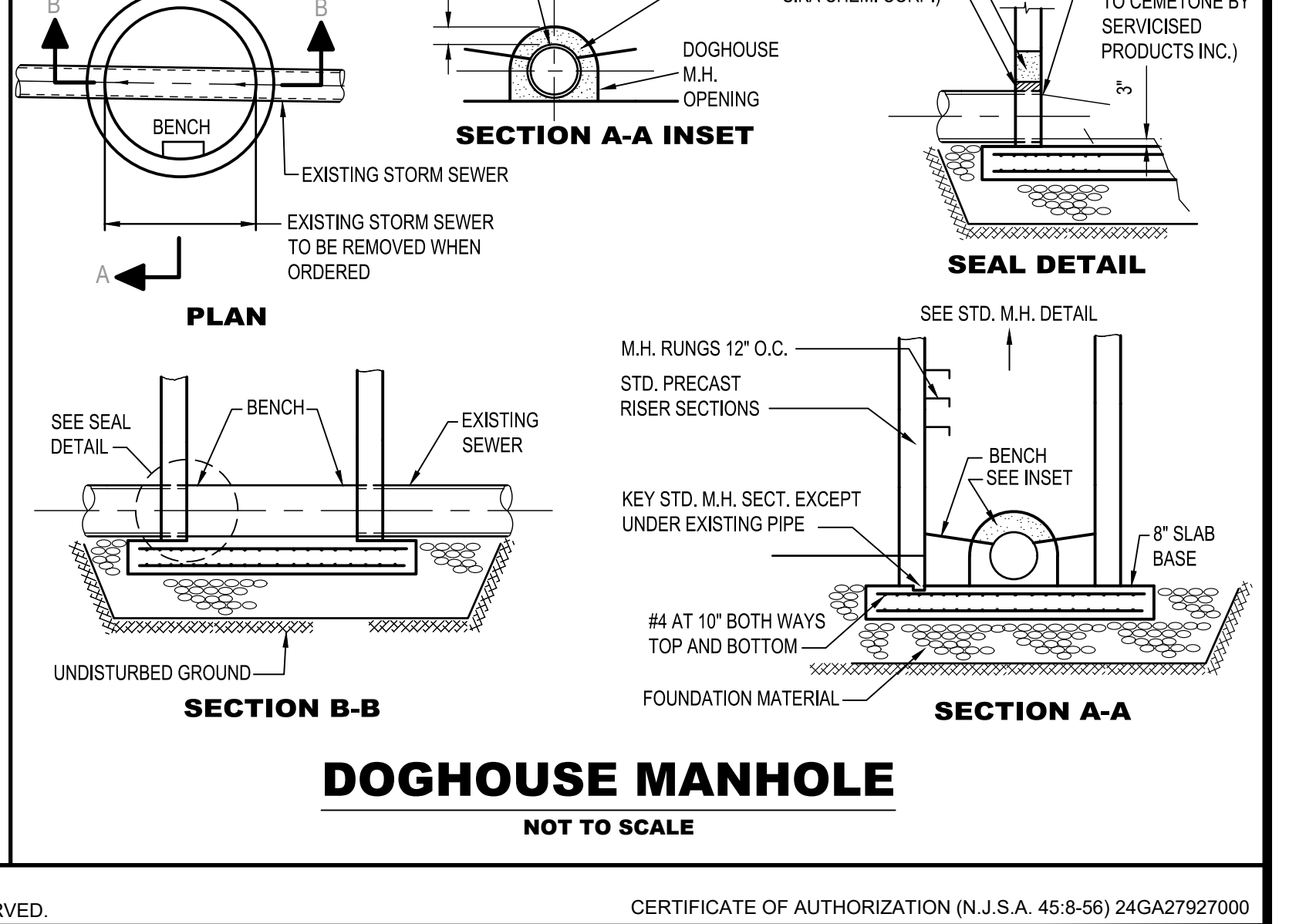
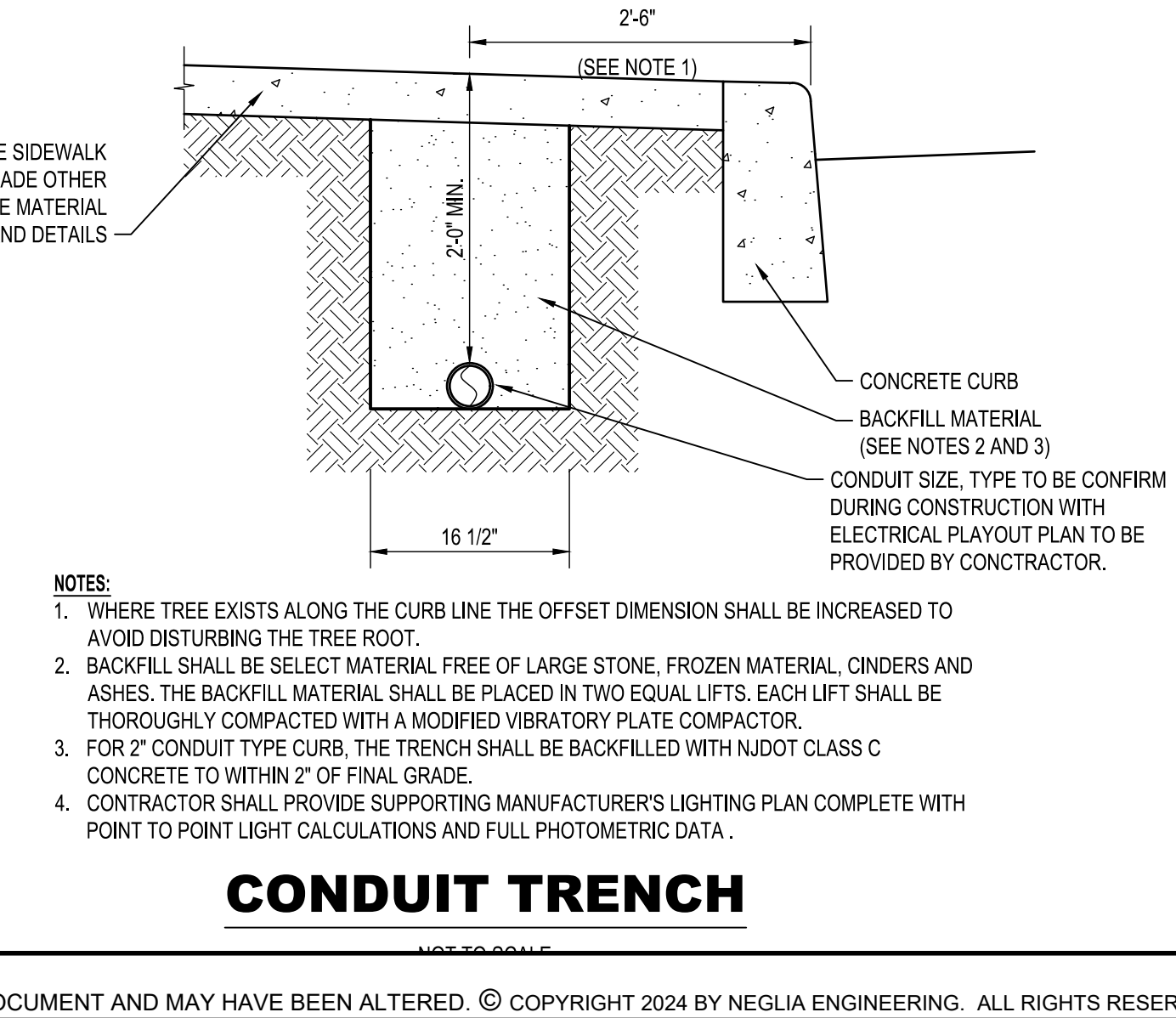
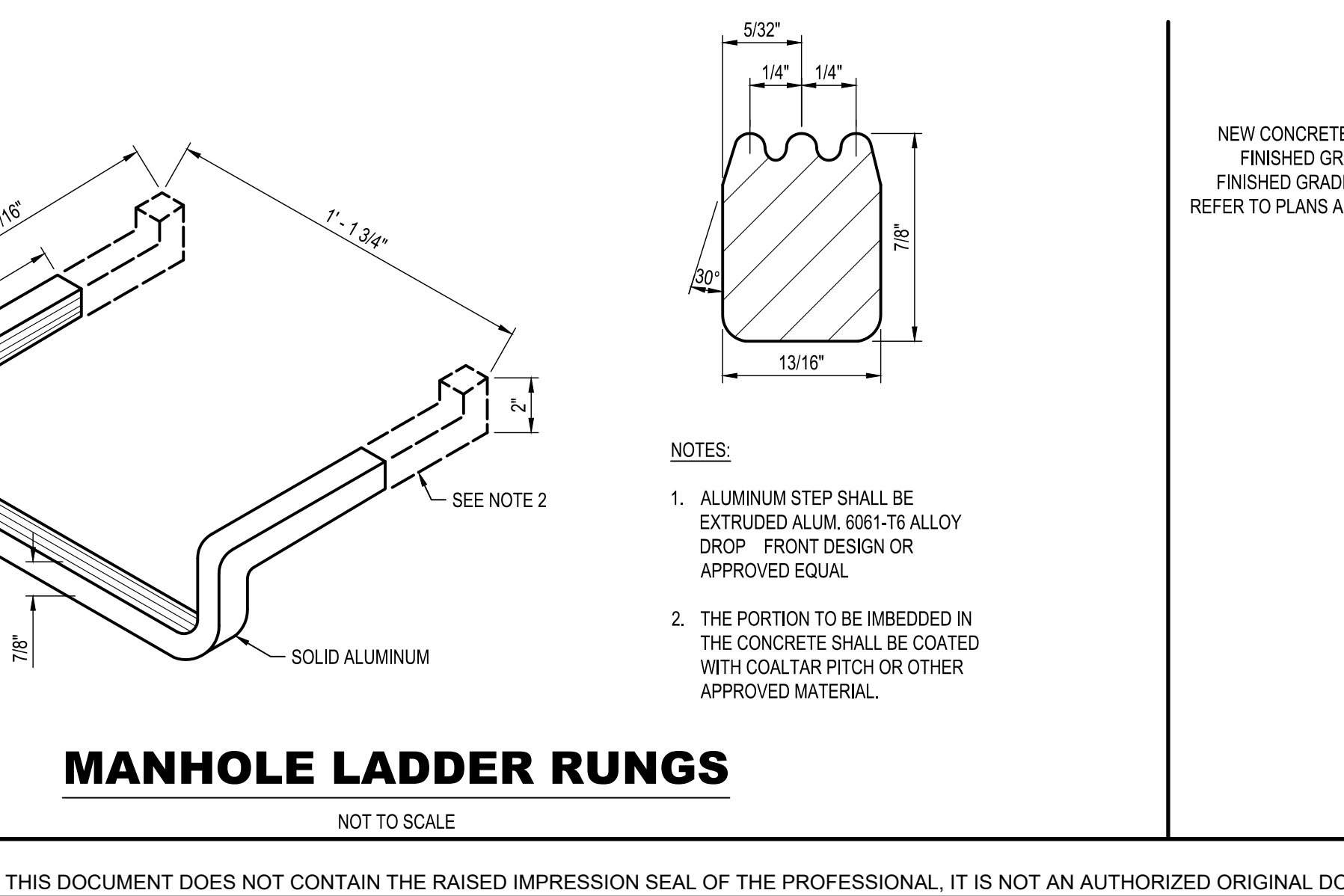
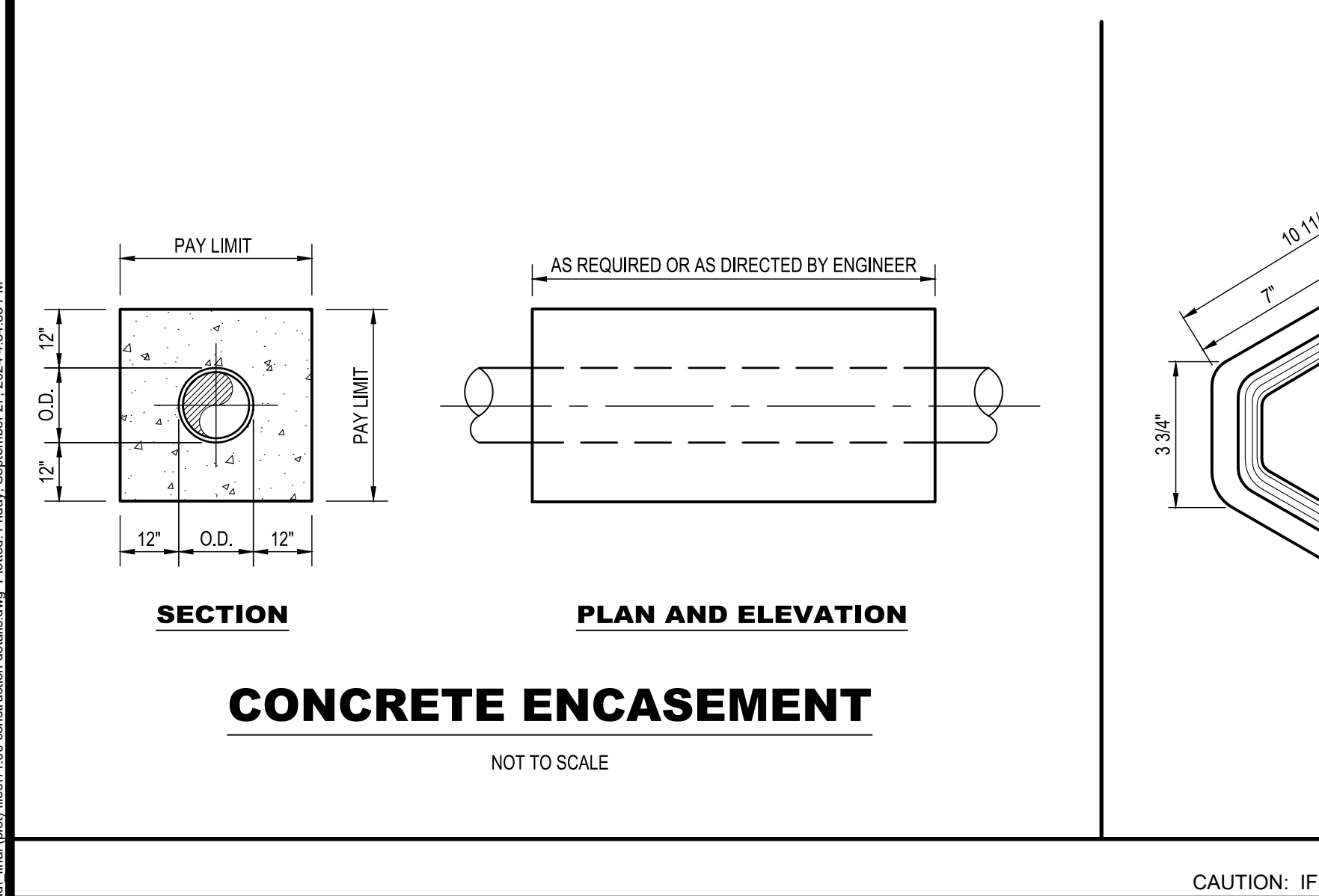
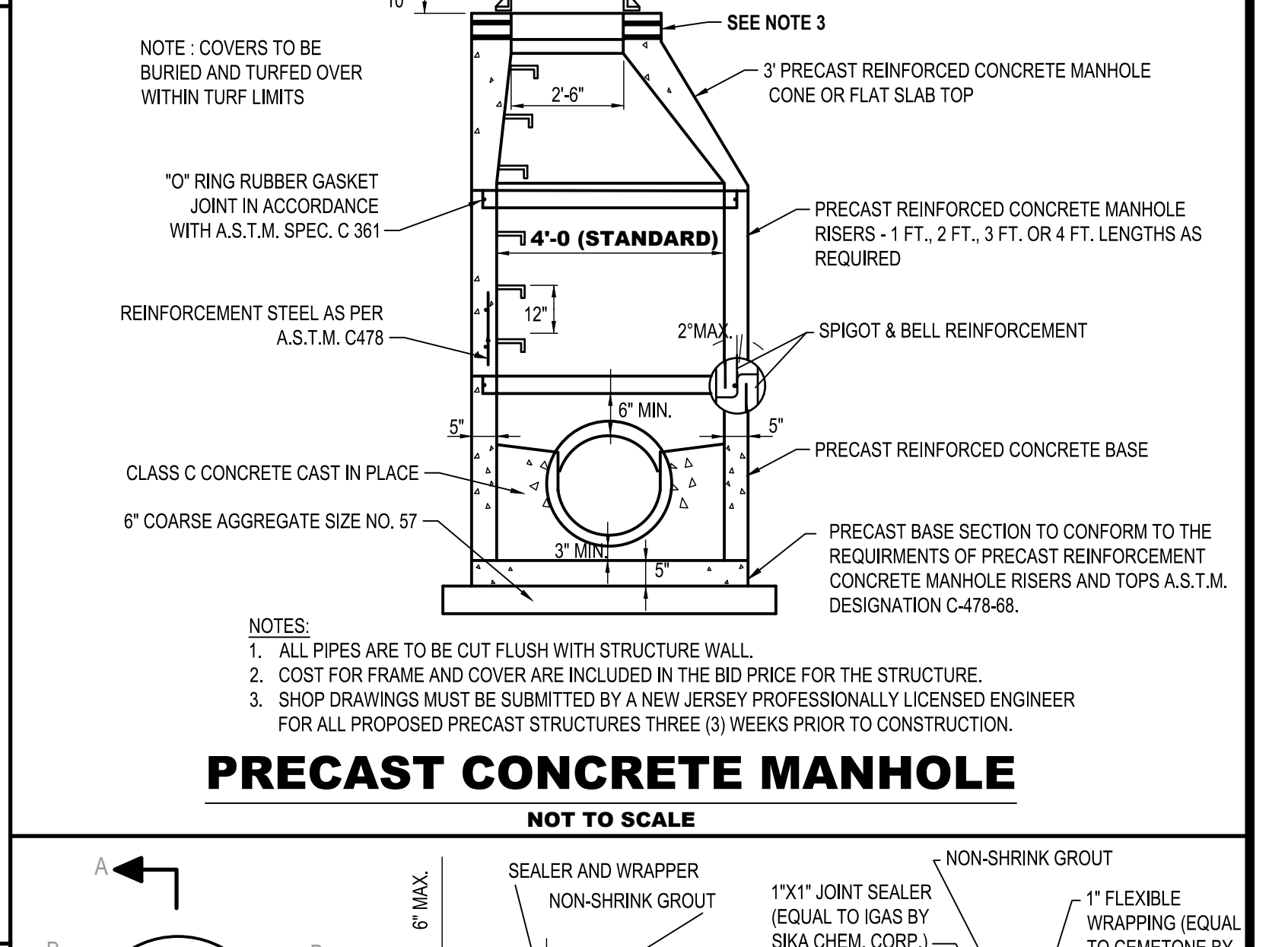
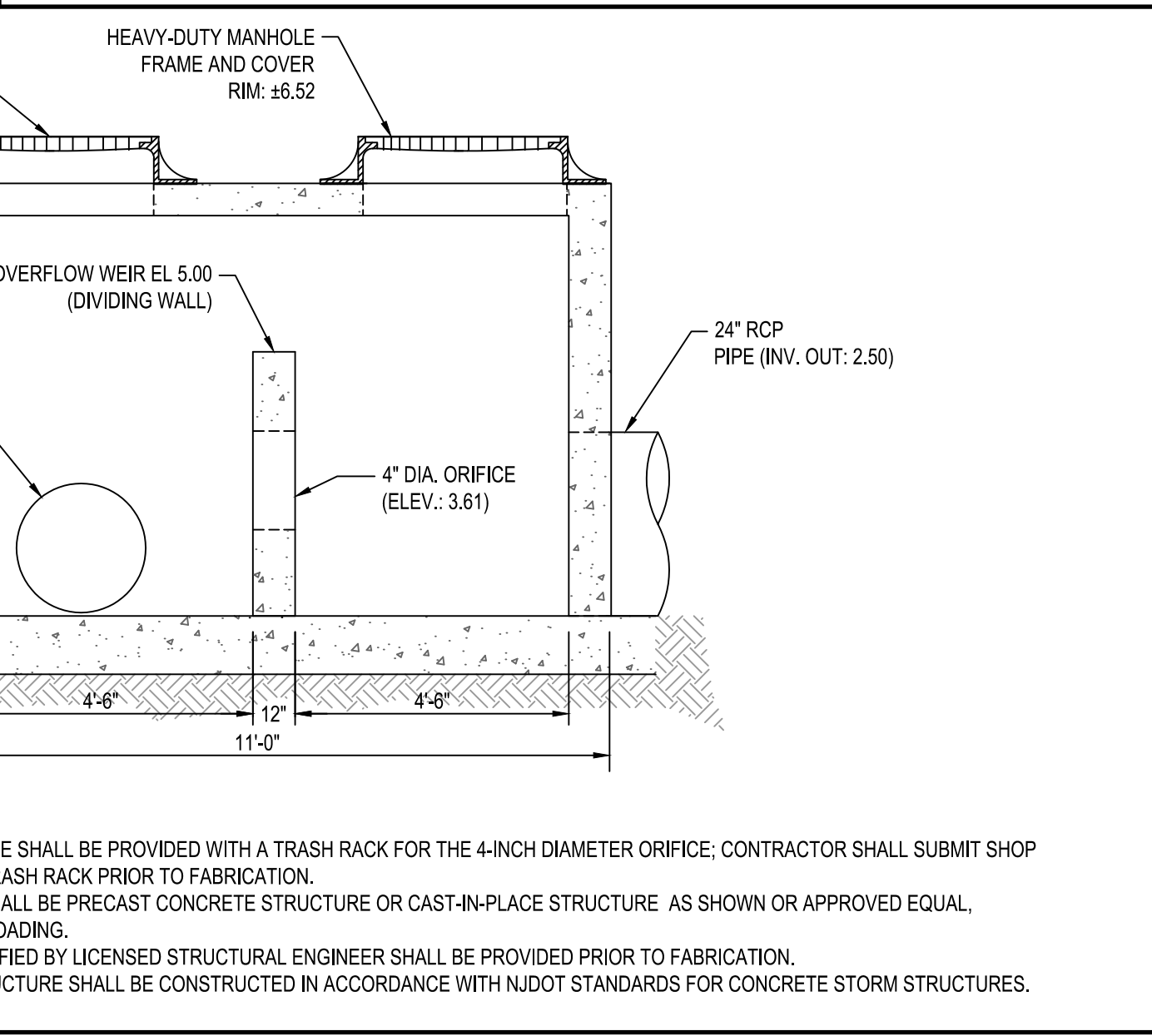
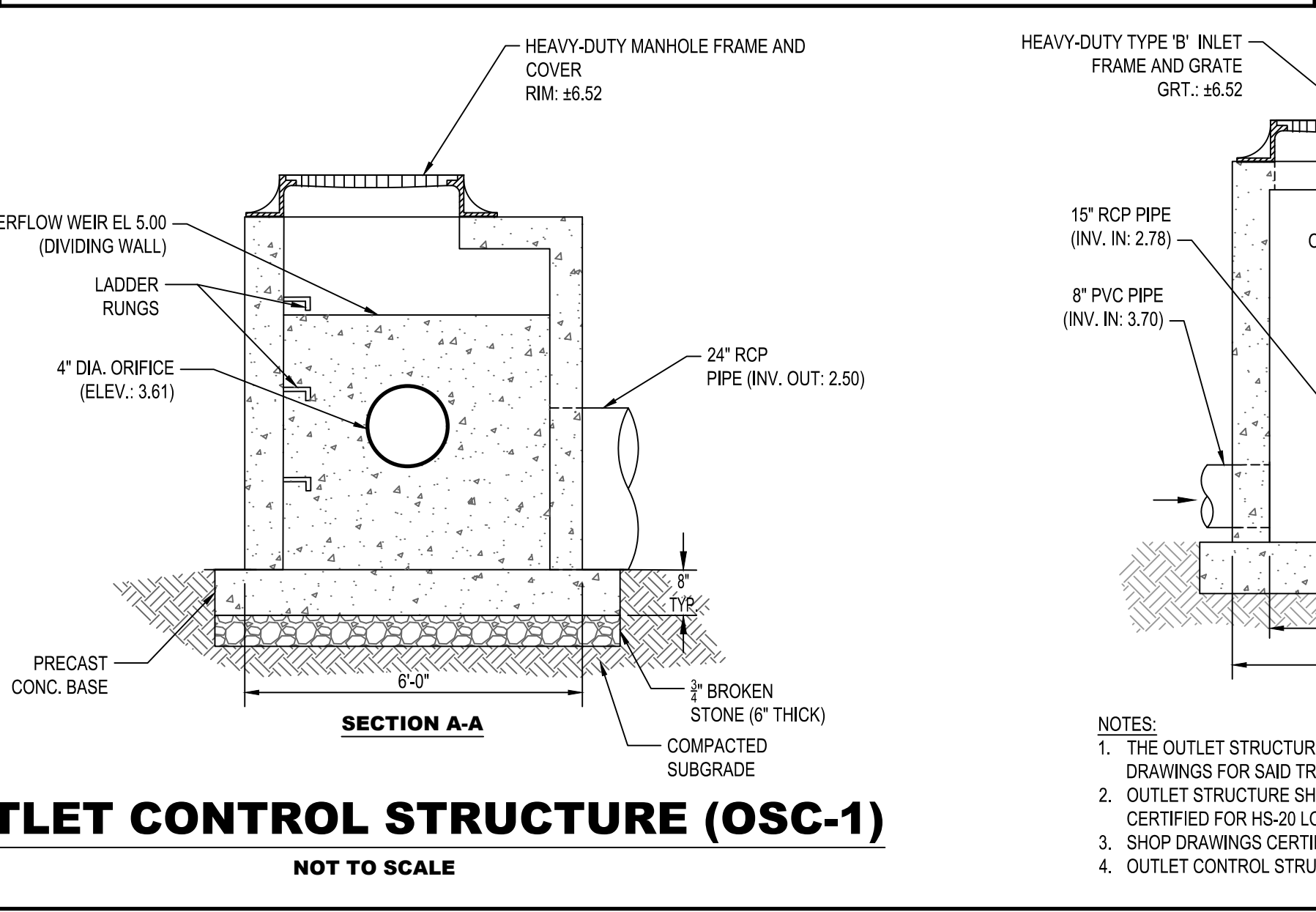
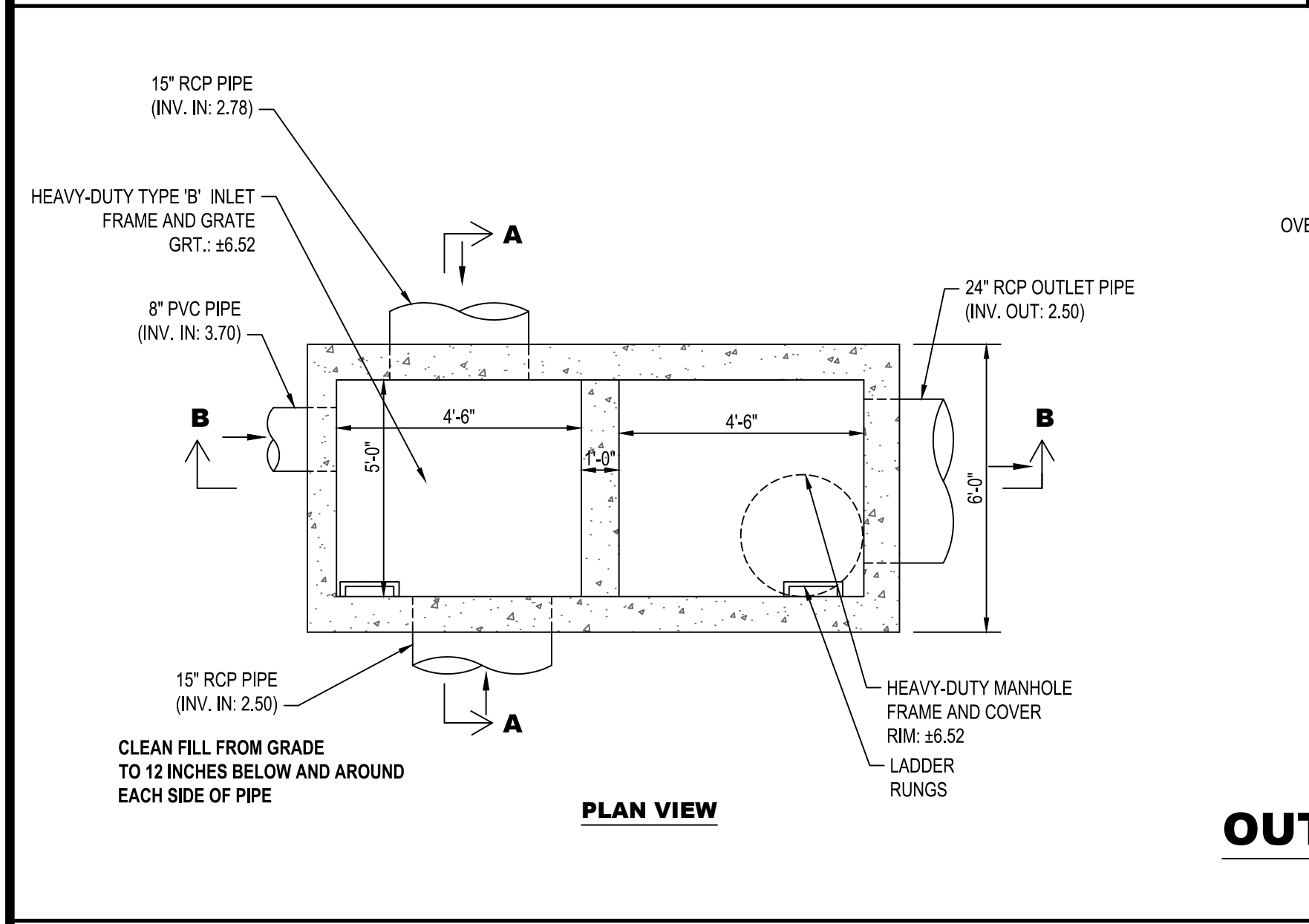
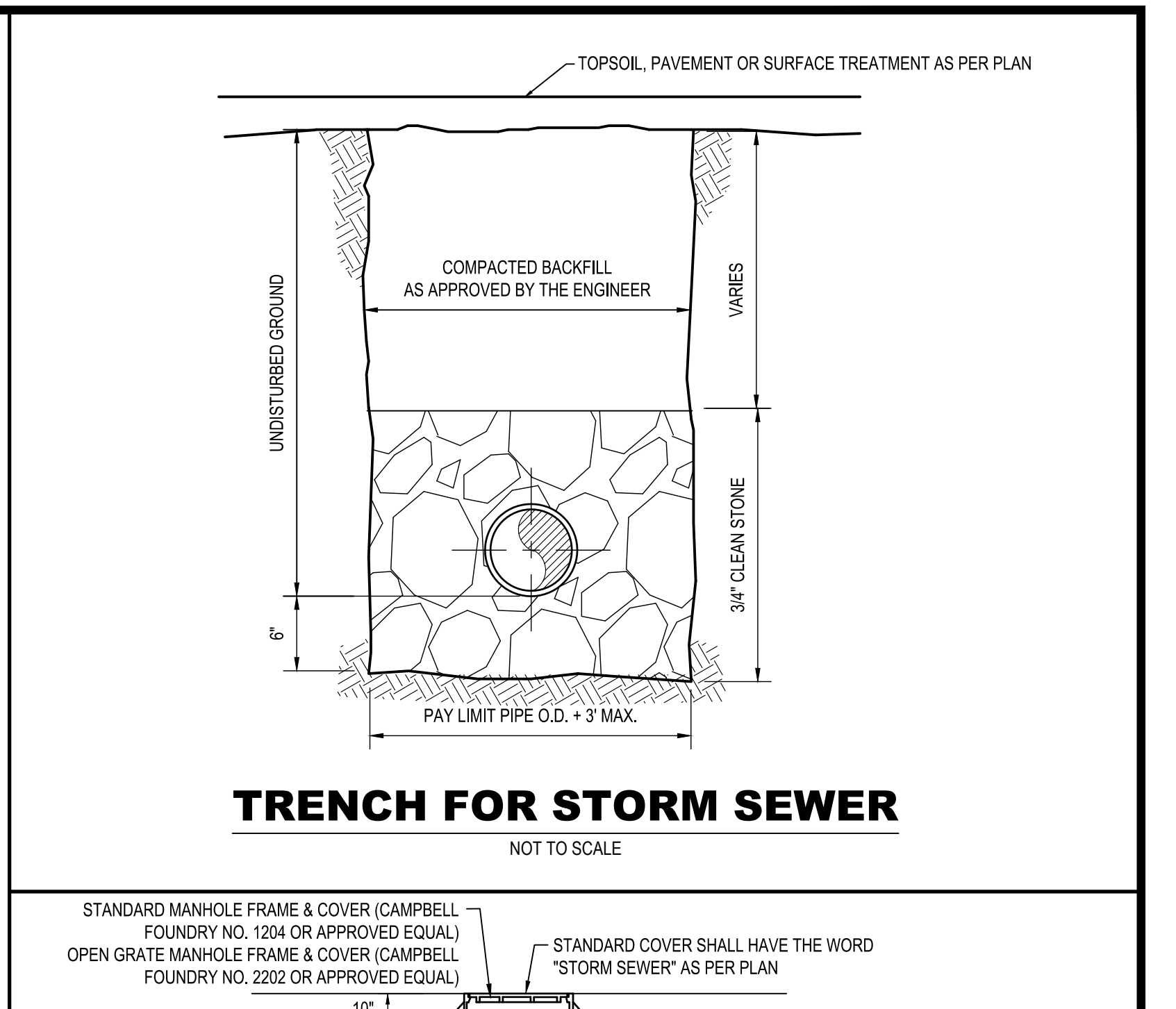
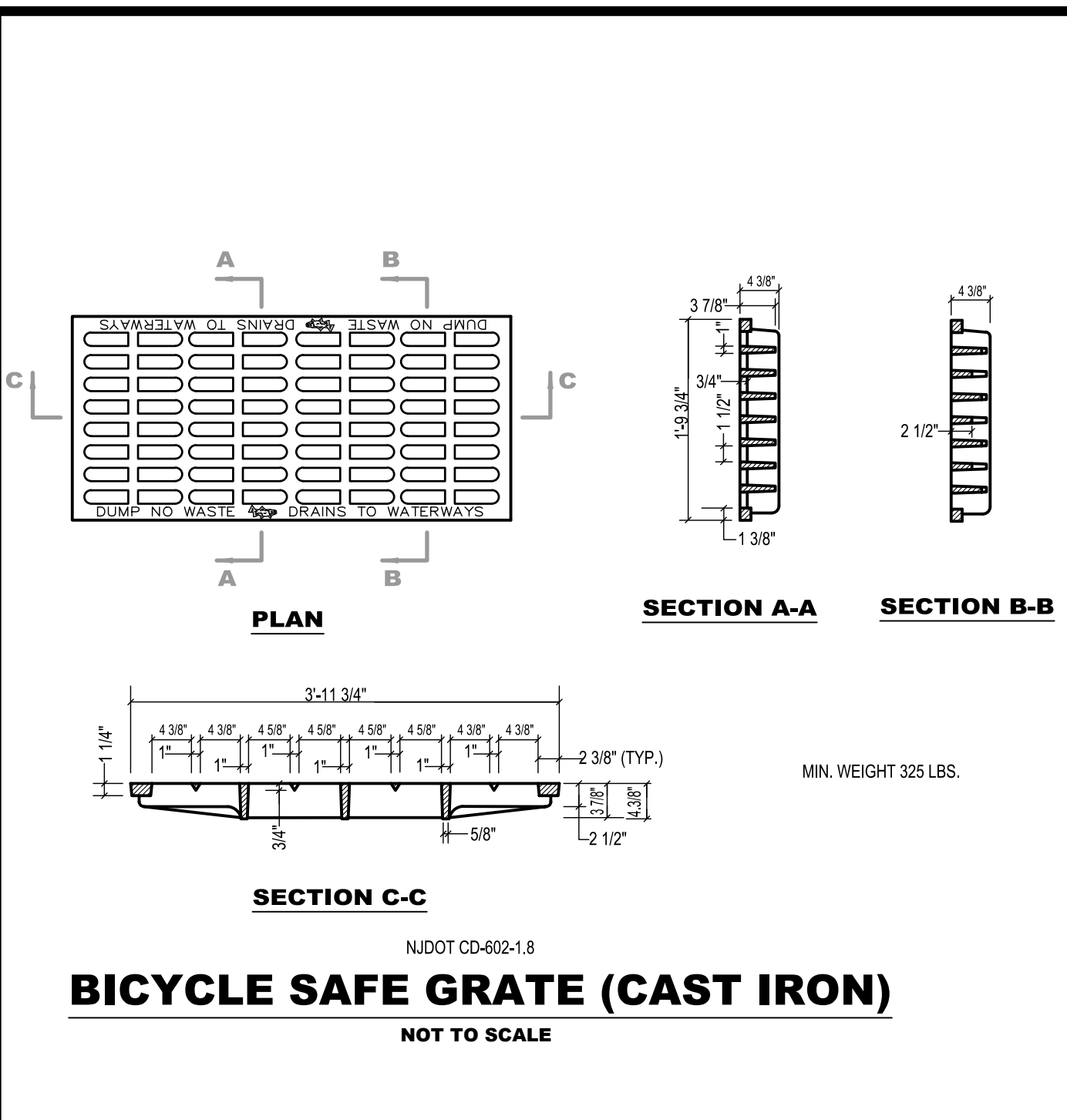
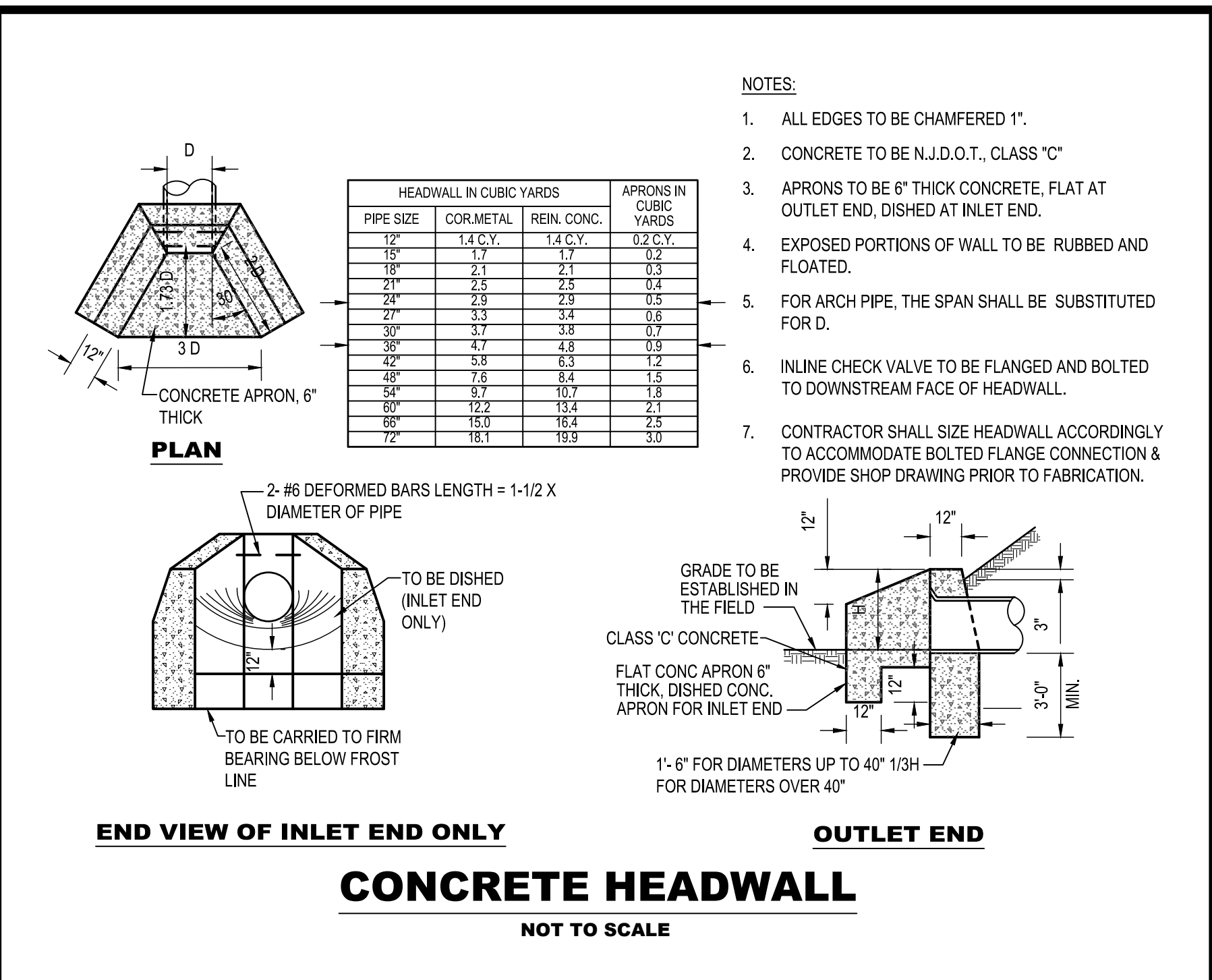
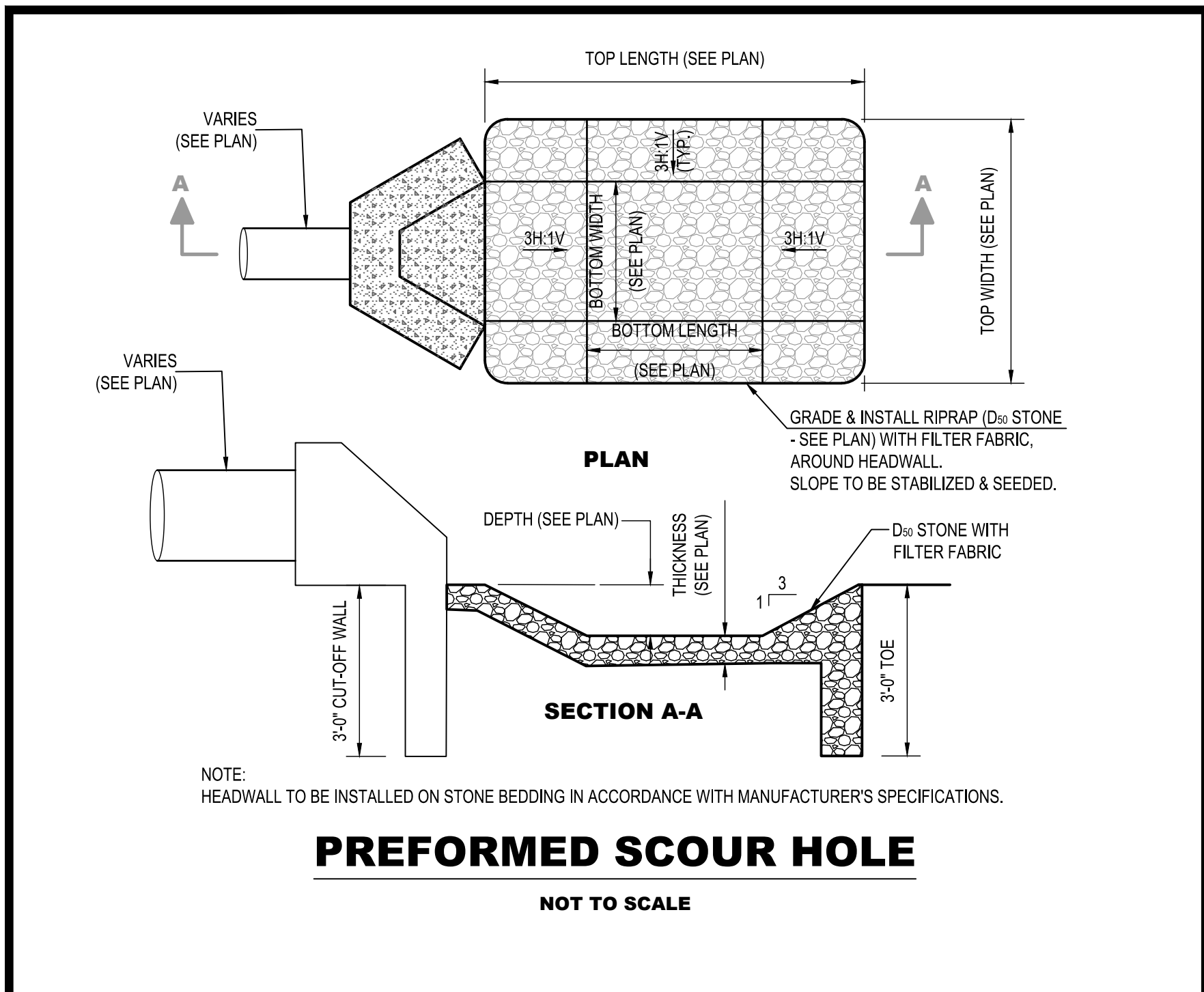
PROFESSIONAL LAND SURVEYOR
N.J. LICENSE NO. 38604

PROFESSIONAL PLANNER
N.J. LICENSE NO. 33100569800

CERTIFICATE OF AUTHORIZATION (N.J.S.A. 45:8-56) 24GA27927000

CONSTRUCTION DETAILS VI
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY NEW JERSEY

DESIGNED BY: J.V. CHECKED BY: DRA/WH
SCALE: N.T.S. SHEET NO.: 11.06
FIELD BOOK NO.: DATE: AUGUST 1, 2023



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NO.	DATE	REVISIONS	DRAWN	DESIGNED	CHECKED
1.	2023/12/07	REVISED PER NJDEP COMMENTS	J.V.	J.V.	N.H.

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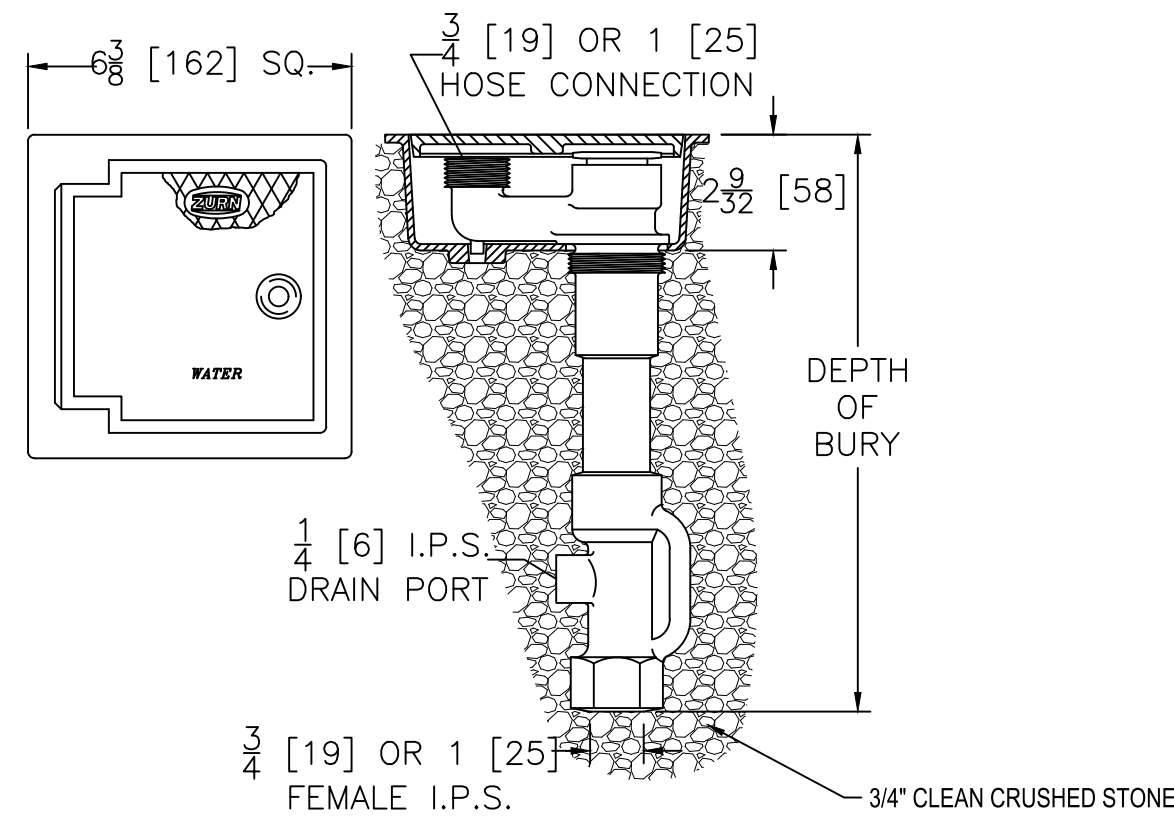
THOMAS R. SOLFARO, P.E., C.M.E.
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PROFESSIONAL LAND SURVEYOR
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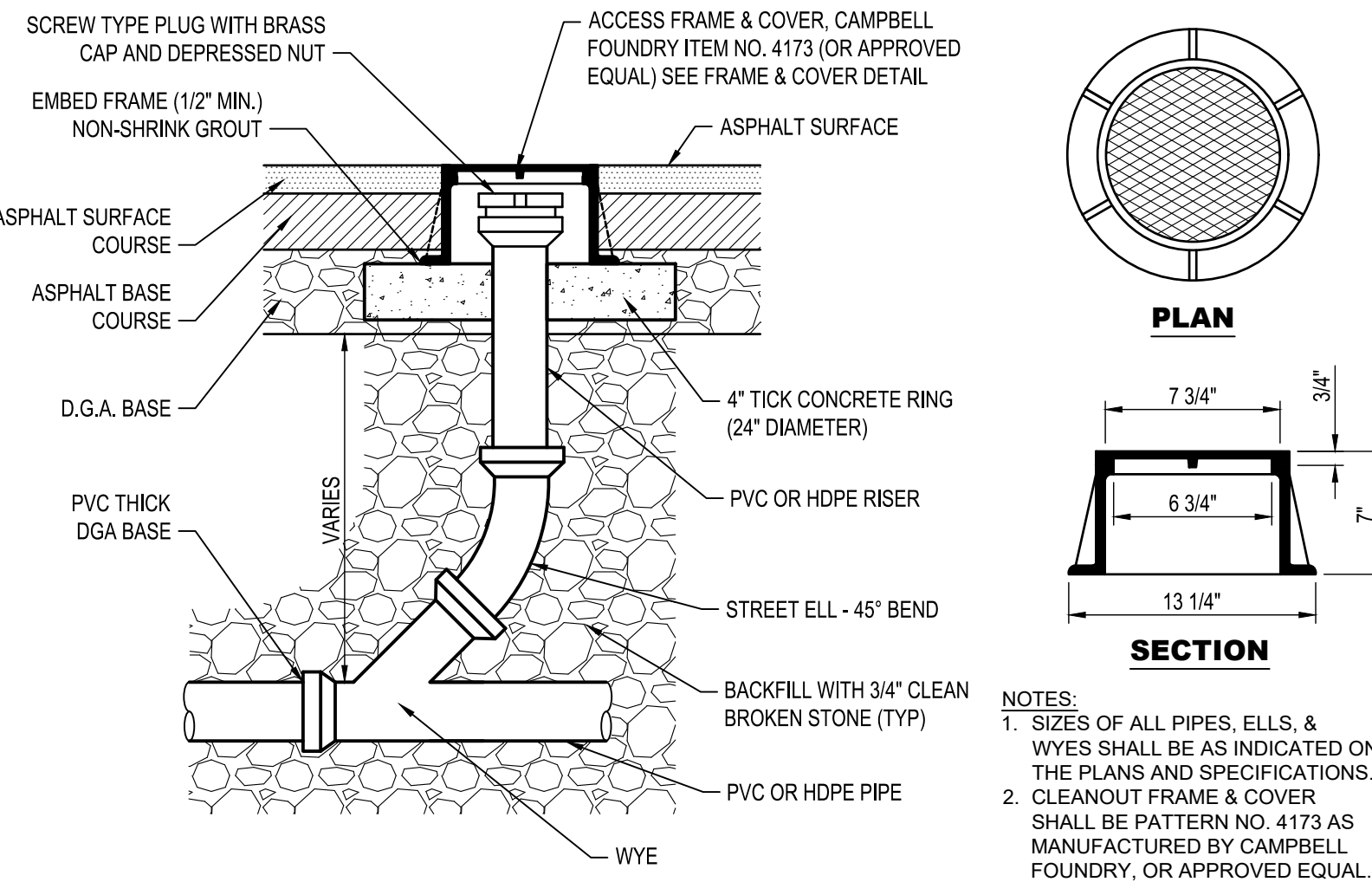
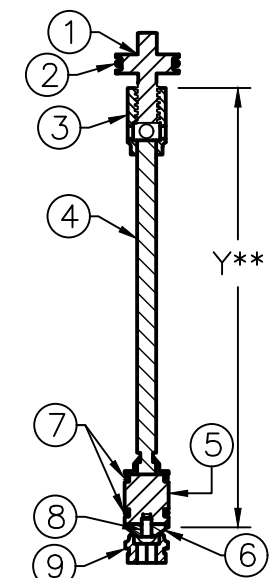
CONSTRUCTION DETAILS VII
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY NEW JERSEY

DRAWN BY: JV	CHECKED BY: DRANH	PROJECT NO: UNIOCTY20.011	SHEET NO: 11.07
DESIGNED BY: JV	SCALE: N.T.S.	DATE: AUGUST 1, 2023	
FIELD BOOK NO:	PAGE:		



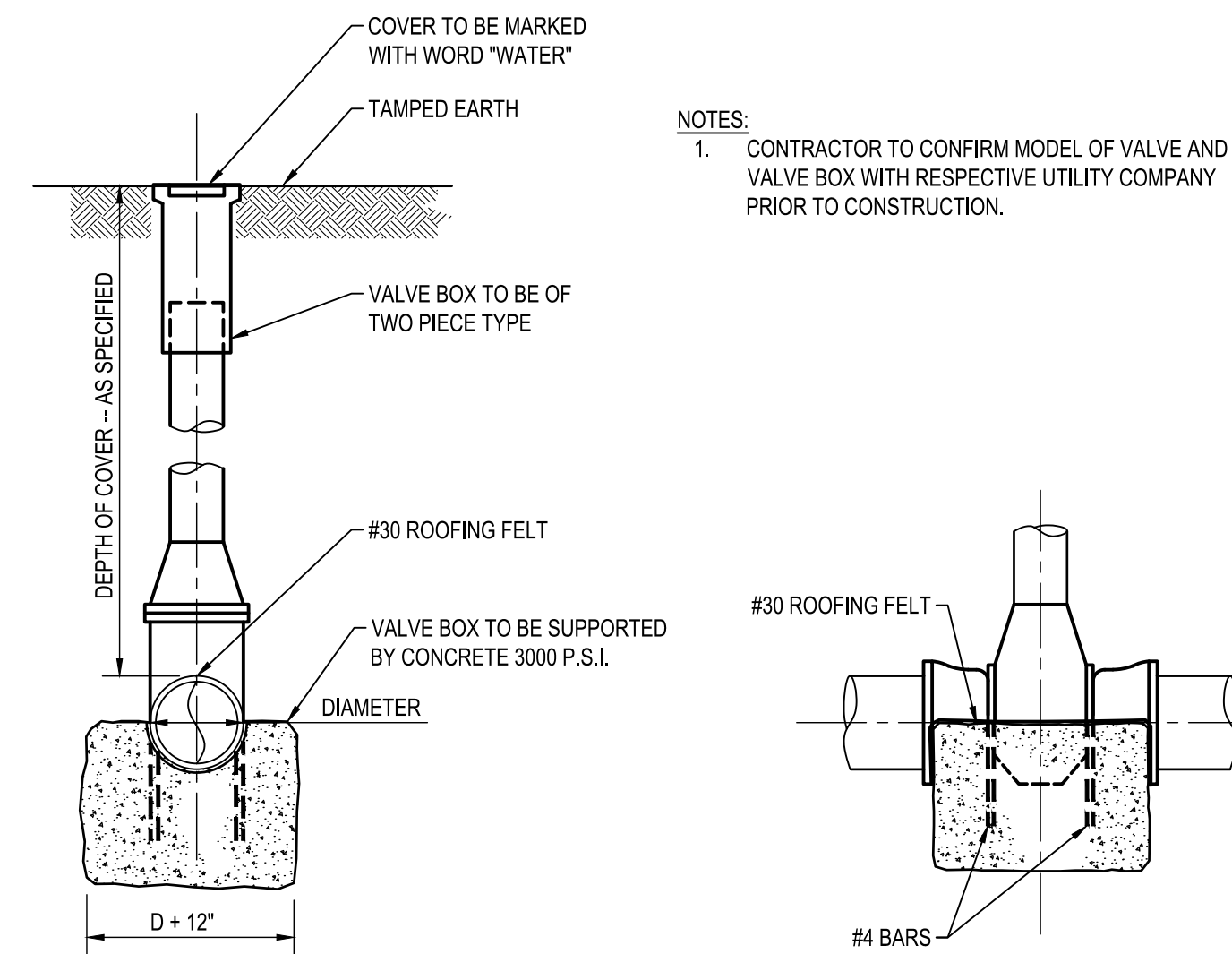
- NOTES:**
- GROUND HOSE HYDRANT SHALL BE MODEL Z1360XL AS MANUFACTURED BY ZURN INDUSTRIES, L.L.C., 1801 PITTSBURGH AVENUE, ERIE, PA. 16502 OR APPROVED EQUAL.
 - INSTALL PER MANUFACTURER'S SPECIFICATIONS.

GROUND HYDRANT
NOT TO SCALE



CLEANOUT WITH ACCESS FRAME
NOT TO SCALE

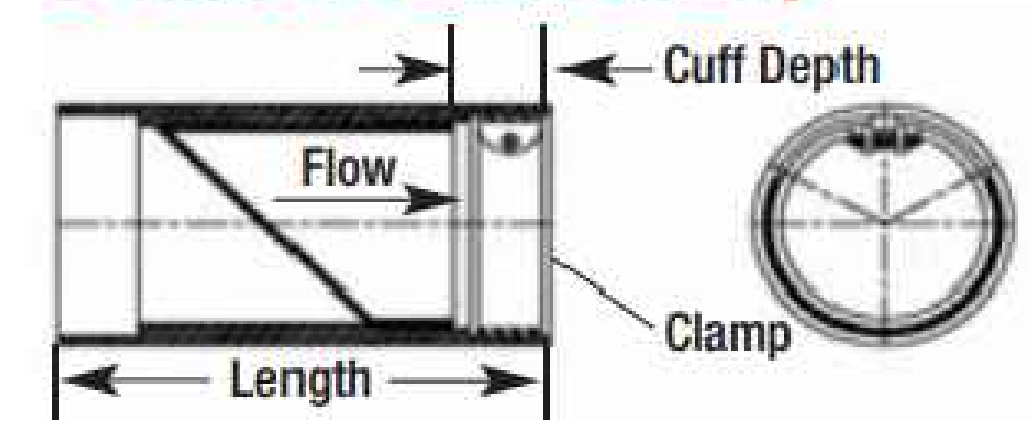
- NOTES:**
- SIZES OF ALL PIPES, ELLS, & WYES SHALL BE AS INDICATED ON THE PLANS AND SPECIFICATIONS.
 - CLEANOUT FRAME & COVER SHALL BE PATTERN NO. 4173 AS MANUFACTURED BY CAMPBELL FOUNDRY, OR APPROVED EQUAL.



GATE VALVE
NOT TO SCALE

- NOTES:**
- CONTRACTOR TO CONFIRM MODEL OF VALVE AND VALVE BOX WITH RESPECTIVE UTILITY COMPANY PRIOR TO CONSTRUCTION.

Downstream Clamp



	NORMAL PIPE SIZE	ID	OVERALL LENGTH	NO. OF CLAMPS	CUFF DEPTH	BACK PRESSURE RATINGS
OUTFLOW PIPE	24"		31"	1	4"	20 FT
OUTFLOW PIPE	36"		62.25"	1	8"	20 FT

- NOTE:**
- BACKFLOW PREVENTER VALVE SHALL BE TIDEFLEX CHECKMATE IN-LINE CHECK VALVE AS SHOWN OR APPROVED EQUAL. CONTRACTOR TO CONFIRM SIZES, LENGTH, CLAMPS, CUFF DEPTH AND BACK PRESSURE WITH MANUFACTURER.

IN-LINE BACKFLOW PREVENTER VALVE
NOT TO SCALE

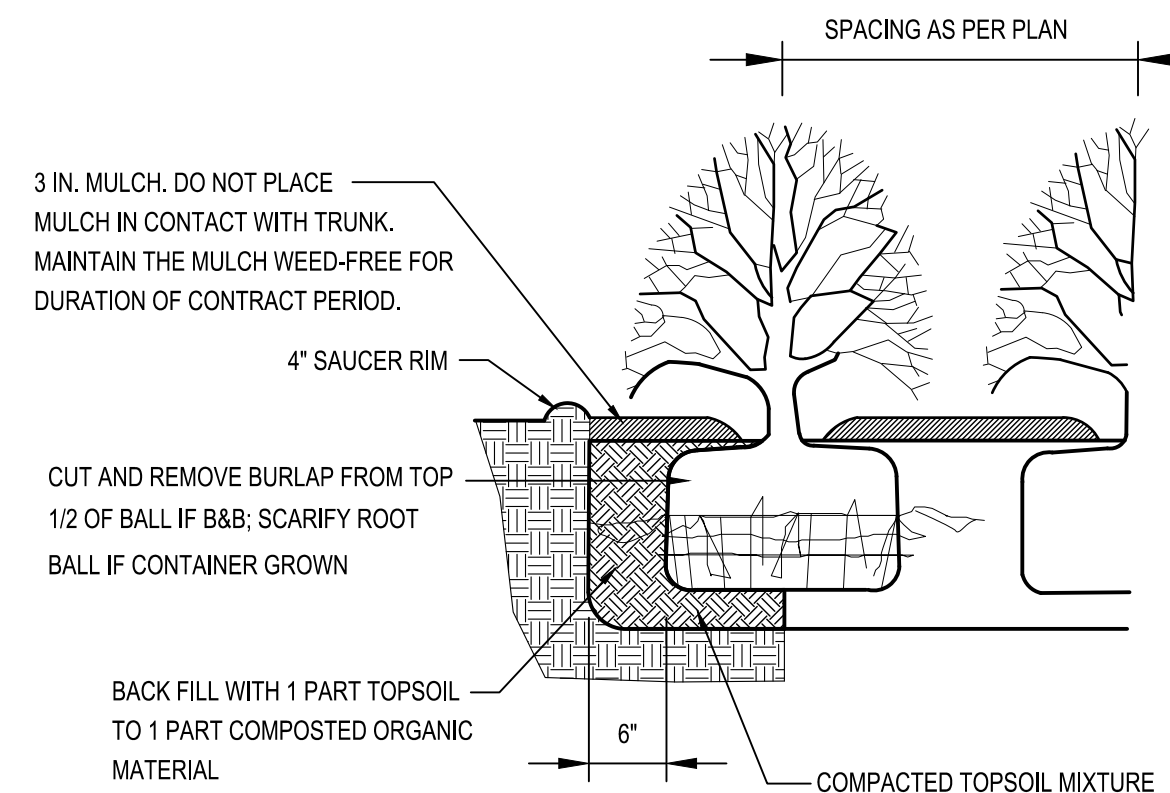


12x20

NOTES:

- CONTRACTOR SHALL SUPPLY STORAGE SHED FOR FIELD EQUIPMENT. SHED SHALL BE 12X20', CAPE COD STYLE TIMBER SHED WITH T-11 SIDING, ASPHALT SHINGLES, AND GABLE VENTS.
- SHED SHALL HAVE A 9' WIDE X 8' HIGH STANDARD OVERHEAD GARAGE DOOR ON THE SHORT SIDE OF THE SHED AND A STANDARD 5' DOUBLE DOOR ON THE LONG SIDE OF THE SHED.
- SHED SHALL BE INSTALLED ON REINFORCED CONCRETE PAD, 6" THICK. CONTRACTOR SHALL INSTALL A CONCRETE RAMP TO THE GARAGE DOOR FOR EQUIPMENT ACCESS (IF NECESSARY).
- SHED SHALL HAVE TWO (2) POWER OUTLETS AND LIGHTING (INTERIOR AND EXTERIOR SECURITY LIGHTS). COST OF CONDUIT AND ANY & ALL REQUIRED ELECTRICAL COMPONENTS SHALL BE INCLUDED IN THE UNIT PRICE FOR STORAGE SHED, COMPLETE.
- CONTRACTOR SHALL SUBMIT COLOR OPTIONS AND SHED SHOP DRAWINGS TO THE OWNER AND/OR ENGINEER PRIOR TO ORDERING OF MATERIALS.
- CONTRACTOR SHALL INCLUDE IN THE PRICE BID FOR THIS ITEM APPROX. 775 LINEAR FEET OF CONDUIT AND WIRING OF SUITABLE SIZE WITH ONE SPARE CONDUIT. CONTRACTOR SHALL PROVIDE A SHOP DRAWING DETAILING CONDUIT INSTALLATION FROM THE POWER SOURCE TO THE PROPOSED SHED. DRAWING SHALL INCLUDE, BUT NOT BE LIMITED TO, MAIN SERVICE CONNECTION TO OFF-SITE AREA(S), COORDINATION WITH PSE&G, PRIMARY SERVICE CONDUITS, CONNECTIONS, AND TERMINATIONS FOR A COMPLETE ELECTRICAL SYSTEM FOR THE STORAGE SHED.

STORAGE SHED
NOT TO SCALE



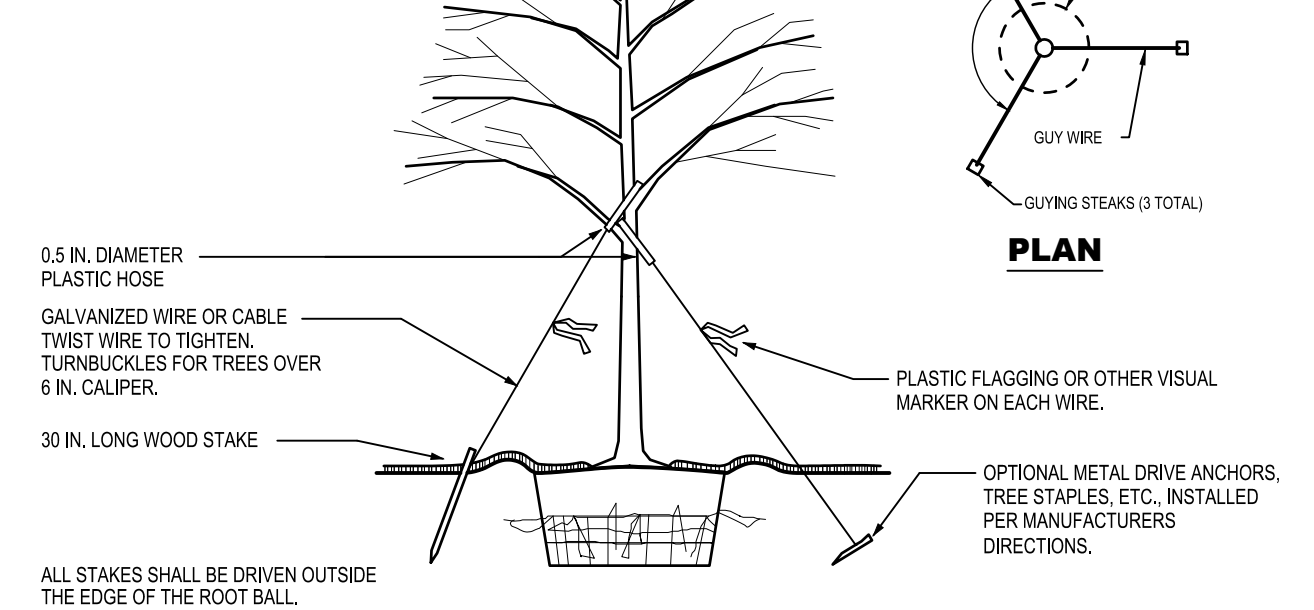
SHRUB PLANTING DETAIL
B&B OR CONTAINER GROWN
NOT TO SCALE

TIGHTEN WIRE OR CABLE ENOUGH TO KEEP FROM SLIPPING. ALLOW FOR SOME TRUNK MOVEMENT. PLASTIC HOSE SHALL BE LONG ENOUGH TO ACCOMMODATE 1.5 IN. OF GROWTH AND BUFFER ALL BRANCHES FROM THE WIRE.

TUCK ANY LOOSE ENDS OF THE WIRE OR CABLE INTO THE WIRE WRAP SO THAT NO SHARP WIRE ENDS ARE EXPOSED.

INSTALL THREE GUY WIRES PER TREE, SPACED EVENLY AROUND THE TRUNK.

WIRE OR CABLE SIZES SHALL BE AS FOLLOWS:
TREES UP TO 2.5 IN. CALIPER - 14 GAUGE
TREES 2.5 IN. TO 3 IN. CALIPER - 12 GAUGE

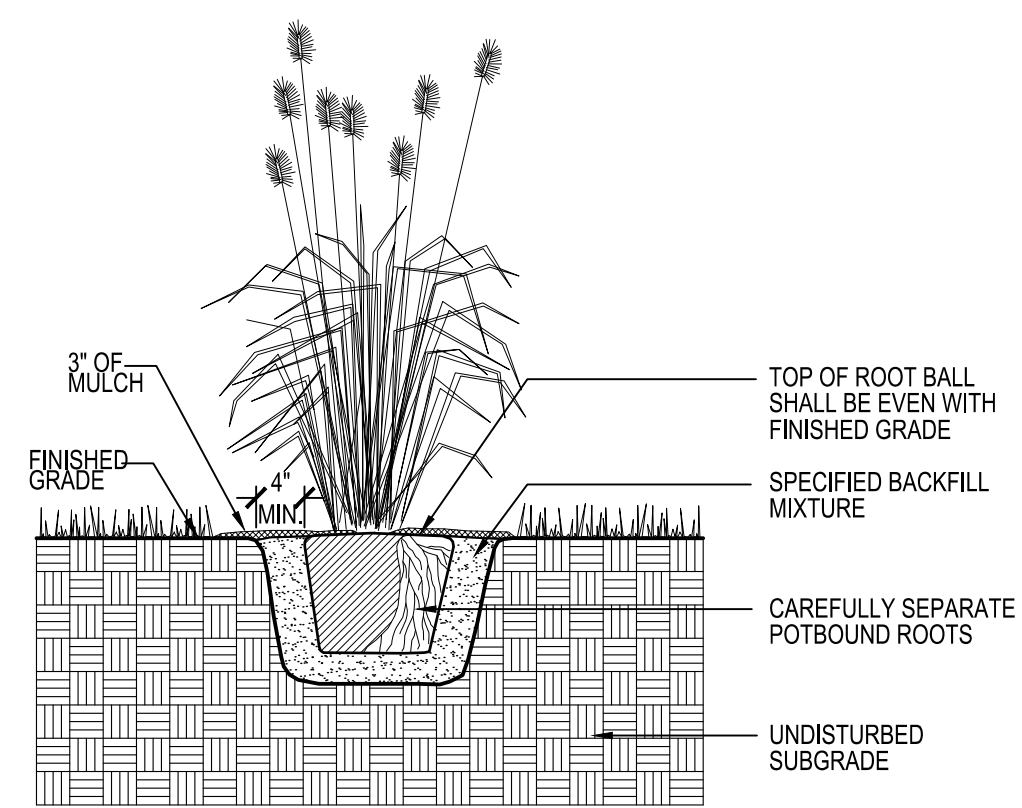


ALL STAKES SHALL BE DRIVEN OUTSIDE THE EDGE OF THE ROOT BALL.

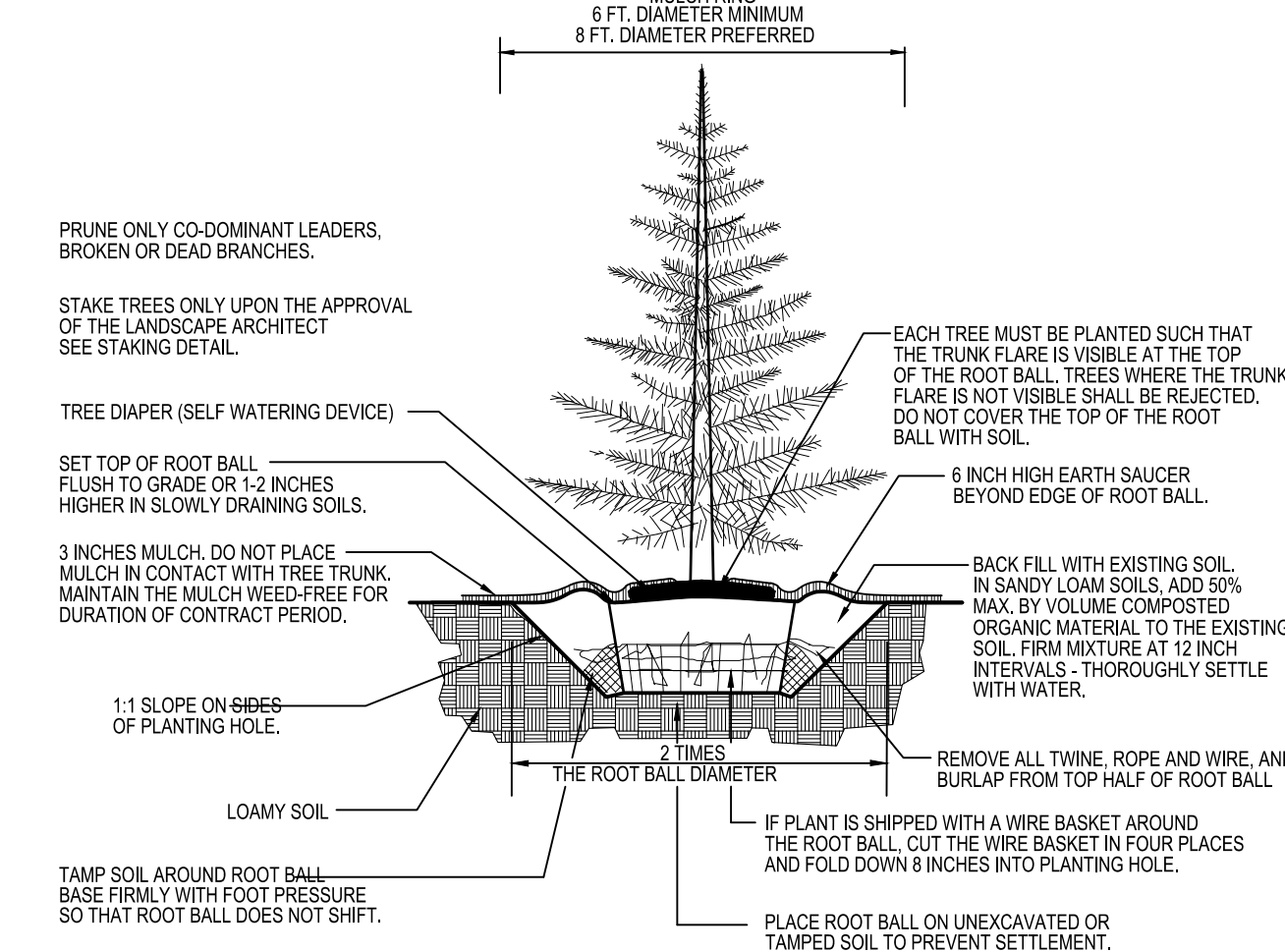
ASSURE THAT THE BEARING SURFACE OF THE PROTECTIVE COVERING OF THE WIRE OR CABLE AGAINST THE TREE TRUNK IS A MINIMUM OF 0.5 IN.

REMOVE ALL STAKING AS SOON AS THE TREE HAS GROWN SUFFICIENT ROOTS TO OVERCOME THE PROBLEM THAT REQUIRED THE TREE TO BE STAKED. STAKES SHALL BE REMOVED NO LATER THE END OF THE FIRST GROWING SEASON AFTER PLANTING.

TREE STAKING DETAIL
TREES 3 INCH CALIPER OR LARGER
NOT TO SCALE

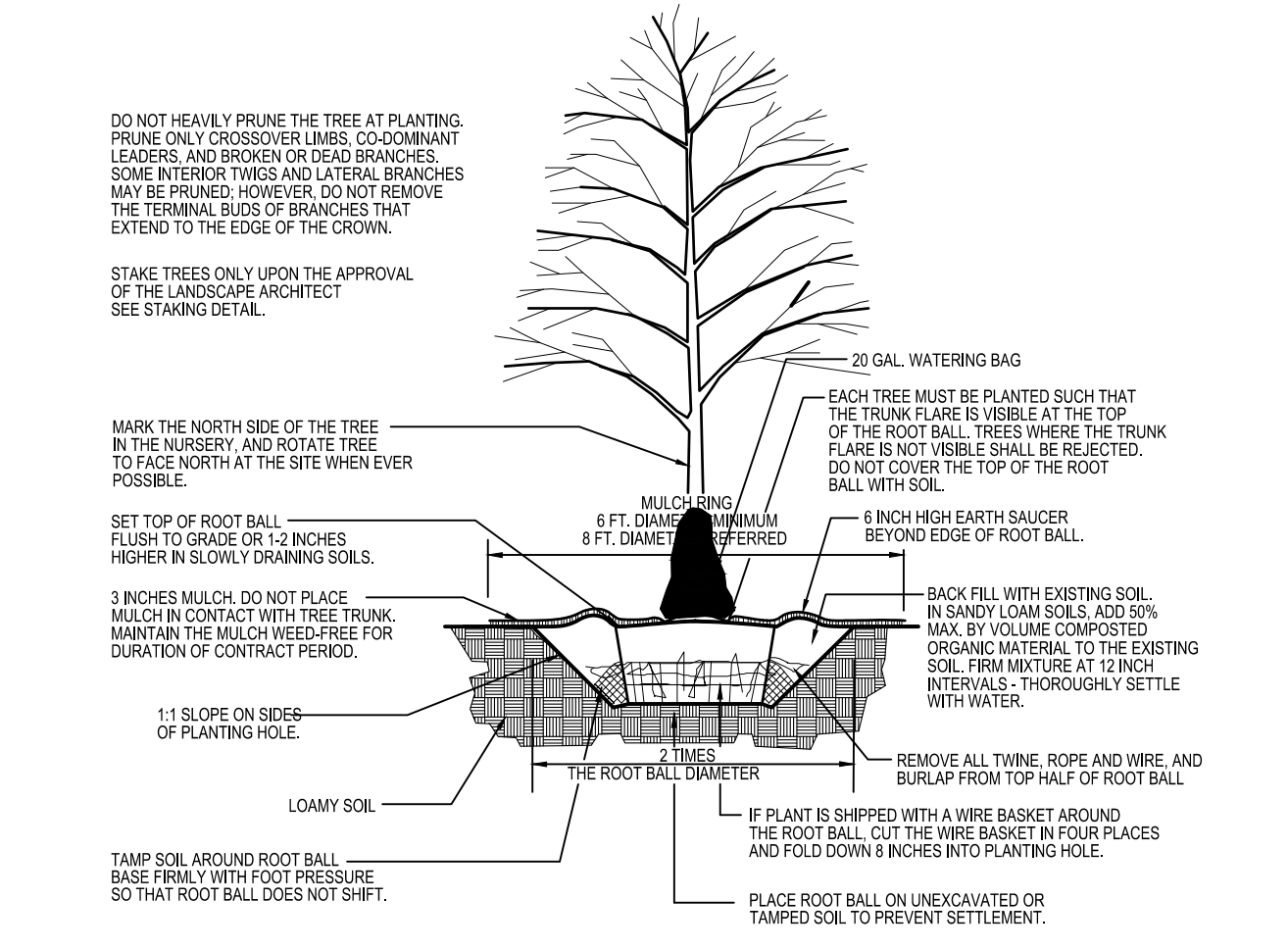


ORNAMENTAL GRASS PLANTING DETAIL
NOT TO SCALE



LOAMY SOILS: INCLUDE THE FOLLOWING USDA TEXTURAL CLASSIFICATIONS AND HAVE A CLAY CONTENT OF BETWEEN 15 TO 27% LOAM, SANDY LOAM AND SILT LOAM. NOTE THAT SOILS AT THE OUTER LIMITS OF THE LOAM CLASSIFICATIONS MAY PRESENT SPECIAL PLANTING PLANTING PROBLEMS NOT ANTICIPATED BY THIS DETAIL.

CONIFER TREE PLANTING DETAIL
NOT TO SCALE



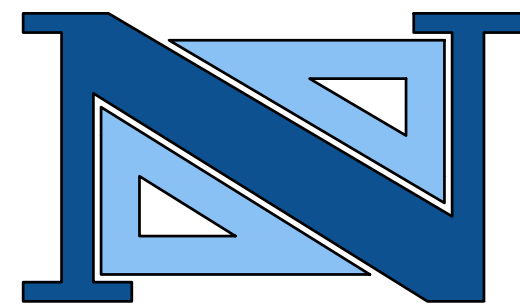
LOAMY SOILS: INCLUDE THE FOLLOWING USDA TEXTURAL CLASSIFICATIONS AND HAVE A CLAY CONTENT OF BETWEEN 15 TO 27% LOAM, SANDY LOAM AND SILT LOAM. NOTE THAT SOILS AT THE OUTER LIMITS OF THE LOAM CLASSIFICATIONS MAY PRESENT SPECIAL PLANTING PLANTING PROBLEMS NOT ANTICIPATED BY THIS DETAIL.

TREE PLANTING DETAIL
NOT TO SCALE

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CERTIFICATE OF AUTHORIZATION (N.J.S.A. 45:8-56) 24GA27927000

REVISIONS			NO.	DATE	DESCRIPTION	DRAWN	DESIGNED	CHECKED



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PROFESSIONAL PLANNER
N.J. LICENSE NO. 33100569800

CONSTRUCTION DETAILS VIII
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY **NEW JERSEY**

DRAWN BY: JV
DESIGNED BY: JV
FIELD BOOK NO:

CHECKED BY: DRAWN
SCALE: N.T.S.
PAGE:

PROJECT NO.: UNIOCTY20.011
SHEET NO.: 11.08
DATE: AUGUST 1, 2023

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PRELIMINARY FOUNDATION AND POLE ASSEMBLY DRAWING

POLE ID	POLE HEIGHT (ft)	# OF LUMINAIRES (ft)	ASSEMBLY RANGE (ft)
S1	75(21.3)	7	3173(1436)
S2	75(21.3)	7	3173(1436)
S3	75(21.3)	14	3660(1760)
S4	75(21.3)	14	3660(1760)
S5	75(21.3)	7	2400(1096)
S6	75(21.3)	7	2400(1096)

POLE ID	CONCRETE BASE WEIGHT (kg)	G (ft)	CONCRETE BACKFILL VOLUME (cu ft)	CUT BASE	LIGHTNING PROTECTION
S1	5250(2381)	30(762)	14(1.3)	NO	INTEGRATED
S2	5250(2381)	30(762)	14(1.3)	NO	INTEGRATED
S3	5250(2381)	30(762)	14(1.3)	NO	INTEGRATED
S4	5250(2381)	30(762)	14(1.3)	NO	INTEGRATED
S5	3780(1715)	30(762)	14(1.3)	NO	INTEGRATED
S6	3780(1715)	30(762)	14(1.3)	NO	INTEGRATED

Foundation Notes:

- Concrete backfill is calculated to 2 ft (610 mm) below grade (no average included). Top 2 ft (610 mm) to be class 5 soil compacted to 95% density if surrounding undisturbed soil stress otherwise specified in stamped structural design.
- Concrete backfill required 2000 psi (13.8 MPa) minimum.
- Foundation design per 2021 IBC, 150 mph, exposure category C, variation 31D (Risk Category II).
- Assumes IBC case 5 soils.
- Standard bases include integrated lightning protection. If bases are not, supplemental lightning protection is required. Contact Musco for details and information.
- Lighting protection is a manufacturer installed concrete encased electrode and conductor. Ground connection is made when concrete base is installed and working is ground. No additional steps required.

Pole Assembly Notes:

- Steel pipe should overlap concrete base and be sealed with 1 1/2 ton cover along contractor provided.
- Angle weldments on steel sections before assembling.
- Assembled pole weight includes steel sections, crossarms, luminaires, and electrical components enclosures. Pole has stamped structural design that can use pole weight listed in vertical tables on stamped structural design document.
- Section overlap must be jointed together with light. Overlap measurement should be +/- 6 in (150 mm).
- This document is not intended for use as an erection instruction. See installation instructions: Light-Structure System™ Lighting System for concrete assembly procedure.

Mattano Park Multi-Purpose Fields, Elizabeth, NJ, USA
 Date: 08/15/2024
 Name: Matt to Base
 Representative: Dan Strucka
 Page: 1 of 1
 Project: 21473
 PRELIMINARY

FIELD LIGHTING POLE

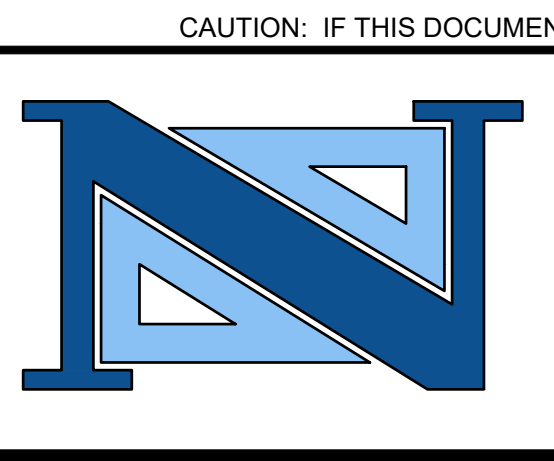
NOT TO SCALE

PRELIMINARY

Light-Structure System™ typical configuration
 TLC for LED9 Luminaires

MUSCO Lighting
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 P.O. Box 895
 100 S. Avenue 200
 Okemos, MI 48864
 +1-517-241-4000
 +1-517-241-9111

NO.	DATE	REVISIONS DESCRIPTION	DRAWN	DESIGNED	CHECKED



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CONSTRUCTION DETAILS IX
MATTANO PARK IMPROVEMENTS
BLOCK 527 - LOT 1
CITY OF ELIZABETH
UNION COUNTY
NEW JERSEY

DRAWN BY: JV
 DESIGNED BY: JV
 FIELD BOOK NO:

CHECKED BY: DR/SH
 SCALE: N.T.S.
 PAGE:

PROJECT NO:
UNIOCTY20.011

SHEET NO:
11.09

DATE: AUGUST 1, 2024

POLE S5 FOUNDATION SCHEDULE

POLE DESIGNATION	FORCES (1)			DRILLED PIER	
	MOMENT (ft-lbs)	SHEAR (k)	VERTICAL (k)	DIAMETER (inches)	EMBEDMENT DEPTH (ft)
S5	80,008	1,642	2,327	42	14'-0"

DESIGN NOTES:

- ASD LOAD COMBINATION D + 0.9W. VERTICAL FORCE IS WEIGHT OF DRESSED POLE (DOES NOT INCLUDE PRECAST BASE WEIGHT).
- MINIMUM CONCRETE BACKFILL VOLUME, SITE CONDITIONS MAY REQUIRE ADDITIONAL BACKFILL.
- POTENTIAL FOR ENCOUNTERING ROCK BEFORE REACHING EMBEDMENT DEPTH. ROCK DRILLING EQUIPMENT MAY BE REQUIRED.

POLE IDENTIFICATION

POLE DESIGNATION	POLE TYPE	PRECAST BASE TYPE	PICTURE CONFORMANCE (PK PER XMM)	PICTURE AND ACCESSORIES EPA (FT)
S1, S2	LSST00	5B	11 (7) (4)	27.9
S3, S4	LSST00	5B	14 (7) (7)	37.7
S5, S6	LSST0C	4B	7 (7)	21.0

CONCRETE/REINFORCEMENT NOTES:

CONCRETE SHALL COMPLY WITH THE FOLLOWING ASTM STANDARDS:
 MIXTURE WITH ASTM C-94, PORTLAND CEMENT WITH ASTM C-150 TYPE I, AGGREGATES (60° MAX) WITH ASTM C-33 AND BE IN CONFORMANCE WITH ACI 318.
 CONCRETE SHALL BE AIR-ENTRAINED (COMPLY WITH ASTM C-260), HAVE A MAXIMUM WATER-CEMENT RATIO, w/c = 0.45 AND HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 4,500 PSI.
 DESIGN SLUMP LIMITS ARE 4" MINIMUM AND 8" MAXIMUM. THE JOB SITE SLUMP MAY BE INCREASED BY THE USE OF A WATER REDUCING AGENT MEETING ASTM C494-02.
 CONCRETE REINFORCEMENT SHALL COMPLY WITH ASTM A615 GRADE 60 AND BE IN CONFORMANCE WITH ACI 318 & 319.
 CONCRETE DRILLED PIERS MUST ATTAIN DESIGN STRENGTH PRIOR TO POLE INSTALLATION AND FUTURE MOUNTING.
 THE DEPTH EQUAL TO THE PRECAST BASE EMBEDMENT SHALL BE THOROUGHLY CONSOLIDATED BY MECHANICAL VIBRATION DURING PLACEMENT.

POLE S5 FOUNDATION ELEVATION
 SCALE: NOT TO SCALE

SOIL BACKFILL NOTE:
 THE TOP TWO FEET OF ANNULUS SHALL BE BACKFILLED WITH SOIL WITH A CLASSIFICATION OF CLASS 5 (TABLE 1009.2) OR BETTER. COMPACTION, 95% FOR COHESIVE SOIL, AND 98% FOR COHESIONLESS SOIL, BASED UPON STANDARD PROCTOR TESTING (ASTM D998).

LACINA ENGINEERING, LLC
 114 NICHOLAS DRIVE
 MARSHALLTOWN, IA 50158
 OFFICE NUMBER: 641-752-6334
 EMAIL: MSL.INFO@EPC.BIZ

Kyle G. Lacina
 State of New Jersey License No. 2743
 Digital Seal
 08/15/2024 05:00
 CERTIFICATE OF AUTHORIZATION NUMBER: 24GA2820070

POLES S1 - S4 & S6 FOUNDATION SCHEDULE

POLE DESIGNATION	FORCES (1)			DRILLED PIER		REINFORCING		
	MOMENT (ft-lbs)	SHEAR (k)	VERTICAL (k)	DIAMETER (inches)	EMBEDMENT DEPTH (ft)	CONCRETE BACKFILL VOLUME (cu ft)	CORE DIAMETER (inches)	VERTICAL REINFORCING TIES
S1, S2	94,967	1,965	3,382	42	21'-0"	9.9	35	16-#6
S3, S4	117,228	2,272	3,861	42	22'-0"	6.2	35	16-#6
S6	80,008	1,642	2,327	42	20'-0"	9.9	35	16-#6

DESIGN NOTES:

- ASD LOAD COMBINATION D + 0.9W. VERTICAL FORCE IS WEIGHT OF DRESSED POLE (DOES NOT INCLUDE PRECAST BASE WEIGHT).
- MINIMUM CONCRETE BACKFILL VOLUME, SITE CONDITIONS MAY REQUIRE ADDITIONAL BACKFILL.
- CORE DIAMETER EQUAL TO INSIDE DIAMETER OF TIES.
- POTENTIAL FOR ENCOUNTERING ROCK BEFORE REACHING EMBEDMENT DEPTH. ROCK DRILLING EQUIPMENT MAY BE REQUIRED.
- BORINGS NOT AVAILABLE AT ALL POLE LOCATIONS. IF ALL OR PART ARE ENCOUNTERED DEEPER THAN 9' BELOW GRADE, CONTACT THE STRUCTURAL ENGINEER FOR THE POTENTIAL REQUIREMENT OF EXTENDING THE FOUNDATION DEEPER.

PRECAST BASE IDENTIFICATION

PRECAST BASE TYPE	PRECAST BASE WEIGHT (LBS)	PRECAST BASE LENGTH (ft)	PROJECTION ABOVE GRADE (ft)	STANDARD EMBEDMENT (ft)	OUTSIDE DIAMETER (ft)
4B	3,480	22'-0"	8'-0"	14'-0"	15.75'
5B	4,580	23'-11"	7'-11"	16'-0"	18.25'

REFERENCE POLE ID TABLE ON SHEET C1 FOR POLE TO PRECAST BASE TYPES

POLES S1 - S4 & S6 PIER DETAIL
 SCALE: NOT TO SCALE

INSTALLATION NOTE (POLES S1 - S4 & S6 ONLY):
 CONCRETE TO BE PLACED IN A CONTINUOUS POUR OR A COLD JOINT WILL BE ACCEPTABLE AT THE BOTTOM OF THE PRECAST BASE. TWO POURS WITH THE REINFORCEMENT IN PLACE ALLOWED TO SET UP LONG ENOUGH TO SUPPORT WEIGHT OF PRECAST BASE. THEN THE PRECAST BASE MAY BE SET IN PLACE AND THE REST OF THE CONCRETE CONCRETE BACKFILL POURED. DEPENDING ON THE DEPTH TO GROUND WATER AT THE TIME OF INSTALLATION, THE TWO POUR METHOD UTILIZING A COLD JOINT MAY NOT BE FEASIBLE.

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Kyle G. Lacina
 State of New Jersey License No. 2743
 Digital Seal
 08/15/2024 05:00
 CERTIFICATE OF AUTHORIZATION NUMBER: 24GA2820070

FIELD LIGHTING POLE FOUNDATIONS

NOT TO SCALE

MATTANO PARK
MULTI-PURPOSE FIELDS
FIELD LIGHTING
 ELIZABETH, NJ

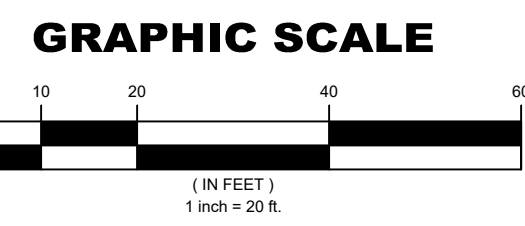
MUSCO Lighting
 COMPANY OFFICE
 P.O. Box 895
 100 S. Avenue 200
 Okemos, MI 48864
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 +1-517-241-9111

DESIGNED BY: DR/SH
 CHECKED BY: DR/SH
 SCALE: N.T.S.
 PROJECT NUMBER: 21473
 DATE: 20 AUGUST 2024
 DRAWING NUMBER: C1
 OF TWO

MATTANO PARK
MULTI-PURPOSE FIELDS
FIELD LIGHTING
 ELIZABETH, NJ

MUSCO Lighting
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 Okemos, MI 48864
 +1-517-241-4000
 +1-517-241-9111

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 SCALE: N.T.S.
 PROJECT NUMBER: 21473
 DATE: 20 AUGUST 2024
 DRAWING NUMBER: C2
 OF TWO



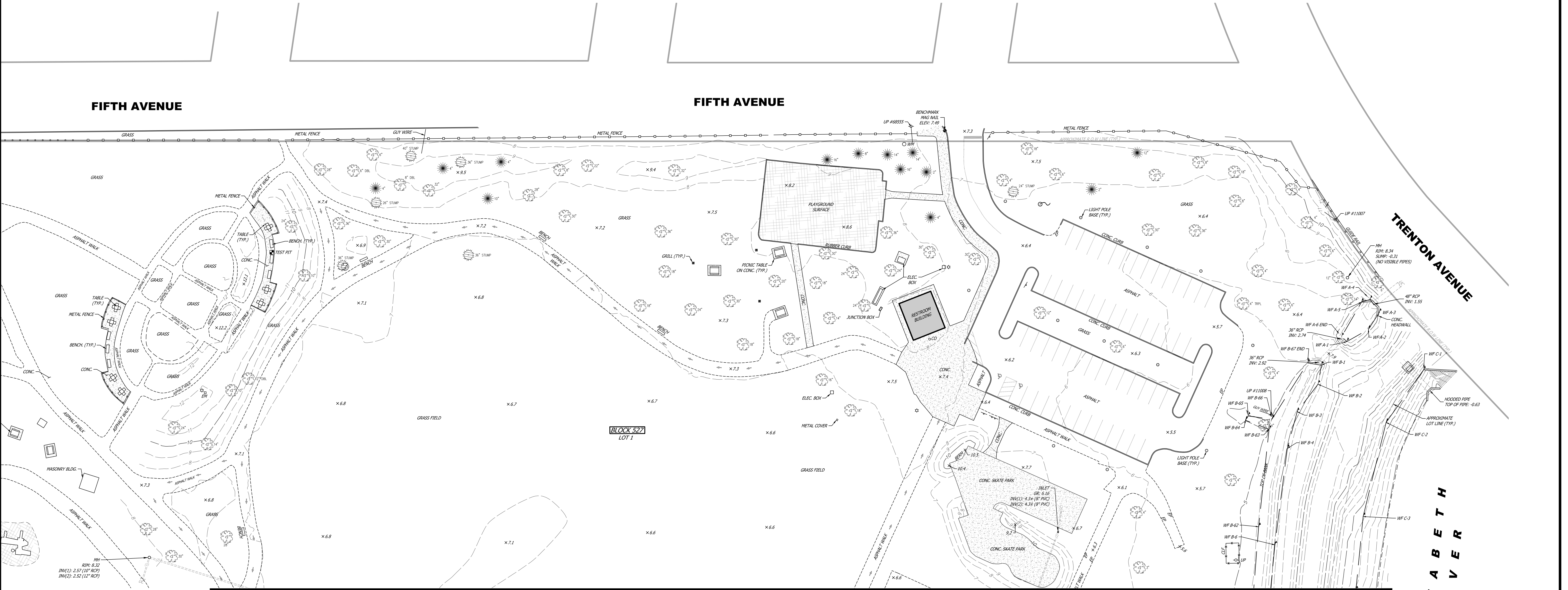
PLAN LEGEND:

SURVEY CALL	DEED CALL	FIRE HYDRANT	HANDICAPPED SPACE	ELECTRIC MARKOUT	FIBER OPTIC MARKOUT	GAS MARKOUT	OVERHEAD WIRES	UNKNOWN CONNECTION	MANHOLE
INLETS	SIGNS	UTILITY POLE	LIGHT POLE	WATER VALVE	GAS VALVE	CLEAN-OUT	UNKNOWN VALVE	FIRE HYDRANT	HANDICAPPED SPACE
TREES	SHRUB	ROOF DRAIN	DEPRESSED CURB	EDGE OF PAVEMENT	CHAIN LINK FENCE	FINISHED FLOOR(SILL)	STORM SEWER LINE	SANITARY SEWER LINE	TELEPHONE MARKOUT
WATER MARKOUT	ELECTRIC METER	LANDSCAPED AREA							

NEW JERSEY CERTIFICATION:
 TO: UNION COUNTY PARK COMMISSION, I CERTIFY THAT I AM A PROFESSIONAL LAND SURVEYOR, LICENSED TO PRACTICE IN THE STATE OF NEW JERSEY, AND THAT THIS MAP OR PLAN IS A RESULT OF A FIELD SURVEY MADE ON JANUARY 8, 2021 AND UPDATED ON JUNE 30, 2023 UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH THE RULES AND REGULATIONS PROMULGATED BY THE STATE BOARD OF ENGINEERS AND LAND SURVEYORS. I DECLARE THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE INFORMATION SHOWN HEREON CORRECTLY REPRESENTS THE CONDITIONS FOUND AT, AND AS OF THE DATE OF THE FIELD SURVEY, EXCEPT SUCH IMPROVEMENTS OR EASEMENTS, IF ANY, BELOW THE SURFACE AND NOT VISIBLE.

SURVEY NOTES:
 1. THIS IS NOT A BOUNDARY SURVEY. THE LOT LINES SHOWN HEREON ARE FOR INFORMATIONAL PURPOSES ONLY.
 2. SUBJECT TO EASEMENTS AND/OR RESTRICTIONS OF RECORD AND RIGHTS OR CLAIMS OF PARTIES IN POSSESSION OF THE SUBJECT LAND OR ADJOINING LANDS AND/OR EASEMENTS OR CLAIMS OF EASEMENTS NOT SHOWN BY THE PUBLIC RECORD.
 3. UNDERGROUND UTILITIES IF DEPICTED ARE BASED ON VISIBLE EVIDENCE. THE LACK OF UTILITY INFORMATION DOES NOT DENY THE EXISTENCE OF SAME. PRIOR TO ANY DESIGN OR CONSTRUCTION THE PROPER UTILITY AGENCIES MUST BE CONTACTED TO VERIFY THE PRESENCE OR ABSENCE OF UTILITIES.

- DELINEATION FOR WETLANDS AND STATE OPEN WATERS HAS BEEN PERFORMED FOR THIS PROJECT BY ENVIRONMENTAL TECHNOLOGY INC. ON MAY 3, 2021. FLAGGING HAS BEEN LOCATED BY NEGLIA ENGINEERING USING SURVEY GRADE INSTRUMENTS.
 - TOXIC WASTES ARE NOT DEPICTED. THE LACK OF TOXIC WASTE INFORMATION DOES NOT DENY THE EXISTENCE OF SAME. SITE REVIEW FOR THE SAME SHOULD BE PURSUED AND APART FROM THIS SURVEY.
 - FENCES & WALLS HAVE BEEN LOCATED AT THE BOTTOM OF THE STRUCTURE, AT THE TIME OF FIELD SURVEY.
 - THE MERIDIAN OF THIS SURVEY IS BASED ON THE NEW JERSEY PLANE COORDINATE SYSTEM NAD83(2011) AS ESTABLISHED USING GPS METHODS AND THE SMARNET NETWORK.
 - ELEVATIONS SHOWN ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AS ESTABLISHED USING GPS METHODS AND THE SMARNET NETWORK.
- REFERENCES:**
 1. LOT AND BLOCK NUMBERS SHOWN HEREON REFER TO THE CITY OF ELIZABETH TAX BOOK 1 PAGE 33.

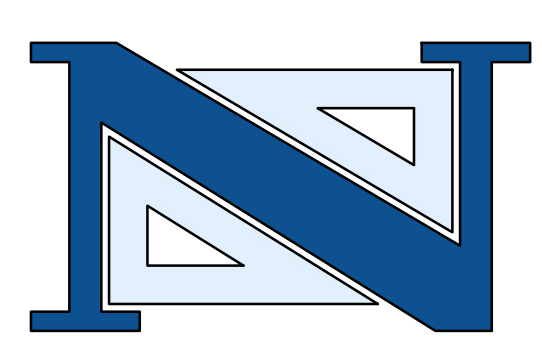


M A T C H L I N E

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REVISIONS		DRAWN	DESIGNED	CHECKED
NO.	DATE	DESCRIPTION	DIC	GAV
1	04-16-2021	ADDED ADDITIONAL TOPOGRAPHIC DATA FROM 2021-04-14 FIELD WORK	R99	GAV
2	07-06-2023	ADDED ADDITIONAL TOPOGRAPHIC DATA FROM 2023-06-30 FIELD WORK	R99	GAV



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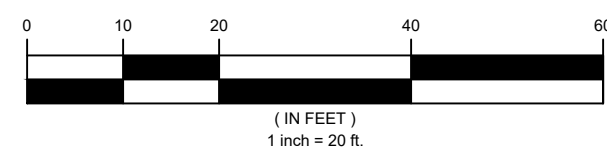
PROFESSIONAL PLANNER
 N.J. LICENSE NO. 33LI00569800

TOPOGRAPHIC SURVEY
MATTANO PARK
PORTION OF BLOCK 527, LOT 1
CITY OF ELIZABETH
UNION COUNTY
NEW JERSEY

DRAWN BY: C.J.C. CHECKED BY: G.A.V. PROJECT NO: UNIOCTY20.011 SHEET NO: 1 OF 2
 DESIGNED BY: SCALE: 1" = 30' DATE: JANUARY 18, 2021
 FIELD BOOK NO: PAGE: INCH



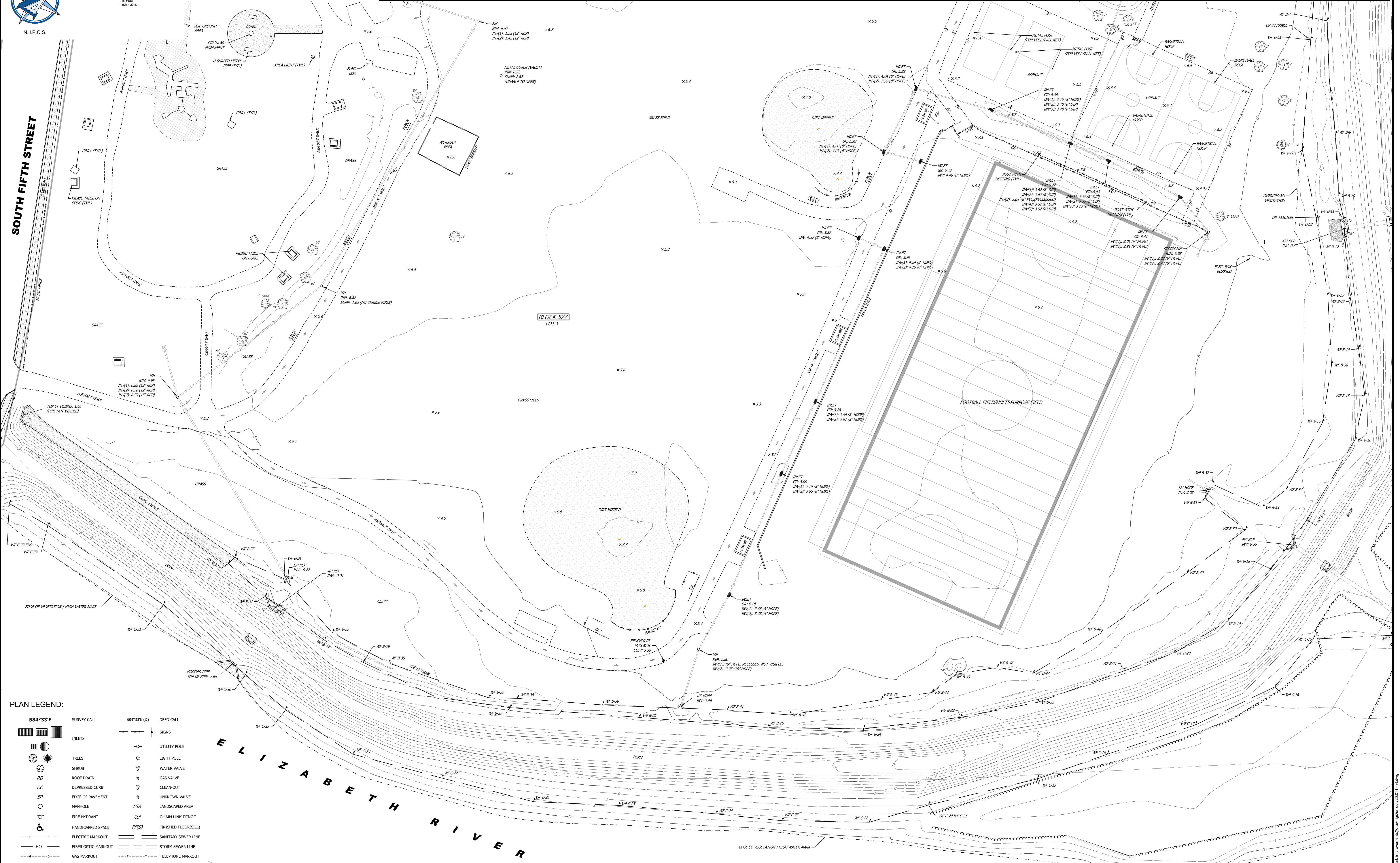
GRAPHIC SCALE



N.J.P.C.S.

MATCHLINE

SOUTH FIFTH STREET



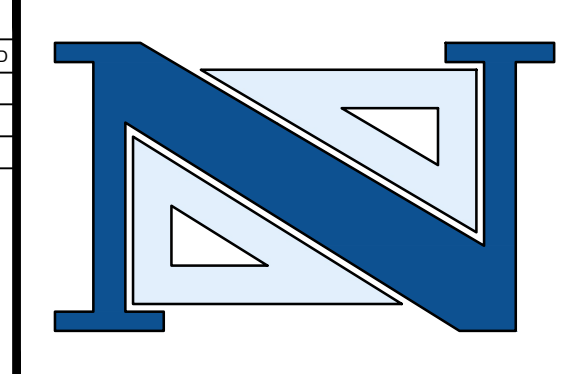
PLAN LEGEND:

- SB4*33'E SURVEY CALL
- SB4*33'E (D) DEED CALL
- INLETS
- UTILTY POLE
- TREES
- LIGHT POLE
- SHRUB
- WATER VALVE
- ROOF DRAIN
- GAS VALVE
- DEPRESSED CURB
- CLEAN-OUT
- EDGE OF PAVEMENT
- UNKNOWN VALVE
- MANHOLE
- LANDSCAPED AREA
- FIRE HYDRANT
- CHAIN LINK FENCE
- HANDICAPPED SPACE
- FINISHED FLOOR(SILL)
- ELECTRIC MARKOUT
- SANITARY SEWER LINE
- FIBER OPTIC MARKOUT
- STORM SEWER LINE
- GAS MARKOUT
- TELEPHONE MARKOUT
- OVERHEAD WIRES
- WATER MARKOUT
- UNKNOWN CONNECTION
- ELECTRIC METER

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1	07-06-2023	ADDED TOPOGRAPHY IN VICINITY OF BASKETBALL COURTS.	MM	MM	MM
2	07-06-2023	ADDED ADDITIONAL TOPOGRAPHIC DATA FROM 2023-06-30 FIELD WORK	RMB	GAV	GAV
3	03-11-2024	ADDED FOOTBALL FIELD	PJP		GAV



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TOPOGRAPHIC SURVEY
MATTANO PARK
PORTION OF BLOCK 527, LOT 1
CITY OF ELIZABETH
UNION COUNTY NEW JERSEY

DESIGNED BY: GAV
 SCALE: 1" = 30'
 PROJECT NO: UNIOCTY20.011
 SHEET NO: 2 OF 2
 DATE: JANUARY 16, 2024

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