CITY OF NEWARK
DELAWARE

_____
Bid Security

_____
Vendor

CITY OF NEWARK

Delaware

CONTRACT NO. 23-07

CITY HALL PARKING LOT RECONSTRUCTION

NOTICE

Do not disassemble. Return intact with
properly completed forms or bid may be rejected.

CITY OF NEWARK
Delaware

CONTRACT NO. 23-07

CITY HALL PARKING LOT RECONSTRUCTION

TABLE OF CONTENTS

CITY OF NEWARK
Delaware

CONTRACT NO. 23-07

CITY HALL PARKING LOT RECONSTRUCTION

NOTICE OF LETTING

Sealed bids for Contract No. 23-07 CITY HALL PARKING LOT RECONSTRUCTION will be received by the City of Newark Purchasing Division (220 South Main Street; Newark, Delaware 19711) until 2:00 p.m., prevailing time, on Tuesday, June 20, 2023, and will be publicly opened and recorded in the Council Chamber shortly thereafter.

Alternatively, bids may also be emailed in PDF form to the City Purchasing Division at contracts@newark.de.us by the deadline noted above and will be opened immediately after the closing date and time and will be publicly recorded in the Council Chamber shortly thereafter.

A mandatory pre-bid meeting will be held on Tuesday, May 30, 2023, at 2:00 p.m. at the City Municipal Building at 220 South Main Street, Newark, DE 19711. A bid bond equal to not less than 10% of the bid price must accompany the bid.

All questions/requests for information regarding this contract (bid process, drawings, and technical specifications, etc.) must be submitted via email to contracts@newark.de.us by 5:00 p.m. on Tuesday, June 13, 2023, to allow staff sufficient time to develop answers to questions deemed appropriate. Please submit all questions/requests for information in bulk (e.g., in a Word document attachment to an email) to limit the total number of emails received.

The contract documents for Contract No. 23-07 may be obtained from the City's web page at www.newarkde.gov/bids.

CITY OF NEWARK
Delaware

CONTRACT NO. 23-07

CITY HALL PARKING LOT RECONSTRUCTION

GENERAL PROVISIONS

1. BIDS

Each bid shall be submitted on the proposal form included herein. The proposal and all other required documents must be submitted in a sealed envelope clearly identified with the bidder's name and marked "City of Newark - Contract No. 23-07, CITY HALL PARKING LOT RECONSTRUCTION ". **Bid Documents must be received by the Purchasing Division prior to 2:00 p.m. prevailing time, Tuesday, June 20, 2023.** Each bid so submitted shall constitute an irrevocable offer for a period of thirty (30) calendar days following the bid opening date. A bid bond equal to not less than 10% of the bid price must accompany the bid.

Alternatively, bids may also be emailed in PDF form to the City Purchasing Division at contracts@newark.de.us by the deadline noted above and will be opened immediately after the closing date and time and will be publicly recorded in the Council Chamber shortly thereafter.

The project includes, but is not limited to, constructing a security fence and gates around the Newark Police Department parking lot, repaving and reconstruction of parking lots, lighting, and related electrical work.

A **mandatory** pre-bid meeting will be held on **May 30, 2023, at 2:00 p.m.** at the City Municipal Building at 220 South Main Street, Newark, DE 19711 with a site visit to follow at the same location.

2. DEFINITIONS

A. *Agreement:* The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
B. *Contract Documents:* Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
C. *Contractor:* The individual or entity with whom the Owner has entered into the Agreement.
D. *Engineer:* The Owner's consultant engineer. The Engineer for this project is Pennoni.
E. *Owner:* The individual or entity with whom Contractor has entered into the Agreement

and for whom the Work is to be performed. The Owner for this project is the City of Newark.

F. *Shop Drawings:* All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

G. *Site:* Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

H. *Subcontractor:* An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

I. *Work:* The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, as required by the Contract Documents.

3. BID SECURITY

Each bid must be accompanied by a certified check, or cashier's check, or bid bond in the amount of ten percent (10%) of the proposed bid price, payable to the City of Newark. Failure to provide the required bid security may be grounds for rejection of the bid.

If the successful bidder fails or refuses to execute and deliver the contract within twenty (20) calendar days after receiving notice of the award of the contract, the successful bidder shall forfeit to the City for such failure or refusal the security deposited with the bid. Any certified check or cashier's check submitted as security shall be returned to all unsuccessful bidders thirty (30) calendar days after the bid opening date.

4. CONTRACT SURETY BOND

The successful bidder shall provide the City with a Performance Bond and Payment Bond in the full amount of the contract guaranteeing faithful performance of the contract. Such bonds shall be provided to the City with the executed contract within twenty (20) calendar days after receiving notice of award of the contract. Upon receipt of the contract surety bond, the City will return any certified check or cashier’s check submitted as bid security by the successful bidder.

If a warranty is included as part of this contract’s scope of work, once the project is substantially complete the surety bond shall be converted into a warranty bond for the term of the warranty. Once substantial completion of the project is reached and approved, City staff shall release any remaining retainage and issue a close out letter to the vendor stating the start date of the warranty period. A copy of the above noted warranty bond shall be provided to the City Purchasing Division no later than thirty (30) days from the receipt of the City’s close out letter.

5. TAXES

The price(s) quoted shall not include federal or state taxes. If applicable, the successful bidder shall provide the City with three (3) copies of the required tax exemption forms to accompany the bidder's invoice.

6. AWARDS

The City Manager or designee shall review each of the bids submitted and make a recommendation to the City Council on the disposition of the bids. The City Council reserves the right to accept or reject any or all bids or parts of bids as they may determine and to waive any irregularities or defects where the best interest of the City would be served.

7. BID PRICE

The bid price shall include all transportation, delivery, installation, and all charges for the goods and services specified for this contract. Any delivered goods specified in this contract shall be F.O.B. Newark Warehouse (406 Phillips Avenue; Newark, DE 19711). The Contractor will be held to have examined and be familiar with the entire Bid Specification prior to submitting their Bid Proposal. No allowance for additional compensation will be considered for failure to comply with this requirement.

Any prices quoted are those for which the material will be furnished F.O.B. Destination and include all charges that may be imposed during the period of the contract. Unless otherwise specified and agreed upon by both parties in writing, all material shall be designated F.O.B. Destination and have freight included in quotations.

8. TIME OF COMPLETION AND LIQUIDATED DAMAGES

The Contractor is to complete the work within one hundred twenty (120) calendar days from the date specified by the City in a written "Notice to Proceed". Liquidated damages of five hundred dollars ($500.00) per day may be assessed to the Contractor by the City for each day the contract is extended beyond the completion date to provide recovery of costs. Liquidated damages are not to be construed as a penalty in any sense, but rather a reasonable estimate of the damages that would be suffered by the City in the event of a breach. The City and the contractor shall acknowledge that the actual damages resulting from a breach may be difficult to ascertain and that this provision represents a reasonable estimation of such damages. This provision shall not limit the City’s right to pursue any other remedies available under law or equity.

9. INTENT OF SPECIFICATIONS

It shall be the Contractor's responsibility to furnish the goods and services specifically indicated in the scope of work and specifications and such other as may be required to meet the intent of

the specifications, drawings, or as may be necessary to provide the operation intended by the City.

10. EXCEPTIONS & OMISSIONS

Any and all exceptions which are taken to the drawings and specifications must be noted in the space provided on the proposal. The listing of any exception to the specifications may be grounds for rejection of the bid.

Further, the bidder recognizes that the City of Newark is not in the business of preparing specifications, and any omissions in this contract/RFP must be strictly addressed by the firm with the submittal of its proposal.

11. EQUALS

Where a specific product is specified by catalog or model number, the acceptability of any other "or equal" product shall be subject to the sole judgment of the City of Newark.

12. WARRANTIES AND STANDARDS

All goods are to be new and unused in all component parts, including all accessories. The specifications will be construed as the minimum required. When the manufacturer's standard exceeds the specifications, the standard units shall be furnished. All materials shall be free of defects. All standard manufacturer's warranties and guarantees shall apply to equipment and goods supplied under this contract.

The Contractor guarantees all of the work and materials for a period of one year, unless specifically stated as longer in the technical specifications or project plans after the date of completion and final acceptance by the City.

13. WORKMANSHIP

Workmanship will conform to the best current manufacturing practice followed for goods of this type. Component parts and units will be manufactured to definite standard dimensions with proper fit and clearances.

14. FINAL INSPECTION

All delivered goods and services will be subject to inspection by the City of Newark, Delaware. If in any way an item fails to meet the terms of the contract, it may be rejected or liquidated damage charges made. The decision of the City will be final, and any rejected items or materials will have to be replaced at the expense of the vendor.

15. ADVERTISEMENTS

Any bidder submitting a bid will not use the name of the City in any advertisement without first obtaining the written consent of the City Manager or their designee. All such requests should be submitted in writing to contracts@newark.de.us.

16. EEO AND BUSINESS LICENSES

The contractor shall be licensed to do business in the State of Delaware and shall be registered as a contractor in the City of Newark and possess all other required licenses. The contractor shall also be a fair and equal opportunity employer.

17. NONCOLLUSION

The bidder shall not, either directly or indirectly, enter into any agreement, participate in any collusion, or otherwise take any action in restraint of free competitive bidding in connection with the contract. Signed non-collusion statement shall be submitted with bid.

18. ADDENDA AND QUESTIONS

Any changes to the contract documents shall be made by written addenda, no later than four (4) calendar days prior to the bid opening date which may be issued with extensions to the bid submittal date if necessary to allow adequate time for response. Bidders shall bear the entire responsibility for being sure they have received all such addenda. **Bidder is responsible for submitting a signed letter listing the addendums received for this contract.** All addenda will be posted on the City website at www.newarkde.gov/bids. After the bids have been received, no claim that the bidder did not have complete information will be considered. No verbal agreement or conversation with any officer, agent or employee of the City, either before or after the execution of this contract, shall affect or modify any of the terms or conditions outlined herein.

All questions/requests for information regarding this contract (bid process, drawings and technical specifications, etc.) must be submitted via email to contracts@newark.de.us by 5:00 p.m. on Tuesday, June 6, 2023 to allow staff sufficient time to develop answers to questions deemed appropriate. Please submit all questions/requests for information in bulk (e.g., in a Word document attachment to an email) to limit the total number of emails received.

19. PAYMENT

No invoice will be processed for payment until the goods and/or services have been delivered and verification is made that the specifications under this contract have been met. Progress payments, when requested, will be evaluated and approved for payment based on work completed to date according to the approved schedule of values. Upon written request from

the Contractor, payment for material stored on site may be made at 50% of the material's invoice price. Full payment will be made after the material is installed. Payment will be made within thirty (30) days of final acceptance by the City.

20. BIDDERS QUALIFICATIONS

No contract will be awarded to any bidder who in the judgment of the City is not a responsible bidder, or is not prepared with all the necessary experience, capital, organization, and equipment to conduct and complete the work for which the bidder proposes to contract.

21. LIABILITY INSURANCE

A. The Contractor shall at all times maintain and keep in force such insurance as will protect him from claims under Worker's Compensation Acts, and also such insurance as will protect him and the owner from any such claims for damages for personal injuries, including death, which may arise from operations under this contract, whether such operations be by the Contractor or by any Subcontractor or anyone directly or indirectly employed by any of them.

B. The Contractor shall be required to provide Workers' Compensation (WC)/Employer's Liability (EL) coverage with limits of insurance not less than:

$1,000,000 Per Accident
$1,000,000 Per Illness, Employee
$1,000,000 Per Illness, Aggregate

The Contractor shall be required to provide Contractors Professional Liability coverage with limits of insurance not less than:

$1,000,000 Per Claim
$1,000,000 Per Aggregate

The Contractor shall be required to provide Umbrella/Excess Liability coverage with limits of insurance not less than:

$3,000,000 Each Occurrence
$3,000,000 Aggregate

The Contractor shall be required to provide Commercial General Liability (CGL) coverage with limits of insurance not less than:

$1,000,000 Each Occurrence Limit
$1,000,000 Personal & Advertising Injury Limit
$2,000,000 Annual Aggregate Limit

$2,000,000 Products-Completed Operations Limit
$1,000,000 Business Auto Liability Limit (Owned, Hired, & Non-Owned Autos)

The Contractor, The City of Newark (Owner), Pennoni (Engineer), and all other parties required of the Contractor shall be included as insured on the CGL, using additional insured endorsements providing coverage as broad as the coverage provided for the named insured Subcontractor.

Subcontractors approved in association with the hiring of a Contractor shall be required to provide Commercial General Liability (CGL) coverage with limits of insurance in equal amount to those required of the Contractor.

All Contractors shall provide Contractors Pollution Liability with limits not less than:

Each Claim or Occurrence	$1,000,000
Annual Aggregate	$1,000,000

The Contractors Pollution Liability policy shall include coverage for Emergency Response Costs, Contingent Transportation, Non-Owned Disposal Sites, and Natural Resource Damage. If coverage is written on a claims-made basis, an Extended Reporting Period, or tail coverage, shall be provided for two (2) years following completion of the insured's services. In the alternative, the Contractors Pollution Liability policy shall be renewed for not less than two years following completion. The policy retroactive date shall be no later than the effective date of the Agreement.

C. A copy of the Certificate of Insurance must accompany each bid. The Contractor shall ensure that all insurances required remain valid for the entire term of the contract, inclusive of any term extension(s) and retroactive if claim is made afterward. The Prime Contractor's attention should be directed to other sections of the contract documents in the event additional insurance is required based on the scope of work.

22. ITEMS TO BE EXECUTED AND SUBMITTED WITH BID

Bidders are notified that the proposal, insurance documentation, and bid security must be executed and completed in full and submitted with the bid at the time of bidding, or bid may be subject to rejection.

The Contractor shall also submit the following with the bid:

A. List of Subcontractors and Qualifications
B. Exceptions or qualifications to the Contract Documents
C. Executed Bid Bond
D. Acknowledgment of Addenda
E. Proposal

23. ITEMS TO BE SUBMITTED WITH SIGNED CONTRACT

A. Construction Schedule
B. Performance Bond
C. Insurance Documentation
D. Payment Bond

24. RETAINAGE

The City will retain 5% of the progress payments until such time as the project is complete and accepted by the City.

25. INDEMNIFICATION

The Contractor shall solely be responsible and liable for the accuracy and completeness of all work performed and shall agree to indemnify, defend and hold harmless the City of Newark, its officers, agents and employees, from and against any and all claims, actions, suits and proceedings arising out of, based upon or caused by negligent acts, omissions or errors of or the infringement of any copyright of patent, by the contractor, its officers, agents, employees or subcontractors, in the performance of the contracted agreement.

26. TERMINATION OF AGREEMENT

This agreement may be terminated by the City upon thirty (30) days written notice if the contractor fails to perform satisfactorily in accordance with the terms and conditions of the contract. In the event this agreement is terminated, the contractor shall be paid for services satisfactorily rendered up to the termination date.

27. FAMILIARITY WITH PROPOSED WORK

A complete understanding of the conditions as they exist is required by careful personal examination of the work at the site. Each contractor bidding must completely satisfy himself as to the exact nature and existing conditions of the work area. The contractor also shall carefully examine the plans, specifications, and the contract forms for the work contemplated. Failure to do so will not relieve the successful contractor of his obligation to carry out the provisions of the contract.

The contractor shall not, at any time after the execution of the contract, set up any claims whatsoever based upon insufficient data or incorrectly assumed conditions, nor shall claim any misunderstanding in regard to the nature, conditions or character of the work to be done under this contract, and shall assume all risks resulting from any change in the conditions which may occur during the progress of the work.

The Contractor is solely responsible to identify, obtain, and pay for all required permits, licenses, and approvals required by any and all State, local, or Federal authorities or governmental agencies to complete the Work.

28. CONTRACTOR'S UNDERSTANDING

It is understood and agreed that the contractor has, by careful examination, satisfied himself as to the nature and location of the work, the conformation of the ground; the character, quality and quantity of the material which will be required; the character of equipment needed preliminary to and during the prosecution of the work; the general and local conditions; all permit restrictions and conditions; and all other matters which can in any way affect the work under this contract. No verbal agreement or conversation with any officer, agent, or employee of the City of Newark, either before or after the execution of this contract, shall affect or modify any of the terms or obligations herein contained.

29. SAFETY REQUIREMENTS

The Contractor shall comply with the requirements and standards of the Occupational Safety and Health Act and all other state and local laws, ordinances and codes governing all work to be provided under the contract documents.

The Contractor shall maintain on-site and in all vehicles at all times spill response equipment appropriate for the types and quantities of fluids and/or materials that may be subject to spillage during the project. All discharges to the storm drainage system or surface waters are strictly prohibited. In the event that a spill reaches the storm drainage system and/or surface waters, the contractor shall notify the Public Works and Water Resources Department immediately at 302-366-7000. The Contractor will also be responsible for spill response and clean-up at no cost to the owner. If the Contractor fails to respond to and clean up a spill to the satisfaction of the owner, the owner will perform clean up and bill the Contractor for 150% of the personnel time and material expenses incurred by the City as necessary for the response.

30. RESTORATION OF DISTURBED AREAS AND CLEAN UP

Upon completion of the work, all related work, such as lawns, curbs, sidewalks, fences, shrubbery, and driveways that have been disturbed shall be restored to their original condition and in accordance with City of Newark Standards and Specifications. The area shall

be cleared of all tools, equipment and refuse resulting from the project. The contractor shall, at the end of each day, leave the areas in which he has worked, free of debris and safely secure his material and equipment.

31. INSPECTION OF MATERIAL AND WORK

A. Workmanship shall be of good quality and all work and material shall be at all times subject to the inspection of the City of Newark or their duly authorized representatives. The Contractor shall provide reasonable and necessary facilities for such inspection. If required by the City of Newark, the contractor shall take down or uncover portions of the finished work.
B. The Contractor agrees that in case any of the material or work, or both, shall be rejected as defective or unsuitable by the city, material and the work shall be done again immediately to the satisfaction and approval of the city at the cost and expense of the Contractor.
C. Any omission or failure on the part of the City of Newark or inspectors to disapprove or reject any defective work or materials shall not be construed to be an acceptance of any defective work or material.
D. In case the City should not consider the defect of sufficient importance to require the contractor to replace any imperfect work or materials, the City shall have the power to make an equitable deduction from the stipulated price.
E. Neither the inspection nor supervision of the work, nor the presence or absence of an inspector shall relieve the contractor of any of his obligations under the contract or of making his work conform to the specifications.

32. DEBRIS COLLECTION AND DISPOSAL

The Contractor is responsible for collection, removal, transport, and lawful disposal of construction debris and or materials.

33. OWNERSHIP OF MATERIAL

All documents prepared and submitted pursuant to this RFP or contract shall be property of the City upon submittal and will be subject to staff and public review and discussion in association with our public bidding and formal proposal process. Any information or documents deemed proprietary shall be so marked at time of submittal and limited to detail where the disclosure of contents could be prejudicial to competing offerors during the process of negotiation, and any commercial or financial information of a privileged or confidential nature.

34. REGULATIONS AND EXCEPTIONS

The application of lead paint as defined in Title 16, Chapter 30M of State Code and Chapter 7 of City Code as part of this contract is prohibited. The Contractor will be subject to fines as outlined in State and City Code if it is determined that lead paint was applied in violation of State and City Code.

Safety Data Sheet information for all paints applied to internal or external structures shall be provided to the City for review and approval prior to application. The Contractor will be required to remove and remediate any lead paint to the satisfaction of the City, at no cost to the City. Prior to commencing removal and remediation efforts, the Contractor shall provide a written remedial action plan which includes health safety protection requirements for both employees and the public for review and approval by the City and/or DNREC/DHSS. Any and all sample results that are generated as a result of improper application of lead paint shall be provided to the City within five (5) working days of being received by the Contractor. The Contractor will also be required to replace all paint removed with non-lead paint to the satisfaction of the City, and at no cost to the City.

Failure to adequately remove, remediate, and replace lead paint applied in violation of State and City Code as outlined herein will be considered a breach of contract.

35. FORCE MAJEURE OCCURANCE

Upon the occurrence of a force majeure event, the City of Newark shall immediately notify the awarded vendor. In this instance, the City shall be excused from any further financial or contractual obligations for as long as such circumstances prevail. As used in this document, a "force majeure occurrence" means acts of God; acts of the public enemy; acts of the State and any other governmental entity in its sovereign or contractual capacity; fires; floods; epidemics or pandemics; quarantine restrictions; strikes or other labor disputes; freight embargoes; unusually severe weather; or other unusual event outside of the reasonable control of a party hereto that prevents a party to this Agreement from performing its contractual obligations.

36. RELEASE OF LIENS

The Contractor is required to provide documentation stating that all liens filed against the Contractor have been paid before the final 5% retainage is released to the Contractor.

37. VENDOR REQUIREMENTS FOR FEDERALLY FUNDED PROJECTS

The awarded vendor and all subcontractors must be registered at www.sam.gov before contract agreements are signed. The awarded vendor and all subcontractors must also show proof of SAM registration and good standing through the SAM portal before contract agreements are signed. SAM (System for Award Management) is the primary supplier database for the U.S. Federal Government.

The City of Newark shall not conduct business with vendors that are debarred or otherwise flagged/blacklisted if the project is funded using federal money. If a vendor or subcontractors are determined to be debarred at any point during the term of a contract, this will be seen as grounds for termination of the contract, and potentially grounds for termination from other

contracts held with the City, if any.

The Federal Register Part 40 CFR 33.240 requires these "affirmative steps" in procurement actions to assure that MBE and WBE firms are awarded a fair share of subagreements:

(1) Including qualified small, minority, and women's business solicitation lists.
(2) Assuring that small, minority, and women's businesses are solicited whenever they are potential sources.
(3) Dividing total requirements, when economically feasible, into small tasks or quantities to permit maximum participation of small, minority, and women's businesses.
(4) Establishing delivery schedules, where the requirements of the work permit which will encourage participation by small minority and women's businesses.
(5) Using the services and assistance of the Small Business Administration and the Office of Minority Business Enterprise of the U.S. Department of Commerce.
(6) Requiring each party to a subagreement to take the affirmative steps in 1 through 5 above.

38. SEVERABILITY

If any provision of this contract (general, special, technical, or other) shall be held to be invalid or unenforceable for any reason, the remaining provisions shall continue to be valid and enforceable. If a court finds that any provision of this contract is invalid or unenforceable, but that by limiting such provision it would become valid and enforceable, then such provision shall be deemed to be written, construed, and enforced as so limited.

39. PREFERENCE FOR DELAWARE LABOR

According to State law, any person, company, or corporation who violates the requirements of Title 29, Section 6962, of the Delaware Code regarding preference for Delaware Labor shall pay a penalty to the State Secretary of Finance equal to the amount of compensation paid to any person in violation of this Section. This regulation is waived if it is in conflict with Federal requirements.

40. LIST OF SUBCONTRACTORS' CERTIFICATIONS

A. Each bidder shall execute and submit with his bid, on the form provided herein, a list of subcontractors, including complete names and addresses, whose services the bidder intends to use in performing all work under the contract. Bids submitted without such a list, or with a list not completely or properly executed, are subject to rejection.
B. Each bidder is required to notify all subcontractors that they are obligated to comply with the provisions of Federal and State law as they pertain to this project, and that they must submit evidence of such compliance upon notice or request. The bidder shall certify his compliance with this requirement on the list of subcontractors.

C. After the contract has been awarded, the successful bidder shall not substitute another subcontractor for any subcontractor whose name was set forth on the list of subcontractors which accompanied his bid, without the written consent of the City.

41. GUARANTEE

The contractor hereby guarantees all work for a period of one year after the date of completion and final acceptance thereof by the City as follows:

A. Against all faulty or imperfect materials and against all imperfect, careless, and/or unskilled workmanship.
B. The Contractor agrees to replace with proper workmanship and materials, and to re-execute, correct or repair without cost to the City, any work which may be found to be improper or imperfect and/or which fails to perform as specified.
C. The guarantee obligations assumed by the contractor under these contract documents shall not be held or taken to be in any way impaired because of the specifications, indication or approval by or on behalf of the City of any articles, materials, means, combination of things used or to be used in the construction, performance and completion of the work or any part thereof.
D. No use or acceptance by the City of the work or any part thereof, nor any failure to use the same nor any repairs, adjustments, replacements, or corrections made by the City due to the contractor's failure to comply with any of his obligations under the contract documents, shall impair in any way the guarantee obligations assumed by the Contractor under these contract documents.

42. APPROVAL

The contractor shall receive approval in writing from the engineer before ordering any material for work to be done under this contract.

CITY OF NEWARK
Delaware

CONTRACT NO. 23-07

CITY HALL PARKING LOT RECONSTRUCTION

SCOPE OF WORK

1. SCOPE OF WORK

The project includes a Base Bid and two Add Items. If an Add Item is awarded, only one of the two Add Items will be awarded.

A. Base Bid

The Base Bid consists of the work associated with security upgrades and the reconstruction of the Newark Police Department (NPD) section of the lot, electrical upgrades to the site including but not limited to lighting, and the installation of new EV charging stations in the Administrative (Admin) section of the lot including incidental reconstruction to accommodate the EV charging stations.

B. Add Item for Admin Lot Repaving

The Add Item B scope consists of mill and overlay of the existing Admin lot and incidental work.

C. Add Item for Admin Lot Reconstruction

The Add Item C scope consists of the work associated with the demolition, full reconstruction of the Admin lot, and incidental work.

The drawings and specifications further define the scope of work. The Contractor shall furnish all required equipment, materials, and labor necessary for completion of the work described herein.

2. LOCATION

The project is located at 220 South Main Street, Newark, Delaware 19711.

3. PERMITS, CERTIFICATIONS, LAWS, AND ORDINANCES

The Contractor shall perform the work in accordance with all local, state, and federal laws and ordinances.

The Contractor is required to have or obtain a City contractor's license and State of Delaware business license prior to starting the work. The Contractor is required to obtain any permits required for completion of the work. The fees for City of Newark permits, if applicable, will be waived.

4. COORDINATION

A. Contractor shall coordinate construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Contractor shall coordinate its operations with operations that depend on each other for proper installation, connection, and operation.
B. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
C. Coordinate removal of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.

5. SUBMITTALS

The Contractor shall submit an **electronic copy** of each submittal for review and approval by the Owner. Provide submittals in accordance with specifications. For scheduling purposes, the Contractor shall allow for a ten (10) business day review time by the Owner. Comments and Approvals will be returned in a digital format. The Contractor shall provide, at minimum, all submittals identified in the specifications. Each shop drawing shall contain only one work item and shall be consecutively numbered before submission. Additional submittals may be requested at the discretion of the Owner.

6. RESTORATION

The Contractor is responsible to restore all disturbed areas to original or better condition and remove all debris, residuals, trash, and excess materials from the sites.

7. SECURITY AND SITE ACCESS

The work area is on the City's property, as well as privately-owned property by the Lt. J O'Daniel VFW Post 475. The Contractor is responsible to establish a laydown area and for the security of the equipment and materials related to the work. The laydown area must be approved by the City before construction activities can begin. The Contractor must provide sanitary facilities on site for the duration of the project. The Contractor is responsible for security of his equipment and materials related to the work. The Contractor is responsible for maintaining the work site in a safe and orderly manner.

Prior to mobilization, the Contractor shall take a pre-construction video or photographs of any such areas to be used for access, staging, or work during the project and submit to the Owner. Video or photographs shall be used to document any existing damage or deteriorated conditions.

It shall be the responsibility of the Contractor to obtain permission from any neighboring property owner if said Contractor finds it necessary to enter upon or use in any manner the property of any neighbor for the expedition of the Contractor's work.

8. WORK RESTRICTIONS

A. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

B. One travel lane to the Newark Police Department cell block must remain open during construction. If the contractor requires the cell block to be fully closed for a day(s), they must coordinate with NPD at least ten (10) calendar days in advance so NPD can make alternative arrangements.

C. On-Site Work Hours: Limit work at the site to normal business working hours of 7:00 a.m. to 5:00 p.m., Monday through Friday, unless otherwise indicated or approved by City of Newark.

D. Any and all work within a DelDOT right-of-way shall be in accordance with DelDOT work restrictions and traffic control requirements which may require nighttime work activity inside the right-of-way when impacting the travel lanes.

E. Weekend Hours: Weekend hours must be approved by the City. Contractor must submit request to work on weekends at least five (5) business days in advance of the projected work date.

F. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

- Notify Owner not less than five (5) days in advance of proposed utility interruptions.
- Obtain Owner's written permission before proceeding with utility interruptions.

G. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption with Owner.

A. Notify Owner not less than two (2) days in advance of proposed disruptive operations.

B. Obtain Owner's written permission before proceeding with disruptive operations.

H. Controlled Substances: Use of tobacco products and other controlled substances on Project sites is not permitted. See Office of Management and Budget – Drug Testing Requirements for further information regarding controlled substances.

I. Contractor shall have contaminant spill response equipment readily available on-site during construction activity.

9. SITE CONSTRUCTION AND EXISTING UTILITIES

A. The Contractor is responsible to account for and consider existing site conditions and existing utilities. Prior to starting any work, the Contractor shall contact Miss Utility of Delmarva at 1-800-282-8555 or 811 for a utility mark out. The Contractor is responsible for locating and protecting existing utilities for the duration of the work.
B. The failure to show on the contract drawings any existing utilities shall not relieve the contractor of his responsibility in determining the locations of utilities.
C. Any damage done to existing utility lines, services, poles, and structures shall be repaired or replaced by the Contractor at his own expense. The Contractor shall notify all possible owners of utilities in the areas where work is to be done and the schedule and extent of such work.

10. EXAMINATION OF SITE, DRAWINGS, ETC.

Before submitting proposals, bidders shall inform themselves fully of the nature of the work by a personal examination of the site and the drawings and by such other means as they may prefer or consider necessary, as to matters, conditions and considerations bearing on or in any way affecting the preparation of their proposals and the contract. They shall not, at any time after submission of the proposal, dispute the accuracy of such drawings or the specifications and the general conditions nor assert that there is any misunderstanding in regard to the location, extent or nature of the work to be performed.

11. STARTING DATE, SEQUENCE OF CONSTRUCTION & COMPLETION DEADLINE

The starting date of this contract will be as specified by the City in a written "Notice to Proceed." A preconstruction meeting shall be scheduled to finalize the sequence of construction. The final decision as to sequence of construction shall be that of the Owner.

12. SUPERVISION OF WORK AND COORDINATION

The Contractor shall supervise the work and shall secure full cooperation of all subcontractors, if any, to complete the work with a minimum interference from the operating personnel of the Owner.

13. COORDINATION WITH THE OWNER

The Contractor shall coordinate all activities with the City including, but not limited to, traffic control, requests for system shutdowns, and inspections. The Contractor shall provide the City with reasonable time to respond to requests for information and for coordination.

14. INSPECTION OF MATERIAL AND WORK

A. Workmanship shall be of good quality and all work and material shall be at all times subject to the inspection of the City of Newark or their duly authorized representatives. The Contractor shall provide reasonable and necessary facilities for such inspection. If required by the City, the Contractor shall take down or uncover portions of the finished work.
B. The Contractor agrees that in the event that any of the material or work, or both, shall be rejected as defective or unsuitable by the City, the material shall be replaced, and the work shall be done again immediately to the satisfaction and approval of the City at the cost and expense of the Contractor.
C. Any omission or failure on the part of the City of Newark or its inspectors to disapprove or reject any defective work or materials shall not be construed to be acceptance of any defective work or material.
D. Contractor and City Inspector must agree on additional work required outside of the contract documents. A daily time and material log for all additional work shall be supplied by the Contractor and signed by the City Inspector.

15. PROTECTION TO PUBLIC AND PROPERTY

A. The Contractor shall insure protective measures to the general public and to occupants of property along and adjacent to the work area.
B. The Contractor is responsible for any and all damage or injury of any kind which directly or indirectly may be done to any property or sustained by any persons during the execution of the work.
C. If 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 in the execution of the work, the contractor shall restore at his own expense such property to a condition similar or equal to that existing before such damage or injury was done by repairing, rebuilding or otherwise restoring as may be directed, or he shall make good such damage or injury in an acceptable manner.

16. SAFETY PRECAUTIONS

A. The Contractor shall execute work under this contract with the utmost concern for the safety of the general public. All areas worked upon and subject to travel by the public shall be identified with the proper warning indicators and signs during the working period. Upon completion of the contract or when such areas are reopened to public travel, they shall be rendered in a safe condition using either temporary or permanent repair material as the case

may be. No private driveway shall be blocked or closed without the property owner being notified and obtaining their agreement.

B. Streets, roads, and driveways used by the Contractor for access to and from the work site shall be protected from damage in excess of that caused by the normal traffic of vehicles used for or in connection with construction work. Any such damage done shall be repaired immediately and left in good condition at the end of the construction period and shall be repaired at the Contractor's expense.

17. RIGHT-OF-WAY

All operations shall be confined to the assigned work area. The City will provide no right-of-way over other properties. The Contractor shall take every precaution to minimize the inconvenience to the owners or tenants of adjacent property. Public roads shall not be obstructed in such a way as to cut off traffic. The Contractor shall, at his own expense, repair any damage or injury to either public or private property during the progress of the work.

18. TRAFFIC CONTROL AND ROAD SIGNS

A. The Contractor shall be responsible for traffic control for the duration of the project, as needed, and shall coordinate traffic control plans and obtain necessary permits from the Owner for work on city-owned roads. The Contractor shall be responsible for removal and re-installation of all signs in the work area. Signs necessary for the safe movement of traffic shall be maintained in operation during construction. Any other signs shall be properly stored by the Contractor, who shall be responsible for them. All signage shall comply with the current Manual on Uniform Traffic Control Devices (MUTCD).

B. The Contractor shall provide notice to the City seven (7) calendar days in advance of any planned road or entrance closure. All closures shall be at the discretion of the City.

19. EXCAVATED MATERIAL

It shall be the responsibility of the Contractor to dispose of all excavated material which, in the opinion of the City, is unsatisfactory for backfill or fill. The cost of this disposal shall be borne by the Contractor.

20. DUST CONTROL/EROSION AND SEDIMENT CONTROL

It shall be the responsibility of the Contractor to handle dust control on this project and necessary erosion and sediment controls required by the City and State, including, but not limited to, compost filter socks. The City Inspector shall make the final determination on necessary measures.

21. WATER SUPPLY

The Contractor shall not use City fire hydrants without permission and advance notice. The

Contractor shall schedule and perform work in a manner that minimizes disruption of water service to City of Newark customers. The Contractor shall not operate any water valves unless permission in writing is granted by the City.

22. JOB SITE MAINTENANCE, RESTORATION AND CLEANUP

The Contractor is responsible to restore all disturbed areas to original or better condition and remove all debris, residuals, trash, and excess materials from the site. The Contractor is required to keep the work area clean during construction and remove trash as it accumulates. Roads shall be kept clean and free of mud, debris, and dirt. At the direction of the City Inspector, the Contractor is responsible for the cost of street sweeping and maintenance required for upkeep of clean road surfaces.

23. PROJECT MEETINGS

Progress meetings shall be scheduled and held monthly during construction and shall be facilitated by the City or the City's representative.

24. DRAWINGS

Project Drawings are included as an attachment.

25. BID ITEMS

Bidders must provide prices on the Proposal form including all adjustment bid items. The Owner reserves the right to delete from the Contract one or more items listed and the right to add or subtract from the quantity of each item. The total price to be paid will be adjusted in accordance with the Contractor's unit prices as required below. There will be no extra compensation or increase in unit prices in the Proposal if such additions and/or deletions are made to quantities.

26. AS-BUILT DRAWINGS

The Contractor shall submit field sketch as-built plans of all installed items.

27. BASIS OF PAYMENT

Payment for these items shall be included in the unit prices for each item as described in the Proposal. All other items, methods, and materials necessary to complete the work as described below shall be incidental to the bid item the work is being completed under.

Application and Certification for Payment shall be made on proper AIA Documents.

28. METHOD OF MEASUREMENT AND INCIDENTALS DETERMINATION

Payment for the material furnished and work done under this contract will be made as stipulated herein for the amount of materials supplied and work done under authorization of the City and in accordance with actual measurements; and the Contractor shall not be entitled to receive additional compensation for anything else furnished or done, except for such extra work as shall be required by a written change order issued and approved by the City.

It is intended that all work shown on the contract drawings and included in the specifications is to be paid for under the items listed in the proposal form. The absence from the proposal form of bit items specifically described in the Standard Specifications or shown on the drawings shall be interpreted as meaning that the cost of such work contemplated by the contract documents shall be included in the prices bid for related items for which quantities have been established.

All work shall be paid based on the methods of Measurement and Payment Provisions in the Standard Specifications except as otherwise noted herein.

The item numbers referenced in this contract relate to the Construction Details outlined in the Standard Specifications.

The Contractor shall prepare a monthly Application and Certification for Payment of the total amount of work completed on the contract. For the purpose of arriving at a basis for monthly payment, the Contractor shall submit an invoice for work performed during the preceding month, with a breakdown of the work performed and the unit prices for the various items included in the proposal.

In accordance with Title 29, Section 6962 of the Delaware Code, the City shall retain five percent (5%) of the funds to be paid to the Contractor during the contract until completion and final acceptance of all work by the City.

Unless otherwise specifically specified herein, the measurement of payment shall be for the installation of the materials listed in the proposal in accordance with the unit described as Each (EA), Linear Foot (LF), Square Yard (SY), Ton (TN), etc. All incidental work and costs associated with the Bid Item shall be included in the Contractor's unit price for each bid item.

Bid Item Descriptions:

1. BASE BID: all Items associated with the work within the NPD lot and Admin EV space area

   1.A. **Newark Police Department (NPD) Lot**

   1.A.1. Mobilization/Demobilization: This lump sum bid item includes, but is not limited to, bonding, insurance, shop drawings, meetings, construction stakeout, pre-construction video, utility locating, staging, movement of equipment, site maintenance, erosion and sedimentation pollution control, site clean-up, replacement of any damaged property, and as-built plans. The Contractor shall provide redline plan markups, including as-built rim and invert elevations. Payment will be scheduled as follows: fifty (50) percent upon issuance of Notice to Proceed and the balance upon completion of the project.

   1.A.2. Demolition of Landscape & Islands: Price and payment shall be full compensation for furnish, setup, and removal of landscape and islands for preparation of the site, including disposal, excavation, and shoring. This item is measured per square yard.

   1.A.3. Demolition of Concrete Curb: This work consists of the removal of concrete curbing to the full depth for installation of replacement curbing including labor, equipment and excavation of the materials. The work shall include sawcutting and removal of adjacent asphalt pavement as needed for curb replacement. Concrete curb shall be sawcut at the limits of removal and excavated to the depth of the replacement curb section including the GABC base layer. Any pavement removals shall be sawcut around the full perimeter of pavement removal. The demolition of concrete curb and any needed asphalt pavement to be paid for under this section shall be the actual linear feet of curb removed and disposed of in a lawful manner. Price and payment will constitute full compensation for the removal and disposal of concrete and asphalt, and excavated material; and for all labor, equipment, tools, and incidentals necessary to complete the work.

   1.A.4. Pavement Milling: Work under this item includes all labor, equipment, tools, disposal costs, and incidentals necessary to complete the scope of work shown on the contract drawings and described in this specification. Payment for this item will be as a unit price. Mill or plane bituminous concrete to a 2-inch depth as specified in accordance with contract documents and the latest edition of DelDOT's Standard Specifications for Road and Bridge Construction. Remove and dispose of recovered milling materials. The construction methods for Pavement Milling shall conform to Section 760 of the latest edition of DelDOT's Standard Specifications for Road and Bridge Construction. The number of square yards of Pavement Milling to be paid for under this section shall be the square yards milled, removed, and disposed. The square yards measured as provided above, shall be paid for at the contract unit price bid per square yard for this item which price and payment shall constitute full

compensation for all labor, equipment, tools, and incidentals necessary to complete the work.

1.A.5. Remove Existing Tree: Price and payment shall be full compensation for furnish, setup, and removal of trees for preparation of the site, including disposal, excavation, and shoring. This item is measured per each.

1.A.6. 6" Graded Aggregate Base Course: Work under this item includes all labor, equipment, tools, disposal costs, and incidentals necessary to complete the scope of work shown on the contract drawings and described in this specification. Payment for this item will be as a unit price. Graded Aggregate Base Course (GABC) shall include furnishing, placing and compacting graded aggregate base course on a prepared subgrade. Subgrade must be compacted to at least 95% compaction on a modified proctor. Graded Aggregate Base Course shall conform to the material and construction method requirements in Section 301 of the latest edition of DelDOT's Standard Specifications for Road and Bridge Construction and the plan details. The number of cubic yards of GABC to be paid for under this section shall be the cubic yards furnished, graded, and compacted during the performance of work as directed by the Owner or Engineer that are not paid under other bid items. Price and payment shall be full compensation for furnishing all labor, equipment, materials, and proof rolling necessary to complete the work.

1.A.7./1.A.8. Superpave Type C, 115 Gyrations, PG 64-22 2"- 4" Depth: Work under this item includes all labor, equipment, tools, disposal costs, and incidentals necessary to complete the scope of work shown on the contract drawings and described in this specification. Payment for this item will be as a unit price. Superpave Type C shall consist of installing Superpave Type C hot-mix, hot-laid bituminous concrete at 2-4" compacted depth in accordance with DelDOT Specifications and in conformity with lines and grades of the existing asphalt. The materials and construction methods shall conform to the material and construction requirements in Section 401 of the latest edition of DelDOT's Standard Specifications for Road and Bridge Construction and the cross-section shown on the plans for Superpave Type C. This item includes tack coat and edge sealant at pavement joints and curb faces. Materials for tack coat shall conform to Section 810 of the Standard Specifications.

The number of square yards of Superpave Type C to be paid for under this section shall be the square yards furnished, graded, compacted, and accepted including bituminous asphalt tack coat.

1.A.9. Bituminous Pavement Leveling Course, Type C: Work under this item includes all labor, equipment, tools, disposal costs, and incidentals necessary to complete the scope of work shown on the contract drawings and described in this specification. Payment for this item will be as a unit price. Description: This work consists of furnishing and placing a Superpave hot-mix, type C, leveling/scratch course, at

locations approved and/or directed by the Engineer. Materials and Execution: The Superpave Type C hot-mix used for leveling shall have the same gyration and asphalt performance grade requirements as the lift to be placed immediately above it. A maximum nominal aggregate size of 4.75 mm shall be used for the leveling course. Construction methods shall be in accordance with Section 401 of the Standard Specifications and the Superpave hot-mix specifications found elsewhere in these Special Provisions. Leveling course shall be placed as directed by the Engineer. Method of Measurement and Basis of Payment: The method of measurement and basis of payment shall be per ton as directed, completed, and accepted.

1.A.10. Superpave BCBC Repair, 115 Gyrations, PG 64-22: Work under this item includes all labor, equipment, tools, disposal costs, and incidentals necessary to complete the scope of work shown on the contract drawings and described in this specification. Payment for this item will be as a unit price. Superpave BCBC Repair shall consist of removal of existing base and subbase material to a depth of 4 inches below the milled pavement surface and furnishing and installing Superpave BCBC hot-mix, hot-laid bituminous concrete at 4-inch compacted depth in accordance with DelDOT Specifications and in conformity with lines and grades of the asphalt and the cross-section shown on the plans. Superpave BCBC locations will be identified and directed by the Engineer following Pavement Milling. The materials and construction methods shall conform to the material and construction requirements in Section 401 of the latest edition of DelDOT's Standard Specifications for Road and Bridge Construction and the cross-section shown on the plans for Superpave BCBC.The number of square yards of Superpave Type C to be paid for under this section shall be the square yards furnished, graded, compacted, and accepted including bituminous asphalt tack coat.

1.A.11. Concrete Curb: Work under this item includes all labor, equipment, tools, and incidentals necessary to complete the scope of work shown on the contract drawings and described in this specification. Payment for this item will be as a unit price. Furnish and install Portland cement concrete curb as detailed on the contract drawings including GABC bearing material set on prepared subgrade and replacement of any adjacent asphalt base course and subgrade removed for installation of curbing. Subgrade and subbase replacement shall consist of 6 inches of GABC and 4 inches of Superpave BCBC. The construction methods shall conform to Section 701 of the latest edition of DelDOT's Standard Specifications for Road and Bridge Construction. The number of linear feet to be paid for under this section shall be the linear feet of curb installed, completed and accepted. Price and payment shall be full compensation for furnishing all labor, equipment, materials, and incidentals, necessary to complete the work.

1.A.12. Depressed Curb: Price and payment shall be full compensation for furnishing and

installing depressed concrete curb, including excavation, furnishing and installing all materials in the depressed curb section, forming, finishing, and protection of the concrete, compaction, installing control, expansion, and contraction joints, shop drawings, and all other appurtenant labor, work, supervision, tools, equipment, materials, and all other items incidental thereto. This item is measured and paid per linear feet of sidewalk installed.

1.A.13. Concrete Sidewalk: Price and payment shall be full compensation for furnishing and installing concrete sidewalk, including excavation, furnishing and installing all materials in sidewalk section (4" concrete, 4" AASHTO #57 stone), forming, finishing, and protection of the concrete, compaction, installing control, expansion, and contraction joints, shop drawings, and all other appurtenant labor, work, supervision, tools, equipment, materials, and all other items incidental thereto. This item is measured and paid per square yard of sidewalk installed.

1.A.14./1.A.15. Concrete Retaining Wall: Price and payment shall be full compensation for furnishing and installing concrete retaining wall, including excavation, furnishing and installing all materials in the retaining wall section, forming, finishing, and protection of the concrete, compaction, installing control, expansion, and contraction joints, shop drawings, and all other appurtenant labor, work, supervision, tools, equipment, materials, and all other items incidental thereto. This item is measured and paid per linear feet of sidewalk installed.

1.A.16. Geogrid Stabilization: Price and payment shall be full compensation for furnishing and installing geogrid stabilization including excavation, furnishing and installing all materials in the geogrid stabilization detail, forming, finishing, and protection of the geogrid, compaction, shop drawings, and all other appurtenant labor, work, supervision, tools, equipment, materials, and all other items incidental thereto. This item is measured and paid per square yard

1.A.17. Concrete Parking Bumper: Price and payment shall be full compensation for furnishing and installing concrete parking bumper, including all materials in the concrete parking bumper detail, forming, finishing, and protection of the concrete, compaction, shop drawings, and all other appurtenant labor, work, supervision, tools, equipment, materials, and all other items incidental thereto. This item is measured and paid per each of sidewalk installed.

1.A.18. 8' Security Fence: Price and payment shall be full compensation for furnishing and installing the 8' Aberdeen or approved equal fence including excavation, furnishing and installing all materials in the fence specification, forming, finishing, and protection of the fence, compaction, shop drawings, and all other appurtenant labor, work, supervision, tools, equipment, materials, and all other items incidental thereto. This item is measured and paid per Linear Foot of

sidewalk installed.

1.A.19. Two 22’ Wide Sliding Gates: Price and payment shall be full compensation for furnishing and installation of two 22’ wide sliding gates, including excavation, furnishing and installing all materials, forming, finishing, and protection of the concrete, compaction, installing control, expansion, and contraction joints, shop drawings, and all other appurtenant labor, work, supervision, tools, equipment, materials, and all other items incidental thereto. This item is measured and paid per each of gates installed.

1.A.20. Two 3’ Wide Swing Gates: Price and payment shall be full compensation for furnishing and installation of two 3’ wide swing gates, including excavation, furnishing and installing all materials, forming, finishing, and protection of the concrete, compaction, installing control, expansion, and contraction joints, shop drawings, and all other appurtenant labor, work, supervision, tools, equipment, materials, and all other items incidental thereto. This item is measured and paid per each of gates installed.

1.A.21. 12’ Wide Double Swing Gate: Price and payment shall be full compensation for furnishing and installation of two 12’ wide double swing gates, including excavation, furnishing and installing all materials, forming, finishing, and protection of the concrete, compaction, installing control, expansion, and contraction joints, shop drawings, and all other appurtenant labor, work, supervision, tools, equipment, materials, and all other items incidental thereto. This item is measured and paid per each of gates installed.

1.A.22. Gate Automation: Price and payment shall be full compensation for furnishing and installing the gate automation including excavation, furnishing and installing all materials in the fence specification, forming, finishing, and protection of the gate automation, compaction, shop drawings, and all other appurtenant labor, work, supervision, tools, equipment, materials, and all other items incidental thereto. This item is measured and paid per lump sum of sidewalk installed.

1.A.23. Stormwater Yard Inlet: Price and payment shall be full compensation for furnishing and installing the new yard inlet, including excavation, furnishing and installing all materials in the yard inlet detail, forming, finishing, and protection of the inlet, compaction, shop drawings, and all other appurtenant labor, work, supervision, tools, equipment, materials, and all other items incidental thereto. This item is measured and paid per each of sidewalk installed.

1.A.24. 6” PVC Connection Into Existing Inlet: Price and payment shall be full compensation for furnishing, drilling, and installing the 6” PVC into the existing inlet. Including excavation, furnishing and installing all materials, forming,

finishing, protection of the existing inlet, compaction, shop drawings, and all other appurtenant labor, work, supervision, tools, equipment, materials, and all other items incidental thereto. This item is measured and paid per each of sidewalk installed.

1.A.25. 6" PVC Storm Sewer Pipe: Price and payment shall be full compensation for furnishing and installing the ne 6" PVC sewer pipe, including excavation, furnishing and installing all materials, forming, finishing, and protection of the PVC pipe, compaction, shop drawings, and all other appurtenant labor, work, supervision, tools, equipment, materials, and all other items incidental thereto. This item is measured and paid per linear foot of sidewalk installed.

1.A.26. Remove and Replace Fire Hydrant: Price and payment shall be full compensation for removal the existing hydrant, furnishing and installing the new hydrant, including excavation, furnishing and installing all materials in the fire hydrant detail, forming, finishing, and protection of the hydrant, compaction, shop drawings, and all other appurtenant labor, work, supervision, tools, equipment, materials, and all other items incidental thereto. This item is measured and paid per each of sidewalk installed.

1.A.27. Epoxy Pavement Markings: Work under this item includes all labor, equipment, tools, and incidentals necessary to complete the scope of work shown on the contract drawings and described in this specification. Payment for this item will be as a lump sum price. Pavement Markings shall be applied using acceptable furnished materials in colors meeting the requirements for parking areas, including parking space, no parking area, lane line, and crosswalk striping, stop bars, arrows, and "NO PARKING", "STOP", "FIRE LANE and "ONLY" lettering. This work consists of reflective pavement markings. The Contractor shall furnish the epoxy; maintenance of traffic; and all labor, equipment and incidentals necessary to apply pavement markings in a safe and efficient manner. The materials and construction methods shall conform to the material and construction requirements in Section 1071 of the latest edition of DelDOT's Standard Specifications for Road and Bridge Construction and the details shown on the plans. Parking space striping, "no parking" area striping, and Transverse pavement markings including crosswalks, stop bars, arrows, and "NO PARKING", "STOP", and "ONLY" lettering shall be epoxy pavement markings in accordance with Section 1071.02 of the latest edition of DelDOT's Standard Specifications for Road and Bridge Construction. This item will not be measured but will be paid for at the contract lump sum price bid for Epoxy Pavement Marking. The price and payment shall constitute full compensation for all materials, labor, equipment, tools, and incidentals necessary to complete the work.

1.A.28. Bollard: Price and payment shall be full compensation for furnish, setup, and installation of bollards. This item is measured and paid per each.

1.A.29. Miscellaneous Excavation and Backfill: Price and payment shall be full compensation for furnishing all labor, equipment, excavation, protection of existing utilities, provision of 2A or 2B stone, backfill, compaction, sheeting and shoring, disposal of all excess excavated materials, and all other appurtenant labor, work, supervision, tools, equipment, materials, and all other items incidental thereto **beyond the contract depths and limits as directed by the Engineer and not paid under other bid items**. This item is measured per cubic yard.

1.B. **Electrical**

1.B.1. Demolition of Light Poles and Fixtures: Work under this item includes all labor, equipment, tools, disposal costs, and incidentals necessary to complete the scope of work shown on the contract drawings and described in this specification. Payment for this item will be as a unit price. This work consists of the removal of poles, light fixtures and lamps. The Owner shall have right of salvage. for any materials removed. Should right of salvage be waived all materials removed shall become the property of the Contractor for salvage, recycle, or disposal. The poles and fixtures and lamps shall be removed and disposed of in a lawful manner. The number of light pole poles and fixtures to be paid for under this section shall be the actual number of pole and fixture units removed and disposed of in a lawful manner. Price and payment will constitute full compensation for the removal and disposal of poles, light fixtures and lamps; and for all labor, equipment, tools, and incidentals necessary to complete the work.

1.B.2. Demolition of Light Pole Bases: Work under this item includes all labor, equipment, tools, and incidentals necessary to complete the scope of work shown on the contract drawings and described in this specification. Payment for this item will be as a unit price per each. This work consists of the removal of concrete pole bases. The concrete and conduit shall be removed to full depth and disposed of in a lawful manner. The number of light pole bases to be paid for under this section shall be the actual number removed and disposed of in a lawful manner. Price and payment will constitute full compensation for the removal and disposal of concrete, conduit, wire and excavated material; and for all labor, equipment, tools, and incidentals necessary to complete the work.

1.B.3./ 1.B.4. New Light Poles, Fixtures, 11’6” High, and 22’6” to 24’6” High: Work under the Light Pole and Fixture item includes all labor, equipment, tools, and incidentals necessary to complete the scope of work shown on the contract drawings and described in this specification. Payment for these items will be as a unit price. This work consists of furnishing and installing lighting poles and fixtures in accordance with the drawings. Poles and fixtures shall be installed at the locations shown on the drawings or as directed by the Engineer. The number of Light Poles and Fixtures to be paid for under this section shall be the actual number furnished, installed,

and accepted. As provided above, these items shall be paid for at the contract unit price bid per each for which price and payment shall constitute full compensation for all materials, labor, equipment, tools, testing, and incidentals necessary to complete the work.

1.B.5. Pole Base A: Price and payment shall be full compensation for furnishing and installing the 30" high pole base with a 6' deep footing, including excavation, furnishing and installing all materials in the pole base detail, forming, finishing, and protection of the pole base, compaction, shop drawings, and all other appurtenant labor, work, supervision, tools, equipment, materials, and all other items incidental thereto. This item is measured and paid per each of sidewalk installed.

1.B.6. Pole Base B: Price and payment shall be full compensation for furnishing and installing the 4" high pole base with a 5' deep footing, including excavation, furnishing and installing all materials in the pole base detail, forming, finishing, and protection of the pole base, compaction, shop drawings, and all other appurtenant labor, work, supervision, tools, equipment, materials, and all other items incidental thereto. This item is measured and paid per each of sidewalk installed.

1.B.7. Pole Base C: Price and payment shall be full compensation for furnishing and installing the 4" high pole base with a 6' deep footing, including excavation, furnishing and installing all materials in the pole base detail, forming, finishing, and protection of the pole base, compaction, shop drawings, and all other appurtenant labor, work, supervision, tools, equipment, materials, and all other items incidental thereto. This item is measured and paid per each of sidewalk installed.

1.B.8. HDPE Pole Base Covers: Price and payment shall be full compensation for furnishing and installing HDPE pole base covers, including all materials in the HDPE pole base cover detail, forming, finishing, and protection of the concrete, compaction, shop drawings, and all other appurtenant labor, work, supervision, tools, equipment, materials, and all other items incidental thereto. This item is measured and paid per each of sidewalk installed.

1.B.9. Composite and Concrete Pads For Future Electrical Equipment : The lump sum cost for this bid item includes, but is not limited to, mobilization and demobilization, excavation and backfill, construction, erosion and sediment control measures, pipe and conduit penetrations, restoration, and any other measures required to complete all of the work identified on the project plans and specifications.

1.B.10. Remove Electrical Pedestal: Price and payment shall be full compensation for furnish, setup, and removal of electrical pedestal for preparation of the site, including disposal, excavation, and shoring. This item is measured per each.

1.B.11. Relocate Electrical Pedestal: Price and payment shall be full compensation for furnish, setup, removal, and relocation of electrical pedestal for preparation of the site, including disposal, excavation, and shoring. This item is measured per each.

1.B.12. Electrical Conduit: Work under this item includes all labor, equipment, tools, and incidentals necessary to complete the scope of work shown on the contract drawings and described in this specification. Payment for this item will be as a unit price per linear foot. This section includes furnishing and installing conduit, raceways and junctions including materials and equipment for the completion of work. Excavation and backfill shall be included in this item as may be needed for installation and restoration. All work shall conform to the National Electrical Code (NEC). All material shall be new and where applicable shall be UL labeled or approved.

1.B.13. Electrical Wiring: Work under this item includes all labor, equipment, tools, and incidentals necessary to complete the scope of work shown on the contract drawings and described in this specification. Payment for this item will be as a unit price per linear foot. This section includes furnishing and installing electrical wiring including materials and equipment for the completion of work. Excavation and backfill shall be included in this item as may be needed for installation and restoration. All work shall conform to the National Electrical Code (NEC). All material shall be new and where applicable shall be UL labeled or approved.

1.B.14. Electrical Work: Work under this item includes all labor, equipment, tools, and incidentals necessary to complete the scope of work shown on the contract drawings and described in this specification. Payment for this item will be as a lump sum price. This section includes all miscellaneous electrical work required for the completion of the lighting rehabilitation project not covered under other items including 3rd party electrical inspections, and code compliance certifications with Authorities Having Jurisdiction. All work shall conform to the National Electrical Code (NEC). All material shall be new and where applicable shall be UL labeled or approved. This item will not be measured, but will be paid for at the contract lump sum price bid for Electrical Work. The price and payment shall constitute full compensation for all materials, labor, equipment, tools, and incidentals necessary to complete the work.

1.C. **Admin EV Spaces**

1.C.1. Demolition of Concrete Curb: Refer to Item 1.A.3.

1.C.2. Pavement Milling: Refer to Item 1.A.4.

1.C.3. 6" Graded Aggregate Base Course: Refer to Item 1.A.7.

1.C.4. Superpave Type C, 115 Gyrations, PG 64-22 - 2" Depth: Refer to Item 1.A.8.

1.C.5. Superpave BCBC, 115 Gyrations, PG 64-22 - 4" Depth: Refer to Item 1.A.9.

1.C.6. Concrete Curb: Refer to Item 1.A.12.

1.C.7. Pavement Markings: Refer to Item 1.A.28.

1.C.8. Signs: Price and payment shall be full compensation for furnishing and installing the new signs, including excavation, furnishing and installing all materials in the sign details, forming, finishing, and protection of the hydrant, compaction, shop drawings, and all other appurtenant labor, work, supervision, tools, equipment, materials, and all other items incidental thereto. This item is measured and paid per each of sidewalk installed.

2. **ADD ITEM – Repave Admin Lot:**

2.1. Pavement Milling: Refer to Item 1.A.4.

2.2. Superpave Type C, 115 Gyrations, PG 64-22 - 2" Depth: Refer to Item 1.A.8.

2.3. Bituminous Pavement Leveling Course, Type C: Refer to Item 1.A.10.

2.4. Superpave BCBC, 115 Gyrations, PG 64-22: Refer to Item 1.A.11.

2.5. Pavement Markings: Refer to Item 1.A.28.

2.6. Signs: Refer to Item 1.C.8.

2.7. Bollard: Refer to Item 1.A.26.

3. ALTERNATIVE ITEM – Reconfigure Admin Lot:

3.1. Demolition of Landscape & Islands: Refer to Item 1.A.2.

3.2. Demolition of Concrete Curb: Refer to Item 1.A.3.

3.3. Demolition of Concrete Sidewalk: This work consists of the removal of concrete sidewalk and curb skirts for replacement or as needed for replacement of light pole bases to the full depth for installation of replacement sidewalk including labor, equipment and excavation of the materials. Curb skirts are defined as the concrete

paneling approximately 18” in width located behind the curb. Concrete sidewalk and curb skirts shall be sawcut at the nearest joint, broken, and removed or excavated to the depth of the replacement sidewalk section including the GABC base layer. The demolition of concrete sidewalk and curb skirts to be paid for under this section shall be square yards removed and disposed of. Price and payment will constitute full compensation for the removal and disposal of concrete, and excavated material; and for all labor, equipment, tools, and incidentals necessary to complete the work.

3.4. Demolition of Full Depth Pavement: This work consists of the removal of asphalt pavement to the full depth for installation of replacement asphalt including labor, equipment and excavation of the materials. The work shall include sawcutting and removal of adjacent asphalt pavement as needed for full depth replacement. Asphalt shall be excavated to the depth of the replacement curb section including the GABC base layer. Any pavement removals shall be sawcut around the full perimeter of pavement removal. The demolition of asphalt pavement to be paid for under this section shall be the actual square yard of asphalt removed and disposed of in a lawful manner. Price and payment will constitute full compensation for the removal and disposal of asphalt, and excavated material; and for all labor, equipment, tools, and incidentals necessary to complete the work.

3.5. Pavement Milling: Refer to Item 1.A.4.

3.6. Remove Existing Tree: Refer to Item 1.A.5.

3.7. Miscellaneous Excavation and Backfill: Refer to Item 1.A.6.

3.8. 6" Graded Aggregate Base Course: Refer to Item 1.A.7.

3.9. Superpave Type C, 115 Gyrations, PG 64-22 - 2" Depth: Refer to Item 1.A.8.

3.10. Superpave BCBC, 115 Gyrations, PG 64-22 - 4" Depth: Refer to Item 1.A.9.

3.11. Bituminous Pavement Leveling Course, Type C: Refer to Item 1.A.10.

3.12. Superpave BCBC Repair, 115 Gyrations, PG 64-22: Refer to Item 1.A.11.

3.13. Deduction for Pole Base C: This Bid Item is to account for the replacement of one Pole Base C from the base bid with a Pole Base A. This Item shall be bid at the exact unit price of Item 1.B.7.

3.14. Pole Base A: Refer to Item 1.B.5.

3.15. HDPE Pole Base Covers: Price and payment shall be full compensation for furnishing and installing HDPE Pole Base Covers, including furnishing and installing, finishing,

and protection of the HDPE pole base cover, shop drawings, and all other appurtenant labor, work, supervision, tools, equipment, materials, and all other items incidental thereto. This item is measured and paid per each of sidewalk installed.

3.16. Concrete Curb: Refer to Item 1.A.12.

3.17. Concrete Sidewalk: Refer to Item 1.A.14.

3.18. Concrete Steps: Price and payment shall be full compensation for furnishing and installing concrete steps, including excavation, furnishing and installing all materials in the concrete step detail, forming, finishing, and protection of the concrete, compaction, installing control, expansion, and contraction joints, shop drawings, and all other appurtenant labor, work, supervision, tools, equipment, materials, and all other items incidental thereto. This item is measured and paid per Lump Sum.

3.19. ADA Detectable Warning Surface: This work consists of furnishing all materials and installing a detectable warning surface system on an existing or new sidewalk or curb ramp that complies with the Americans with Disabilities Act (ADA) (1990) for outdoor facilities. The detectable warning surface shall be in accordance with these Special Provisions, the Plans, the Standard Construction Details and as directed by the Engineer. The quantity of ADA detectable warning surface will be measured and paid as the actual number of square feet of truncated dome paver units installed and accepted. Price and payment will constitute full compensation for saw cutting, concrete removal, brick removal, excavation, disposal, furnishing and installing all materials, and for all labor, equipment, tools and incidentals required to complete the work.

3.20. Pavement Markings: Refer to Item 1.A.28.

3.21. Replace Inlet Grates: Work under this item includes all labor, equipment, tools, and incidentals necessary to complete the scope of work shown on the contract drawings and described in this specification. Payment for these items will be as a unit price. This work consists of removal and legal disposal off-site of existing inlet tops and furnishing and installing replacement inlet tops of the type specified and depicted on the plans, precast concrete adjustment rings, frame, grate, joint materials, and replacement of adjacent curb as needed to create a smooth transition. The construction methods shall conform to Section 602 of the latest edition of DelDOT's Standard Specifications for Road and Bridge Construction. The number of Inlet Top Replacements to be paid for under this section shall be the actual number of inlet tops installed, completed and accepted. As provided above, these items shall be paid for at the contract unit price bid per each for which price and payment shall constitute full compensation for furnishing all materials, labor, equipment, tools, and incidentals, necessary to complete the work

3.22. Bollard: Refer to Item 1.A.29.

3.23. Convert Catch Basin to Junction Box: Price and payment shall be full compensation for furnishing and converting the catch basin to a junction box, including excavation, furnishing and installing all materials, forming, finishing, and protection of the concrete, compaction, installing control, expansion, and contraction joints, shop drawings, and all other appurtenant labor, work, supervision, tools, equipment, materials, and all other items incidental thereto. This item is measured and paid per each of catch basins converted.

3.24. Reconstruct Existing Catch Basin (Up to 18"): Price and payment shall be full compensation for furnishing and reconstructing the exiting catch basin up to 18" depth, including excavation, furnishing and installing all materials, forming, finishing, and protection of the concrete, compaction, installing control, expansion, and contraction joints, shop drawings, and all other appurtenant labor, work, supervision, tools, equipment, materials, and all other items incidental thereto. This item is measured and paid per each of catch basins reconstructed.

29. AVAILABLE BACKGROUND INFORMATION

Maps, photographs, and other documents provided herein form a part of this Bid Specification to the extent referenced and provide detailed information about the Project Location, and existing conditions of the site(s). The documentation is provided for informational purposes only and for the sole use of the Contractor. The City makes no claims as to the correctness or accuracy of the data provided therein. The Contractor shall review and determine for themselves the correctness and accuracy of the information before incorporating and relying on the prior work as part of their work product to the City.

CITY OF NEWARK
Delaware

CONTRACT NO. 23-07

CITY HALL PARKING LOT RECONSTRUCTION

PROPOSAL

To: The Mayor and City Council
Newark, Delaware

From: _____

The undersigned as a lawfully authorized agent for the below named bidder has carefully examined the Bid Documents to be known as Contract No. 23-05 and binds himself on award to him by the Mayor and City Council of Newark, Delaware to execute in accordance with such award, a contract of which this Proposal and said General Provisions and Specifications and any Addenda shall be a part, and to furnish the goods as specified F.O.B. Newark, Delaware in a manner that is in complete accordance with said General Provisions and Specifications at the following named unit price on or before the delivery period stated below:

BID ITEM	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	TOTAL
1	**Base Bid**				
1.A	Newark Police Department Lot				
1.A.1	Mobilization/Demobilization	LS	1		
1.A.2	Demolition of Landscape & Islands	SY	100		
1.A.3	Demolition of Concrete Curb	LF	335		
1.A.4	Pavement Milling	SY	3010		
1.A.5	Remove Existing Tree	EA	3		
1.A.6	6" Graded Aggregate Base Course	CY	18		
1.A.7	Superpave Type C, 115 Gyrations, PG 64-22 - 2" Depth	SY	2970		
1.A.8	Superpave BCBC, 115 Gyrations, PG 64-22 - 4" Depth	SY	485		
1.A.9	Bituminous Pavement Leveling Course, Type C	TN	20		
1.A.10	Superpave BCBC Repair, 115 Gyrations, PG 64-22	SY	250		
1.A.11	Concrete Curb	LF	325		
1.A.12	Depressed Curb	LF	25		
1.A.13	Concrete Sidewalk	SY	15		
1.A.14	Concrete Retaining Wall 8" to 2'-0" Height	LF	20		
1.A.15	Concrete Retaining Wall 2'-0" to 4'-0" Height	LF	176		
1.A.16	Install New Geogrid Stabilization	SY	111		

1.A.17	Concrete Parking Bumper	EA	7		
1.A.18	8' Aberdeen Fence, Gates, and Gate Housing	LF	750		
1.A.19	Two 22' Wide Sliding Gates	LS	1		
1.A.20	Two 3' Wide Swing Gates	LS	1		
1.A.21	12' Wide Double Swing Gate	LS	1		
1.A.22	Gate Automation	LS	1		
1.A.23	Stormwater Yard Inlet	EA	1		
1.A.24	Core Drill Into Existing Inlet	EA	1		
1.A.25	6" PVC Storm Sewer Pipe	LF	50		
1.A.26	Remove and Replace Fire Hydrant	EA	1		
1.A.27	Epoxy Pavement Striping	LS	1		
1.A.28	Bollard	EA	4		
1.A.29	Miscellaneous Excavation and Backfill	CY	10		
	Subtotal				
1.B	Electrical				
1.B.1	Demolition of Light Poles and Fixtures	EA	17		
1.B.2	Demolition of Light Pole Bases	EA	17		
1.B.3	Light Poles, Fixtures, 11'-6" High	EA	4		
1.B.4	Light Poles, Fixtures, 22'-6" to 24'-6" High	EA	12		
1.B.5	Pole Base A	EA	1		
1.B.6	Pole Base B	EA	5		
1.B.7	Pole Base C	EA	10		
1.B.8	HDPE Pole Base Covers	EA	1		
1.B.9	Composite and Concrete Pads For Future Electrical Equipment	LS	1		
1.B.10	Remove Electrical Pedestal	EA	1		
1.B.11	Relocate Electrical Pedestal	EA	1		
1.B.12	Electrical Conduit	LF	1560		
1.B.13	Electrical Wiring	LF	270		
1.B.14	Electrical Work	LS	1		
	Subtotal				
1.C	Admin EV Spaces				
1.C.1	Demolition of Concrete Curb	LF	61		
1.C.2	Pavement Milling	SY	240		
1.C.3	6" Graded Aggregate Base Course	CY	7		
1.C.4	Superpave Type C, 115 Gyrations, PG 64-22 - 2" Depth	SY	240		
1.C.5	Superpave BCBC, 115 Gyrations, PG 64-22 - 4" Depth	SY	42		
1.C.6	New Concrete Curb	LF	65		
1.C.7	Pavement Markings	LS	1		
1.C.8	Signs	EA	2		
	Subtotal				
	Base Bid Total				

2	**Add Item – Admin Lot Repaving**				
2.1	Pavement Milling	SY	6230		
2.2	Superpave Type C, 115 Gyrations, PG 64-22 - 2" Depth	SY	6230		
2.3	Bituminous Pavement Leveling Course, Type C	TN	25		
2.4	Superpave BCBC Repair, 115 Gyrations, PG 64-22	CY	10		
2.5	Pavement Markings	LS	1		
2.6	Signs	EA	2		
2.7	Bollard	EA	2		
	Add Item Total				
	Add Alternate – Admin Lot Reconstruction				
3.1	Demolition of Landscape & Islands	SY	775		
3.2	Demolition of Concrete Curb	LF	465		
3.3	Demolition of Concrete Sidewalk	SY	48		
3.4	Demolition of Full Depth Pavement	SY	60		
3.5	Pavement Milling	SY	6230		
3.6	Remove Existing Tree	EA	5		
3.7	Miscellaneous Excavation and Backfill	CY	90		
3.8	6" Graded Aggregate Base Course	CY	10		
3.9	Superpave Type C, 115 Gyrations, PG 64-22 - 2" Depth	SY	6460		
3.10	Superpave BCBC, 115 Gyrations, PG 64-22 - 4" Depth	SY	60		
3.11	Bituminous Pavement Leveling Course, Type C	TN	50		
3.12	Superpave BCBC Repair, 115 Gyrations, PG 64-22	CY	10		
3.13	Deduction For Pole Base C	EA	1		
3.14	Pole Base A	EA	1		
3.15	HDPE Pole Base Covers	EA	1		
3.16	Concrete Curb	LF	1885		
3.17	Concrete Sidewalk	SY	66		
3.18	Concrete Steps	LS	1		
3.19	ADA Detectable Warning Surface	SF	200		
3.20	Pavement Marking	LS	1		
3.21	Replace Inlet Grates	EA	9		
3.22	Bollard	EA	2		
3.23	Convert Catch Basin to Junction Box	EA	1		
3.24	Reconstruct Ex. Catch Basin (up to 18” Depth	EA	5		
	Add Alternate Total				
TOTAL BID	**$**				

CITY OF NEWARK
Delaware

CONTRACT NO. 23-07

CITY HALL PARKING LOT RECONSTRUCTION

PROPOSAL (CONT.)

We acknowledge that we **are/are not (circle one)** registered on www.sam.gov. We also acknowledge that there are no exceptions noted against us as outlined on www.sam.gov.

Our unique entity identifier (UEI), as outlined on www.sam.gov is (write N/A if none): _____

We acknowledge receipt of addendum(a) numbers: _____

Exceptions: _____

_____

Contact Information for Notice of Award/Rejection (If different from below): _____

_____

Project to be Completed by _____

BIDDER: _____ DATE: _____

SUBMITTED BY:

_____ _____
Legally Authorized Representative Signature Print Name

_____ _____
Title Address Line 1

_____ _____
Email Address Address Line 2

_____ _____
Telephone Number City, State, ZIP Code

CITY OF NEWARK
Delaware

CONTRACT NO. 23-07

CITY HALL PARKING LOT RECONSTRUCTION

BOND TO ACCOMPANY PROPOSAL

(Not Necessary if Certified or Cashier's Check is Used)

KNOW ALL MEN BY THESE PRESENTS THAT _____ of _____ _____ in the County of _____ and State of _____ _____ Principal, and _____ of _____ _____ as surety, legally authorized to do business in the State of Delaware, are held and firmly bound unto the City of Newark in the sum of _____ _____ Dollars, to be paid to said City of Newark for use and benefit of the Mayor and Council of Newark, for which payment well and truly to be made, we do bind ourselves, our and each of our heirs, executors, administrators and successors, jointly and severally, for and in the whole, firmly by these presents. Sealed with our seals, dated the _____ day of _____ _____ in the year of our Lord, two thousand and twenty-three (2023).

NOW THE CONDITIONS OF THIS OBLIGATION ARE SUCH, that if the above bound principal _____ _____ who has submitted to said City of Newark, a certain proposal to enter into a certain Contract No. 23-07, CITY HALL PARKING LOT RECONSTRUCTION, shall be awarded said Contract, and if said _____ shall well and truly enter into and execute said contract and furnish therewith such surety bond or bonds as may be required by the terms of said contract and approved by said City of Newark,

said contract, and said bond to be entered into within twenty (20) days after the date of official notice of award thereof in accordance with the terms of said proposal, then this obligation to be void, otherwise shall remain in full force and virtue.

SIGNED AND SEALED IN THE PRESENCE OF WITNESS:	SIGNED: _____ (SEAL)
	BY: _____ (SEAL)
_____	SIGNED: _____ (SEAL)
	BY: _____ (SEAL)

CITY OF NEWARK
Delaware

CONTRACT NO. 23-07
CITY HALL PARKING LOT RECONSTRUCTION

NON-COLLUSION STATEMENT

Date: _____

City of Newark
Newark, Delaware

This is to certify that the undersigned bidder _____

has not, either directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted to the City of Newark on the _____ day of _____, 20___.

Signature of Bidder: _____

By: _____
Its legally authorized representative

Sworn to and subscribed before me on this _____ day of _____ 20___.

My Commission expires _____

_____
Notary Public

CITY OF NEWARK
Delaware

CONTRACT NO. 23-07

CITY HALL PARKING LOT RECONSTRUCTION

EQUAL OPPORTUNITY AFFIDAVIT

CERTIFICATION REGARDING COMPLIANCE WITH EQUAL OPPORTUNITY REQUIREMENTS

The undersigned Bidder _____ (has, has not) previously performed work subject to the Presidents Executive Order Nos. 10925, 11114 or 11246.

NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENTS

FOR CERTIFICATION OF NON-SEGREGATED FACILITIES

A certification of Non-Segregated Facilities, as required by the May 9, 1967 order (32 F.R. 7439, May 19, 1967), on Elimination of Segregated Facilities, by the Secretary of Labor, must be submitted prior to the award of a subcontract exceeding $10,000, which is not exempt from the provisions of the Equal Opportunity clause. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semi-annually, or annually).

NOTE: The penalty for making false statements in orders is prescribed in 18 U.S.C. 10001.

Date:_____ _____

Signature of Bidder or Prospective Contractor

_____

_____

Address (Including Zip Code)

SECTION 00 01 10 - TABLE OF CONTENTS

END OF SECTION

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SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. Related Requirements:

1. Section 01 78 23 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
2. Section 01 78 39 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
3. Section 01 79 00 "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Owner's personnel.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Owner’s responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not require Owner’s responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

C. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 ACTION SUBMITTALS

A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making

corrections or revisions to submittals noted by Owner and additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.

    a. Submit revised submittal schedule to reflect changes in status and timing for submittals.

4. Format: Arrange the following information in a tabular format:

    a. Scheduled date for first submittal.
    b. Specification Section number and title.
    c. Submittal Category: Action; informational.
    d. Name of subcontractor.
    e. Description of the Work covered.
    f. Scheduled date for Owner’s final release or approval.
    g. Scheduled date of fabrication.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Owner's Digital Data Files: Electronic digital data files of the Contract Drawings will **not** be provided by Owner for Contractor's use in preparing submittals.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. Owner reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Owner's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 14 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Owner will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 7 days for review of each resubmittal.

D. Paper submittals will not be accepted.

E. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
2. Name file with submittal number or other unique identifier, including revision identifier.

    a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-06 10 00.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-06 10 00.01.A).

3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Owner.
4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner**,** containing the following information:

    a. Project name.
    b. Date.
    c. Destination (To:).
    d. Source (From:).
    e. Name and address of Owner.
    f. Name of Contractor.
    g. Name of firm or entity that prepared submittal.
    h. Names of subcontractor, manufacturer, and supplier.
    i. Category and type of submittal.
    j. Submittal purpose and description.
    k. Specification Section number and title.
    l. Specification paragraph number or drawing designation and generic name for each of multiple items.
    m. Drawing number and detail references, as appropriate.
    n. Indication of full or partial submittal.
    o. Transmittal number; numbered consecutively.

p. Submittal and transmittal distribution record.
q. Remarks.
r. Signature of transmitter.
s. Other necessary identification.
t. Remarks.

5. Metadata: Include the following information as keywords in the electronic submittal file metadata:

a. Project name.
b. Number and title of appropriate Specification Section.
c. Manufacturer name.
d. Product name.

F. Options: Identify options requiring selection by Owner.

G. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Owner on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Owner’s action stamp.

I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

J. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Owner’s action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

1. Submit electronic submittals via email as PDF electronic files.

a. Owner will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.

2. Action Submittals: Submit copy of each submittal unless otherwise indicated. Owner will return annotated file.
3. Informational Submittals: Submit copy of each submittal unless otherwise indicated. Owner will not return the copy.
4. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

    a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.

B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

    a. Identification of products.
    b. Schedules.
    c. Compliance with specified standards.
    d. Notation of coordination requirements.
    e. Notation of dimensions established by field measurement.
    f. Relationship and attachment to adjoining construction clearly indicated.
    g. Seal and signature of professional engineer if specified.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on electronic sheets at least 8-1/2 by 11 inches, but no larger than 24 by 36 inches.
3. Submit Shop Drawings as PDF electronic file only.

C. Maintenance Data: Comply with requirements specified in Section 01 78 23 "Operation and Maintenance Data."

D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of engineers and owners, and other information specified.

E. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

F. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

G. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

H. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

I. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

J. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

K. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Owner.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 OWNER’S ACTION

A. Action Submittals: Owner will review each submittal, make marks to indicate corrections or revisions required, and return it. Owner will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action as follows:

1. If a submittal is acceptable, it will be marked "No Exceptions." Two copies of the submittal will be returned to Contractor. Upon return of a submittal marked "No Exceptions Taken," Contractor may order, ship, or fabricate the materials included on the submittal, provided it is in accordance with the corrections indicated.

2. If a shop drawing is marked "Exceptions as Noted," corrections to drawings are required. The Contractor is required to make the corrections indicated. The Contractor may order, ship, or fabricate the materials included on the submittal.
3. If a submittal is unacceptable, a copy will be returned to Contractor noted "Revise and Resubmit".

    a. The "Revise and Resubmit" notation is used to indicate material or equipment that is not acceptable. Upon return of a submittal so marked, Contractor shall repeat the initial approval procedure utilizing acceptable material or equipment.

B. Informational Submittals: Owner will review each submittal and will not return it or will return it if it does not comply with requirements. Owner will forward each submittal to appropriate party.

C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Owner.

D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Submittals not required by the Contract Documents may be returned by the Owner without action.

END OF SECTION

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SECTION 01 40 00 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality assurance and control services required by Owner or authorities having jurisdiction are not limited by provisions of this Section.

1.3 DEFINITIONS

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

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

C. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

D. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

E. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.

F. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

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

H. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).

I. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 CONFLICTING REQUIREMENTS

A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Owner for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Owner for a decision before proceeding.

1.5 INFORMATIONAL SUBMITTALS

A. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

1.6 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

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

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

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

1.7 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

E. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

F. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

1.8 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.

2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality control activities required to verify that the Work complies with requirements, whether specified or not.

1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

    a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

3. Notify testing agencies at least 24 hours in advance of time when work that requires testing or inspecting will be performed.
4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
6. Submit additional copies of each written report directly to authorities having jurisdiction when they so direct.

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 01 33 00 "Submittal Procedures."

D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in pre-installation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

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

F. Testing Agency Responsibilities: Cooperate with Owner and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Owner and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.

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

G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Owner.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Owner’s reference during normal working hours.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

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SECTION 01 78 23 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Operation and maintenance documentation directory.
2. Emergency manuals.
3. Operation manuals for systems, subsystems, and equipment.
4. Product maintenance manuals.
5. Systems and equipment maintenance manuals.

B. Related Requirements:

1. Section 01 33 00 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.

1.3 DEFINITIONS

A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 CLOSEOUT SUBMITTALS

A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.

1. Owner will comment on whether content of operations and maintenance submittals are acceptable.
2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.

B. Format: Submit operations and maintenance manuals in the following format:

1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to Architect.

    a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
    b. Enable inserted reviewer comments on draft submittals.

2. Two paper copies. Include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves.

C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Owner will comment on whether general scope and content of manual are acceptable.

D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 14 days before commencing demonstration and training. Owner will return copy with comments.

1. Correct or revise each manual to comply with Owner's comments. Submit copies of each corrected manual within 7 days of receipt of Owner's comments and prior to commencing demonstration and training.

PART 2 - PRODUCTS

2.1 REQUIREMENTS FOR OPERATION AND MAINTENANCE MANUALS

A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:

1. Title page.
2. Table of contents.
3. Manual contents.

B. Title Page: Include the following information:

1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of Owner.
4. Date of submittal.
5. Name and contact information for Contractor.
6. Names and contact information for major consultants that designed the systems contained in the manuals.
7. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

E. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.

1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
2. File Names and Bookmarks: Enable bookmarking of individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

F. Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.

1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

    a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
    b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

    a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.

b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

A. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

B. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.

C. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.

1. Do not use original project record documents as part of operation and maintenance manuals.
2. Comply with requirements of newly prepared record Drawings in Section 017839 "Project Record Documents."

END OF SECTION

SECTION 01 78 39 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for project record documents, including the following:

1. Record Drawings.
2. Record Specifications.
3. Record Product Data.
4. Miscellaneous record submittals.

B. Related Requirements:

1. Section 01 78 23 "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.3 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit 2 set(s) of marked-up record prints.

B. Record Specifications: Submit annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.

C. Record Product Data: Submit annotated PDF electronic files and directories of each submittal.

1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.

1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

    a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    b. Accurately record information in an acceptable drawing technique.
    c. Record data as soon as possible after obtaining it.
    d. Record and check the markup before enclosing concealed installations.
    e. Cross-reference record prints to corresponding archive photographic documentation.

2. Content: Types of items requiring marking include, but are not limited to, the following:

    a. Dimensional changes to Drawings.
    b. Revisions to details shown on Drawings.
    c. Depths of structures.
    d. Locations and depths of underground utilities.
    e. Revisions to routing of piping and conduits.
    f. Revisions to electrical circuitry.
    g. Actual equipment locations.
    h. Duct size and routing.
    i. Locations of concealed internal utilities.
    j. Changes made by Change Order or Change Directive.
    k. Changes made following Owner's written orders.
    l. Details not on the original Contract Drawings.
    m. Field records for variable and concealed conditions.
    n. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Format: Annotated PDF electronic file with comment function enabled.
3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
4. Identification: As follows:

    a. Project name.
    b. Date.
    c. Designation "PROJECT RECORD DRAWINGS."
    d. Name of Owner.
    e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Note related Change Orders, record Product Data, and record Drawings where applicable.

B. Format: Submit record Specifications as annotated PDF electronic file.

2.3 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, record Specifications, and record Drawings where applicable.

B. Format: Submit record Product Data as annotated PDF electronic file.

2.4 MISCELLANEOUS RECORD SUBMITTALS

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

B. Format: Submit miscellaneous record submittals as annotated PDF electronic file.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.

B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Owner's reference during normal working hours.

END OF SECTION

SECTION 01 79 00 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:

1. Demonstration of operation of systems, subsystems, and equipment.
2. Training in operation and maintenance of systems, subsystems, and equipment.

1.3 QUALITY ASSURANCE

A. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 01 40 00 "Quality Requirements," experienced in operation and maintenance procedures and training.

1.4 COORDINATION

A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PREPARATION

A. Assemble educational materials necessary for instruction, including documentation.

3.2 INSTRUCTION

A. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

B. Scheduling: Provide instruction at mutually agreed on times.

1. Schedule training with Owner/Calgon with at least 7 days' advance notice.

C. Conduct training on-site Conduct training using final operation and maintenance data submittals.

END OF SECTION

SECTION 03 30 00 – 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 other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:

1. Footings.
2. Slabs-on-grade.
3. Equipment foundations.

1.3 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1. Indicate amounts of mixing water to be withheld for later addition at Project site.

C. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.

1. Location of construction joints is subject to approval of the Engineer.

D. Material Certificates: For each of the following, signed by manufacturers:

1. Cementitious materials.
2. Admixtures.
3. Form materials and form-release agents.

4. Steel reinforcement and accessories.
5. Fiber reinforcement.
6. Curing compounds.
7. Waterstops.
8. Floor and slab treatments.
9. Bonding agents.
10. Adhesives.
11. Semirigid joint filler.
12. Joint-filler strips.
13. Repair materials.

E. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:

1. Field quality-control reports.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

B. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301, "Specifications for Structural Concrete," Sections 1 through 5.
2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

C. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage. Avoid damaging coatings on steel reinforcement.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete:

1. Form-facing panels that provide continuous, true, and smooth concrete surfaces. Furnish panel sizes that create the least number of joints.
2. Plywood, metal, or other approved panel materials.

3. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:

    a. High-density overlay, Class 1 or better.
    b. Medium-density overlay, Class 1 or better; mill-release agent treated and edge sealed.
    c. Structural 1, B-B or better; mill oiled and edge sealed.
    d. B-B (Concrete Form), Class 1 or better; mill oiled and edge sealed.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

C. Form-Release Agent

1. Commercially formulated form-release agent that will not bond with, stain, and adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
2. Formulate form-release agent with rust inhibitor for steel form-facing materials.

D. Form Ties

1. Factory-fabricated, removable, or snap-off metal or glass-fiber-reinforced plastic form ties that resist lateral pressure of fresh concrete on forms and prevent spalling of concrete on removal.
2. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.
3. Furnish ties that, when removed, will leave holes no larger than 1 inch in diameter in concrete surface.
4. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

2.2 STEEL REINFORCMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.

B. Low-Alloy-Steel Reinforcing Bars: ASTM A706/A706M, deformed.

C. Steel Bar Mats: ASTM A 184/A 184M, fabricated from deformed bars, assembled with clips.

D. Plain-Steel Wire: ASTM A82/A82M, as drawn.

E. Deformed-Steel Wire: ASTM A496/A496M.

F. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, plain, fabricated from as-drawn steel wire into flat sheets.

G. Deformed-Steel Welded Wire Reinforcement: ASTM A497/A497M, flat sheet.

H. Galvanized-Steel Welded Wire Reinforcement: ASTM A185/A185M, plain, fabricated from galvanized-steel wire into flat sheets.

2.3 REINFORCEMENT ACCESSORIES

A. Joint Dowel Bars: ASTM A615/A615M, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.

B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," 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 steel wire or CRSI Class 2 stainless-steel bar supports.
2. For zinc-coated reinforcement, use galvanized wire or dielectric-polymer-coated wire bar supports.

2.4 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150, Type I

B. Normal-Weight Aggregates

1. ASTM C33, Class 3S coarse aggregate or better, graded.
2. Provide aggregates from a single source with documented service record data of no less than 10 years' satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials.
3. Coarse-Aggregate Size: No greater than 1-1/2 inches nominal, comply with recommendations in ACI 350 for Environmental Structures.
4. Fine Aggregate: free of materials with deleterious reactivity to alkali in cement.

C. Water: ASTM C 94/C 94M and potable.

2.5 ADMIXTURES

A. Air-Entraining Admixture: ASTM C 260.

B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

2.6 WATERSTOPS

A. Flexible PVC Waterstops: CE CRD-C 572, for embedding in concrete to prevent passage of fluids through joints. Factory fabricate corners, intersections, and directional changes.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Westec.
    b. Greenstreak.
    c. Paul Murphy Plastics Company.
    d. Vinylex Corp.
    e. BoMetals, Inc.

2. Profile: flat, ribbed with center bulb, dumbbell with center bulb.
3. Dimensions: 6 inches by 3/8 inch thick; nontapered.

2.7 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D1751, asphalt-saturated cellulosic fiber

B. Bonding Agent: ASTM C1059/C1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

C. Epoxy Bonding Adhesive: ASTM C881, two-component epoxy resin, humid curing and that bonds to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:

1. Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

2.8 REPAIR MATERIALS

A. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.

1. Cement Binder: ASTM C150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C219.
2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
4. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C109/C109M

2.9 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than Portland cement in concrete as follows:

1. Combined Fly Ash and Pozzolan: 25 percent.

C. Limit water-soluble, chloride-ion content in hardened concrete to 0.06 percent by weight of cement.

D. Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.

2.10 CONCRETE MIXTURES FOR BUILDING ELEMENTS

A. Footings: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 3000 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.50.
3. Slump Limit: 4 inches, plus or minus 1 inch.
4. Air Content: 5.5 percent, plus and minus 1.5 percent at point of delivery for 1-1/2-inch nominal maximum aggregate size.
5. Air Content: 6 percent, plus and minus 1.5 percent at point of delivery for 1-inch nominal maximum aggregate size.

B. Slabs-on-Grade: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 3000 psi (34.5 MPa) at 28 days.
2. Slump Limit: 4 inches (100 mm), plus or minus 1 inch (25 mm).
3. Air Content: 5.5 percent, plus or minus 1.5 percent at point of delivery for 1-1/2- inch (38-mm) nominal maximum aggregate size.

2.11 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.12 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and ASTM C 1116 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.

PART 3 - EXECUTION

3.1 FORMWORK

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301-10 and ACI 350-06 to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:

1. Class A, 1/8 inch for smooth-formed finished surfaces.
2. Class B, 1/4 inch for rough-formed finished surfaces.

D. Construct forms tight enough to prevent loss of concrete mortar.

E. 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.

1. Install keyways, reglets, and recesses for easy removal.
2. Do not use rust-stained steel form-facing material.

F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

G. 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.

H. Chamfer exterior corners and edges of permanently exposed concrete.

I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."
2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
3. Install dovetail anchor slots in concrete structures as indicated.

3.3 REMOVING AND REUSING 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 degrees Fahrenheit for 24 hours after placing concrete. Ensure concrete is hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.

1. Leave formwork for beam soffits, joists, slabs, and other structural elements that supports weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.

B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, and 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.

3.4 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.

C. 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. Weld reinforcing bars according to AWS D1.4/D1.4M, where indicated.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.5 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.

1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
4. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
5. Use a bonding agent at locations where fresh concrete is placed against hardened and partially hardened concrete surfaces.
6. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened and partially hardened concrete surfaces.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at no less than 1/4 of concrete thickness as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at each slab junction with vertical surfaces. For example, at column pedestals, foundation walls, and grade beams.

1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.
2. Terminate full-width joint-filler strips not less than 1/2 inch and not more than 1 inch below finished concrete surface where joint sealants are indicated.
3. Install joint-filler strips in lengths as long as practicable. Lace or clip sections together when more than one length is required.

E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat 1/2 of dowel length to prevent concrete bonding to one side of joint.

3.6 WATERSTOPS

A. Flexible Waterstops: Install in construction joints and at other joints indicated to form a continuous diaphragm. Install in longest lengths practicable. Support and protect exposed waterstops during progress of the Work. Field fabricate joints in waterstops according to manufacturer's written instructions.

3.7 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Engineer.

C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.

D. Deposit concrete continuously in one layer or in horizontal 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 indicated. Deposit concrete to avoid segregation.

1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.

2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations 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 mixture constituents to segregate.

E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
2. Maintain reinforcement in position on chairs during concrete placement.
3. Screed slab surfaces with a straightedge and strike off to correct elevations.
4. Slope surfaces uniformly to drains where required.
5. Begin initial floating using bull floats or darbies to form a uniform and opentextured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

F. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage and reduced strength caused by frost, freezing actions, and low temperatures.

1. When average high and low temperature is expected to fall below 40 degrees Fahrenheit for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
2. Do not use frozen materials and materials containing ice and snow. Do not place concrete on frozen subgrade and on subgrade containing frozen materials.
3. Do not use calcium chloride, salt, and other materials containing antifreeze agents and chemical accelerators unless otherwise specified and approved in mixture designs.

G. Hot-Weather Placement: Comply with ACI 301 and as follows:

1. Maintain concrete temperature below 90 deg F (32 deg C) 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. Using liquid nitrogen to cool concrete is Contractor's option.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.8 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

3.9 MISCELLANEOUS CONCRETE ITEMS

A. Filling In: Fill in honeycombs, holes, and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling and required to complete the Work.

B. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.

3.10 CONCRETE PROTECTING 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 ACI 301 for hot-weather protection during curing.

B. Formed Surfaces: Cure formed concrete surfaces, underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.

C. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.

D. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
    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.

3.11 CUTTING, PATCHING, AND REPAIR OF CONCRETE SURFACES

A. Concrete repairs shall be provided where shown on the drawings in addition to areas referred to in this section and shall be in accordance with the drawings and these specifications.

B. Defective area in concrete surfaces shall be repaired immediately after removal of forms as specified herein or directed by the Resident Engineer.

C. Cut out honeycomb, rock pockets, voids of 1/4" in any dimension, and holes left by tie rods and bolts down to solid concrete, but in no case to a depth of less than 1". Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water and brush-coat the area to be patched with approved bonding agent. Place patching mortar after bonding compound has dried.

D. Surfaces exposed to view shall be repaired with a blend of white Portland cement and standard Portland cement so that, when dry, patching mortar will match the color surrounding. Provide test areas 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.

E. Formed surfaces not exposed to view shall be repaired by removing and replacing concrete having defective surfaces if defects cannot be repaired to the satisfaction of Engineer. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets; fins and other projections on surfaces; and stains and other discolorations that cannot be removed by cleaning.

F. Unformed surfaces that contain defects which affect the durability of concrete shall be repaired. Surface defects, as such, include crazing, cracks in excess of 0.01" wide or which penetrate to reinforcement or completely through non-reinforced sections regardless of width, spalling, pop-outs, honeycomb, rock pockets, and other objectionable conditions shall be repaired.

G. High areas in unformed surfaces shall be corrected by grinding, after concrete has cured at least 14 days.

H. Low areas in unformed surfaces shall be corrected during or immediately after completion of surface finishing operations by cutting out low areas and replacing with fresh concrete. Finish repaired areas to blend into adjacent concrete. Proprietary patching compounds shall be approved by the Resident Engineer prior to application.

I. Other defective areas, except random cracks and single holes not exceeding 1-inch diameter shall be repaired, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts and expose reinforcing steel with at least 3/4" clearance all round. Dampen concrete surfaces in contact with patching concrete and apply bonding compound. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

J. Use epoxy-based mortar or epoxy modified concrete for structural repairs, where directed by Resident Engineer. Epoxy modifier for mortar and concrete must be approved by the Resident Engineer prior to use.

K. Repair methods not specified above may be used, subject to acceptance by Resident Engineer.

3.12 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. The Owner’s qualified testing and inspection firm shall make test cylinders in accordance with the requirements of the "Methods of Making and Curing Concrete Compression and Flexure Test Specimens in the Field" ASTM Designation C31, latest edition. The tests shall be performed by the qualified testing and inspection firm in accordance with the requirements of the Standard Method of Test for Compressive Strength of Molded Concrete Cylinders, ASTM Designation C39.

Test cylinders shall be made at intervals spaced to provide a representative sampling of the entire pour. Two specimens shall be tested at seven days, two specimens tested at 28 days, and one specimen shall be retained in reserve for later testing, if required.

C. Contractor shall provide proper storage area for initial curing of test cylinders.

D. Every delivery of concrete to the job site must be accompanied by a certificate showing weights of materials, type and quantity of admixtures and date and time of loading.

E. The qualified testing and inspection firm will perform the following sampling and testing of fresh concrete in accordance with ASTM C172/C172M at the Contractor's expense:

1. Slump: ASTM C143/C143M; one test at point of placement for each set of concrete cylinders, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change. Slump measurement shall be recorded for each set of concrete cylinders as indicated in Section 3.7.1.5.
2. Air Content: ASTM C231/C231 M; pressure method for normal weight concrete; one test shall be made for each set of concrete cylinders, but not less than one test for each day's pour of each concrete mixture.
3. Concrete Temperature: ASTM C1064/C1064M; one test hourly when air temperature is 40 degF and below and 80 degF and above; one test for each set of concrete cylinders. Admixtures: Note all admixtures used in test samples in submitted reports.

F. Reinforcing material shall be properly identified and supplied with two copies of mill certification. If mill certifications are not provided the Contractor shall pay for the testing of the reinforcement.

G. Reinforcing steel failing to meet the requirements of the following specifications shall be rejected and removed from the site. No steel shall be used for reinforcing until satisfactory test reports on such steel are received by the Engineer.

H. The Contractor shall allow the Owner's testing and inspection firm free access to material stockpiles and work areas. Tests not specifically indicated, including retesting of rejected materials and installed work shall be done in accordance with the Resident Engineer's instructions at the Contractor's expense.

END OF SECTION

SECTION 26 00 01 - GENERAL ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. General Electrical Requirements applicable to all electrical work involved with the project.

B. General description of electrical work.

1.2 DESCRIPTION OF WORK

A. The work covered by the Contract Documents is at existing and new facilities. The work required for electrical systems shall consist of furnishing all labor, materials, tools, equipment, services, and related items necessary to accomplish the installation and proper operation of the work as indicated and described in the Contract Documents. The complete installation as a whole, and in every part, shall be left ready for satisfactory operation.

B. Equipment or materials and labor, obviously a part of the work and necessary for installation and proper operation of same, although not specifically shown on the drawings or specified, shall be provided as if called for in detail, at no additional cost to the Owner.

C. Without intending to limit or restrict the amount of work involved, and solely for the convenience of the Contractor, the work in general shall comprise the following:

1. Temporary electric distribution and lighting systems for Contractor's use during construction, including all work and costs for same.
2. All coordination activities with the Owner involving temporary electric distribution and lighting, including all work and costs for same.
3. All coordination activities with other contractors involved with the project and the Owner.
4. Maintenance of existing electrical equipment, devices, items, wiring, etc., at the project location not specifically involved in the project but which are impacted by the work during the course of the project.
5. Relocation of existing equipment, wiring, and appurtenances as required to meet actual field construction conditions.
6. Installation of complete power distribution, lighting, and control systems including all equipment, devices, items, conduit, fittings, wiring, and all associated appurtenances as indicated and/or specified and/or required.
7. All wiring and connections for equipment/items furnished by the Owner for use in the work.
8. All wiring and connections for equipment/items furnished under other divisions/sections of the Contract Documents.

9. All wiring and connections for existing equipment/items which remain or are reused in the work.
10. All equipment foundations, dowels, supports, anchors, bolts, etc. required for the complete installation of all equipment furnished under this division and for all equipment/devices required to be installed by the Electrical Contractor under other divisions/sections of the Contract Documents.
11. All cutting, coring, and patching required for the complete installation of all equipment furnished under this division and for all equipment/devices required to be installed by the Electrical Contractor under other divisions/sections of the Contract Documents.
12. All trenching, excavation, backfilling, shoring, and care for all groundwater required for the complete installation of all equipment furnished under this division and for all equipment/devices required to be installed by the Electrical Contractor under other divisions/sections of the Contract Documents.
13. Repair or replacement of damage caused by construction.
14. Cleaning, painting, legends, and labeling.
15. Testing, adjusting, and instructions.
16. Shop drawing and product data submittals.
17. Operation and maintenance documents submittals.
18. Operation and maintenance manuals.
19. Record drawings and documents.

1.3 REFERENCES

A. ANSI/NFPA 70: National Electrical Code.

B. NECA: Standard of Installation.

C. UL: Electrical Construction Materials Directory.

1.4 SUBMITTALS

A. Submit under provisions as specified herein.

B. Proposed Products List: Include products specified in the individual sections.

1. Within 15 days after date of Notice to Proceed, submit a complete list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
2. The Proposed Products List and individual items therein will be used for reference during submittal reviews and will not be reviewed for acceptance.

C. Equipment/Product Submittals: Submit shop drawings and product data grouped to include complete submittals of related systems, products, and accessories in single submittals.

1. A minimum of three (3) hard (paper) copies or one (1) electronic copy (PDF) of

each shop drawing/product data submittal shall be submitted and acceptance obtained before shipment and/or installation of material. Acceptance is given only to indicate general compliance with contract requirements and does not relieve the Contractor from any obligation undertaken under the contract. All acceptances are subject to reversal if field inspection reveals unfavorable conditions not previously disclosed.

2. Submittals shall be checked and corrected before submission. All deviations from Contract requirements shall be noted. If more than one item appears on a submission and the proposed item is not marked, acceptance will be based upon the item that meets specifications.
3. Mark shop drawings and product data with the appropriate specifications section(s), drawing and/or detail reference number(s).
4. Mark dimensions, ratings, and values in units to match those specified.
5. Without intending to limit or restrict the types or quantity of shop drawing/product data submittals, and solely for the convenience of the Contractor, these submittals shall include, but no be limited to, the following:

    a. Hand holes.
    b. Conduit, conductors, cable, grounding, and accessories.
    c. Wiring devices.
    d. All identification markings.
    e. Enclosed switches.
    f. Panelboard modifications.
    g. Lighting equipment.

6. All equipment/product submittals shall be transmitted for review simultaneously (as a group).
7. In general, where a manufacturer's name and/or style number is mentioned in the description of material and equipment in the specifications or on the drawings, it is to be understood that it is for the purpose of setting a standard.

    a. Where three manufacturers are named, the material or equipment shall be from one of those named.
    b. When a proprietary product is specified, the material or equipment shall be that specified.

8. If any substitute items are to be submitted and there are any questions of quality of such items, the Contractor may be required, at his own expense, to submit samples of both the item specified and that to be substituted or furnish further proof of equivalence to the entire satisfaction of the Owner. In no case shall he be allowed additional remuneration if he must supply any items as specified because of the rejection of a substitute.

D. Submit installation instructions and operation and maintenance (O&M) information grouped into a complete/combined and bound manual formatted by specification section with index, for the entire project.

1. Installation instruction and O&M information shall consist of, but shall not be limited to, the following:

a. Description of equipment/system.
b. Installation instructions.
c. Start-up instructions.
d. Operating instructions.
e. Maintenance instructions.
f. Recommended maintenance schedule.
g. Troubleshooting information techniques.
h. Spare parts list.
i. Schematic diagrams.
j. Wiring diagrams.
k. Safety/precautionary instructions.
l. Factory warranties/guarantees.
m. List of manufacturers' local representatives or service agents.

2. One copy of the manual shall be submitted for review and comments. comments shall be included/addressed/incorporated in the final O&M Manuals for the project.
3. Operation and maintenance information shall be submitted not more than 45 days after submission of equipment/product submittals.
4. Without intending to limit or restrict the types or quantity of installation instructions and operation and maintenance information, and solely for the convenience of the Contractor, this information shall be provided for, but not limited to, the following:

    a. Lighting equipment.

E. Specific submittals and other submittals (not listed in this section) are required by the Contract Documents and/or are listed in the specifications. The Contractor shall be responsible for all submittals.

F. Prior to submission, the Contractor shall mark all submittals with an appropriate submittal number and with the Contractor's review stamp indicating that the Contractor has reviewed the submittal for compliance with the Contract Documents and found it acceptable.

G. Review of submissions, in whole or in part, shall not constitute acceptance of any errors, omissions, changes, or other deviations from the Contract Documents. Checking is only for conformance with the design concept of the project and compliance the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication, shipping, handling, storage, assembly, installation or to techniques of construction; for coordination of the work of all trades, and for all safety aspects of the work.

1.5 DEFINITIONS

A. Wherever the word "Provide" appears in the Contract Documents it shall mean furnish

and install with all required associated work, wiring, raceways, and appurtenances, make all final connections, and leave in a satisfactory operating condition.

B. Wherever the word “Equipment” appears in the Contract Documents, it shall mean all wiring, apparatus, raceways, fixtures, panels, boxes, switches, appurtenances, devices, and similar items as required.

C. Wherever the word “Work” appears in the Contract Documents, it shall mean all required equipment and all materials, supervisions, transportation, adjustments, labor, rigging, scaffolding, and tools of an auxiliary nature required to install the equipment for a complete approved installation.

D. Wherever the word “Wiring” appears in the Contract Documents, it shall mean all cables and conductors, insulated and uninsulated, grounded, and ungrounded, and their enclosed raceways, including all associated fastenings, supports, boxes, bushings, devices, appurtenances, fixtures, and equipment as required.

E. Wherever the word “Conduit” appears in the Contract Documents, it shall refer to rigid metal conduit, PVC externally coated rigid metal conduit, rigid non-metallic conduit (Schedule 40 PVC), or liquid-tight flexible metal conduit.

F. Where work or equipment is referred to in singular terms, such reference shall be deemed to apply to as many items of work or equipment as required to complete the entire installation.

1.6 REGULATORY REQUIREMENTS

A. Rules and Regulations: All work shall be done in strict compliance with the requirements of the National Electrical Code; all local, state, and federal safety requirements; all local, state, and federal environmental requirements; and all other public authorities having jurisdiction. These rules and regulations shall be considered as forming a part of the Contract Documents.

B. Fees and Certificates: Obtain and pay for all permits and certificates required in conjunction with the work. Furnish a copy of all permits and certificates to the Owner.

C. Contractor's License: All electrical work shall be done by a fully qualified and duly licensed electrical Contractor. The Contractor shall maintain his license in effect throughout the course of the work.

D. Underwriter's Label: All material for which label service is available shall bear the label of the Underwriters Laboratories, Inc.

E. Underwriter's Inspection: During the course of the work at periodic intervals, the Contractor shall, at his expense, have an inspection of the work made by a representative of an independent inspection agency. Corrections to the work required by said inspections shall be accomplished immediately at no additional cost to the Owner.

1. Prior to commencing work, submit to the Owner evidence that inspection services of an independent inspection agency have been obtained.
2. Prior to the installation of finish materials, and while all concealed work is accessible, obtain a certificate/letter from the independent inspection agency indicating approval of the rough wiring. This certificate/letter shall be forwarded to the Owner.
3. Upon completion of the work, an approved Certificate of Electrical Inspection for the entire project shall be delivered to the Owner.

1.7 PROJECT/SITE CONDITIONS

A. Install work as indicated in the Contract Documents, unless prevented by project conditions.

B. Prepare drawings showing proposed rearrangement of work to meet project conditions, including changes to work specified in other Sections. Obtain permission of Owner before proceeding.

C. Commencement of construction shall mean that the Contractor accepts project/site conditions.

1.8 COORDINATION

A. Electrical work shall be coordinated with other trades/utilities involved in the project. All work shall be carefully laid out in advance coordinating electrical features with architectural, structural, and mechanical features of construction before the work is installed. Prior to roughing-in, the Contractor shall review approved shop drawings of the other trades involved in the project.

1.9 COOPERATION

A. Cooperate fully with other trades/utilities involved in the project and the Owner as is necessary to accomplish intelligent and proper execution of work.

1.10 SUPERINTENDENCE

A. The Contractor shall give his personal superintendence to the work or have a competent superintendent, satisfactory to the Owner, present at all times during construction with full authority to act for him in matters relating to the work. The Contractor shall provide an adequate organization for the proper coordinating and expediting of the work. The Contractor shall lay out his own work and shall be held fully responsible for all measurements executed by him under the contract. He shall verify all information shown in the Contract Documents and shall be held fully responsible for all errors resulting from failure to exercise these precautions.

1.11 DRAWINGS

A. The Contract Drawings have been made to scale with the best knowledge of conditions, dimensions, and space requirements available at the time of drafting. Report errors or discrepancies to the Owner immediately upon discovery for instructions as to further procedure. The wiring/raceway layout shown on the drawings shall not be considered as absolute but shall be subject to such revisions as may be necessary to overcome field obstructions. No changes shall be made in the location or placement of apparatus without approval of the Owner. The drawings may not indicate all the existing equipment, devices, wiring, structures, piping, etc., either exposed or concealed. Prior to commencing construction, the Contractor shall obtain or verify the exact location of all the existing items that affect the work.

1.12 DISCREPANCIES

A. In the event of discrepancy, immediately notify the Owner. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

1.13 PROTECTION

A. Effectively protect all parts of the installation, materials stored on site, and materials installed against theft and vandalism. All materials and equipment removed or damaged through theft or vandalism shall be replaced by the Contractor at no additional cost to the Owner. The Contractor shall also effectively protect all portions of the work, materials, and equipment that are liable to injury during the period of construction. Conduit and openings into same, wiring, and all materials and equipment under the contract before and after being set in place, shall be adequately covered and protected to prevent damage or entrance of foreign matter detrimental to the operation of the equipment. The Contractor shall be held responsible for all damage done to his work until such is finally and fully accepted by the Owner.

1.14 EXAMINATION OF THE WORK

A. Furnish all labor, material, equipment, and instruments as may be required by the Owner in making examination of the work.

1.15 RECORD DRAWINGS AND DOCUMENTS

A. It shall be the Contractor’s responsibility to annotate the record drawings and documents to show "As-Built" conditions as the construction proceeds.

B. Upon completion of the work, the Contractor shall furnish one set of record drawings and documents to the Owner.

C. Record drawings and documents shall consist of annotated contract drawings, specifications, addenda, change orders, shop drawings, and field directives.

D. These drawings and documents shall indicate as a minimum, equipment locations, conduit layout, wiring diagrams, and related details. They shall show wire and conduit sizes and equipment capacities, all important dimensions, and necessary information for operation and maintenance of equipment.

1.16 INSTRUCTIONS

A. Upon completion of the work and prior to acceptance, the Contractor shall instruct designated employees of the Owner in the operation of the various items of equipment and in the operation of each of the systems.

1.17 SPECIAL REQUIREMENTS

A. The Contractor shall be responsible to insure "on the job" safety for his employees. In addition, he shall be responsible to ensure that his work shall be performed in a manner that will provide safe conditions for other persons employed on the project, employees of the Owner, all other persons having authorized or unauthorized access to the work, and the public.

B. It shall be the responsibility of the Contractor to conduct his work in such a manner as to minimize the interference and/or interruption of the normal activities at the project site.

C. The Contractor shall notify the Owner not less than five (5) working days prior to commencing any electrical work that may interfere and/or interrupt the normal activities at the project site.

D. The Contractor shall assure, and take all necessary actions to assure, that the existing facilities are kept operational at all times for the duration of this contract. Interruption of existing facilities' operation will not be permitted. If it becomes necessary to interrupt electric service to any part of the facilities, schedule activities to be performed at times agreeable to the Owner. The work shall be conducted in such a manner that electric service will never be completely interrupted. Contractor shall include, in his bid, all premium pay that may be required in connection with these requirements.

E. It shall be the responsibility of the Contractor to obtain accurate dimensional data of the equipment and to determine that such equipment will fit space allocated with adequate clearance for operation and maintenance.

F. It shall be the responsibility of the Contractor to verify the actual electrical requirements of all equipment involved in the work and to size all wire, all conduit, all circuit protection, etc. in accordance with the National Electrical Code, and the published requirements/recommendations of the equipment manufacturer. However, size and

ratings shall not be less than those indicated on the drawings or specified, unless approved by the Owner.

G. The Contractor shall be responsible for the replacement and/or repair of all damage caused by his work. Replacement and/or repair work shall conform to the existing conditions.

H. The bidders are hereby instructed that prior to submitting a proposal, each bidder shall visit the site and carefully examine the existing conditions affecting the Work and verify those items that impact the project. Additional labor/materials and equipment required through failure to follow these instructions shall be provided by the Contractor at no additional cost to the Owner.

1.18 GUARANTEE

A. All new materials or equipment and all workmanship shall be fully guaranteed in writing for a period of one year from the date of acceptance by the Owner. This guarantee shall include an agreement to repair or replace all material or work which is discovered to be defective during said period.

1.19 OPERATION AND MAINTENANCE MANUALS

A. See Section 01 78 23 “Operation and Maintenance Data”

1.20 OWNER FURNISHED AND EXISTING EQUIPMENT

A. The project includes Owner furnished and existing equipment which shall be used in the work. The Contractor shall be responsible to coordinate/verify the specific equipment with the Owner, prior to use.

B. The Contractor shall be responsible to thoroughly familiarize himself with all aspects of the Owner furnished and existing equipment in order to properly use same.

C. The bidders shall be responsible to contact the Owner prior to submitting a proposal and verify all equipment and/or requirements regarding the use of Owner furnished and existing items. Additional equipment, materials, and labor required through failure to follow these instructions shall be provided by the Contractor at no additional cost to the Owner.

1.21 SEQUENCE AND SCHEDULING

A. The sequence and scheduling of the work shall be coordinated by the Contractor with the Owner and the other trades/utilities involved in the project.

B. Existing electrical equipment shall be maintained in operation until the new facilities are complete and ready for start-up.

C. All changeovers from existing facilities to new facilities shall be coordinated by the Contractor with the Owner and the other trades/utilities involved in this project and shall be accepted by the Owner prior to commencement of the change-over.

D. All changeovers shall be conducted in a continuous and expedient manner (i.e. from commencement to completion without a stoppage in the change-over work).

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. All materials and equipment shall be new and free of defects. Materials and equipment shall be the catalogued products of manufacturers regularly engaged in production of such materials or equipment and shall be manufacturer's latest standard design that complies with the specification requirements. When two or more units of the same type, class, and sizes of equipment are required, these units shall be products of a single manufacturer; however, the component parts of this system need not be the products of the same manufacturer. Each major component of equipment shall have the manufacturer's name, address, the model and serial number on a nameplate securely affixed in a conspicuous place; the nameplate of the distributing agent will not be acceptable.

B. Items not specified but necessary for the proper installation of the electrical work and operation of the system shall be furnished in a grade and quality, meeting normal trade standards. Materials shall be compatible with the materials of the system in which they are to be installed.

C. All material and equipment shall be acceptable to the authority having jurisdiction or shall be replaced with acceptable items at no additional cost to the Owner.

PART 3 - EXECUTION

3.1 WORKMANSHIP

A. Install all work using the procedures as defined in the NECA Standard of Installation.

B. All equipment shall be installed and wired in strict compliance with the requirements and recommendations of the equipment manufacturer.

C. All work shall be installed in a first-class manner by mechanics skilled in the trade involved. All details of the installation shall be mechanically and electrically correct and all work shall comply with the requirements of the National Electrical Code and all local

codes having jurisdiction.

D. Installation, wiring, and connections of equipment furnished under other divisions/sections of the Contract Documents or existing equipment shall be accomplished using the requirements and recommendations of the equipment manufacturer.

3.2 CLEANING

A. During construction, the Contractor shall maintain all areas in which he is working or using for storage and access free from rubbish and debris at all times.

B. Upon completion of the work, the Contractor shall thoroughly clean all parts of the installation to the satisfaction of the Owner. The switches, receptacles, cabinets, and enclosures, disconnects, circuit breakers, and similar items of the equipment shall be thoroughly cleaned prior to final acceptance.

3.3 PAINTING

A. Paint all damaged factory finished surfaces. Use paint and method of application as recommended by the equipment manufacturer.

3.4 LEGENDS

A. Provide for each cabinet and enclosure, disconnect, circuit breaker, and similar items of equipment a laminated plastic nameplate of molded phenolic compound to indicate the device and equipment served. Characters shall be white, not less than one-eighth inch (1/8") high.

B. Provide tags for all feeders, at both ends and at intermediate junction and pull boxes, indicating feeder designation or equipment served.

3.5 TESTING

A. Upon completion of the work and prior to acceptance, the Contractor shall test all conductors to insure freedom from unwanted grounds, continuity, proper splicing, and insulation values in accordance with National Electrical Code requirements. In addition, the Contractor shall check all conduits for continuity. Preliminary testing with a megneto or ohmmeter shall be permitted, but final measurements shall be obtained with a "Megger" or suitable voltage output. The Contractor shall furnish all required instruments, labor, material, and other equipment necessary for testing.

3.6 ADJUSTMENTS

A. Upon completion of the work, all component parts, individually and as a whole, shall be adjusted and left in a satisfactory operational condition.

B. All overload devices shall be set and adjusted to load conditions.

3.7 REPAIRS OR REPLACEMENT

A. The Contractor shall be responsible to repair and/or replace all damage caused by his work.

B. All repair and/or replacement work shall be performed in a neat and workmanlike manner by craftsmen skilled in the trades involved and shall be accomplished in accordance with the best practice of the trade.

C. All damaged equipment shall be replaced before acceptance of the work, regardless of who caused the damage. In areas where electrical construction has been performed over finished surfaces, all marred surfaces shall be touched-up as directed by the Owner. All burned-out lamps shall be replaced at Substantial Completion.

3.8 EARTH WORK

A. All earth work shall be done in accordance with the requirements of Division 31 – Earth Work of the Contract Documents.

3.9 CONCRETE WORK

A. All concrete work shall be done in accordance with the requirements of Division 3 - Concrete of the Contract Documents.

3.10 CUTTING, CORING, AND PATCHING

A. All cutting shall be done by this Contractor as required for the installation of his work. All holes through existing concrete or masonry construction shall be core drilled. Prior to any core drilling, verify that same will not damage or interfere with existing piping, equipment, etc.

END OF SECTION

SECTION 26 05 18 - CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 REFERENCES

A. ANSI/NFPA 70 - National Electrical Code.

1.3 REGULATORY REQUIREMENTS

A. Conform to requirements of ANSI/NFPA 70.

B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.4 PROJECT CONDITIONS

A. Wire and cable routing shown on drawings is approximate unless dimensioned. Route wire and cable as required to meet project conditions.

B. Where wire and cable routing is not shown, and destination only is indicated, determine exact routing and lengths required.

1.5 COORDINATION

A. Determine required separation between wiring and other work.

B. Determine wire and cable routing to avoid interference with other work.

1.6 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Qualification Data: For testing agency.

C. Field quality-control test reports.

1.7 QUALITY ASSURANCE

A. 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.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS

A. Generally, cable, wire and connectors shall be of manufacturer's standard materials, as indicated by published product information.

B. Provide factory-fabricated wire of the size, rating, material, and type as indicated for each service. Where not indicated, provide proper selection as required to comply with installation requirements and with NEC standards.

C. If more than three phase conductors are installed in a single raceway, the conductors shall be derated in accordance with the National Electrical Code. Increase wire size so that resulting ampacity, after derating factor is applied, is equal to or greater than ampacity of conductor required.

D. The conductors of wires and cables shall be of copper (tinned where specified) and have conductivity in accordance with the standardization rules of the IEEE. The conductor and each strand shall be round and free of kinks and defects.

E. Grounding conductors, where insulated, shall be colored solid green or identified with green color as required by the NEC. Conductors intended as a neutral shall be colored solid white or identified as required by the NEC.

F. Use compression lugs for all wiring terminations, except on breakers or terminal strips in panelboards.

2.2 BUILDING WIRE

A. Description: Single conductor insulated wire.

B. Conductor: Copper.

C. Insulation Voltage Rating: 600 volts.

D. Insulation: ANSI/NFPA 70, Type THHN/THWN-2.

2.3 INSTRUMENTATION CABLE

A. 300 Volt Instrumentation Cable, Multiple Pairs, Overall Shield, Type PLTC

1. Individual Conductors: #18 AWG, stranded, tinned copper, flame retardant polyethylene or PVC insulated, rated 105 degrees C.
2. Assembly: Individual twisted pairs having a 100 percent coverage aluminum-polyester shield and 20 AWG stranded tinned copper drain wire. Conductor bundle shall be shielded with 100 percent coverage overall aluminum-polyester shield complete with #18 AWG copper drain wire. All group shields completely isolated from each other. Bundle wrapped with cable tape and covered with an overall flame-retardant PVC jacket. The cable shall be UL listed and labelled. The cable shall have a nominal capacitance of no more than 24 pf/ft.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that mechanical work likely to damage wire has been completed.

3.2 PREPARATION

A. Completely and thoroughly swab raceway before installing wire or cable.

3.3 INSTALLATION

A. Install electrical cable, wire and connectors as indicated, in accordance with the manufacturer's written instructions, the applicable requirements of NEC and the National Electrical Contractors Association's "Standard of Installation", and as required to ensure that products serve the intended functions.

B. Use solid conductor for feeders and branch circuits 10 AWG and smaller.

C. Use stranded conductors for control circuits.

D. No conductor smaller than #12 AWG shall be used for lighting and power purposes.

1. Conductor sizes shown on drawings are minimum and shall be increased as necessary to comply with voltage drop restrictions specified herein. The sizing of all wire except remote control wire shall be accomplished in the case of both feeder and branch circuits by conforming to the following provisions.

    a. 480 Volt Branch Circuits: The voltage drop in the case of 277/480 volt circuits shall not exceed 1.0% at maximum load and 70.0% power factor.
    b. 120/240 Volt Branch Circuits: The voltage drop in the case of 120/208 volt circuits shall not exceed 2.0% at maximum load and 70.0% power factor.

2. To accommodate circuits increased in size to offset voltage drop, provide pigtails as required to make terminations at source and load. Pigtail splices at source shall be in

separate j-box (not inside panelboard). Increase size of load side termination box as required.

E. Use conductor not smaller than 14 AWG for control circuits.

F. Use 10 AWG conductors for 20 ampere, 120 volt branch circuits longer than 75 ft.

G. Pull all conductors into raceway at same time.

H. 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.

I. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips that will not damage cables or raceway.

J. Protect exposed cable from damage.

K. Neatly train and lace wiring inside boxes, equipment, and panelboards.

L. Use solderless pressure connectors with insulating covers for copper conductor splices and taps, 8 AWG and smaller.

M. Feeder or Branch Circuit Size Omission: In the event that an electrical feeder or branch circuit size is omitted, the Contractor shall report the same to the Engineers in time to issue an Addendum prior to bid date. If the omission is not discovered in time to issue an Addendum, the Contractor shall base his bid on installation of Conductors sized in accordance with the National Electrical Code and protected by an overcurrent device sized per the N.E.C. (maximum of 3% voltage drop). Conduit for these conductors shall be sized in accordance with the National Electrical Code. Contractor shall confirm the conduit and conductor sizes with the Engineer before purchasing or installing same.

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 and UL 486B.

B. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than un-spliced conductors.

C. Use split bolt connectors for copper conductor splices and taps, 6 AWG and larger.

D. Use insulated spring wire connectors with plastic caps for copper conductor splices and taps, 10 AWG and smaller.

E. Keep conductor splices and taps accessible and to a minimum, and in junction boxes only. Control circuit conductors shall terminate at terminal blocks only. Do not splice below grade or in outdoor pull boxes.

F. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches of slack.

G. Clean conductor surfaces before installing lugs and connectors.

H. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.

3.5 INTERFACE WITH OTHER PRODUCTS

A. Identify wire and cable.

B. Identify each conductor with its circuit number or other designation indicated on the drawings.

3.6 FIELD QUALITY CONTROL

A. Inspect wire and cable for physical damage and proper connection.

B. Measure tightness of bolted connections and compare torque measurements with manufacturer's recommended values to ensure compliance.

C. Verify continuity on all power and equipment branch circuit conductors.

D. Verify proper phasing connections.

E. Before final acceptance, the Contractor shall make voltage, insulation, and load tests, necessary to demonstrate to the Owner's representative the satisfactory installation and proper performance of all circuits.

F. Test conductors clear of faults. Insulation-resistance test shall be conducted per NETA – Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems. Test results below 50 megohms shall be cause for rejection of the wiring installation. Replace and retest all such rejected conductor.

G. Perform tests and inspections and prepare test reports to be submitted to Engineer.

H. Tests and Inspections:

1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance, feeder, and branch circuit conductors for compliance with requirements.
2. Perform visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.

I. Remove and replace malfunctioning units and retest as specified above.

END OF SECTION

SECTION 26 05 26 - GROUNDING AND BONDING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Power system grounding.

B. Electrical equipment and raceway grounding and bonding.

1.2 SYSTEM DESCRIPTION

A. Ground the electrical service system neutral at service entrance equipment to metallic water piping and to supplementary grounding electrodes.

B. Bond together system neutrals, service equipment enclosures, exposed non-current carrying metal parts of electrical equipment, metal raceway systems, grounding conductor in raceways and cables, receptacle ground connectors, and metallic piping systems.

C. Install grounding as indicated on the drawings and as required by the National Electrical Code.

D. Ground each separately derived system neutral to nearest effectively grounded electrode.

1.3 REFERENCES

A. ANSI/NFPA 70 – National Electrical Code.

1.4 REGULATORY REQUIREMENTS

A. Conform to requirements of ANSI/NFPA 70.

B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.5 PROJECT RECORD DOCUMENTS

A. Accurately record actual locations of grounding electrodes.

1.6 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Informational Submittals: Plans showing dimensioned as-built locations of grounding features:

1. Test wells.
2. Ground rods.
3. Grounding arrangements and connections for separately derived systems.

C. Qualification Data: For qualified testing agency and testing agency's field supervisor.

D. Field quality-control reports.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Ground Rods: Copper-encased steel, ¾ inch diameter, minimum length ten (10) feet.

B. Wire: Standard copper, size to meet ANSI/NFPA 70.

C. Exothermic Welds: Cadweld type.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that final backfill and compaction has been completed before driving rod electrodes.

3.2 INSTALLATION

A. Provide a separate insulated equipment grounding conductor in feeder and branch circuits. Terminate each end on a grounding lug, bus, or bushing.

B. Connect grounding conductors to ground ring using a suitable ground clamp. Provide bonding per NEC requirements.

C. Supplementary Grounding Electrode: Use driven ground rod.

D. All grounding and bonding connections below grade shall be of the exothermic welded type.

E. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.

1. Bonding to Enclosure: 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.

F. Install products in accordance with manufacturer's instructions.

3.3 FIELD QUALITY CONTROL

A. Inspect grounding and bonding system conductors and connections for tightness and proper installation.

B. Measure ground resistance from system neutral connection at service entrance to convenient ground reference point using suitable ground testing equipment. Resistance shall not exceed 5 ohms.

C. Excessive Ground Resistance: If resistance to ground exceeds ten (10) ohms (or other indicated values), install additional grounding system components as necessary to reduce ground resistance.

D. Provide ground resistance test results to the Owner.

END OF SECTION

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SECTION 26 05 33 - CONDUIT

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Rigid metal conduit and fittings.

B. Liquidtight flexible metal conduit and fittings.

C. Rigid PVC conduit and fittings.

1.2 REFERENCES

A. ANSI C80.1 - Rigid Steel Conduit, Zinc-Coated.

B. ANSI/NEMA FB 1- Fittings and Supports for Conduit and Cable Assemblies.

C. ANSI/NFPA 70 - National Electrical Code.

D. NEMA RN 1 - PVC Externally-Coated Galvanized Rigid Steel Conduit and Electrical Metallic Tubing.

E. NEMA TC 2 - Electrical Plastic Tubing (EPT) and Conduit (EPC-40 and EPC-80).

F. NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing.

1.3 REGULATORY REQUIREMENTS

A. Conform to requirements of ANSI/NFPA 70.

B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Qualification Data: For testing agency.

C. Submit shop drawings and product data for conduit, conduit fittings, and associated materials. Clearly identify the specific product and material intended to be used.

1.5 PROJECT CONDITIONS

A. Conduit routing shown on drawings is approximate unless dimensioned. Route conduit as required to meet project conditions.

B. Where conduit routing is not shown, and destination only is indicated, determine exact routing and lengths required.

1.6 COORDINATION

A. Determine required separation between conduit and other work.

B. Determine conduit routing to avoid interference with other work.

1.7 PROJECT RECORD DOCUMENTS

A. Accurately record actual routing of all conduits.

PART 2 - PRODUCTS

2.1 RIGID METAL CONDUIT AND FITTINGS

A. Rigid Steel Conduit: ANSI C80.1.

B. PVC Externally-Coated Conduit: NEMA RN 1; rigid steel conduit with external 40 mil PVC coating and internal galvanized surface.

C. Fittings and Conduit Bodies: ANSI/NEMA FB1; materials to match conduit, all connections shall be threaded.

2.2 LIQUIDTIGHT FLEXIBLE CONDUIT AND FITTINGS

A. Conduit: Flexible metal conduit with PVC jacket.

B. Fittings and Conduit Bodies: ANSI/NEMA FB 1.

2.3 PLASTIC CONDUIT AND FITTINGS

A. Conduit: NEMA TC 2; Schedule 40 PVC.

B. Fittings and Conduit Bodies: NEMA TC 3.

2.4 CONDUIT SUPPORTS

A. Conduit Clamps, Straps, and Supports: Steel or malleable iron, finish to match conduit.

PART 3 - EXECUTION

3.1 CONDUIT SIZING, ARRANGEMENT, AND SUPPORT

A. Size conduit for conductor type installed or for Type THWN conductors, whichever is larger; 3/4-inch minimum size.

B. Arrange conduit to maintain headroom and present a neat appearance.

C. Route exposed conduit parallel and perpendicular to walls and adjacent piping.

D. Maintain minimum 6-inch clearance between conduit (including any encasement, when required) and piping. Maintain 12-inch clearance between conduit and heat sources such as flues, steam pipes, and heating appliances.

E. Arrange conduit supports to prevent distortion of alignment by wire pulling operations. Fasten conduit using galvanized spacers and straps, lay-in adjustable hangers, clevis hangers, or bolted split stamped galvanized hangers.

F. Group conduit in parallel runs where practical and use conduit rack constructed of steel channel with conduit straps or clamps. Provide space for 25 percent additional conduit.

G. Do not fasten conduit with wire or perforated pipe straps. Remove all wire used for temporary conduit support during construction before conductors are pulled.

H. Support conduit at a maximum of 7 feet on center.

I. Liquid tight flexible metal conduit shall not exceed 24 inches in length and all runs shall be provided with an appropriate length of ground conductor.

3.2 CONDUIT INSTALLATION

A. Cut conduit square using a saw or pipe cutter; ream and de-burr cut ends.

B. Bring conduit to the shoulder of fittings and couplings and fasten securely.

C. Use conduit hubs for fastening conduit to cast boxes, and for fastening conduit to cabinets/enclosures in damp or wet locations.

D. Install no more than the equivalent of three 90-degree bends between boxes.

E. Use conduit bodies to make sharp changes in direction, as around beams.

F. Use hydraulic one-shot conduit bender or factory elbows for bends in conduit larger than 2-inch size.

G. Avoid moisture traps where possible; where unavoidable, provide junction box with drain fitting at conduit low point.

H. Use suitable conduit caps to protect installed conduit against entrance of dirt and moisture.

I. Provide No. 12 AWG insulated conductor or suitable pull string in empty conduit, except sleeves and nipples.

J. Install expansion joints where conduit crosses building expansion joints.

K. Use PVC externally-coated rigid steel factory elbows for bends in plastic conduit runs longer than 100 feet, or in plastic conduit runs which have more than two bends regardless of length.

L. Wipe plastic conduit clean and dry before joining. Apply full even coat of cement to entire area that will be inserted into fitting. Let joint cure for 20 minutes minimum.

M. All underground conduit shall be direct buried, unless otherwise noted.

N. For concrete encased conduit, **t**he thickness of concrete covering the conduit on all sides and between conduits shall not be less than three (3) inches.

1. Install top of underground conduit a minimum of 30 inches below finished grade.
2. Stagger conduit joints in concrete encasement 6 inches minimum, horizontally.
3. Use suitable separators and chairs installed not greater than 4 feet on centers. Band conduit together with suitable banding devices. Securely anchor conduit to prevent movement during concrete placement.
4. Provide minimum 3-inch concrete cover at bottom, top, and sides of conduit.
5. Provide two No. 6 steel reinforcing bars in top of concrete encasement.

O. All rigid steel conduit which is underground or encased in concrete shall be coated with two (2) coats of bituminous mastic paint or shall be PVC externally-coated conduit. The bituminous or PVC coating shall be carried no less than six (6) inches above grade.

P. A plastic warning tape shall be installed over all buried conduit. The tape shall have the warning "Caution--Buried Electric Line" continuously imprinted on a red background. The tape shall be positioned above the conduit at a point twelve (12") below finished grade.

3.3 CONDUIT INSTALLATION SCHEDULE

A. Inside Locations: Rigid steel conduit.

B. Underground installation more than three feet (3’-0”) from slab/structure (Not Exposed): Schedule 40 plastic conduit.

C. Installations in or under concrete slab, or underground within three feet (<3’-0”) of slab/structure, and where exposed when conduit transition to above grade: Rigid steel conduit with bituminous or PVC coating.

D. Outdoor Locations (Exposed): PVC-externally-coated rigid steel conduit.

E. Flexible Connections: Liquid tight flexible metal conduit.

END OF SECTION

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SECTION 26 05 34 - BOXES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Outlet boxes.

B. Pull and junction boxes.

1.2 REFERENCES

A. ANSI/NEMA FB 1 - Fittings and Supports for Conduit and Cable Assemblies.

B. ANSI/NFPA 70 - National Electrical Code.

C. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

1.3 REGULATORY REQUIREMENTS

A. Conform to requirements of ANSI/NFPA 70.

B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Qualification Data: For testing agency.

C. Submit shop drawings and product data for outlet boxes, pull and junction boxes, and associated materials. Clearly identify the specific product and material intended to be used.

1.5 PROJECT CONDITIONS

A. Verify locations of outlets in work areas prior to rough-in.

B. Electrical boxes are shown on drawings in approximate locations unless dimensioned. Install at location required for box to serve intended purpose.

PART 2 - PRODUCTS

2.1 OUTLET BOXES

A. Cast Boxes: NEMA FB 1, Type FD, cast feralloy. Provide gasketed cover by box manufacturer. Provide threaded hubs.

2.2 PULL AND JUNCTION BOXES

A. Surface-Mounted Cast Metal Box: NEMA 250, Type 4; flat-flanged, surface-mounted junction box.

1. Material: Galvanized cast iron.
2. Cover: Furnish with ground flange, neoprene gasket, and stainless-steel cover screws.

2.3 PVC-COATED TYPE BOXES

A. All outside boxes shall be of the PVC-coated type, to match conduit coating.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install electrical boxes as shown on drawings and as required for splices, taps, wire pulling, equipment connections, and compliance with regulatory requirements.

B. Install electrical boxes to maintain accessibility and to present neat mechanical appearance.

3.2 INTERFACE WITH OTHER PRODUCTS

A. Coordinate mounting heights and locations of outlets mounted for dedicated uses.

B. Position outlet boxes to locate devices as shown on drawings.

END OF SECTION

SECTION 26 05 43 - HAND HOLES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Prefabricated polymer concrete hand holes.

B. Hand hole covers and accessories.

1.2 REFERENCES

A. ANSI/NFPA 70 - National Electrical Code.

B. ANSI/SCTE 77 – Specification for Underground Enclosure Integrity.

1.3 SUBMITTALS

A. Submit shop drawings and product data under provisions of Section 01 33 00.

B. Indicate material specifications, dimensions, capacities, size, and location of openings, reinforcing details, and accessory locations.

C. Include product data for hand hole accessories.

D. Submit manufacturer's installation instructions.

1.4 REGULATORY REQUIREMENTS

A. Conform to requirements of ANSI/NFPA 70.

1.5 QUALITY ASSURANCE

A. Manufacturer: Company specializing in precast polymer concrete structures with ten years' experience.

PART 2 - PRODUCTS

2.1 PRECAST POLYMER CONCRETE HAND HOLES

A. Precast Polymer Concrete: Aggregate material consisting of sand and gravel bound together

with a polymer and reinforced with continuous woven glass strands.

B. Strength: Compressive 11,000 psi; tensile 1,700 psi; flexural 7,500 psi, minimum.

C. Construction: Stackable service box assembly and cover with stainless steel penta-head bolts.

D. Hand Hole Shape: Rectangular.

E. Inside Dimensions:

1. Electric Hand Holes: 2.5 ft. length; 1.5 ft. width; 1.5 ft. deep; nominal.
2. Instrumentation Hand Holes: 1.5 ft. length; 1 ft. width; 1.5 ft. deep; nominal.

F. Design Load: ANSI/SCTE Tier 15 rated, minimum.

2.2 HAND HOLE ACCESSORIES

A. Hand Hole Covers: Cast the word "ELECTRIC" or “TELEPHONE” in the top face of the cover, as appropriate.

2.3 ACCEPTABLE MANUFACTURERS - HAND HOLES

A. Quazite/Composolite "PG" Style or an acceptable equivalent.

PART 3 - EXECUTION

3.1 PREPARATION

A. Excavate, install base material, and compact base material in accordance with manufacturer's instructions.

3.2 INSTALLATION - PRECAST POLYMER CONCRETE HAND HOLES

A. Install and seal precast hand holes in accordance with manufacturer's instructions.

B. Install hand holes plumb.

C. Set the top of each hand hole to 1.5 inches above finished grade elevation in grass/earth areas.

D. Set the top of each hand hole flush with finished grade elevation in paved or areas with vehicular traffic (e.g. driveway or parking areas).

E. Install hand holes on 1/3 cu yd crushed gravel bed.

F. Install ground rod with top protruding four inches (4") above floor/bottom of hand hole.

END OF SECTION

SECTION 26 18 01 - EQUIPMENT WIRING SYSTEMS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Electrical connections to and/or installation of equipment specified under other divisions/sections of the Contract Documents, equipment furnished by the Owner, and/or existing equipment.

B. All electrical installation work involved with the new Calgon PFAS and GAC System equipment and associated devices. The PFAS and GAC System includes a proprietary engineered and packaged assembly of equipment, devices, and apparatus. As such, each and every detail of the system may not be delineated by the Contract Documents. The specifications and drawings outline the general arrangement of the equipment along with minimum installation requirements and equipment/device interconnections. The Contractor shall be responsible for installation of a complete and comprehensive system, including all necessary equipment, devices, items, piping, conduit, and wiring as specifically required to accomplish the installation, start-up, and operation of this system. The Contractor's bid shall include all costs involved with this installation work.

1. The system equipment/devices include, but may not be limited to, the following items:

    a. Three (3) motor operated butterfly valves and ancillary devices and appurtenances, as outlined in the specifications.
    b. Miscellaneous instrumentation and control devices as outlined in the specifications.
    c. SCADA System interconnections as outlined on the drawings along with all coordination with the Owner and Allied Control Services (ACS) as needed for proper integration into the existing PLC control panels.

2. The Contractor shall be responsible for coordination of system startups and field testing with the various equipment suppliers, the other contractors involved with the work, and the Owner.

1.2 REFERENCES

A. ANSI/NFPA 70 – National Electrical Code.

B. NEMA WD 1 – General Purpose Wiring Devices.

C. NEMA WD 6 – Wiring Device Configurations.

1.3 REGULATORY REQUIREMENTS

A. Conform to requirements of ANSI/NFPA 70.

B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.4 ELECTRICALLY OPERATED APPARATUS

A. Unless otherwise noted, the Contractor shall provide all power and control wiring for all electrically operated apparatus involved in the project, make all final connections, and leave apparatus in approved operating condition. It shall be his responsibility to examine detailed drawings, wiring diagrams, roughing-in drawings, and other information pertaining to the apparatus in question to determine the extent of work to be provided and exact locations of service.

B. The horsepower of motors or wattage of equipment indicated in the Contract Documents is the estimated horsepower or wattage requirement of equipment to be furnished. All feeders, conduit, wiring, motor starters, fuses, circuit breakers and similar items shall be of the sizes and capacities to suit horsepower of the motors or wattage of equipment actually furnished. However, all ratings as shown on the drawings or indicated in the specifications shall not be reduced without specific written approval from the Owner.

1.5 COORDINATION

A. Obtain and review shop drawings, product data, and manufacturer's instructions for equipment furnished under other divisions/sections or by the Owner.

B. Determine connection locations and requirements.

C. Sequence rough-in of electrical connections to coordinate with installation schedule for equipment.

D. Sequence electrical connections to coordinate with start-up schedule for equipment.

PART 2 - PRODUCTS

2.1 CORDS AND PLUGS

A. Attachment Plug: NEMA WD 1.

B. Attachment Plug Configuration: NEMA WD 6; Match receptacle configuration at outlet provided for equipment.

C. Cord Construction: Oil resistant thermostat insulated Type SO multiconductor flexible cord with identified equipment grounding conductor, suitable for extra hard usage in damp locations.

D. Cord Size: Suitable for connected load of equipment and rating of branch circuit overcurrent protection.

PART 3 - EXECUTION

3.1 INSPECTION

A. Verify that equipment is ready for electrical connection, wiring, and energization.

3.2 PREPARATION

A. Review equipment submittals prior to installation and electrical rough-in. Verify location, size, and type of connections. Coordinate details of equipment connections with supplier and installer.

3.3 INSTALLATION

A. Use wire and cable with insulation suitable for temperatures encountered in heat-producing equipment.

B. Make conduit connections to adjustable or vibrating equipment using liquid-tight flexible metal conduit.

C. Install pre-finished cord set where connection with attachment plug is indicated, specified, or required. Use attachment plug with suitable strain-relief clamps.

D. Provide suitable strain-relief clamps with kellems for cord connections to outlet boxes and equipment connection boxes.

E. Make wiring connections in control panel or in wiring compartment of pre-wired equipment in accordance with manufacturer's instructions. Provide interconnecting wiring where indicated and/or required.

F. Install disconnect switches, controllers, control stations, and control devices such as limit switches as indicated and/or required. Connect with conduit and wiring as indicated and/or required.

G. Provide interconnecting conduit and wiring between devices and equipment as indicated and/or as required by the manufacturer of the equipment.

PART 4 - EQUIPMENT CONNECTION SCHEDULE

4.1 GENERAL CONTRACTOR FURNISHED EQUIPMENT

A. Without intending to limit or restrict the types or quantity of equipment furnished, and solely for the convenience of the Electrical Contractor, the equipment shall include, but shall not be limited to, the following:

1. Equipment furnished and installed by the General Contractor and wired complete by the Electrical Contractor.

    a. Flowmeter FE-1040 and FIT-1040.
    b. Valve Vault Level Switch LSH-1042.
    c. Chemical Metering Pump SHMP-122.
    d. Motor Operated Butterfly Valves BFV-1, BFV-2, BFV-3.

B. The Electrical Contractor shall provide all connections, wiring, and electric power for all of the equipment furnished by the General Contractor in accordance with the provisions of this division/section, as recommended by the manufacturer, as shown on the drawings, and as specified.

4.2 OWNER FURNISHED EQUIPMENT

A. Without intending to limit or restrict the types or quantity of equipment furnished, and solely for the convenience of the Electrical Contractor, the equipment shall include, but shall not be limited to, the following:

1. Equipment furnished by the Owner and/or ACS, installed by the General Contractor, and wired complete by the Electrical Contractor.

    a. Differential Pressure Transmitters DPT-PV-1.1, DPT-PV-2.1, DPT-PV-1.2, DPT-PV-2.2.
    b. Pressure Transmitters PIT-PV-1.1, PIT-PV-2.1, PIT-PV-1.2, PIT-PV-2.2.

2. Equipment furnished by the Owner and/or ACS and installed and wired by the Electrical Contractor.

    a. TBD.
    b. Upon its delivery to the site, this equipment shall be turned over to the Electrical Contractor for installation. The Electrical Contractor shall install this equipment in accordance with the provisions of this contract/division/section and as recommended by the manufacturer.

B. The Electrical Contractor shall provide all connections, wiring, and electric power for all of the equipment furnished by the Owner in accordance with the provisions of this

contract/division/section, as recommended by the manufacturer, as shown on the drawings, and as specified.

END OF SECTION

SECTION 26 19 50 - ELECTRICAL IDENTIFICATION AND LABELING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Nameplates and labels.

B. Wire and cable markers.

1.2 SUBMITTALS

A. Submit product data sheets.

B. Include schedule for nameplates and labels.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Nameplates and Labels: Engraved two-layer laminated plastic, white letters on a black background.

B. Nameplates and labels shall be affixed to items using brass or stainless steel screws. No adhesive types will be allowed.

C. Wire and Cable Markers: Cloth markers, split sleeve or tubing type.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Degrease and clean surfaces to receive nameplates and labels.

B. Install nameplates and labels parallel to equipment lines.

C. Secure nameplates and labels to equipment fronts using screws.

D. Embossed tape will not be permitted for any application.

3.2 WIRE IDENTIFICATION

A. Provide wire markers on each conductor in panelboard gutters, equipment cabinets and enclosures, pull boxes, outlet, and junction boxes, and at load connection. Identify with branch circuit or feeder number for control wire number as indicated on equipment manufacturer's shop drawings for control wiring.

3.3 NAMEPLATE ENGRAVING SCHEDULE

A. Provide nameplates to identify all electrical distribution and control equipment and loads served. Letter Height: 1/8 inch for individual switches and loads served, 1/4 inch for distribution and control equipment identification.

B. Nameplates and labels shall be provided for (both new and existing equipment) but may not be limited to the following items:

1. Panelboards.
2. Disconnect Switches.

C. Nameplates and labels for other similar items shall be provided by the Contractor as deemed necessary by the Owner.

END OF SECTION

SECTION 32 31 20 – ORNAMENTAL PICKET FENCE & GATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General Conditions and Division-1 Specification sections, apply to work of this section.

1.2 SUMMARY

This Section includes the following:

Ornamental picket fence system.

Ornamental picket swing gates.

Related Sections include the following:

Division 32 Section “Cast-In-Place Concrete” for concrete for fence post footings.

1.3 SUBMITTALS

Product Data: Include material descriptions, construction details, dimensions of individual components and profiles, and finishes.

Shop Drawings: Show locations of ornamental picket fencing, posts, hardware and accessories. Indicate materials, dimensions, sizes, weights, and finishes of components. Include plans, elevations, sections, and other required installation clearances, and details of post anchorages.

Samples for Initial Selection: Actual color samples for polyester coated finishes on materials to be furnished for Architects selection from the manufacturer’s full range of colors. If requested, samples of fence components delivered to customer.

1.4 QUALITY ASSURANCE

Installer Qualifications: An experienced installer who has completed ornamental picket fencing and gates similar in material, design, and extent to those indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

Preinstallation Conference: Conduct conference at project site to comply with requirements in Division 1 Section “Project Meetings”.

1.5 PROJECT CONDITIONS

Field Measurements: Verify layout information for ornamental picket fencing and gates shown on the Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

1.6 DELIVERY AND HANDLING

Deliver and handle materials in a manner that will not damage the materials and finishes.

1.7 WARRANTY

The entire fence system shall have a written Limited Lifetime Warranty against rust and defects in workmanship and materials. In addition, the finish shall be warranted not to crack, chip, peel, or blister for the same period.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

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:

Basis of Design: Iron World, 9390 Davis Ave. Howard County, MD 20743 (phone (301) 766- 7448; fax (301)776-7449; web-site: www.lronWorldFencing.com).

Style: Aberdeen – 3 horizontal rail, smooth top rail.

Height 8’ (see plan for locations).

Additional qualified manufacturers having a minimum of 5 years experience manufacturing ornamental picket fencing will be reviewed by the customer to determine conformity to the following specifications for design, size, gauge of metal parts and fabrication as an approved equivalent. **The following manufacturers are considered to be an approved equivalent:**

AmeriStar Fence

Master Halco

Long Fence

2.2 ORNAMENTAL PICKET FENCE

Pickets: Fabricated of galvanized steel tubular members per ASTM A787 with a G60 zinc coating 0.60 oz/ft² and steel to have 45,000 psi (310 Mpa) yield strength. Picket size shall be 3/4" or 1" sq x 16 or 18 gauge wall thickness, and spaced at 3 15/16" face to face. Pickets shall be attached to rails using ¼" industrial drive rivets.

Rails: Horizontal U" channels shall be 1½" x 1 ⅜" x 1 ½" 15 gauge wall thickness (.072") and galvanized: G60 zinc coating 0.60 oz/ft², manufactured per ASTM A-653/A-653M with a 50,000 psi (344 MPa) yield strength. Rails shall be mechanically punched to receive pickets and drive rivets. Attach rails to brackets using one-way security fastener.

Posts: Fabricated of galvanized square steel tubular members per ASTM A787 with a G60 zinc coating, 0.60 oz/ ft² and steel to have 45,000 psi (310 MPa) yield strength. Post size options (3" sq x 12 gauge) or (2 ½" square 14 or 12 gauge) wall thickness.

Finish: All posts, caps and fence panels shall be polyester coated individually after fabrication to thoroughly coat all surfaces for additional corrosion protection. All components enter a 5 stage in line cleaning process to prepare the galvanized surfaces for complete adhesion of the finish coat. Components are given a TGIC polyester resin powder coating applied by the electrostatic spray process to 3.0 mil thickness. The finish is baked in an oven for 15 — 20 minutes at a temperature ranging from 400°F. Colors are available in black or white (brown, ensor green, woodland green and specials).

2.3 ACCESSORIES

Post Caps: Aluminum or formed steel manufactured to form a weather-tight closure. Caps shall be ball type or flat top (choose one) style on each post.

Rail/Post Brackets: Standard 1½" x 1 ⅜" x 1½", 15 gauge galvanized steel channels. Cover to be pressed to bracket for permanent installation. Bracket shall be fastened to post with one galvanized hex bolt. Rails shall be attached to bracket with one-way security fastener.

Rings: Cast aluminum rings attached to rails by insertion of mounting block into upper rail. Rings attached to rails with standard drive rivet to prevent removal.

Pickets shall be secured to rails with ¼" aluminum industrial drive rivets to prevent movement. Rivets have a sheer strength of 1,500# and a holding power of 1,100#.

2.4 ORNAMENTAL PICKET SWING GATES

Gate Frame: Ornamental picket swing gate frames to be fabricated of galvanized steel tubing. ASTM A-653, of structural steel having a 45,000 psi (310 Map) tensile strength and a G60 [0.60 oz/ft2 zinc coating. Members welded with stainless steel rods, forming a rigid one piece unit. Vertical upright member's 2"sq. 13ga. metal thickness.

Horizontal rails and pickets.

For gate leaves up to 8’0” the horizontal rails to be “U” channels, formed of hot rolled, structural steel 1 3/8” wide by 1½” high, 11 gauge [0.120”] metal thicknesses. Rails must be punched to receive pickets and rivets. Rails stainless steel welded inside vertical members. Pickets are galvanized steel [choose one: ¾” or 1” to match fence sections.] Pickets attached to “U” channels using 1/4” industrial drive rivets.

For gate leaves 8’1” up to 12’0” provide an additional 1½” sq. stiffener welded to one top and one bottom “U” channel. Use stainless steel rods for welds.

For gate leaves 12’1” to 18’0” supply 2 additional 2” sq. horizontal members welded to the 2” sq. vertical members forming a 2” sq. rectangular frame. Welds to be stainless steel.

For gate leaves 18’1” to 24’ 0”2 additional horizontal stiffeners 2’ sq. to be welded behind 2” horizontal members. Welds to be stainless steel.

Bracing: Provide diagonal adjustable length truss rods to prevent sagging. One truss rod per 8’ maximum of length of gate panel.

Double gates consist of 2 each of the above gate leaves.

Hardware: Galvanized steel and or malleable steel to suit application. Latch shall have provision for padlocking. Hinges shall grip post and frame firmly to prevent slippage. Hinges shall have a load capacity of 1,000 lbs. Hinges shall allow gate leaf to swing 180o.

Gate keepers shall be provided for any leaf wider than 5’0’ to hold gate in open position.

Double leaf gates to have center drop rod to enable one leaf to be made stationary while that latch shall lock both leaves together.

Gate Posts: Square gate posts (ASTM A-653) 45,000 psi (MPa) tensile strength with G90 galvanized coating in sizes shown below:

3” sq. for gate leaf sizes 3’0” to 4’0”

4” sq. for gate leaf sizes 4’1” to 8’0”

6” sq. for gate leaf sized 8’0” to 12’0”

8” sq. for gate leaf sized 12’1” to 18’0”

10” sq. for gate leaf sizes 18’0” to 24’0”

Finish: All steel parts to be galvanized to prevent corrosion. Next, pre-treat and clean surfaces to accept finish coat. Apply 3 mils of TGIC polyester powder coating applied by electrostatic spray process baked at 450o F until finished is cured onto metal. Gates to be coated after all welding is completed.

2.5 Gates

Fabrication: Fabricate perimeter frames of gates from metal and finish to match fence framework. Assemble gate frames by welding. Provide horizontal and vertical members to ensure proper gate operation and attachment of fabric, hardware, and accessories. Space frame members maximum of 8 feet apart unless otherwise indicated.

1. Swing Gates: Material to match fence material

Fabricate perimeter frames of minimum 1.875-inch OD steel pipe.

Gate Hardware: Provide hardware and accessories for each gate, galvanized per ASTM A 153, and in accordance with the following:

Hinges: Size and material to suit gate size, non-lift-off type, offset to permit 180-deg gate opening. Provide 1-1/2 pair of hinges for each leaf over 6-foot nominal height.

Latch: electrical strike latch that is triggered by, card reader, internal operator via intercom, or emergency breakaway latch when exiting from inside the police lot.

2. Sliding Gates: Material to match fence material

Fabricate perimeter frames of minimum 1.875-inch OD steel pipe.

Gate Hardware: Provide hardware and accessories for each gate, galvanized per ASTM A 153, and in accordance with the following:

Hinges: Size and material to suit gate size, non-lift-off type, offset to permit rolling gate opening. Provide 1-1/2 pair of hinges for each leaf over 6-foot nominal height.

Latch: V-wheels, V-track, rollers, and automated linear gate opener that is triggered by RFID scanner, card reader, or internal operator via intercom. RFID scanner shall be oriented to only detect cars approaching the gate. Parked cars should not trigger gate opening. Automatic gate shall have the power to open at a minimum 2.25ft per second.

2.6 POST SETTING

Concrete: Minimum 28-day compressive strength of 2,500 psi.

Plated Post: Provide 3/8” steel base plates with 4 holes for surface mounting where indicated.

PART 3 - PRODUCTS

3.1 EXAMINATION

Examine areas and conditions, with installer present, for compliance with requirements for concrete work, and other conditions affecting performance.

Do not begin installation before final grading is completed, unless permitted by the architect.

3.2 FENCE INSTALLATION

Install fence in accordance with the manufacturer's instructions.

Set post uniformly at 93 1/8" face to face unless otherwise indicated.

Set posts in concrete having a diameter 4 times the diameter of the post, and 6" deeper than the bottom of the post. Forms are not necessary or recommended.

Check each post for vertical and top alignment.

3.3 GATE INSTALLATION

Install gate posts a minimum of 36" into firm soil. The diameter of the footing to be 4 times the diameter of the post. Footing should be 6" deeper than the bottom of the posts, 42". Finish concrete with a slop for all water to drain away from post.

Attach all hardware to gate in such a way that it cannot be removed by unauthorized persons.

Set gate posts plumb and level for gate openings specified in construction drawings.

Install gates to allow full opening without interference after concrete has hardened around gate posts. Adjust hardware for smooth operation. Install one drop rod for double gates.

3.4 ADJUSTING AND PROTECTION

Adjust gate to operate smoothly and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, disruption, or malfunction, throughout entire operation range. Confirm that latches and locks engage accurately and securely without forcing or binding.

Protect complete installation against damage until the date of substantial completion.

3.5 CLEANING

Clean up debris and remove from the site.

END OF SECTION 323120

CITY HALL PARKING LOT RECONSTRUCTION

CITY OF NEWARK, NEW CASTLE COUNTY, DELAWARE

MAY 18, 2023

CONTRACT NO. 2307

PREPARED FOR:

CITY OF NEWARK

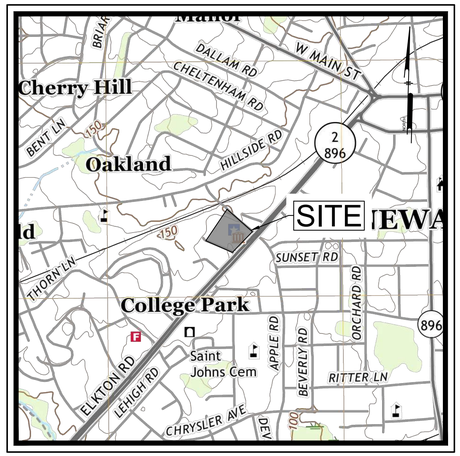
220 SOUTH MAIN STREET

NEWARK, DE 19711

(302) 366-7000

Sheet List Table	
Sheet Number	Sheet Title
1	COVER SHEET
2	EXISTING CONDITIONS PLAN
3	NPD LOT DEMOLITION PLAN
4	NPD LOT RECONFIGURATION PLAN
5	FENCING AND GATING PLAN
6	ELECTRICAL PLAN
7	ELECTRICAL TRANSFORMER PLAN
8	NPD LOT GRADING AND DRAINAGE PLAN
9	NPD LOT LIGHTING PLAN
10	ADMIN LOT DEMOLITION PLAN
11	ADMIN LOT RECONFIGURATION PLAN
12	ADMIN LOT GRADING AND UTILITY PLAN
13	ADMIN LOT LIGHTING PLAN
14	CONSTRUCTION DETAILS
15	CONSTRUCTION DETAILS
16	RETAINING WALL DETAILS
17	RETAINING WALL DETAILS
18	SEDIMENT AND STORMWATER DETAILS
19	SEDIMENT AND STORMWATER DETAILS
20	SEDIMENT AND STORMWATER DETAILS
21	SEDIMENT AND STORMWATER DETAILS

LOCATION MAP
Scale: 1" = 600'



USGS MAP
Scale: 1" = 1000'

AERIAL MAP
Scale: 1" = 100'

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ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

CITY HALL PARKING LOT RECONSTRUCTION
220 SOUTH MAIN STREET
NEWARK, DE 19711

COVER SHEET

CITY OF NEWARK
220 SOUTH MAIN STREET
NEWARK, DE 19711

NO.	DATE	REVISIONS	BY

PROJECT	CNEWK22005
DATE	2023-05-18
DRAWING SCALE	AS NOTED
DRAWN BY	MRW/ALS
APPROVED BY	MJE

CS0001

SHEET 1 OF 21

\\pennoni.com\data\Accounts\CNEWK\cnewk22005 - royd parking lot fencing and repaving\DESIGN_SHEETS\CS0001.dwg PLOTTED: 5/18/2023 3:05 PM BY: Andrew Shields PLOTSTYLE: Pennoni NCS.ctb PROJECT STATUS: —

SURVEY NOTES:

1. THE TOPOGRAPHIC DATA AS SHOWN HEREON IS BASED ON A FIELD SURVEY PERFORMED BY PENNONI BETWEEN 11/08/2022 AND 11/24/2022 WITH AN UPDATE ON 02/15/2023.
2. THIS PROJECT IS REFERENCED TO THE DELAWARE STATE PLANE COORDINATE SYSTEM DATUMS: HORIZONTAL = NAD 83(2011) AND VERTICAL DATUM = NAVD 88
3. THE ROUTES OF UNDERGROUND ELECTRIC, TELEPHONE, GAS, WATER SANITARY, AND STORM SEWER AS SHOWN HEREON ARE BASED ON INFORMATION PROVIDED BY THE CITY OF NEWARK, UTILITY OWNERS, AND FIELD SURVEY.
4. THE PROJECT BENCHMARK IS A SURVEY CONTROL POINT IDENTIFIED ON THIS PLAN AS "PROJECT BENCHMARK", A SET SURVEY NAIL, WITH AN ELEVATION OF 136.35.

GENERAL NOTES:

1. LOCATION AND ELEVATIONS OF EXISTING SITE FEATURES, UTILITIES AND WORK ARE BASED ON THE BEST AVAILABLE INFORMATION. EXACT LOCATIONS AND COMPLETENESS ARE NOT GUARANTEED. CONTRACTOR SHALL MAKE ALL REQUIRED FIELD MEASUREMENTS TO VERIFY EXISTING AND CONTRACT INTERFACE DIMENSIONS, LOCATIONS, AND OTHER CONDITIONS. FINAL LOCATIONS OF PIPES WILL BE DETERMINED IN THE FIELD.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ACTUAL SITE CONDITIONS PRIOR TO THE START OF ANY WORK. THERE IS NO WARRANTY OR GUARANTEE ON THE COMPLETENESS OR CORRECTNESS OF EXISTING CONDITION INFORMATION. ANY DISCREPANCIES FOUND SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE OWNER AND FACILITY OPERATIONS PRIOR TO THE START OF ANY CONSTRUCTION WORK.
3. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH OCCUR BY HIS/HER FAILURE TO NOT LOCATE AND PRESERVE ANY AND ALL EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES AFFECTING HIS/HER WORK. ITEMS SHALL BE REPLACED WITH THE SAME TYPE OF MATERIAL THAT WAS REMOVED OR DAMAGED DURING CONSTRUCTION OR AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
4. EXISTING TREES, BUSHES, AND SHRUBS SHALL BE PROTECTED BY CONTRACTOR FROM ALL DAMAGE UNLESS IN DIRECT CONFLICT WITH NEW UTILITIES, STRUCTURES, OR EQUIPMENT.
5. ALL EXISTING UTILITIES AND FEATURES ON THE SITE WHICH SHALL INCLUDE BUT NOT BE LIMITED TO, YARD HYDRANTS, TREES, SHRUBS, ETC. SHALL BE MAINTAINED IN GOOD REPAIR BY THE CONTRACTOR. SHOULD ANY DAMAGE OCCUR BY THE CONTRACTOR, THEY SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.
6. CONTRACTOR SHALL OBSERVE EXTREME CAUTION WHEN WORKING NEAR OR OVER EXISTING UTILITIES AND/OR APPURTENANCES. ANY DAMAGE TO EXISTING UTILITIES INCURRED SHALL BE IMMEDIATELY REPAIRED TO THE SATISFACTION OF THE OWNER AT THE CONTRACTOR'S EXPENSE.
7. THE CONTRACTOR MAY DIG TEST PITS TO DETERMINE THE SIZE, LOCATION AND DEPTH OF EXISTING UNDERGROUND UTILITIES. ANY CONFLICTS NOTED IN CONSTRUCTION SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE OWNER.
8. CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, SAFETY PRECAUTIONS AND PROGRAMS.
9. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH THE DEPARTMENT OF NATURAL RESOURCES (DNREC) SEDIMENT AND STORMWATER MANAGEMENT CONTROLS, LATEST EDITION. SEEDING AND MULCHING SHALL BE IN ACCORDANCE WITH DELAWARE EROSION AND SEDIMENT CONTROL STANDARD DETAILS AND SPECIFICATIONS FOR ALL DISTURBED AREAS.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING PERSONNEL SAFETY ON THE JOBSITE. GUIDELINES FOR CONSTRUCTION SAFETY SHALL BE IN ACCORDANCE WITH, BUT NOT LIMITED TO, THE CONSTRUCTION INDUSTRY OSHA SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION (PART 1926 STANDARDS), AND ANY LOCAL ORDINANCES OR CODES THAT MAY BE APPLICABLE.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND REINSTALLATION OF EXISTING SIGNAGE DISTURBED DURING CONSTRUCTION.

CONSTRUCTION NOTES:

1. THE FACILITY HAS A HIGH VOLUME OF ACTIVITY FROM CITY EMPLOYEES, CONTRACTORS, AND SERVICES. THE CONTRACTOR SHALL PROVIDE APPROPRIATE SAFETY MEASURES AS REQUIRED BY THE OWNER DURING ALL CONSTRUCTION ACTIVITY.
2. THE INSTALLATION OF FENCING AND GATES IS A PRIORITY AND SHALL OCCUR AT THE EARLIEST STAGE OF CONSTRUCTION. REFER TO THE SEQUENCE OF CONSTRUCTION NOTES ON SHEET CS-1001.
3. THE NPD LOT CAN BE CLOSED IN ITS ENTIRETY WHILE DEMOLITION, ISLAND RECONSTRUCTION, AND UTILITY WORK IS OCCURRING WITHIN THE NPD LOT.
4. THE CONTRACTOR SHALL COORDINATE ALL NIGHT AND WEEKEND WORK SCHEDULING AND ACTIVITY WITH THE OWNER, FACILITY OPERATIONS, AND SECURITY.
5. ALTERNATIVE SITE LIGHTING SOURCES SHALL BE PROVIDED AT CONTRACTOR EXPENSE DURING ANY WORK THAT DISABLES EXISTING SITE LIGHTING. ALTERNATIVE LIGHTING SOURCES MUST PROVIDE LIGHT EQUIVALENT TO EXISTING SITE LIGHTING THROUGHOUT NORMAL HOURS OF SITE LIGHTING OPERATION.
6. WHENEVER ANY HANDICAP PARKING STALL IS REMOVED FROM SERVICE DURING CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL PROVIDE AN EQUAL NUMBER OF TEMPORARY HANDICAP PARKING STALLS USING TEMPORARY SIGNS OR STRIPING. TEMPORARY STALLS SHALL BE PROVIDED CONVENIENT TO BUILDING ENTRANCES. EXACT LOCATIONS SUBJECT TO APPROVAL BY OWNER.
7. ALL PAVING ACTIVITY SHALL BE COMPLETED WITHIN THE DELDOT TIME OF YEAR RESTRICTIONS UNLESS OTHERWISE APPROVED BY THE OWNER.
8. AVAILABLE STAGING AREA FOR PERFORMANCE OF WORK SHALL BE COORDINATED WITH THE OWNER.

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- EXISTING 1' CONTOUR (154)
- EXISTING 5' CONTOUR (155)
- EXISTING TREE LINE
- EXISTING WATER (W)
- EXISTING SEWER (S)
- EXISTING OVERHEAD ELECTRICAL (OE)
- EXISTING UNDERGROUND ELECTRICAL (UE)
- EXISTING UNDERGROUND COMMUNICATION (UC)
- EXISTING STORM DRAIN (D)

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CITY HALL PARKING LOT RECONSTRUCTION

220 SOUTH MAIN STREET
NEWARK, DE 19711

EXISTING CONDITIONS PLAN

CITY OF NEWARK
220 SOUTH MAIN STREET
NEWARK, DE 19711

DATE	NO.	REVISIONS	BY

PROJECT	CNEWK22005
DATE	2023-03-07
DRAWING SCALE	1"=30'
DRAWN BY	MRW/ALS
APPROVED BY	MJE

CS0201

SHEET 2 OF 21

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NORTH

PURPOSE NOTES:

THE PURPOSE OF THE PLAN IS TO SHOW ALL DEMOLITION ITEMS INCLUDED IN THE BASE BID FOR THE NPD LOT RECONSTRUCTION. IN THE ADMIN LOT THE LIGHT POLES AND BASES WILL BE REPLACED TO MATCH THE NEW FIXTURES BUT THEY WILL NOT BE MOVED.

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- EXISTING 1' CONTOUR — 154
- EXISTING 5' CONTOUR — 155
- EXISTING TREE LINE
- EXISTING WATER — W
- EXISTING SEWER — S
- EXISTING OVERHEAD ELECTRICAL — OE
- EXISTING UNDERGROUND ELECTRICAL — UE
- EXISTING UNDERGROUND COMMUNICATION — UC
- EXISTING STORM DRAIN — D
- LIGHT POLE AND BASE DEMOLITION
- LANDSCAPE ISLAND DEMOLITION
- CURB DEMOLITION
- TREE REMOVAL

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CITY HALL PARKING LOT RECONSTRUCTION

220 SOUTH MAIN STREET
NEWARK, DE 19711

NPD LOT DEMOLITION PLAN

CITY OF NEWARK
220 SOUTH MAIN STREET
NEWARK, DE 19711

BY	REVISIONS	NO.	DATE

PROJECT	CNEWK22005
DATE	2023-03-07
DRAWING SCALE	1"=30'
DRAWN BY	MRW/ALS
APPROVED BY	MJE

CS0501

SHEET 3 OF 21

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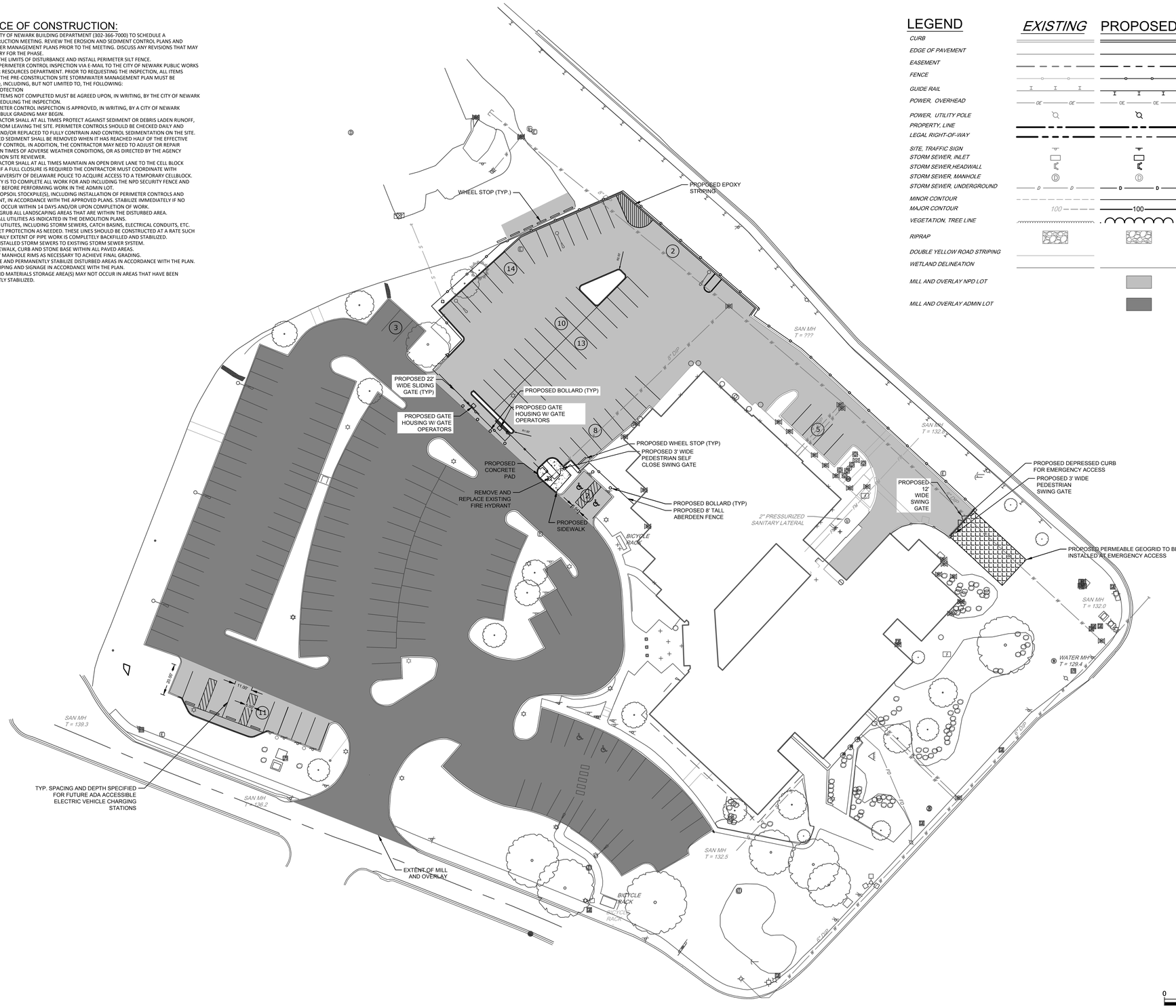
PLOTTED: 5/18/2023 4:11 PM, BY: Andrew Sheets PLOTSTYLE: Pennoni NCS.stb PROJECT STATUS: —

SEQUENCE OF CONSTRUCTION:

1. CONTACT CITY OF NEWARK BUILDING DEPARTMENT (302-366-7000) TO SCHEDULE A PRE-CONSTRUCTION MEETING. REVIEW THE EROSION AND SEDIMENT CONTROL PLANS AND STORMWATER MANAGEMENT PLANS PRIOR TO THE MEETING. DISCUSS ANY REVISIONS THAT MAY BE NECESSARY FOR THE PHASE.
2. DELINEATE THE LIMITS OF DISTURBANCE AND INSTALL PERIMETER SILT FENCE.
3. REQUEST A PERIMETER CONTROL INSPECTION VIA E-MAIL TO THE CITY OF NEWARK PUBLIC WORKS AND WATER RESOURCES DEPARTMENT. PRIOR TO REQUESTING THE INSPECTION, ALL ITEMS SHOWN ON THE PRE-CONSTRUCTION SITE STORMWATER MANAGEMENT PLAN MUST BE COMPLETED, INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:
   a. INLET PROTECTION

   A: ANY ITEMS NOT COMPLETED MUST BE AGREED UPON, IN WRITING, BY THE CITY OF NEWARK PRIOR TO SCHEDULING THE INSPECTION.
5. ONCE PERIMETER CONTROL INSPECTION IS APPROVED, IN WRITING, BY A CITY OF NEWARK INSPECTOR, BULK GRADING MAY BEGIN.
6. THE CONTRACTOR SHALL AT ALL TIMES PROTECT AGAINST SEDIMENT OR DEBRIS LADEN RUNOFF, OR WIND, FROM LEAVING THE SITE. PERIMETER CONTROLS SHOULD BE CHECKED DAILY AND ADJUSTED AND/OR REPLACED TO FULLY CONTRAIN AND CONTROL SEDIMENTATION ON THE SITE. ACCMULATED SEDIMENT SHALL BE REMOVED WHEN IT HAS REACHED HALF OF THE EFFECTIVE CAPACITY OF CONTROL. IN ADDITION, THE CONTRACTOR MAY NEED TO ADJUST OR REPAIR MEASURES IN TIMES OF ADVERSE WEATHER CONDITIONS, OR AS DIRECTED BY THE AGENCY CONSTRUCTION SITE REVIEWER.
7. THE CONTRACTOR SHALL AT ALL TIMES MAINTAIN AN OPEN DRIVE LANE TO THE CELL BLOCK ENTRANCE. IF A FULL CLOSURE IS REQUIRED THE CONTRACTOR MUST COORDINATE WITH NEWARK/UNIVERSITY OF DELAWARE POLICE TO ACQUIRE ACCESS TO A TEMPORARY CELLBLOCK.
8. THE PRIORITY IS TO COMPLETE ALL WORK FOR AND INCLUDING THE NPD SECURITY FENCE AND GATES FIRST BEFORE PERFORMING WORK IN THE ADMIN LOT.
9. ESTABLISH TOPSOIL STOCKPILE(S), INCLUDING INSTALLATION OF PERIMETER CONTROLS AND ACCESS POINT, IN ACCORDANCE WITH THE APPROVED PLANS. STABILIZE IMMEDIATELY IF NO WORK IS TO OCCUR WITHIN 14 DAYS AND/OR UPON COMPLETION OF WORK.
10. CLEAR AND GRUB ALL LANDSCAPING AREAS THAT ARE WITHIN THE DISTURBED AREA.
11. DEMOLISH ALL UTILITIES AS INDICATED IN THE DEMOLITION PLANS.
12. INSTALL ALL UTILITES, INCLUDING STORM SEWERS, CATCH BASINS, ELECTRICAL CONDUITS, ETC. INSTALL INLET PROTECTION AS NEEDED. THESE LINES SHOULD BE CONSTRUCTED AT A RATE SUCH THAT THE DAILY EXTENT OF PIPE WORK IS COMPLETELY BACKFILLED AND STABILIZED.
13. CONNECT INSTALLED STORM SEWERS TO EXISTING STORM SEWER SYSTEM.
14. INSTALL SIDEWALK, CURB AND STONE BASE WITHIN ALL PAVED AREAS.
15. ADJUST ANY MANHOLE RIMS AS NECESSARY TO ACHIEVE FINAL GRADING.
16. FINAL GRADE AND PERMANENTLY STABILIZE DISTURBED AREAS IN ACCORDANCE WITH THE PLAN.
17. INSTALL STRIPING AND SIGNAGE IN ACCORDANCE WITH THE PLAN.
18. STAGING AND MATERIALS STORAGE AREA(S) MAY NOT OCCUR IN AREAS THAT HAVE BEEN PERMANENTLY STABILIZED.

NORTH



LEGEND

	EXISTING	PROPOSED
CURB		
EDGE OF PAVEMENT		
EASEMENT		
FENCE		
GUIDE RAIL		
POWER, OVERHEAD	OE OE	OE OE
POWER, UTILITY POLE		
PROPERTY, LINE		
LEGAL RIGHT-OF-WAY		
SITE, TRAFFIC SIGN		
STORM SEWER, INLET		
STORM SEWER,HEADWALL		
STORM SEWER, MANHOLE		
STORM SEWER, UNDERGROUND	D D	D D
MINOR CONTOUR		
MAJOR CONTOUR	100	100
VEGETATION, TREE LINE		
RIPRAP		
DOUBLE YELLOW ROAD STRIPING		
WETLAND DELINEATION		
MILL AND OVERLAY NPD LOT		
MILL AND OVERLAY ADMIN LOT		

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CITY HALL PARKING LOT RECONSTRUCTION

220 SOUTH MAIN STREET
NEWARK, DE 19711

NPD LOT RECONFIGURATION PLAN

CITY OF NEWARK
220 SOUTH MAIN STREET
NEWARK, DE 19711

NO.	DATE	REVISIONS	BY

PROJECT	CNEWK22005
DATE	2023-05-18
DRAWING SCALE	1"=30'
DRAWN BY	MRW/ALS
APPROVED BY	MJE

CS1001

SHEET 4 OF 21

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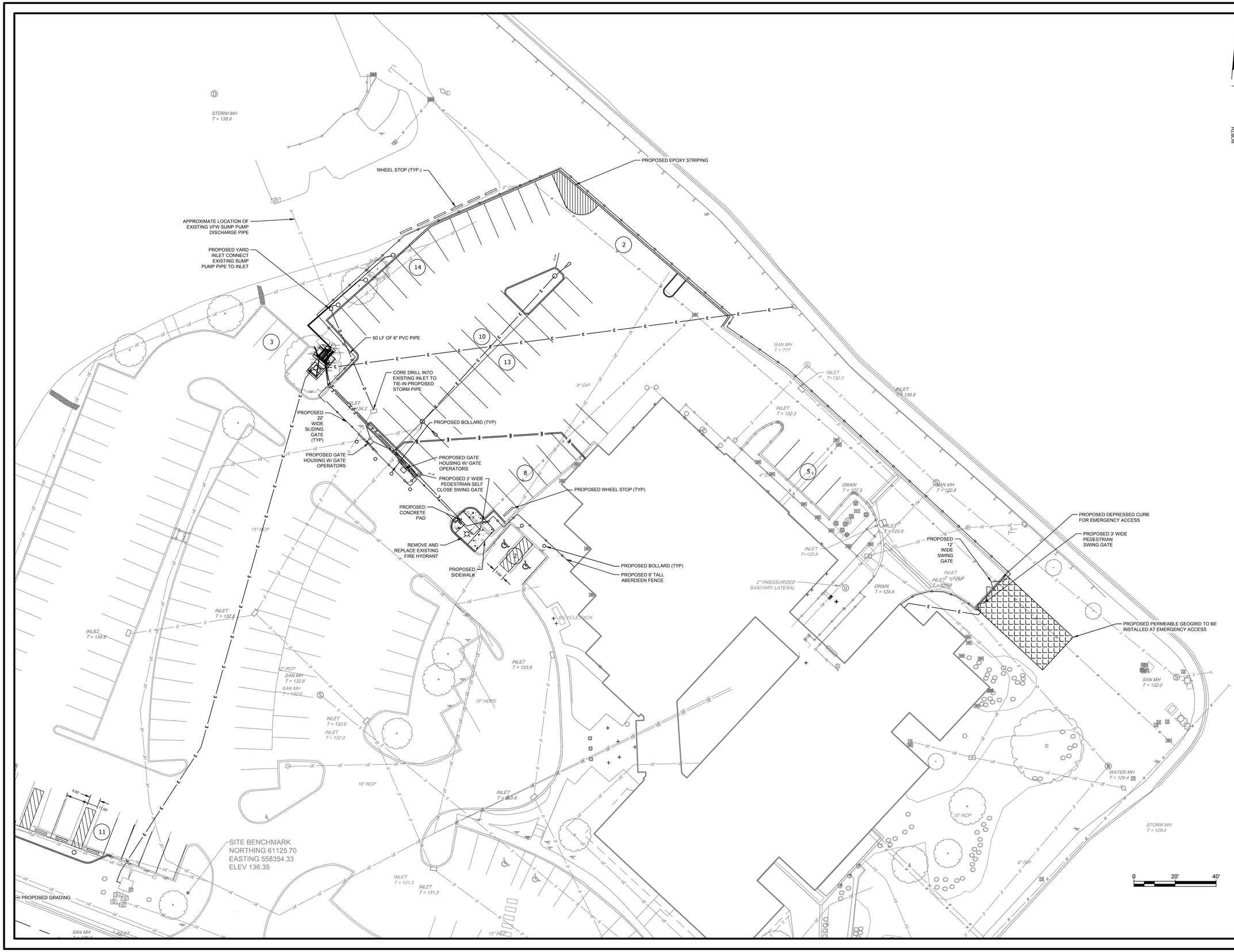

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CITY HALL PARKING LOT RECONSTRUCTION

220 SOUTH MAIN STREET
NEWARK, DE 19711

FENCING AND GATING PLAN

CITY OF NEWARK
220 SOUTH MAIN STREET
NEWARK, DE 19711

NO.	DATE	REVISIONS	BY

PROJECT	CNEWK22005
DATE	2023-05-18
DRAWING SCALE	1"=20
DRAWN BY	MRW/ALS
APPROVED BY	MJE

CS1002

SHEET 5 OF 21

PROJECT STATUS: —
PLOTSTYLE: Pennoni NCS.stb
PLOTTED: 5/18/2023 4:27 PM, BY: Andrew Shields
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APPROXIMATE LOCATION OF EXISTING VFW SUMP PUMP DISCHARGE PIPE

PROPOSED YARD INLET CONNECT EXISTING SUMP PUMP PIPE TO INLET

(1) 1" CONDUIT FOR BATT CHARGER AND BLOCK HEATER STUBBED OUT BELOW GRADE FOR EXTENSION TO FUTURE GENERATOR

(2) 2.5 " CONDUITS FOR POWER
(1) 1" CONDUIT FOR CONTROL
(1) 1" SPARE FOR CONTROL
STUBBED OUT BELOW GRADE FROM ATS FOR EXTENSION TO FUTURE GENERATOR

NEW ELECTRIC TRANSFORMER COMPOSITE BOX PAD

300KVA 208Y/120V OUTPUT TRANSFORMER INSTALLED BY CITY OF NEWARK ELECTRIC DEPARTMENT

INSTALL (2) 4" SCHEDULE 80 CONDUITS WITH PULL STRING. 1/0 ALUMINUM 15KV MEDIUM VOLTAGE INSTALLED BY CITY OF NEWARK ELECTRICAL DEPARTMENT

1.5" CONDUIT WITH 4#3&1#8GND FROM POWER PANEL TO EACH OF (3) DUAL EV CHARGERS

1.5" CONDUIT WITH PULL STRING FROM POWER PANEL STUBBED UP IN EACH OF (3) DUAL EV CHARGER MOUNTING BASES. EV CHARGERS AND 4#3&1/8 GND WILL BE INSTALLED BY CITY OF NEWARK ELECTRICAL DEPARTMENT AT A LATER DATE.

50 LF OF 6" PVC PIPE

3/4" CONDUIT TO SECURITY GATE OPERATOR. WIRING PULLED BY CONTRACTOR

3/4" CONDUIT FOR LOOP DETECTION CABLE. WIRING PULLED BY CONTRACTOR

CORE DRILL INTO EXISTING INLET TO TIE-IN PROPOSED STORM PIPE

PROPOSED 22' WIDE SLIDING GATE (TYP)

PROPOSED GATE HOUSING W/ GATE OPERATORS

PROPOSED BOLLARD (TYP)

12"X12"X11" SECURITY CONTROL BOX MOUNTED WITH BOTTOM OF BOX 18" ABOVE GRADE

PROPOSED 3/4" CONDUIT FOR INTERCOM, CARD READER AND ELECTRIC STRIKE

PROPOSED CARD READER MOUNTED ON FENCE

PROPOSED 3' WIDE PEDESTRIAN SELF CLOSE SWING GATE

PROPOSED RFD READER MOUNTED ON PEDESTAL

PROPOSED CONCRETE PAD

PROPOSED CARD READER AND INTERCOM BUTTON
REMOVE AND REPLACE EXISTING FIRE HYDRANT

3/4" CONDUIT FROM PEDESTAL TO ELECTRIC STRIKE

RELOCATED LIGHT POLE TYP.

INSTALL (2) 4" SCHEDULE 80 CONDUITS

PROPOSED ELECTRIC CONDUIT TO NEW LIGHT POLES

PROPOSED CAT 6 CABLE 1" CONDUIT. WIRING INSTALLED BY SECURITY CONTRACTOR

PROPOSED 1" CONDUIT FOR INTERCOM, CARD READER, AND ELECTRIC STRIKE. WIRING INSTALLED BY SECURITY CONTRACTOR

PROPOSED WHEEL STOP (TYP)

PROPOSED SIDEWALK

PROPOSED BOLLARD (TYP)

PROPOSED 8' TALL ABERDEEN FENCE

INLET
T = 132.6

BICYCLE RACK

NORTH

THERE IS (1) EXISTING SPARE 4" PVC CONDUIT STUBBED OUT ON THE RIGHT SIDE OF THE TRANSFORMER. THE NEW CONDUITS SHALL BE INSTALLED ON THE PARKING LOT SIDE OF THE EXISTING CONDUIT

EXISTING ELECTRIC TRANSFORMER

EXISTING TRANSFORMER

SCALE: 1"=10'

PROPOSED DEPRESSED CURB FOR EMERGENCY ACCESS

PROPOSED 12' WIDE SWING GATE

PROPOSED 3' WIDE PEDESTRIAN SWING GATE

PROPOSED 3/4" CONDUIT FOR CARD READER AND ELECTRIC STRIKE

PROPOSED CARD READER AND ELECTRIC STRIKE. TURN GALVANIZED RIGID CONDUIT UP TO 6" ABOVE GRADE WITH BACK OF CONDUIT EQUAL TO THE EXTERIOR SIDE OF THE FENCE FABRIC.

711 GATE AREA

SCALE: 1"=10'

0 10' 20'

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CITY HALL PARKING LOT RECONSTRUCTION

220 SOUTH MAIN STREET
NEWARK, DE 19711

ELECTRICAL PLAN

CITY OF NEWARK
220 SOUTH MAIN STREET
NEWARK, DE 19711

NO.	DATE	REVISIONS	BY

PROJECT	CNEWK22005
DATE	2023-05-18
DRAWING SCALE	1"=10'
DRAWN BY	MRW/ALS
APPROVED BY	MJE

CS1004

SHEET 6 OF 21

PROJECT STATUS: —
PLOTSTYLE: Pennoni NCS.stb
PLOTTED: 5/18/2023 2:48 PM, BY: Andrew Shields
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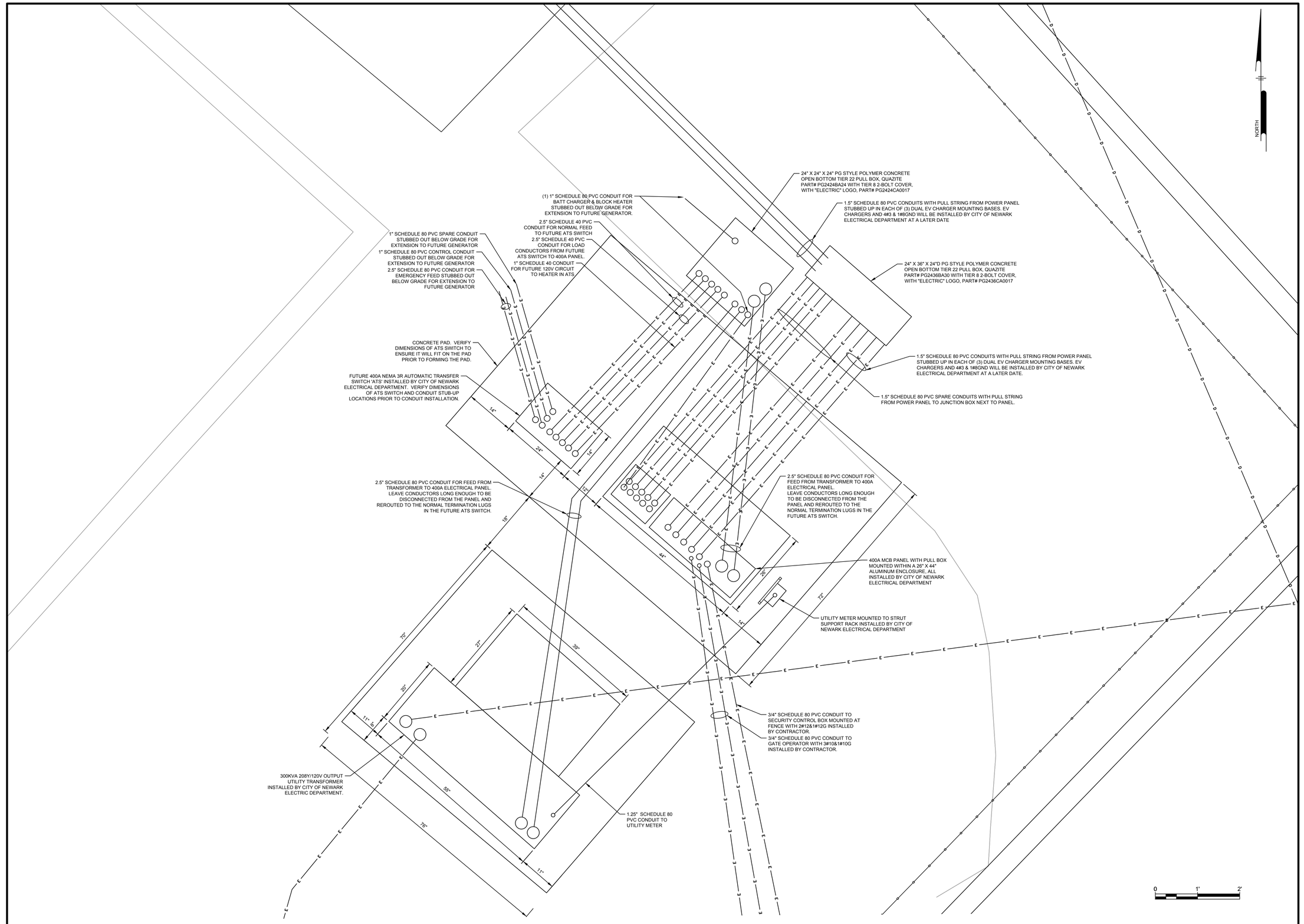

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CITY HALL PARKING LOT RECONSTRUCTION

220 SOUTH MAIN STREET
NEWARK, DE 19711

ELECTRICAL TRANSFORMER PLAN

CITY OF NEWARK
220 SOUTH MAIN STREET
NEWARK, DE 19711

NO.	DATE	REVISIONS	BY

PROJECT	CNEWK22005
DATE	2023-05-18
DRAWING SCALE	1"=1'
DRAWN BY	MRW/ALS
APPROVED BY	MJE

CS1005

SHEET 7 OF 21

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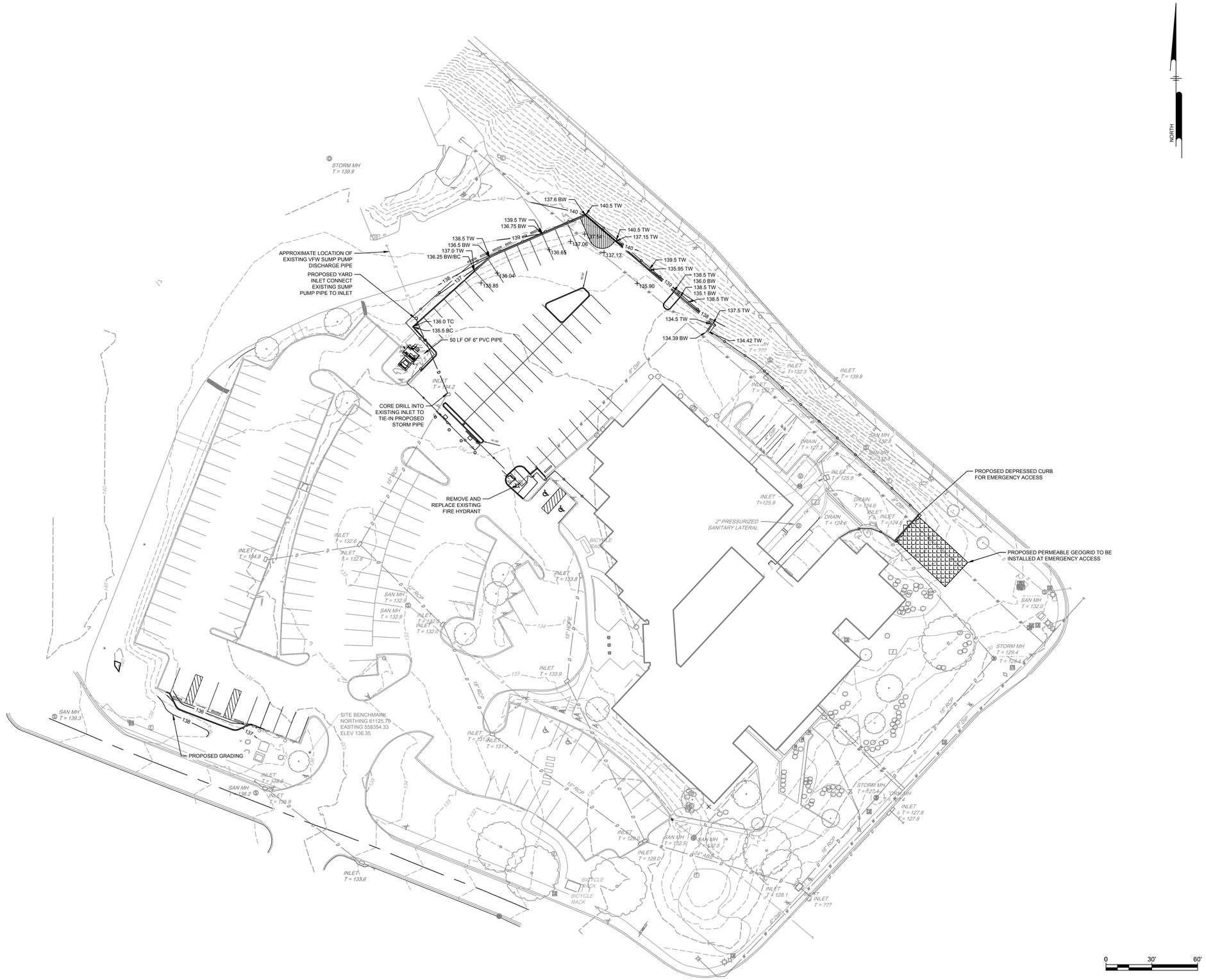

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CITY HALL PARKING LOT RECONSTRUCTION

220 SOUTH MAIN STREET
NEWARK, DE 19711

NPD LOT GRADING AND DRAINAGE PLAN

CITY OF NEWARK
220 SOUTH MAIN STREET
NEWARK, DE 19711

NO.	DATE	REVISIONS	BY

PROJECT	CNEWK22005
DATE	2023-05-18
DRAWING SCALE	1"=30
DRAWN BY	MRW/ALS
APPROVED BY	MJE

CS1501

SHEET 8 OF 20

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ELECTRICAL NOTES:

1. READ THE ELECTRICAL SPECIFICATIONS FOR SPECIFIC REQUIREMENTS PRIOR TO THE START OF WORK.
2. WHERE LIGHT POLES AND BASES ARE SHOWN TO BE DEMOLISHED, EXISTING UNDERGROUND CONDUITS ARE TO BE SALVAGED FOR REUSE WHERE POSSIBLE. MATCH EXISTING SIZE AND TYPE OF UNDERGROUND CONDUIT FEEDING TO NEW LIGHT POLES IN NEW WORK. REFER TO THE POLE BASE DETAILS FOR THE CONDUIT REQUIREMENTS WITHIN THE NEW POLE BASE.
3. REMOVE CONDUCTORS BACK TO NEAREST JUNCTION BOX TO ALLOW POLE BASES TO BE DEMOLISHED AND REPLACE WITH NEW THWN-2 CONDUCTORS MATCHING THE EXISTING WIRE GUAGE. SPLICE AND EXTEND THE EXISTING LIGHT CIRCUITS TO FEED THE NEW POLE LIGHTS WITH THE CIRCUIT NOTED ON THE DRAWINGS. EXISTING WIRE SIZES ARE NOT KNOWN. ASSUME #8 THWN-2 AWG FOR BIDDING PURPOSES. IF LARGER WIRE SIZES ARE DISCOVERED DURING DEMOLITION, NOTIFY THE OWNER FOR DIRECTION.
4. INSTALL THE NEW POLE BASE WITH THE CENTER OF THE POLE 3 FEET FROM THE EDGE OF THE NEW WALKWAY OR PATH TO ILLUMINATE THE LENGTH OF THE WALKWAY. THE ACTUAL LOCATION OF THE NEW POLE SHALL BE COORDINATED WITH THE OWNER TO AVOID THE EXISTING UNDERGROUND UTILITIES. CONSULT THE OWNER FOR APPROVAL OF ANY REQUIRED CHANGES.
5. INSTALL THE NEW POLE BASE PER THE POLE BASE DETAIL. REFER TO VENDOR ANCHOR BOLT INSTALLATION GUIDE FOR BOLT CIRCLE DIAMETER, BASE COVER SIZE, ANCHOR BOLT PROJECTION, ANCHOR BOLT SIZE AND SPECIFIC DETAILS.
6. WHERE JUNCTION BOXES ARE SHOWN, PROVIDE HUBBELL QUAZITE 11"W X 18"L X 18.5"D PC STYLE POLYMER CONCRETE UNDERGROUND ENCLOSURE PART #PC118JA18 WITH TWO HEX BOLT COVER WITH "STREET LIGHTING" LOGO ON COVER PART #PC1118CA0041. MOUNT THE TOP OF THE BOX 6 INCH ABOVE THE FINISHED GRADE. ENCASE THE BOX WITH 6 INCHES OF 3000 PSI CONCRETE VIBRATED AROUND ALL FOUR SIDES WITH THE TOP OF THE CONCRETE FLUSH WITH THE TOP OF THE BOX AND THE BOTTOM OF THE CONCRETE EQUAL TO THE BOTTOM OF THE BOX. PROVIDE A 1 INCH CHAMFER AROUND THE TOP PERIMETER OF THE CONCRETE AND THE VERTICAL CORNERS. REMOVE ALL FORMS USED AFTER THE CONCRETE CURES. PROVIDE SUPPORT WITHIN THE BOX TO KEEP ALL SPLICE CONNECTIONS AT THE BOTTOM OF THE COVER.
7. CONDUITS UNDER WALKWAYS SHALL BE GALVANIZED RIGID CONDUITS WHICH SHALL EXTEND 3' BEYOND EACH EDGE OF THE WALKWAY FOR PROTECTION FROM VEHICLES WHICH MAY DRIVE OVER THE EDGE OF THE WALKWAY.
8. BACK FILL ALL EXCAVATIONS TO MATCH THE EXISTING GRADE AND RESEED THE EXCAVATION AREA. EXCESS SOIL SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.
9. PROVIDE A 4" HIGH X 6" WIDE BLACK WITH 3/4" YELLOW LETTERING UV RESISTANT SELF-ADHESIVE LABEL, ABOVE THE HAND HOLE LEVEL ON EACH LIGHT POLE. LABELS SHALL FACE THE DIRECTION OF THE ROADWAY, WALKWAY OR PARKING SPACE WHERE THE POLE IS LOCATED. WHERE POLES ARE LOCATED IN THE CENTER OF A PARKING LOT, AND THERE ARE PARKING SPACES ON BOTH THE NORTH AND SOUTH SIDE OF THE POLE, INSTALL THE LABEL ON THE NORTH SIDE OF THE POLE TO MINIMIZE FADING FROM THE SUN. THE TOP ROW OF LETTERING ON THE LABEL SHALL STATE THE POLE NUMBER. THE MIDDLE ROW OF LETTERING ON THE LABEL SHALL STATE THE PANEL AND CIRCUIT NUMBER. THE BOTTOM ROW OF LETTERING ON THE LABEL STATE THE BUILDING ID WHERE THE FEED SOURCE PANEL IS LOCATED. PROVIDE A PRINTED EXAMPLE FOR THE OWNERS APPROVAL PRIOR TO PRINTING ALL THE LABELS. SEE EXAMPLE.

   EXAMPLE: POLE # A56
   PANEL & CKT. # LP-2 #18
   BLDG. ID XXXX

10. MOUNT THE LIGHT POLES WITH THE HAND HOLE FACING 90-DEGREE FROM THE ROADWAY, WALKWAY OR PARKING SPACE SO THAT THE OPENING IS ACCESSIBLE WHEN A VEHICLE IS PARKED IN THE PARKING SPACE IN FRONT OF THE POLE LOCATION. DO NOT FACE THE HAND HOLE IN THE OPPOSITE DIRECTION OF THE ROADWAY OR PARKING SPACE SO THAT IT WILL NOT BE BLOCKED BY VEGETATION AND HEDGES GROWING BEHIND THE POLE LOCATIONS.
11. PROVIDE NEW POLES WITH ALL REQUIRED POLE CAPS, ACCESS COVERS, GALVANIZED STEEL ANCHOR 'J' BOLTS, NUTS, LOCK NUTS AND WASHERS PER VENDORS INSTALLATION GUIDE.
12. PROVIDE NEW LIGHT FIXTURES WITH ALL REQUIRED ATTACHMENT ARMS, AND MOUNTING HARDWARE PER THE MANUFACTURERS INSTALLATION INSTRUCTIONS.
13. ASSEMBLE AND INSTALL POLE ON BASE. FIXTURE HEADS SHALL FACE TOWARD THE WALKWAY OR ROADWAY PER THE DIRECTION SHOWN ON THE DRAWINGS.
14. PROVIDE 2#10&10 GND THWN IN THE LIGHT POLE BETWEEN THE UNDERGROUND FEED CONDUCTORS AND THE FIXTURE MOUNTED AT THE TOP OF THE POLE.
15. ANCHOR NUTS SHALL BE ADJUSTED TO MAKE POLE PLUMB.
16. POLE BASE MUST HAVE FULL CONTACT WITH THE FOUNDATION BY GROUTING. GROUT THE SPACE BETWEEN THE TOP OF THE CONCRETE BASE AND THE BOTTOM OF THE LIGHT POLE BASE AND PROVIDE A CHANNEL THROUGH THE GROUT FOR DRAINAGE FROM THE POLE INTERIOR.
17. THE CONTRACTOR IS RESPONSIBLE FOR ALL CIVIL WORK INCLUDING EXCAVATIONS, BACKFILLING, RE-SEEDING, ASPHALT REPAIR, ETC.

LEGEND

POLE NO
FIXTURE TYPE
MOUNT HEIGHT
PHASE INSTRUCTIONS
= LIGHT POLE TAG - NEW WORK

= NEW LIGHT FIXTURE, SEE SCHEDULE (LEFT) FOR SPECIFIC FIXTURE TYPE

0 30' 60'

Lighting Schedule					
Pole #	Fixture Type	Mounting Height	Pole Height	Base Type	Color
1	T2-16L-35	12'	11'6"	C	Bronze
2	T3-32L-7	25'	24'6"	B	Bronze
3	T3-32L-7	25'	24'6"	B	Bronze
4	T2-16L-35	12'	11'6"	C	Bronze
5	T2-16L-35	12'	11'6"	C	Bronze
6	T3-16L-35	12'	11'6"	C	Bronze
7	T5-64L-1	25'	24'6"	C	Bronze
8	T5-64L-1	25'	24'6"	B	Bronze
9	T5-64L-1	25'	24'6"	B	Bronze
10	TO REMAIN				
11	T3-32L-7	25'	24'6"	B	Bronze
12	T3-32L-7	25'	24'6"	B	Bronze
13	TO REMAIN				
14	T3-16L-35	12'	11'6"	C	Bronze
15	T5-64L-1	25'	24'6"	B	Bronze
16	T5-64L-1	25'	24'6"	B	Bronze
17	TO REMAIN				
18	T5-64L-1	25'	22'6"	A	Bronze
19	T5-64L-1	25'	24'6"	B	Bronze

PENNONI ASSOCIATES INC.
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ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

CITY HALL PARKING LOT RECONSTRUCTION
220 SOUTH MAIN STREET
NEWARK, DE 19711

NPD LOT LIGHTING PLAN
CITY OF NEWARK
220 SOUTH MAIN STREET
NEWARK, DE 19711

NO.	DATE	REVISIONS	BY

PROJECT	CNEWK22005
DATE	2023-05-18
DRAWING SCALE	1"=30'
DRAWN BY	MRW/ALS
APPROVED BY	MJE

CS1503

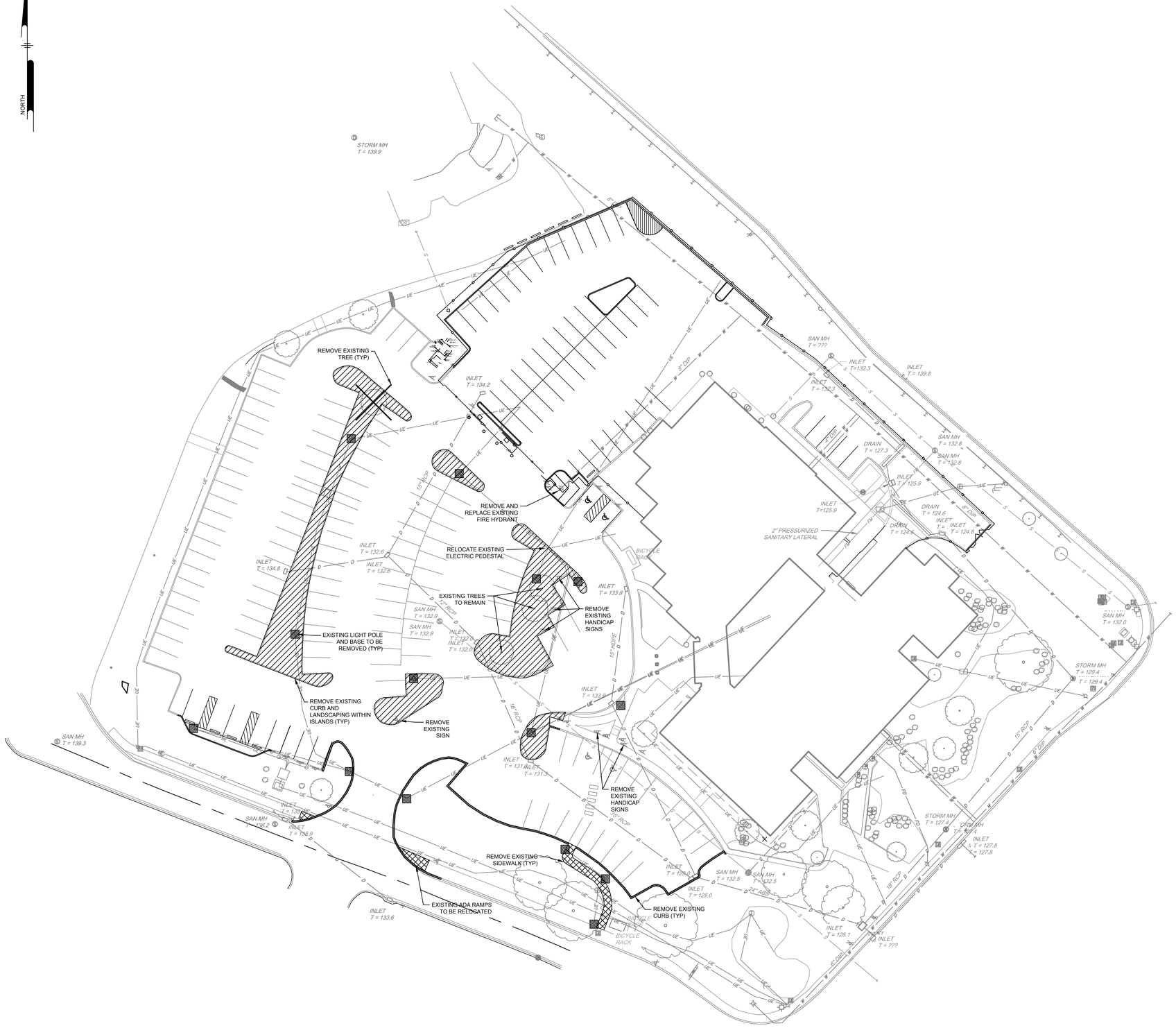
SHEET 9 OF 20

\\pennoni.com\data\Accounts\CNEWK\cnewk22005 - npd parking lot fencing and repaving\DESIGN_SHEETS\CS1503.dwg PLOTTED: 5/18/2023 2:48 PM, BY: Andrew Shields PLOTSTYLE: Pennoni MCS.stb PROJECT STATUS: —

NORTH

PURPOSE NOTES:

THE PURPOSE OF THE PLAN IS TO SHOW ALL DEMOLITION ITEMS INCLUDED IN THE BID OPTION FOR THE ADMIN LOT RECONSTRUCTION.



LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- EXISTING 1' CONTOUR — 154 —
- EXISTING 5' CONTOUR — 155 —
- EXISTING TREE LINE
- EXISTING WATER — W — W — W —
- EXISTING SEWER — S — S — S — S — S —
- EXISTING OVERHEAD ELECTRICAL — OE — OE — OE —
- EXISTING UNDERGROUND ELECTRICAL — UE — UE — UE —
- EXISTING UNDERGROUND COMMUNICATION — UC — UC — UC —
- EXISTING STORM DRAIN — D — D — D —
- LIGHT POLE AND BASE DEMOLITION
- SIDEWALK DEMOLITION
- LANDSCAPE ISLAND DEMOLITION
- CURB DEMOLITION ADMIN LOT
- TREE REMOVAL

0 30' 60'

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CITY HALL PARKING LOT RECONSTRUCTION

220 SOUTH MAIN STREET
NEWARK, DE 19711

ADMIN LOT DEMOLITION PLAN

CITY OF NEWARK
220 SOUTH MAIN STREET
NEWARK, DE 19711

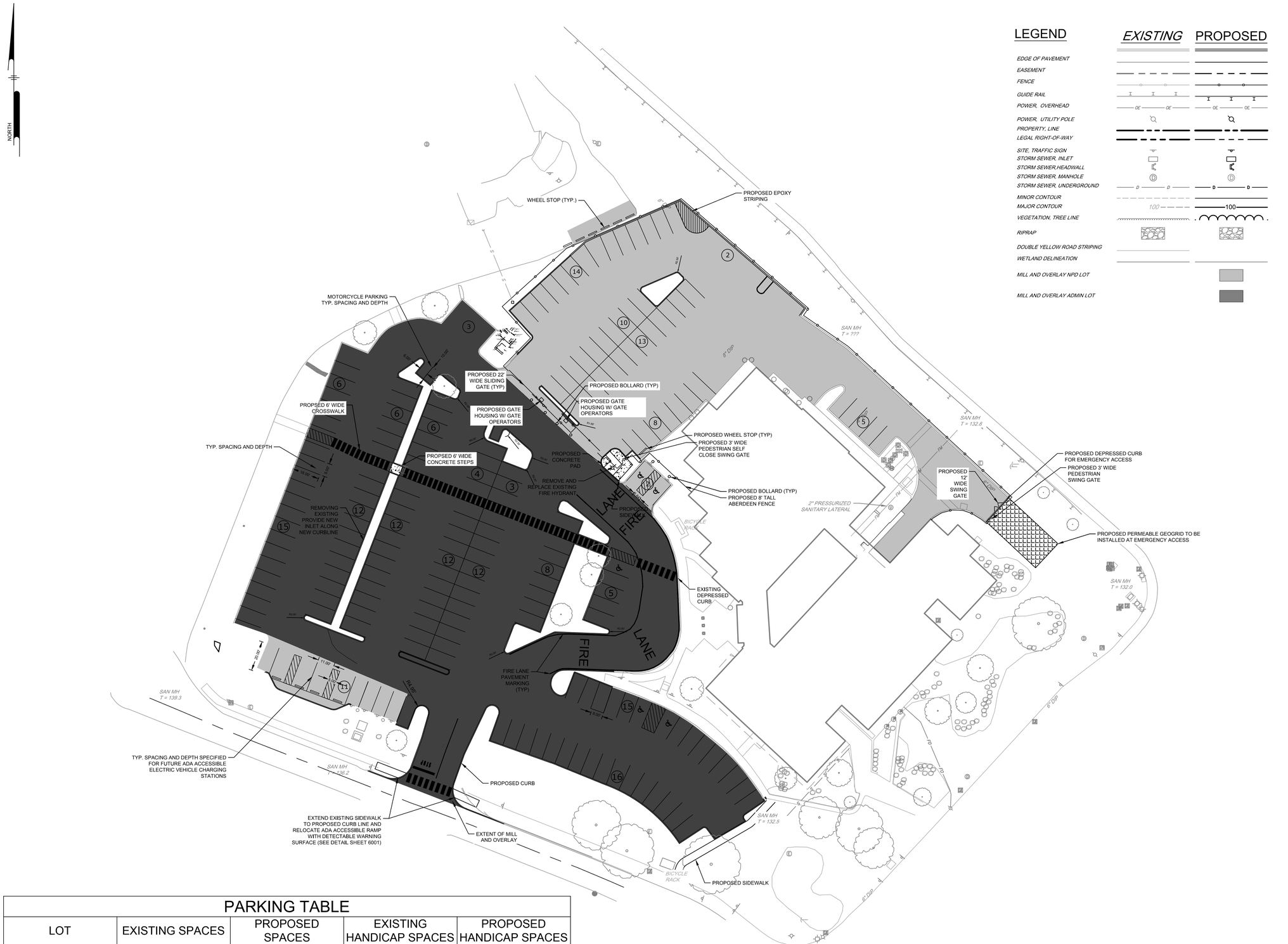
NO.	DATE	REVISIONS	BY

PROJECT	CNEWK22005
DATE	2023-03-07
DRAWING SCALE	1"=30'
DRAWN BY	MRW/ALS
APPROVED BY	MJE

CS0502

SHEET 10 OF 21

\\pennoni.com\data\Accounts\CNEWK\cnewk22005 - roof parking lot fencing and repaving\[DESIGN]_SHEETS\CS0502.dwg PLOTTED: 5/18/2023 2:48 PM, BY: Andrew Shields PLOTSTYLE: Pennoni WCS.stb PROJECT STATUS: —



PARKING TABLE

LOT	EXISTING SPACES	PROPOSED SPACES	EXISTING HANDICAP SPACES	PROPOSED HANDICAP SPACES
ADMIN	134	148	7	5
NPD	48	52	0	0
TOTAL	182	200	7	5

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CITY HALL PARKING LOT RECONSTRUCTION
220 SOUTH MAIN STREET
NEWARK, DE 19711

ADMIN LOT RECONFIGURATION PLAN

CITY OF NEWARK
220 SOUTH MAIN STREET
NEWARK, DE 19711

NO.	DATE	REVISIONS	BY

PROJECT	CNEWK22005
DATE	2023-05-18
DRAWING SCALE	1"=30'
DRAWN BY	MRW/ALS
APPROVED BY	MJE

CS1003

SHEET 11 OF 21

\\pennoni.com\data\Accounts\CNEWK\cnewk22005 - npd parking lot fencing and repaving\DESIGN_SHEETS\CS1003.dwg PLOTTED: 5/18/2023 2:50 PM, BY: Andrew Shields PLOTSTYLE: Pennoni NCS.ctb PROJECT STATUS: —

PLOTTED: 5/18/2023 2:50 PM, BY: Andrew Sheilds PLOTSTYLE: Pennoni NCS.stb PROJECT STATUS: —

\\pennoni.com\data\Accounts\CNEWK\cnewk22005 - mpf parking lot fencing and repaving\DESIGN_SHEETS\CS1502.dwg

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ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

CITY HALL PARKING LOT RECONSTRUCTION

220 SOUTH MAIN STREET
NEWARK, DE 19711

ADMIN LOT GRADING AND UTILITY PLAN

CITY OF NEWARK
220 SOUTH MAIN STREET
NEWARK, DE 19711

NO.	DATE	REVISIONS	BY

PROJECT	CNEWK22005
DATE	2023-05-18
DRAWING SCALE	1"=30'
DRAWN BY	MRW/ALS
APPROVED BY	MJE

CS1502

SHEET 12 OF 21

ELECTRICAL NOTES:

1. READ THE ELECTRICAL SPECIFICATIONS FOR SPECIFIC REQUIREMENTS PRIOR TO THE START OF WORK.
2. WHERE LIGHT POLES AND BASES ARE SHOWN TO BE DEMOLISHED, EXISTING UNDERGROUND CONDUITS ARE TO BE SALVAGED FOR REUSE WHERE POSSIBLE. MATCH EXISTING SIZE AND TYPE OF UNDERGROUND CONDUIT FEEDING TO NEW LIGHT POLES IN NEW WORK. REFER TO THE POLE BASE DETAILS FOR THE CONDUIT REQUIREMENTS WITHIN THE NEW POLE BASE.
3. REMOVE CONDUCTORS BACK TO NEAREST JUNCTION BOX TO ALLOW POLE BASES TO BE DEMOLISHED AND REPLACE WITH NEW THWN-2 CONDUCTORS MATCHING THE EXISTING WIRE GUAGE. SPLICE AND EXTEND THE EXISTING LIGHT CIRCUITS TO FEED THE NEW POLE LIGHTS WITH THE CIRCUIT NOTED ON THE DRAWINGS. EXISTING WIRE SIZES ARE NOT KNOWN. ASSUME #8 THWN-2 AWG FOR BIDDING PURPOSES. IF LARGER WIRE SIZES ARE DISCOVERED DURING DEMOLITION, NOTIFY THE OWNER FOR DIRECTION.
4. INSTALL THE NEW POLE BASE WITH THE CENTER OF THE POLE 3 FEET FROM THE EDGE OF THE NEW WALKWAY OR PATH TO ILLUMINATE THE LENGTH OF THE WALKWAY. THE ACTUAL LOCATION OF THE NEW POLE SHALL BE COORDINATED WITH THE OWNER TO AVOID THE EXISTING UNDERGROUND UTILITIES. CONSULT THE OWNER FOR APPROVAL OF ANY REQUIRED CHANGES.
5. INSTALL THE NEW POLE BASE PER THE POLE BASE DETAIL. REFER TO VENDOR ANCHOR BOLT INSTALLATION GUIDE FOR BOLT CIRCLE DIAMETER, BASE COVER SIZE, ANCHOR BOLT PROJECTION, ANCHOR BOLT SIZE AND SPECIFIC DETAILS.
6. WHERE JUNCTION BOXES ARE SHOWN, PROVIDE HUBBELL QUAZITE 11"W X 18"L X 18.5"D PC STYLE POLYMER CONCRETE UNDERGROUND ENCLOSURE PART #PC1118JA18 WITH TWO HEX BOLT COVER WITH "STREET LIGHTING" LOGO ON COVER PART #PC1118CA0041. MOUNT THE TOP OF THE BOX 6 INCH ABOVE THE FINISHED GRADE. ENCASE THE BOX WITH 6 INCHES OF 3000 PSI CONCRETE VIBRATED AROUND ALL FOUR SIDES WITH THE TOP OF THE CONCRETE FLUSH WITH THE TOP OF THE BOX AND THE BOTTOM OF THE CONCRETE EQUAL TO THE BOTTOM OF THE BOX. PROVIDE A 1 INCH CHAMFER AROUND THE TOP PERIMETER OF THE CONCRETE AND THE VERTICAL CORNERS. REMOVE ALL FORMS USED AFTER THE CONCRETE CURES. PROVIDE SUPPORT WITHIN THE BOX TO KEEP ALL SPLICE CONNECTIONS AT THE BOTTOM OF THE COVER.
7. CONDUITS UNDER WALKWAYS SHALL BE GALVANIZED RIGID CONDUITS WHICH SHALL EXTEND 3' BEYOND EACH EDGE OF THE WALKWAY FOR PROTECTION FROM VEHICLES WHICH MAY DRIVE OVER THE EDGE OF THE WALKWAY.
8. BACK FILL ALL EXCAVATIONS TO MATCH THE EXISTING GRADE AND RESEED THE EXCAVATION AREA. EXCESS SOIL SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.
9. PROVIDE A 4" HIGH X 6" WIDE BLACK WITH 3/4" YELLOW LETTERING UV RESISTANT SELF-ADHESIVE LABEL, ABOVE THE HAND HOLE LEVEL ON EACH LIGHT POLE. LABELS SHALL FACE THE DIRECTION OF THE ROADWAY, WALKWAY OR PARKING SPACE WHERE THE POLE IS LOCATED. WHERE POLES ARE LOCATED IN THE CENTER OF A PARKING LOT, AND THERE ARE PARKING SPACES ON BOTH THE NORTH AND SOUTH SIDE OF THE POLE, INSTALL THE LABEL ON THE NORTH SIDE OF THE POLE TO MINIMIZE FADING FROM THE SUN. THE TOP ROW OF LETTERING ON THE LABEL SHALL STATE THE POLE NUMBER. THE MIDDLE ROW OF LETTERING ON THE LABEL SHALL STATE THE PANEL AND CIRCUIT NUMBER. THE BOTTOM ROW OF LETTERING ON THE LABEL STATE THE BUILDING ID WHERE THE FEED SOURCE PANEL IS LOCATED. PROVIDE A PRINTED EXAMPLE FOR THE OWNERS APPROVAL PRIOR TO PRINTING ALL THE LABELS. SEE EXAMPLE.

   EXAMPLE: POLE # 14
   FIXTURE TYPE T3-32L-7
   MOUNTING HEIGHT 25'

10. MOUNT THE LIGHT POLES WITH THE HAND HOLE FACING 90-DEGREE FROM THE ROADWAY, WALKWAY OR PARKING SPACE SO THAT THE OPENING IS ACCESSIBLE WHEN A VEHICLE IS PARKED IN THE PARKING SPACE IN FRONT OF THE POLE LOCATION. DO NOT FACE THE HAND HOLE IN THE OPPOSITE DIRECTION OF THE ROADWAY OR PARKING SPACE SO THAT IT WILL NOT BE BLOCKED BY VEGETATION AND HEDGES GROWING BEHIND THE POLE LOCATIONS.
11. PROVIDE NEW POLES WITH ALL REQUIRED POLE CAPS, ACCESS COVERS, GALVANIZED STEEL ANCHOR 'J' BOLTS, NUTS, LOCK NUTS AND WASHERS PER VENDORS INSTALLATION GUIDE.
12. PROVIDE NEW LIGHT FIXTURES WITH ALL REQUIRED ATTACHMENT ARMS, AND MOUNTING HARDWARE PER THE MANUFACTURERS INSTALLATION INSTRUCTIONS.
13. ASSEMBLE AND INSTALL POLE ON BASE. FIXTURE HEADS SHALL FACE TOWARD THE WALKWAY OR ROADWAY PER THE DIRECTION SHOWN ON THE DRAWINGS.
14. PROVIDE 2#10&10 GND THWN IN THE LIGHT POLE BETWEEN THE UNDERGROUND FEED CONDUCTORS AND THE FIXTURE MOUNTED AT THE TOP OF THE POLE.
15. ANCHOR NUTS SHALL BE ADJUSTED TO MAKE POLE PLUMB.
16. POLE BASE MUST HAVE FULL CONTACT WITH THE FOUNDATION BY GROUTING. GROUT THE SPACE BETWEEN THE TOP OF THE CONCRETE BASE AND THE BOTTOM OF THE LIGHT POLE BASE AND PROVIDE A CHANNEL THROUGH THE GROUT FOR DRAINAGE FROM THE POLE INTERIOR.
17. THE CONTRACTOR IS RESPONSIBLE FOR ALL CIVIL WORK INCLUDING EXCAVATIONS, BACKFILLING, RE-SEEDING, ASPHALT REPAIR, ETC.

Lighting Schedule					
Pole #	Fixture Type	Mounting Height	Pole Height	Pole base	Color
1	T2-16L-35	12'	11'6"	B	Bronze
2	T3-32L-7	25'	24'6"	C	Bronze
3	T3-32L-7	25'	24'6"	C	Bronze
4	T2-16L-35	12'	11'6"	B	Bronze
5	T2-16L-35	12'	11'6"	B	Bronze
6	T3-16L-35	12'	11'6"	B	Bronze
7	T5-64L-1	25'	24'6"	C	Bronze
8	T5-64L-1	25'	22'6"	A	Bronze
9	T5-64L-1	25'	24'6"	C	Bronze
10	TO REMAIN				
11	T3-32L-7	25'	24'6"	C	Bronze
12	T3-32L-7	25'	24'6"	C	Bronze
13	TO REMAIN				
14	T5-64L-1	25'	24'6"	C	Bronze
15	T5-64L-1	25'	24'6"	C	Bronze
16	TO REMAIN				
17	T5-64L-1	25'	11'6"	A	Bronze
18	T5-64L-1	25'	24'6"	C	Bronze

LEGEND

POLE NO / FIXTURE TYPE / MOUNT HEIGHT (PHASE INSTRUCTIONS) = LIGHT POLE TAG - NEW WORK

= NEW LIGHT FIXTURE, SEE SCHEDULE (LEFT) FOR FIXTURE TYPE

0 30' 60'

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CITY HALL PARKING LOT RECONSTRUCTION
220 SOUTH MAIN STREET
NEWARK, DE 19711

ADMIN LOT LIGHTING PLAN

CITY OF NEWARK
220 SOUTH MAIN STREET
NEWARK, DE 19711

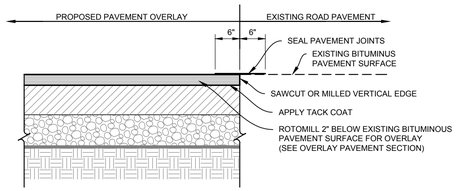
NO.	DATE	REVISIONS	BY

PROJECT	CNEWK22005
DATE	2023-01-17
DRAWING SCALE	1"=30'
DRAWN BY	MRW/ALS
APPROVED BY	MJE

CS1504

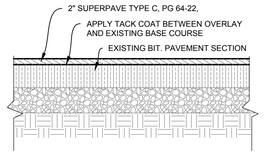
SHEET 13 OF 20

\\pennoni.com\data\Accounts\CNEWK\cnewk22005 - roof parking lot fencing and retaining\DESIGN_SHEETS\CS1504.dwg PLOTTED: 5/18/2023 2:51 PM, By: Andrew Shields PLOTSTYLE: Pennoni-MCS.ctb PROJECT STATUS: —



CUT AND SEAL AT LIMITS OF PAVEMENT OVERLAY

NOT TO SCALE

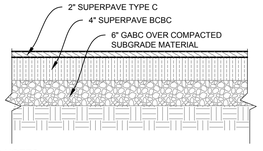


PAVING NOTES

1. PROVIDE MATERIALS AND CONSTRUCTION MEETING DELDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SECTIONS FOR SUBGRADE, AGGREGATE, AND FLEXIBLE PAVEMENT.
2. MODIFICATIONS TO THE PAVING THICKNESS AND MATERIALS MUST BE APPROVED BY THE ENGINEER AND OWNER BASED UPON FIELD CONDITIONS.

OVERLAY PAVEMENT SECTION

NOT TO SCALE

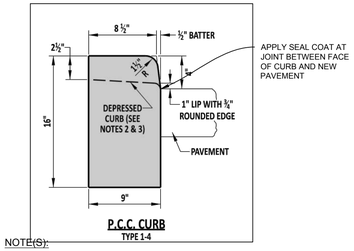


PAVING NOTES

1. PROVIDE MATERIALS AND CONSTRUCTION MEETING DELDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SECTIONS FOR SUBGRADE, AGGREGATE, AND FLEXIBLE PAVEMENT.
2. MODIFICATIONS TO THE PAVING THICKNESS AND MATERIALS MUST BE APPROVED BY THE ENGINEER AND OWNER BASED UPON FIELD CONDITIONS.

OVERLAY AND BASE REPAIR PAVEMENT SECTION

NOT TO SCALE

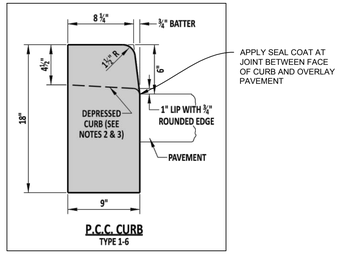


NOTE(S):

(1) P.C.C. (TYPE 1-4) DETAIL REFERENCES DELDOT STANDARD DETAIL NO. C-1 (2017)
(2) DEPRESS CURB AT ENTRANCES AS SHOWN.
(3) DEPRESS CURB FLUSH WITH PAVEMENT AT CURB RAMPS. MAXIMUM SLOPE OF CURB AT CURB RAMPS IS 20:1 IN THE DIRECTION OF PEDESTRIAN TRAVEL
(4) P.C.C. (TYPE 1-4) CURB TO BE USED FOR THE LOT F TRAIL CURB.

P.C.C. CURB (TYPE 1-4)

NOT TO SCALE

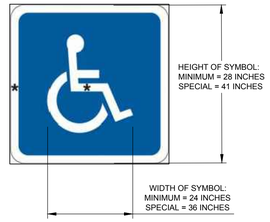


NOTE(S):

(1) P.C.C. (TYPE 1-6) DETAIL REFERENCES DELDOT STANDARD DETAIL NO. C-1 (2017)
(2) DEPRESS CURB AT ENTRANCES AS SHOWN.
(3) DEPRESS CURB FLUSH WITH PAVEMENT AT CURB RAMPS. MAXIMUM SLOPE OF CURB AT CURB RAMPS IS 20:1 IN THE DIRECTION OF PEDESTRIAN TRAVEL

P.C.C CURB (TYPE 1-6)

NOT TO SCALE

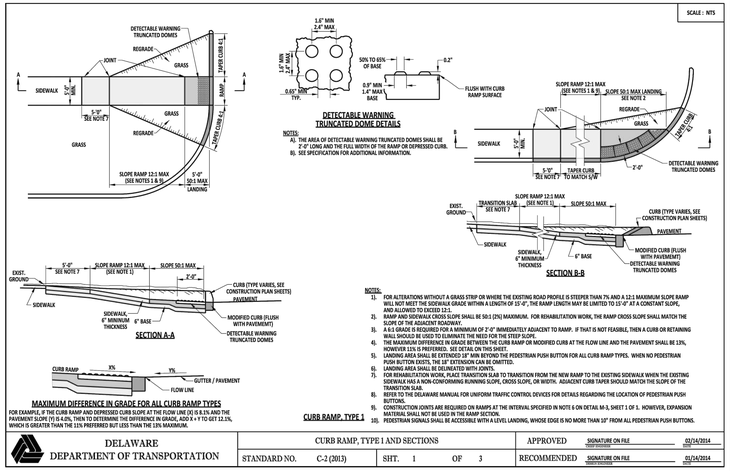


★STROKE WIDTH:
MINIMUM = 3 INCHES
SPECIAL = 4 INCHES

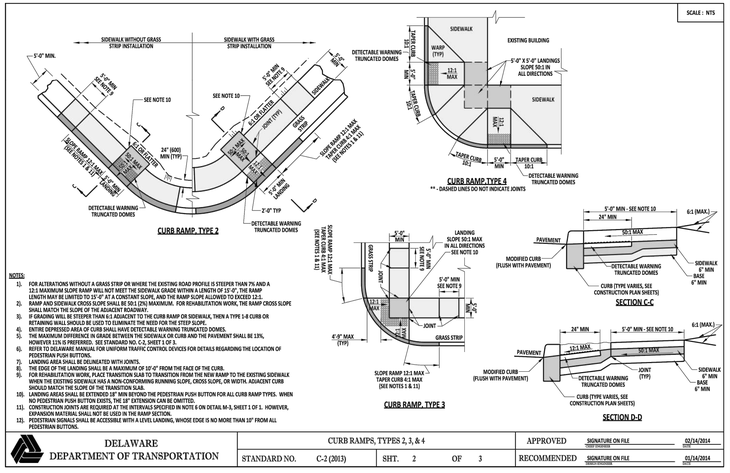
NOTE: 1) BLUE BACKGROUND AND WHITE BORDER ARE OPTIONAL
2) ALL HANDICAPPED STRIPPING SHALL BE BLUE EPOXY RESIN PAINT

INTERNATIONAL SYMBOL OF ACCESSIBILITY PARKING SPACE MARKING

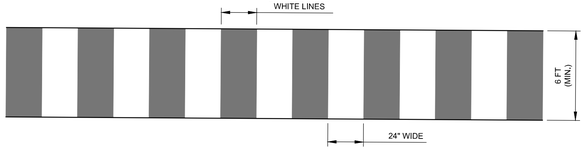
NOT TO SCALE



DELAWARE DEPARTMENT OF TRANSPORTATION	CURB RAMP, TYPE 1 AND SECTIONS				APPROVED	SIGNATURE ON FILE	01/24/2014
	STANDARD NO. C-2 (2013)	SHT. 1	OF 3		RECOMMENDED	SIGNATURE ON FILE	01/24/2014



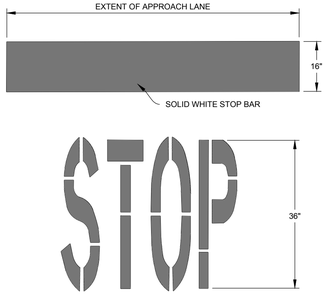
DELAWARE DEPARTMENT OF TRANSPORTATION	CURB RAMPS, TYPES 2, 3, & 4				APPROVED	SIGNATURE ON FILE	02/24/2014
	STANDARD NO. C-2 (2013)	SHT. 2	OF 3		RECOMMENDED	SIGNATURE ON FILE	01/24/2014



NOTES:
1) SPACING OF LINES SELECTED TO AVOID WHEEL PATH
2) CROSSWALK MARKINGS SHOULD BE LOCATED SO THAT THE CURB RAMPS ARE WITHIN THE EXTENSION OF THE CROSSWALK MARKINGS
3) DETECTABLE WARNING SURFACES SHALL BE INSTALLED TO MARK BOUNDARIES BETWEEN PEDESTRIAN AND VEHICULAR WAYS WHERE THERE IS NO RAISED CURB.

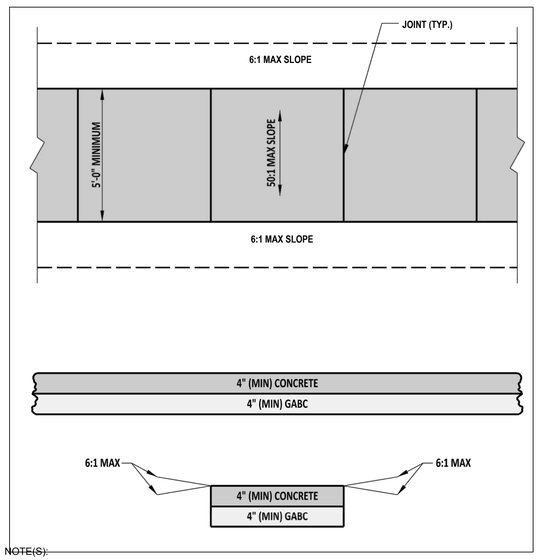
CROSSWALK MARKINGS

NOT TO SCALE



STOP BAR AND "STOP" PAVEMENT MARKINGS

NOT TO SCALE

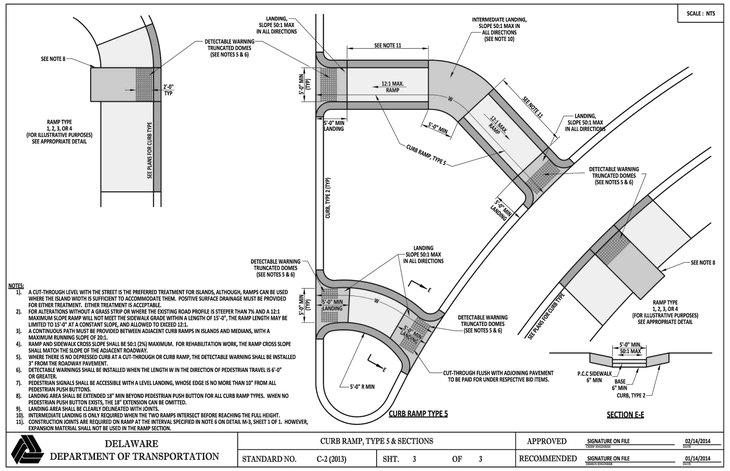


NOTE(S):

(1) FOR SIDEWALKS, CONSTRUCTION JOINTS SHALL BE PLACED EVERY 10'-0" AND EXPANSION MATERIAL EVERY 20'-0". HOWEVER, EXPANSION MATERIAL SHALL NOT BE USED IN THE RAMP SECTION.
(2) A 6:1 MAX SLOPE IS REQUIRED FOR 2'-0" ON BOTH SIDES OF THE SIDEWALK.
(3) TOPSOIL, SEED, & MULCH ANY DISTURBED AREA ADJACENT TO THE SIDEWALK UP TO A MAXIMUM OF 2'-0".
(4) ON REHABILITATION PROJECTS, WHEN EXISTING OBSTRUCTIONS (FIRE HYDRANT, UTILITY POLE, ETC...) ARE LOCATED IN THE SIDEWALK, THE SIDEWALK PATH SHALL NOT BE LESS THAN 32" WIDE AND THE OBSTRUCTION SHALL NOT EXTEND MORE THAN 2'-0".

SIDEWALK PLAN AND CROSS-SECTION

NOT TO SCALE



DELAWARE DEPARTMENT OF TRANSPORTATION	CURB RAMP, TYPE 5 & SECTIONS				APPROVED	SIGNATURE ON FILE	02/24/2014
	STANDARD NO. C-2 (2013)	SHT. 3	OF 3		RECOMMENDED	SIGNATURE ON FILE	01/24/2014

PENNONI ASSOCIATES INC.
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ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

CITY HALL PARKING LOT RECONSTRUCTION
220 SOUTH MAIN STREET
NEWARK, DE 19711

CONSTRUCTION DETAILS

CITY OF NEWARK
220 SOUTH MAIN STREET
NEWARK, DE 19711

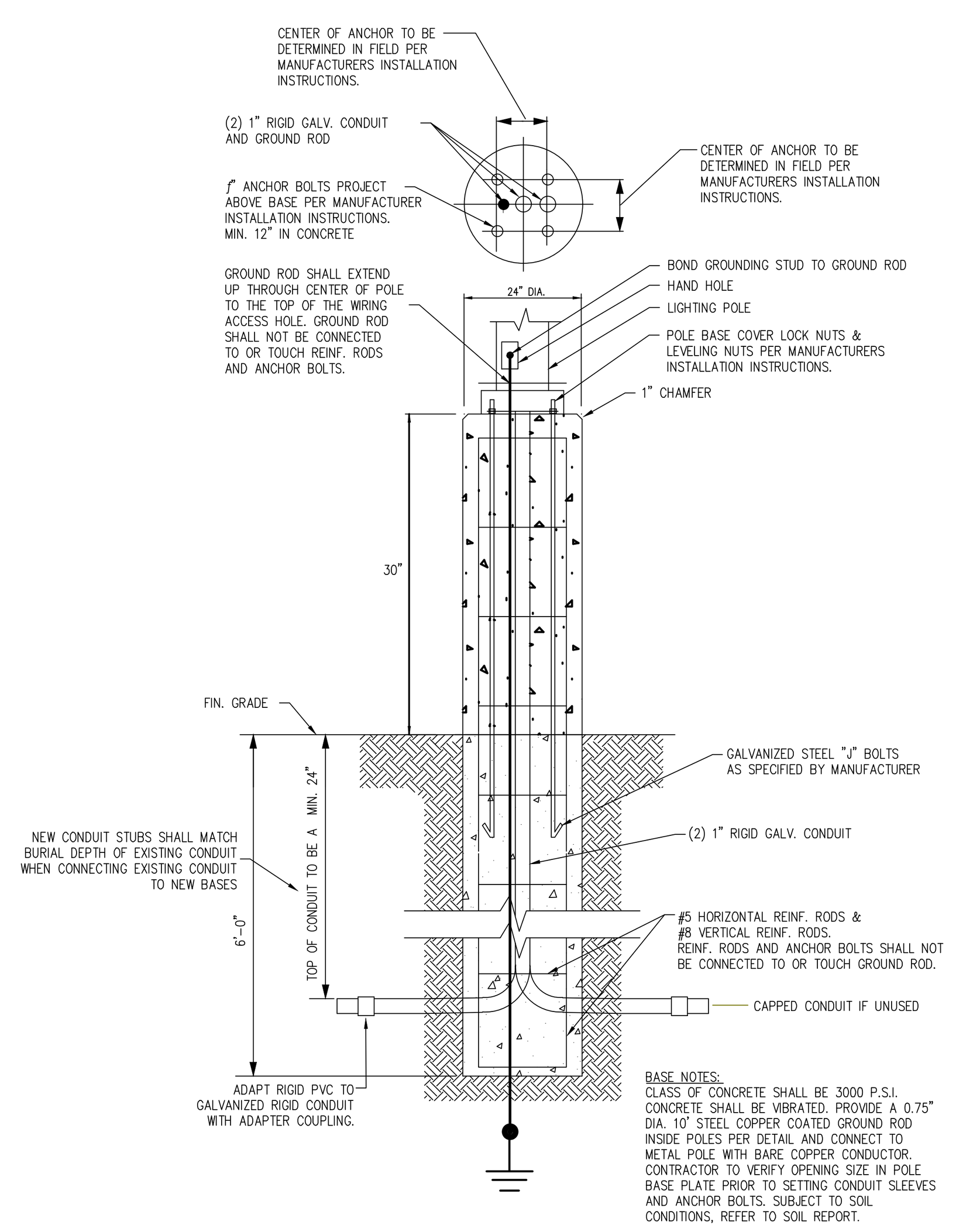
NO.	DATE	REVISIONS	BY

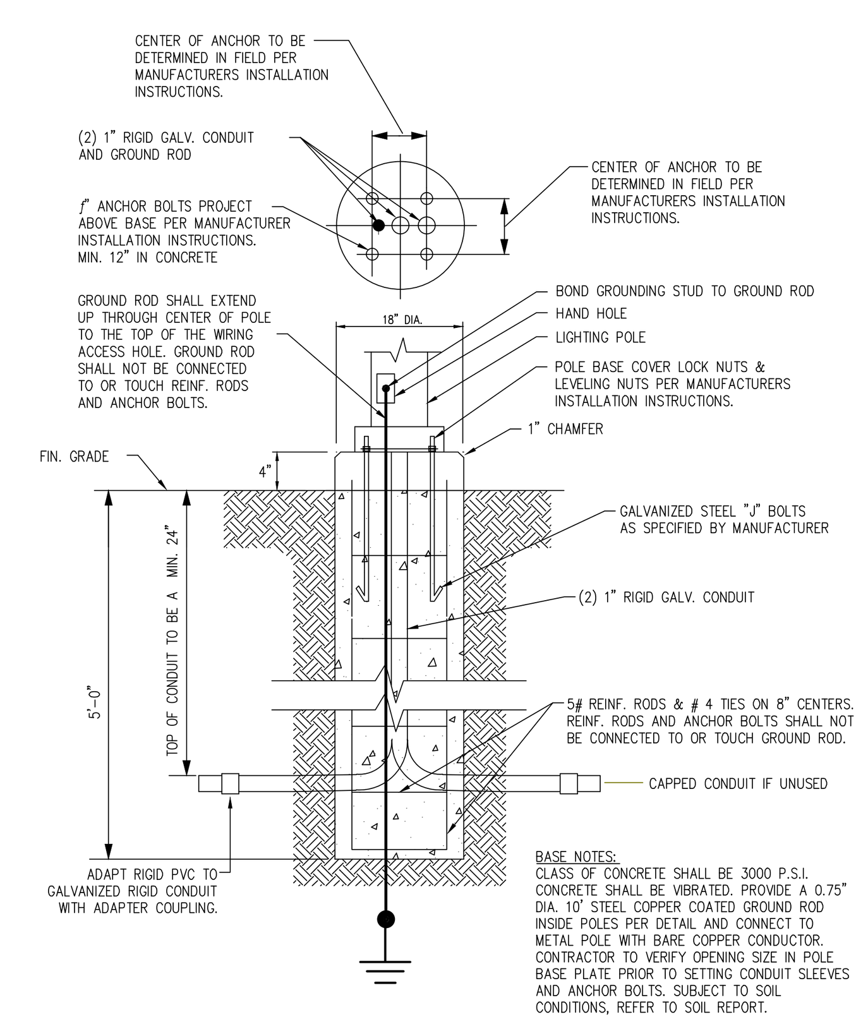
PROJECT	CNEWK22005
DATE	2023-05-18
DRAWING SCALE	1"=
DRAWN BY	MRW/ALS
APPROVED BY	MJE

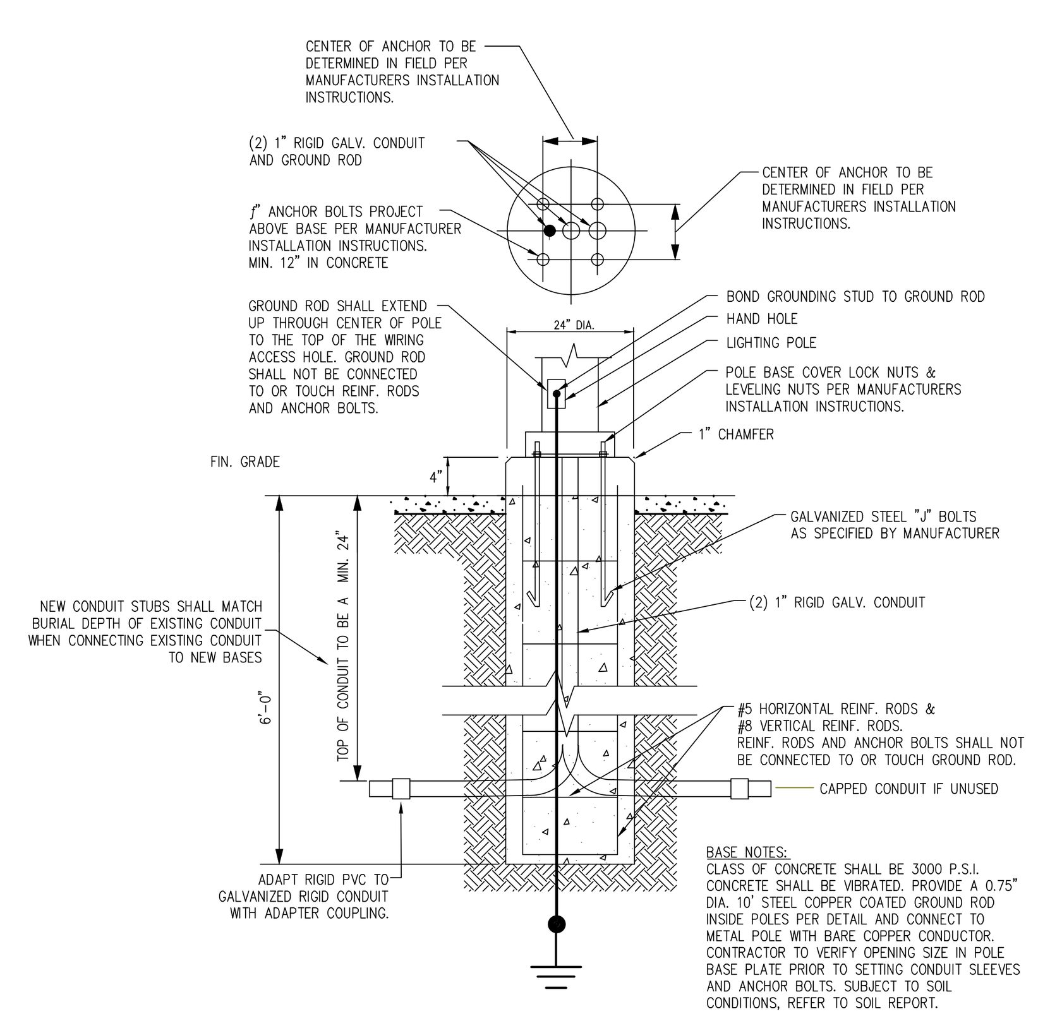
CS6001

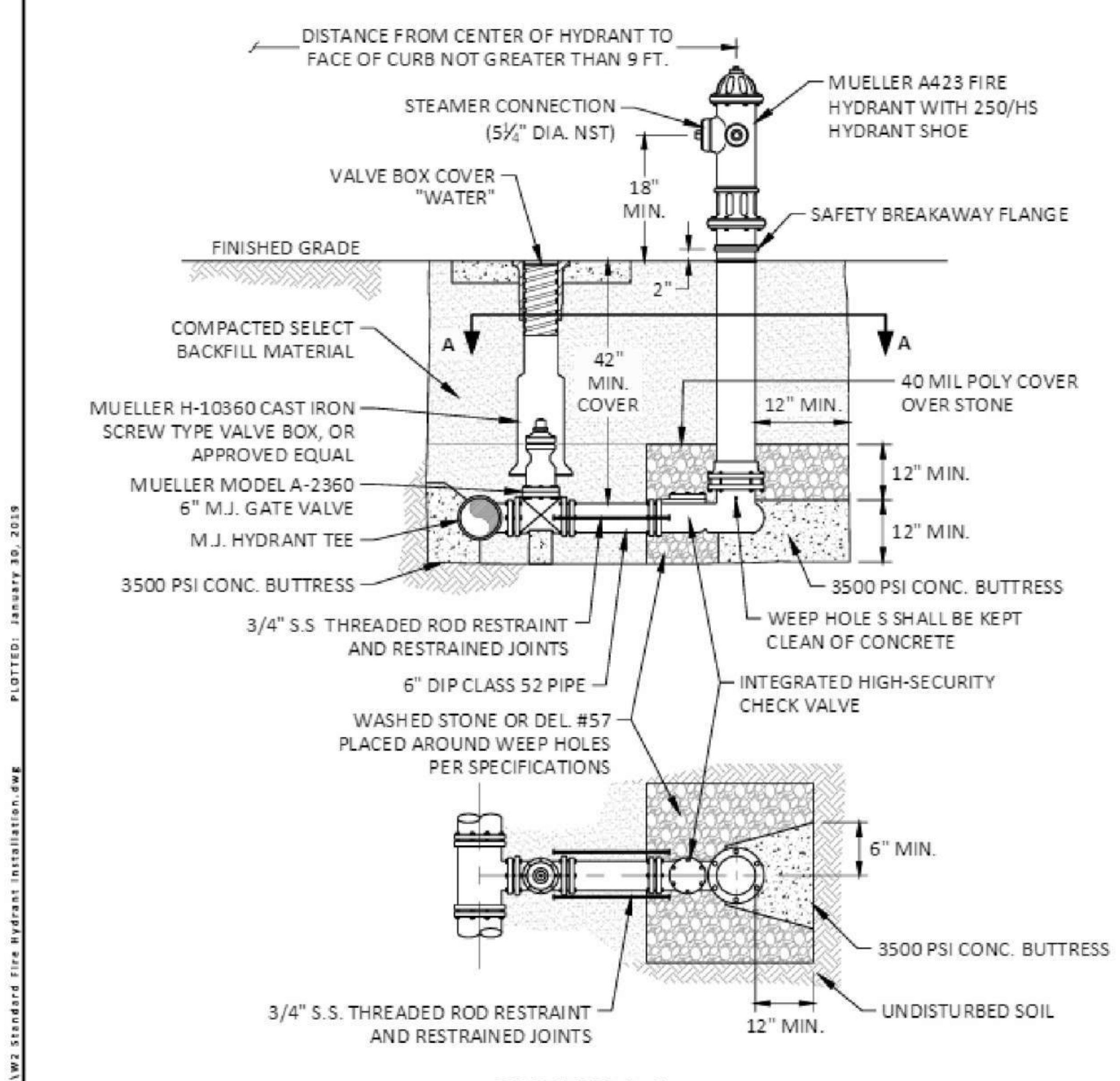
SHEET 14 OF 21

\\pennoni.com\data\Accounts\CNE\WK\cnewk22005 - cspd parking lot fencing and repaving\DESIGN_SHEETS\CS6001.dwg PLOTTED: 5/18/2023 2:52 PM, BY: Andrew Shields PLOTSTYLE: Pennoni NCS.ctb PROJECT STATUS: —







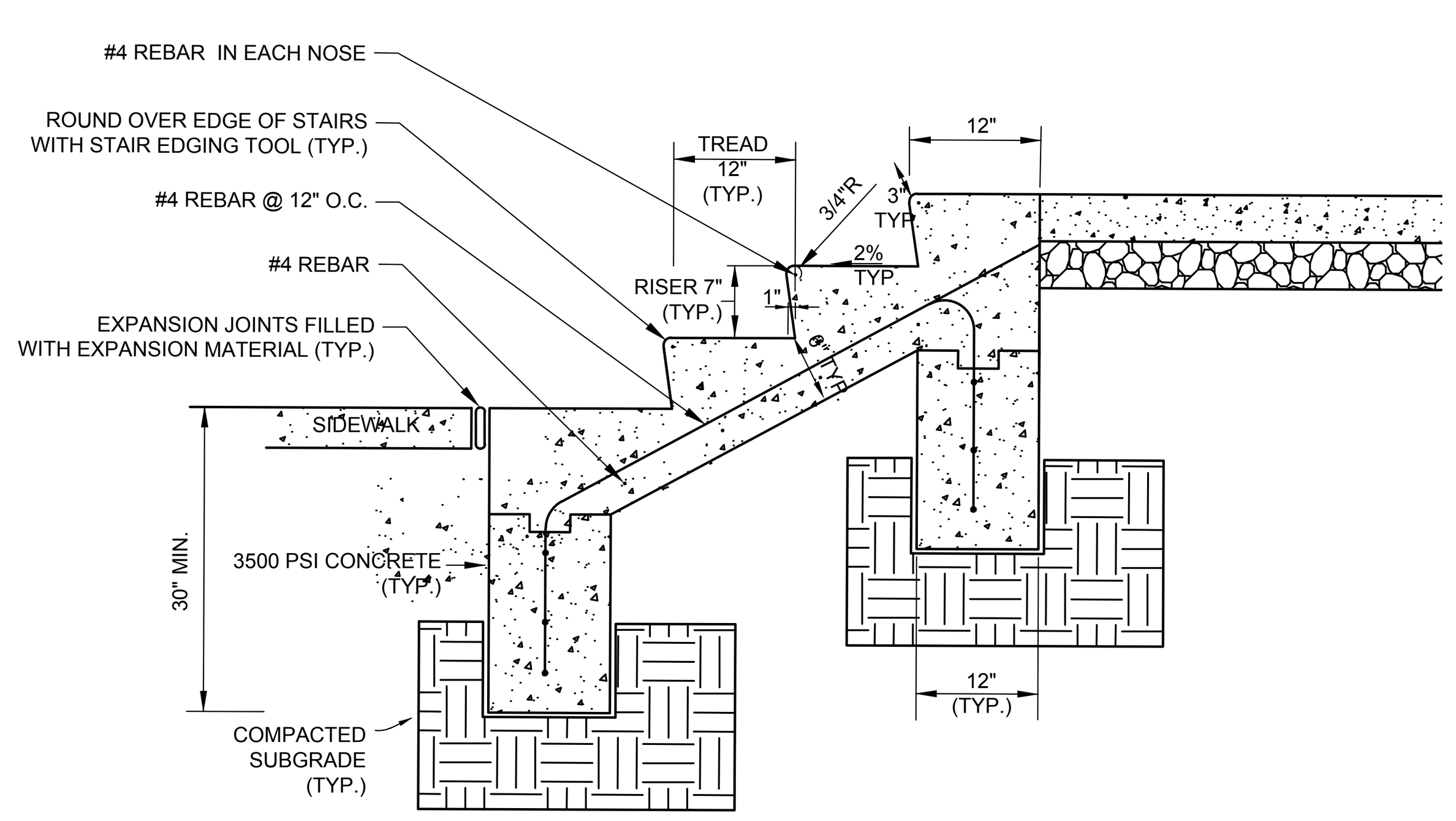


SECTION A-A

NOTES:

1. HYDRANT TO BE PLACED WITH STEAMER CONNECTION FACING STREET.
2. MEGA-LUG REQUIRED AT VALVE (ON HYDRANT SIDE ONLY IF HYDRANT TEE IS UTILIZED) AND AT HYDRANT.

CITY OF NEWARK PUBLIC WORKS AND WATER RESOURCES DEPARTMENT 220 SOUTH MAIN STREET NEWARK, DELAWARE 19711 (302) 366-7000 www.newarkde.gov @CityofNewarkDE	STANDARD FIRE HYDRANT INSTALLATION	DATE: AUGUST 2018 SCALE: NOT TO SCALE DRAWN BY: MWF APPROVED BY: EJK SHEET: W2

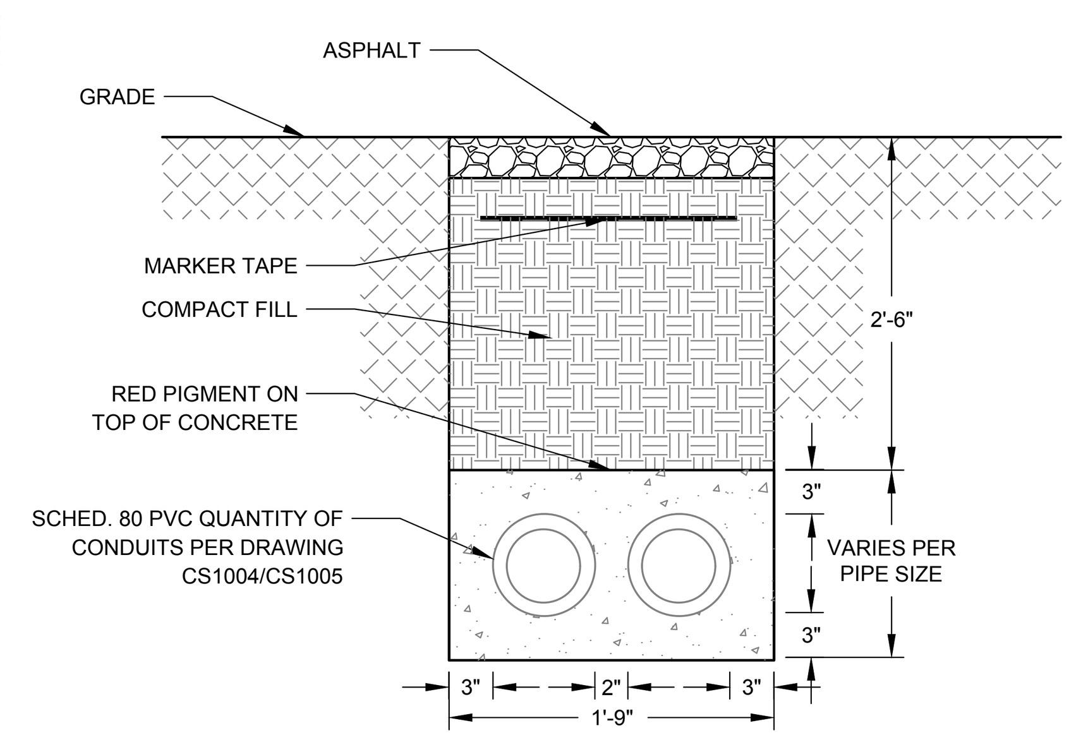


NOTES:

1. NUMBER OF TREADS AND RISERS VARIES. SEE PLANS FOR STAIR LAYOUT.

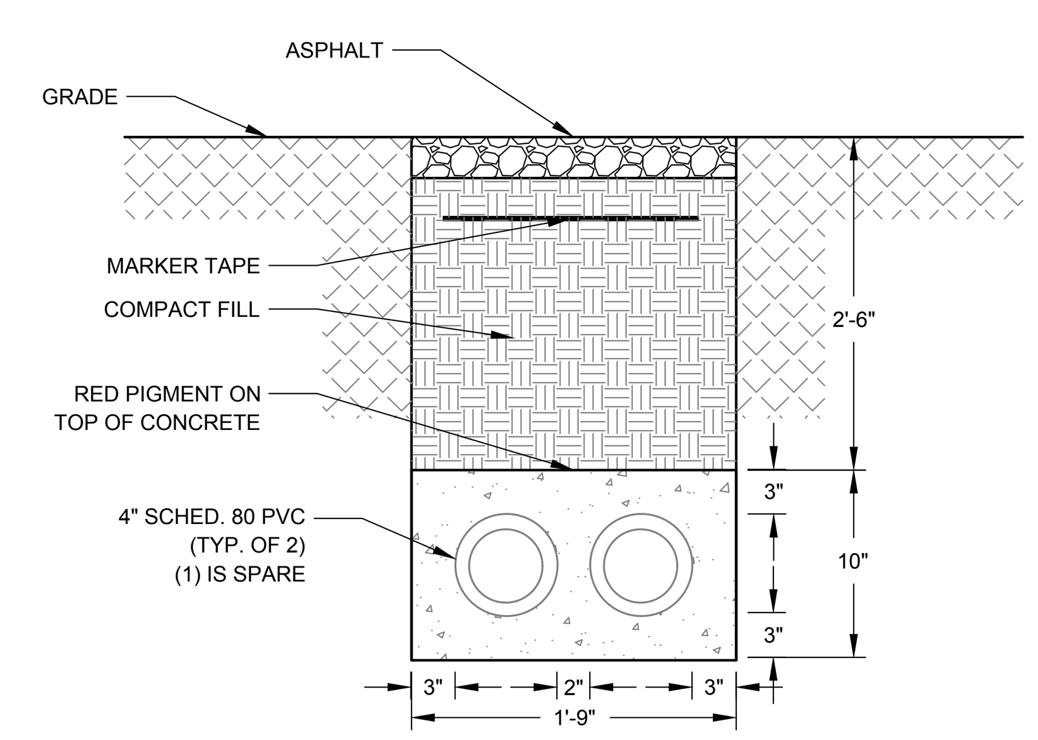
CONCRETE STAIRS WITH SIDEWALK

NOT TO SCALE



U.G. DUCTBANK BELOW ASPHALT AREAS

NOT TO SCALE



12KV U.G. DUCTBANK FOR MEDIUM VOLTAGE CABLE

NOT TO SCALE

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CITY HALL PARKING LOT RECONSTRUCTION
220 SOUTH MAIN STREET
NEWARK, DE 19711

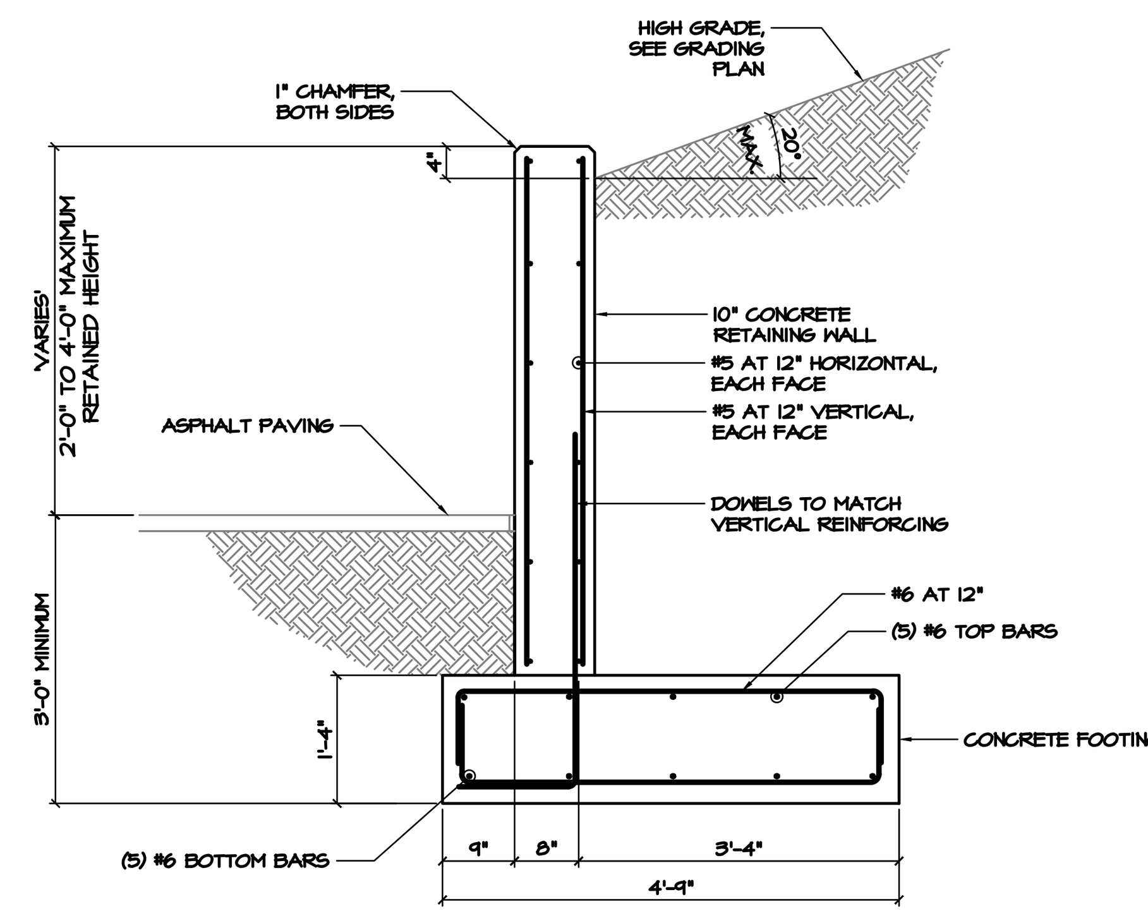
CONSTRUCTION DETAILS

CITY OF NEWARK
220 SOUTH MAIN STREET
NEWARK, DE 19711

DATE	NO.	REVISIONS	BY
11/6/20	6	EXISTING UTILITY REVISION	EDJ
10/23/20	5	STORM SEWER REVISION	EDJ
10/1/20	4	SANITARY SEWER REVISION	EDJ
9/18/20	3	ISSUED FOR CONSTRUCTION	EDJ
3/17/20	2	ADDENDUM #2	EDJ
d	1	ADDENDUM #1	EDJ

PROJECT	CNEWK22005
DATE	2020-02-10
DRAWING SCALE	
DRAWN BY	MRW/ALS
APPROVED BY	MJE

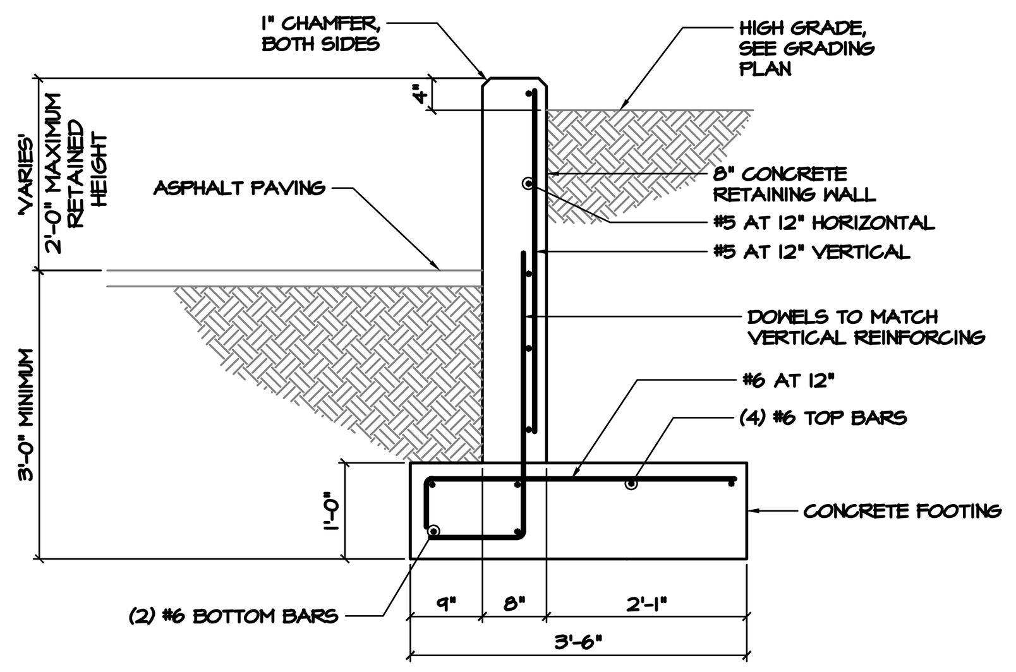
CS6002



1 WALL SECTION AT 2'-0" TO 4'-0" MAX. RETAINED HEIGHT

SCALE: 1/2" = 1'-0"

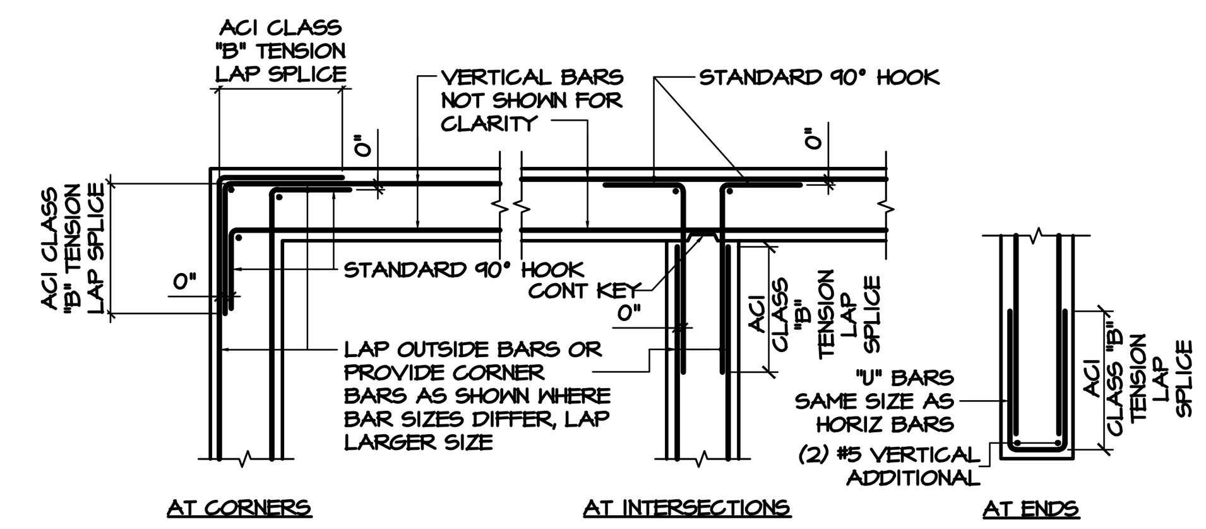
NOTES:
1. ALL REINFORCING STEEL SHALL BE EPOXY COATED.
2. SEE DETAIL 7/S-1 FOR DRAINAGE REQUIREMENTS



2 WALL SECTION AT 8" TO 2'-0" MAX. RETAINED HEIGHT

SCALE: 1/2" = 1'-0"

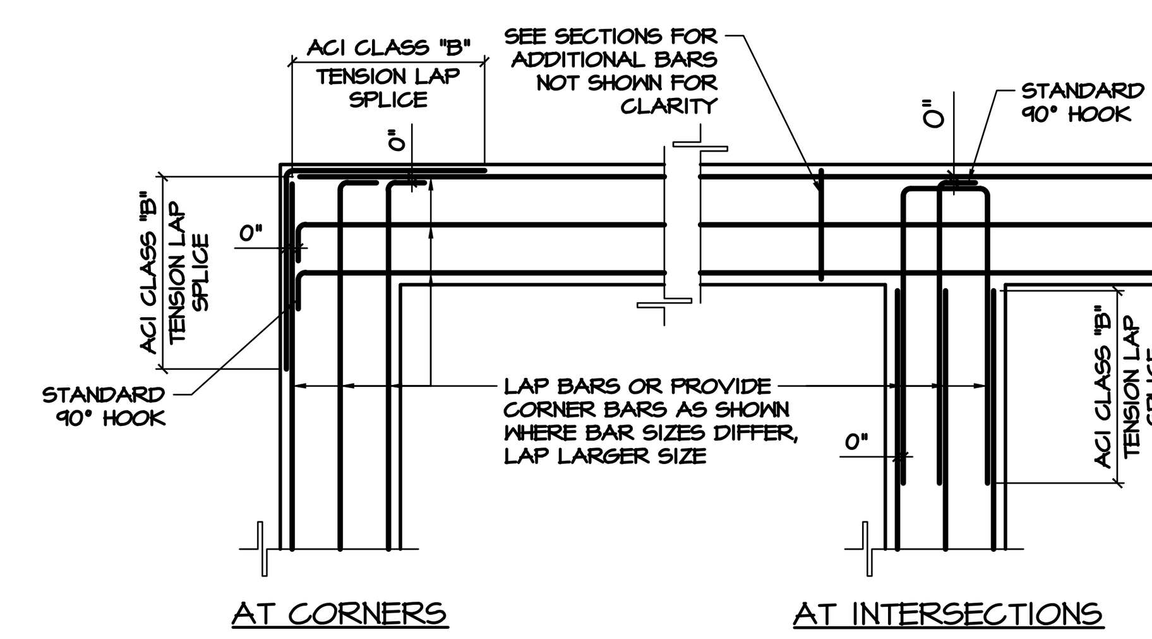
NOTES:
1. ALL REINFORCING STEEL SHALL BE EPOXY COATED.
2. SEE DETAIL 7/S-1 FOR DRAINAGE REQUIREMENTS



NOTE:
ALL DOWELS, CORNER BARS AND "U" BARS SHALL BE SAME SIZE AND SPACING AS HORIZONTAL REINFORCING.

3 TYPICAL HORIZONTAL REINFORCEMENT IN CONCRETE WALLS

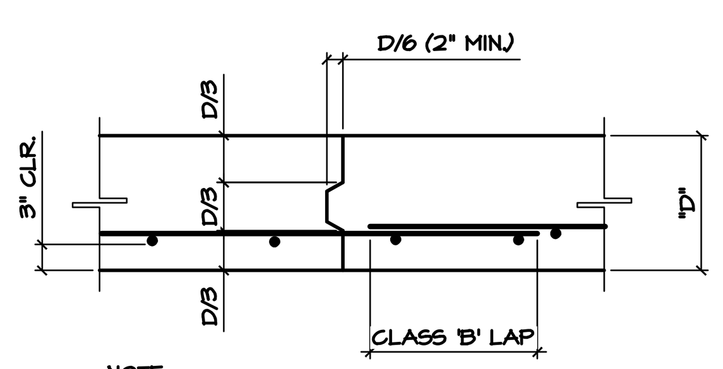
SCALE: N.T.S.



NOTE:
ALL DOWELS, CORNER BARS AND "U" BARS SHALL BE SAME SIZE AND SPACING AS CONTINUOUS FOOTING REINFORCING

4 TYPICAL DETAIL REINFORCEMENT IN CONCRETE FOOTINGS

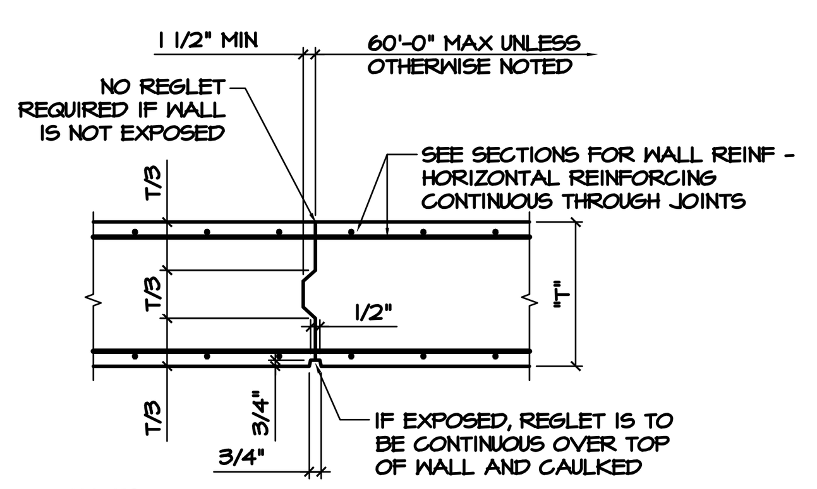
SCALE: N.T.S.



NOTE:
CONTRACTOR SHALL LOCATE FOOTING CONSTRUCTION JOINTS.

5 TYPICAL WALL FOOTING CONSTRUCTION JOINT DETAIL

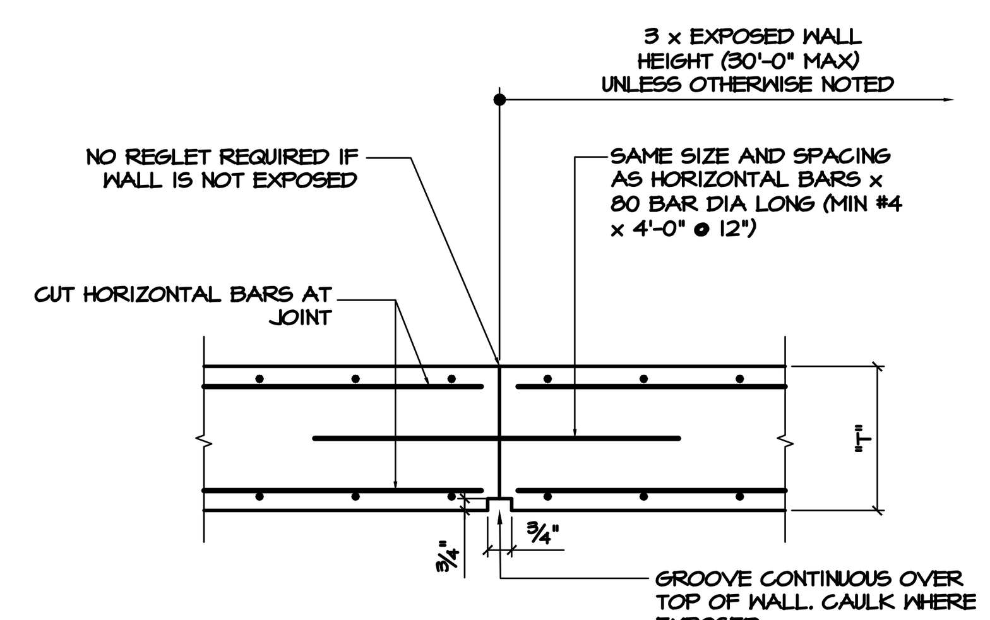
SCALE: N.T.S.



NOTES:
1. VERTICAL CONSTRUCTION/CONTROL JOINTS SHALL BE LOCATED MIDPOINT BETWEEN ANY SUPPORTING PIERS OR BUTTRESSES AND AT LEAST 4'-0" FROM ANY OPENING EXCEPT WHERE SPECIFICALLY SHOWN ON THE DRAWINGS.
2. HORIZONTAL CONSTRUCTION JOINTS SHALL NOT BE PERMITTED EXCEPT WHERE SHOWN.

6A TYPICAL CONCRETE WALL CONSTRUCTION JOINT DETAIL

SCALE: N.T.S.

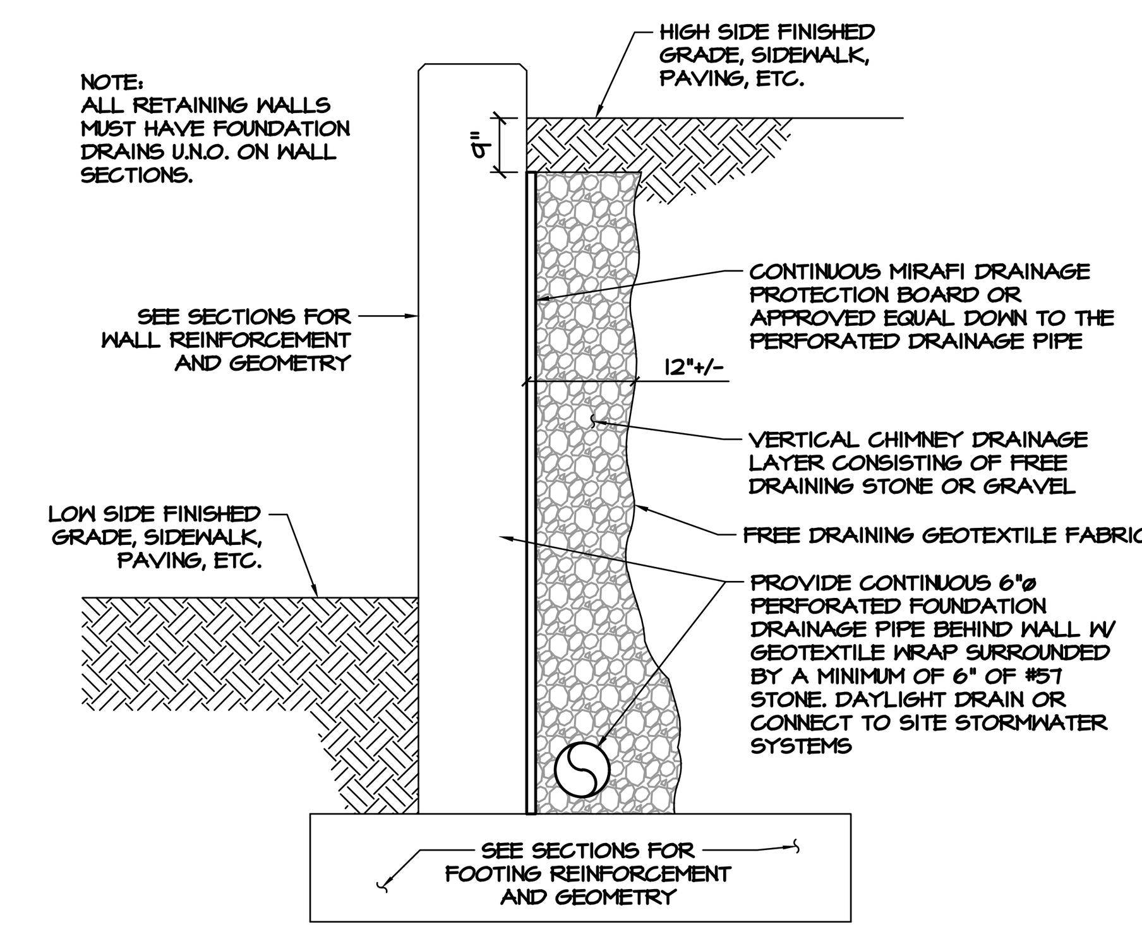


NOTES:
1. VERTICAL CONSTRUCTION/CONTROL JOINTS SHALL BE LOCATED MIDPOINT BETWEEN ANY SUPPORTING PIERS OR BUTTRESSES AND AT LEAST 4'-0" FROM ANY OPENING EXCEPT WHERE SPECIFICALLY SHOWN ON THE DRAWINGS.
2. HORIZONTAL CONSTRUCTION JOINTS SHALL NOT BE PERMITTED EXCEPT WHERE SHOWN.
3. PROVIDE A TOOLED JOINT AT THE TOP OF THE WALL AT JOINT LOCATIONS.

6B TYPICAL CONCRETE WALL CONTROL JOINT DETAIL

SCALE: N.T.S.

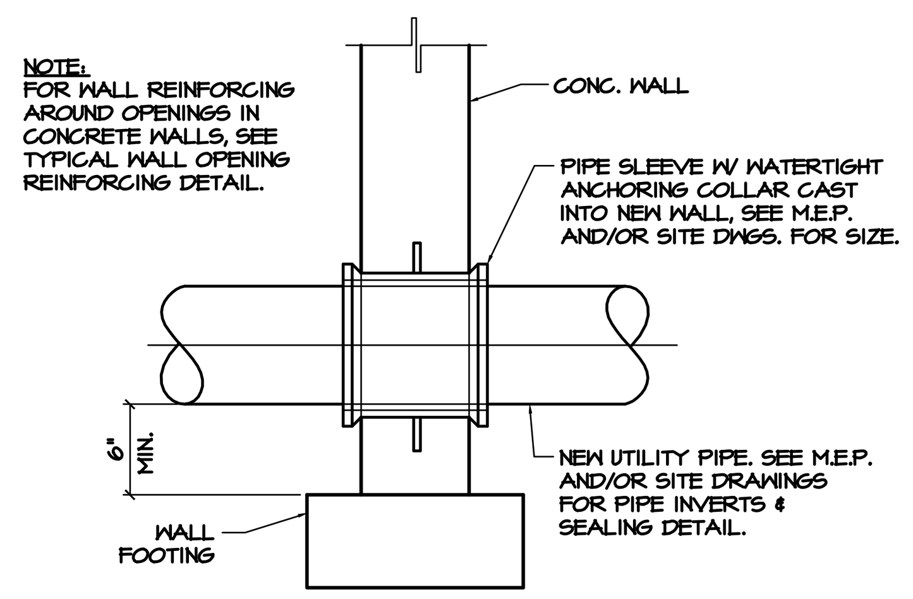
NOTE:
ALL RETAINING WALLS MUST HAVE FOUNDATION DRAINS U.N.O. ON WALL SECTIONS.



7 TYPICAL RETAINING WALL DRAINAGE CONSTRUCTION

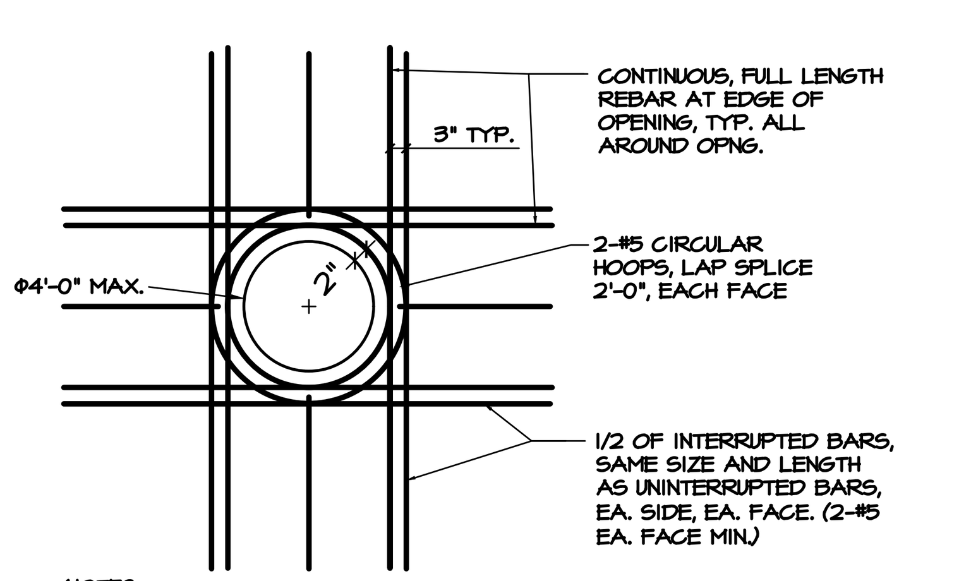
SCALE: N.T.S.

NOTE:
FOR WALL REINFORCING AROUND OPENINGS IN CONCRETE WALLS, SEE TYPICAL WALL OPENING REINFORCING DETAIL.



8 UTILITY PIPE THRU NEW FOUNDATION WALL DETAIL

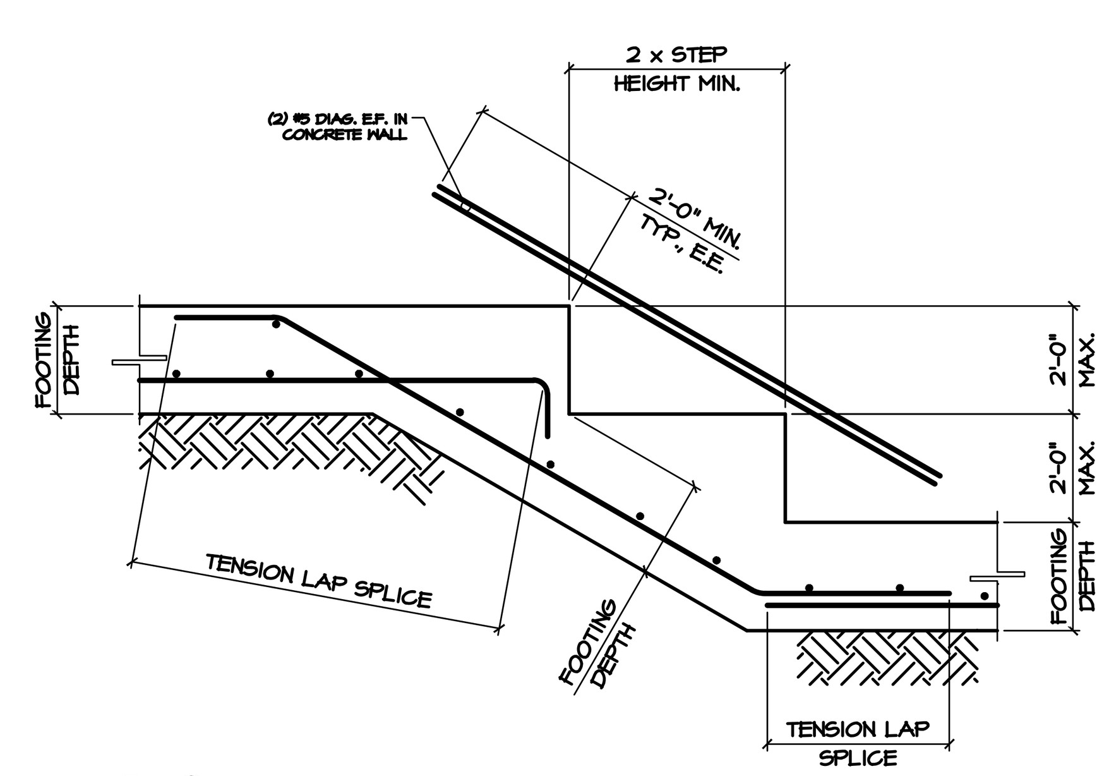
SCALE: N.T.S.



NOTES
1. PROVIDE REINFORCING AROUND ALL OPENINGS AS SHOWN IN THESE DETAILS UNLESS OTHERWISE SHOWN.

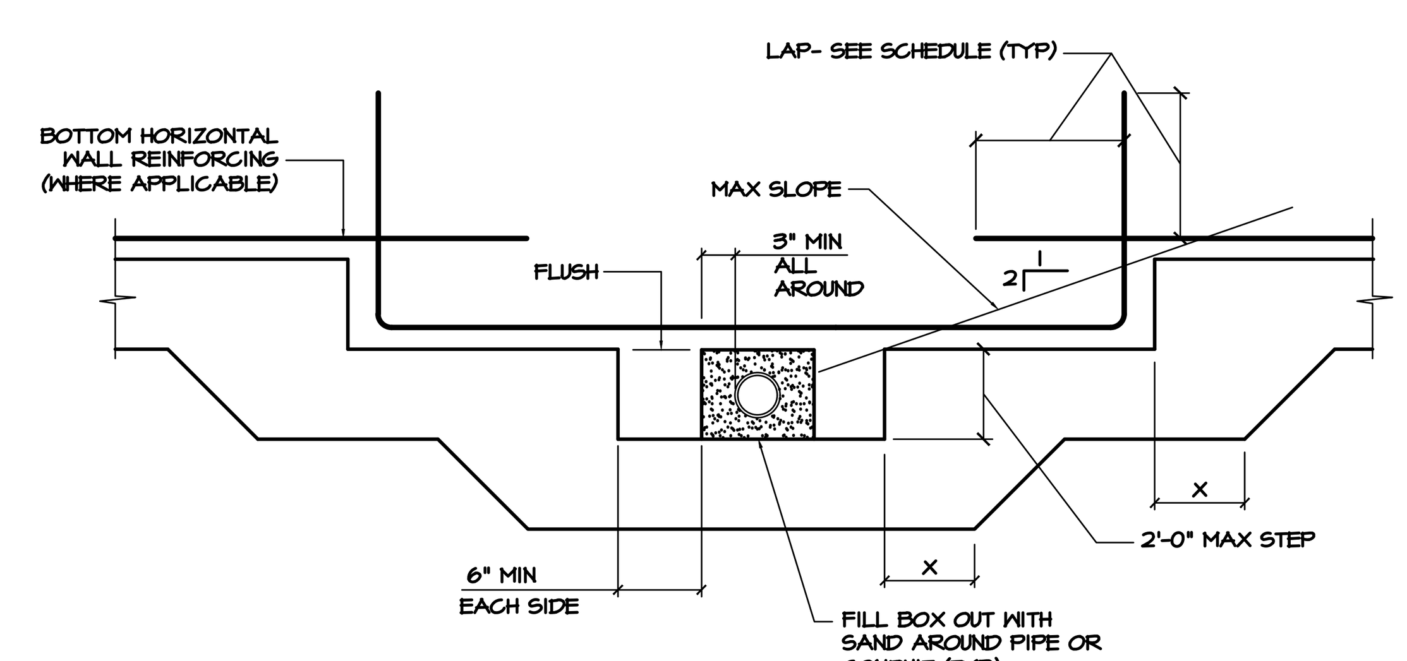
9 TYPICAL ROUND CONCRETE WALL OPENING DETAIL

SCALE: N.T.S.



10 TYPICAL STEPPED WALL FOOTING

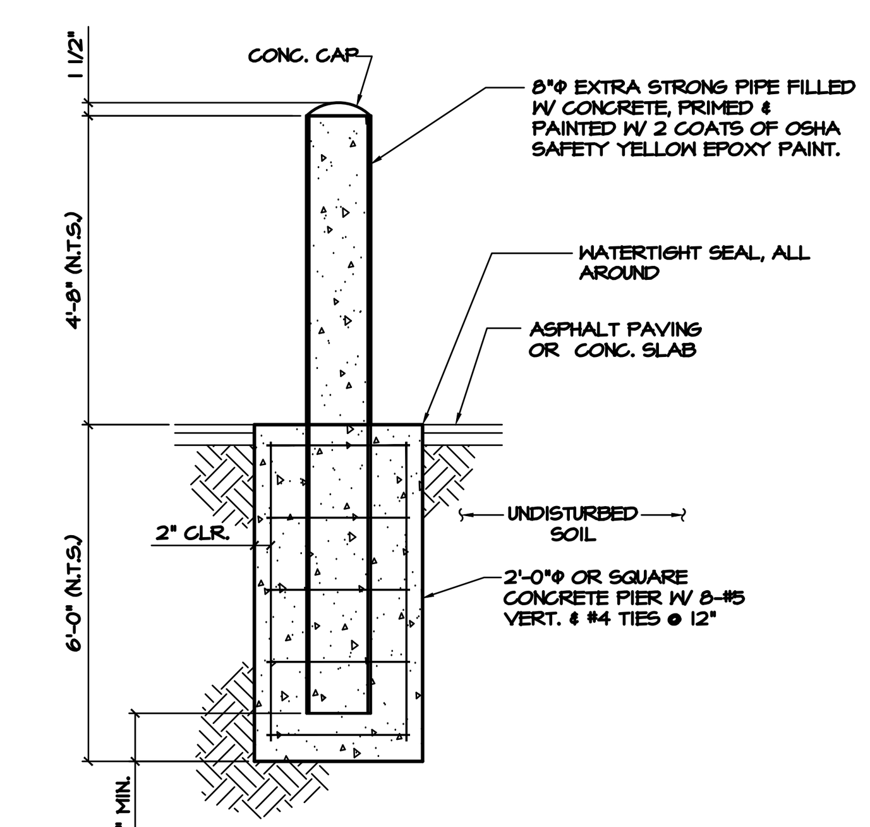
SCALE: N.T.S.



NOTES:
1. FOOTINGS SHALL BE STEPPED DOWN AS SHOWN AT ALL PIPES AND CONDUITS THAT WOULD PASS THROUGH OR HAVE 4'-0" OR LESS COVER BELOW THE BOTTOM OF THE FOOTINGS.
2. IF THE COVER BETWEEN THE BOTTOM OF FOOTING AND THE TOP OF THE PIPE OR CONDUIT IS GREATER THAN 4'-0", THEN THE FOOTING NEED NOT STEP DOWN AS SHOWN.
3. REFER TO PLANS, SECTIONS, AND OTHER DETAILS FOR WALL REINFORCING, DOWELS, ADDITIONAL FOOTING REINFORCING AND OTHER INFORMATION AND REQUIREMENTS.

11 TYPICAL FOUNDATION WALL PIPE AND CONDUIT PENETRATION

SCALE: N.T.S.



12 TYPICAL BOLLARD DETAIL

SCALE: 3/4" = 1'-0"

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CITY HALL PARKING LOT RECONSTRUCTION
220 SOUTH MAIN STREET
NEWARK, DE 19711

RETAINING WALL DETAILS

CITY OF NEWARK
220 SOUTH MAIN STREET
NEWARK, DE 19711

NO.	DATE	REVISIONS	BY

PROJECT	CNEWK22005
DATE	2023-03-27
DRAWING SCALE	AS NOTED
DRAWN BY	
APPROVED BY	

GENERAL RETAINING WALL AND CONSTRUCTION NOTES

1.0 GENERAL

1. ALL WORK SHALL CONFORM TO THE "2018 INTERNATIONAL BUILDING CODE" AND TO ALL OTHER APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS. ALL SUBCODES REFERENCED IN THE GENERAL NOTES HEREAFTER ARE THE LATEST EDITIONS REQUIRED BY THE REFERENCED GOVERNING CODE.
2. ALL CODES AND STANDARDS REFERENCED IN THESE NOTES INCLUDING SPECIFICATIONS REFERENCED WITHIN, AND ALL FEDERAL, STATE, AND LOCAL REGULATIONS APPLY TO THE DESIGN, CONSTRUCTION, DEMOLITION, QUALITY CONTROL, AND SAFETY OF ALL WORK PERFORMED ON THE PROJECT. USE THE LATEST ADOPTED EDITIONS OF THE CODES AND STANDARDS.
3. IN CASE OF CONFLICT BETWEEN THE GENERAL NOTES AND DETAILS, THE MOST RIGID REQUIREMENTS SHALL GOVERN.
4. WORK NOT INDICATED ON A PART OF THE DRAWINGS BUT REASONABLY IMPLIED TO BE SIMILAR TO THAT SHOWN AT CORRESPONDING PLACES SHALL BE REPEATED AND PROVIDED AT NO ADDITIONAL COST. MINOR DETAILS OR INCIDENTAL ITEMS NOT SHOWN OR SPECIFIED, BUT NECESSARY FOR A PROPER AND COMPLETE INSTALLATION, SHALL BE INCLUDED IN THE WORK.
5. JOB SITE SAFETY AND CONSTRUCTION PROCEDURES ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
6. THE CONTRACTOR SHALL PROVIDE FOR DEWATERING AS REQUIRED DURING EXCAVATION AND CONSTRUCTION. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
7. ALL COSTS OF INVESTIGATION, REDESIGN AND/OR RE-INSTALLATION DUE TO CONTRACTOR IMPROPER INSTALLATION OF STRUCTURAL ELEMENTS OR OTHER ITEMS NOT IN CONFORMANCE WITH THE CONTRACT DOCUMENTS SHALL BE AT THE CONTRACTOR'S EXPENSE.
8. THE CONTRACTOR SHALL VERIFY AND/OR ESTABLISH ALL EXISTING CONDITIONS AND DIMENSIONS AT THE SITE. FAILURE TO NOTIFY ENGINEER OF UNSATISFACTORY CONDITIONS CONSTITUTES ACCEPTANCE OF UNSATISFACTORY CONDITIONS.
9. IF THE EXISTING FIELD CONDITIONS DO NOT PERMIT THE INSTALLATION OF THE WORK IN ACCORDANCE WITH THE DETAILS SHOWN, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY AND PROVIDE A SKETCH OF THE CONDITION WITH HIS PROPOSED MODIFICATION OF THE DETAILS GIVEN ON THE CONTRACT DOCUMENTS. DO NOT COMMENCE WORK UNTIL CONDITION IS RESOLVED AND MODIFICATION IS APPROVED BY THE ARCHITECT.
10. THE CONTRACTOR SHALL BE RESPONSIBLE TO DETERMINE ALLOWABLE CONSTRUCTION LOADS AND TO PROVIDE DESIGN AND CONSTRUCTION OF FALSEWORK, FORMWORK, STAGINGS, BRACING, SHEETING, AND SHORING, ETC.
11. CONTRACTOR TO PROVIDE SHEETING, BRACING, AND UNDERPINNING AS NECESSARY TO PREVENT ANY LATERAL OR VERTICAL MOVEMENTS OF EXISTING BUILDINGS, STREETS, AND ANY EXISTING UTILITY LINES.
12. IN NO CASE SHALL HEAVY EQUIPMENT BE PERMITTED CLOSER THAN 8'-0" FROM ANY FOUNDATION WALL. IF IT IS NECESSARY TO OPERATE SUCH EQUIPMENT CLOSER THAN 8'-0" TO THE WALL, THE CONTRACTOR SHALL BE THE SOLE RESPONSIBLE PARTY AND, AT HIS OWN EXPENSE, SHALL PROVIDE ADEQUATE SUPPORTS OR BRACE THE WALL TO WITHSTAND THE ADDITIONAL LOADS SUPERIMPOSED FROM SUCH EQUIPMENT.
13. SHOP DRAWINGS FOR ALL STRUCTURAL MATERIALS TO BE SUBMITTED TO ENGINEER FOR REVIEW PRIOR TO THE START OF FABRICATION OR COMMENCEMENT OF WORK. REVIEW PERIOD SHALL BE A MINIMUM OF TWO (2) WEEKS.
14. REPRODUCTION OF ANY PORTION OF THE CONTRACT DRAWINGS FOR RESUBMITTAL AS SHOP DRAWINGS IS PROHIBITED. SHOP DRAWINGS PRODUCED IN SUCH A MANNER WILL BE REJECTED AND RETURNED.
15. SHOP DRAWINGS SHALL BEAR THE CONTRACTOR'S STAMP OF APPROVAL WHICH SHALL CONSTITUTE CERTIFICATION THAT THE CONTRACTOR HAS VERIFIED ALL CONSTRUCTION CRITERIA, MATERIALS, AND SIMILAR DATA AND HAS CHECKED EACH DRAWING FOR COMPLETENESS, COORDINATION, AND COMPLIANCE WITH THE CONTRACT DOCUMENTS.
16. THE DRAWINGS HAVE BEEN PRODUCED ENTIRELY ON PENNONI CADD SYSTEM. ANY OTHER LETTERING, LINES OR SYMBOLS, OTHER THAN PROFESSIONAL STAMPS AND SIGNATURES, HAVE BEEN MADE WITHOUT THE AUTHORIZATION OF PENNONI ARE INVALID.
17. INSPECTION IS REQUIRED OF ALL CONSTRUCTION DELINEATED ON THE STRUCTURAL DRAWINGS AND/OR SPECIFICATIONS. THE CONTRACTOR SHALL EMPLOY A TESTING/INSPECTION AGENCY WHICH SHALL PROVIDE PERSONNEL WITH THE FOLLOWING MINIMUM QUALIFICATIONS:
   A. CERTIFIED BY INSTITUTE OF CERTIFIED ENGINEERING TECHNICIANS, OR OTHER RECOGNIZED COMPARABLE ORGANIZATION, AND,
      - FOR INSPECTION, SAMPLING, TESTING CONCRETE AND MASONRY: ACI CERTIFIED CONCRETE FIELD-TESTING TECHNICIAN, GRADE I; AND CONSTRUCTION INSPECTOR, LEVEL II.

28. SUBMIT PERIODIC REPORTS WITHIN ONE BUSINESS DAY AFTER RECEIPT BY THE CONTRACTOR TO ENGINEER AND THE CONSTRUCTION CODE OFFICIAL DURING CONSTRUCTION. SUBMIT FINAL INSPECTION REPORT SUMMARY FOR EACH DIVISION OF WORK, CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER, THAT INSPECTIONS WERE PERFORMED AND THAT WORK WAS PERFORMED IN ACCORDANCE WITH CONTRACT DOCUMENTS.
29. THE CONTRACTOR SHALL ENGAGE A TESTING AGENCY TO PROVIDE TESTING SERVICES AS INDICATED IN EACH SECTION OF THESE GENERAL NOTES.
30. ALL MATERIALS SHALL BE STORED TO PROTECT THEM FROM EXPOSURE TO THE ELEMENTS.

2.0 EARTHWORK

1. EXCAVATION SHALL BE PERFORMED SO AS NOT TO DISTURB EXISTING ADJACENT BUILDINGS, STREETS, AND UTILITY LINES. VERIFY LOCATION OF ALL UTILITIES PRIOR TO COMMENCEMENT OF WORK. HAND EXCAVATE AROUND UTILITIES AS REQUIRED.
2. SATISFACTORY FILL MATERIALS ARE THOSE COMPLYING WITH ASTM D2487, GROUPS GW, GP, GM, SM, SW, AND SP. ON SITE BORROW MATERIAL SHALL BE TESTED TO DETERMINE SUITABILITY FOR USE AS FILL MATERIAL.
3. COMPACT SOIL TO NOT LESS THAN THE FOLLOWING PERCENTAGES OF MAXIMUM DENSITY OF MODIFIED PROCTOR (ASTM D1557):
   UNDER RETAINING WALL FOUNDATIONS - 98%
4. REMOVE EXISTING VEGETATION, TOPSOIL, AND UNSATISFACTORY SOIL MATERIALS. PROOF ROLL SUBGRADE TO OBTAIN UNIFORMLY DENSIFIED SUBSTRATA PRIOR TO PLACING FILL MATERIAL EVENLY IN 8" THICK (MAXIMUM) LAYERS AND COMPACTING TO REQUIRED DENSITY.
5. THE CONTRACTOR SHALL RETAIN THE SERVICES OF A PROFESSIONAL GEOTECHNICAL ENGINEER, SUBJECT TO THE APPROVAL OF THE ARCHITECT, TO PERFORM SOIL TESTING AND INSPECTION. THE ENGINEER SHALL INSPECT THE SUBGRADE TO VERIFY BEARING LEVELS AND ENSURE THAT THE SAFE BEARING CAPACITY MEETS OR EXCEEDS THE DESIGN VALUE INDICATED BELOW. REPORTS SHALL BE SUBMITTED TO THE ARCHITECT OUTLINING THE WORK PERFORMED AND TEST RESULTS.
6. BACKFILL SHALL BE BROUGHT UP SIMULTANEOUSLY ON EACH SIDE OF WALLS, WITH A GRADE DIFFERENCE NOT TO EXCEED 2'-0" AT ANY TIME.

3.0 FOUNDATIONS

1. A NEW SUBSURFACE INVESTIGATION REPORT, WITH FOUNDATION RECOMMENDATIONS, HAS NOT BEEN PROVIDED BY THE OWNER FOR THIS PROJECT AT THIS TIME. THE SOIL INFORMATION AND BEARING CAPACITY SHALL BE VERIFIED BY A QUALIFIED GEOTECHNICAL ENGINEER DURING CONSTRUCTION.
2. FOOTINGS SHALL BEAR ON UNDISTURBED STRATUM OR ENGINEERED FILL WITH A MINIMUM BEARING CAPACITY OF 1,500 PSF.
3. PRIOR TO FOOTING CONCRETE PLACEMENT, THE FOOTING SUBGRADE SHALL BE APPROVED BY THE INSPECTING GEOTECHNICAL ENGINEER.
4. THE BOTTOM OF EXTERIOR FOOTINGS SHALL BE A MINIMUM OF 3 FEET BELOW FINISHED GRADE, OR AS REQUIRED BY LOCAL BUILDING CODES.
5. CONCRETE FOR FOUNDATIONS SHALL BE POURED ON THE SAME DAY THE SUBGRADE IS APPROVED BY THE GEOTECHNICAL ENGINEER.
6. UTILITY LINES SHALL NOT BE PLACED THROUGH OR BELOW FOUNDATIONS WITHOUT THE STRUCTURAL ENGINEER'S APPROVAL.
7. THE CONTRACTOR SHALL OBSERVE WATER CONDITIONS AT THE SITE AND TAKE THE NECESSARY PRECAUTIONS TO ENSURE THAT THE FOUNDATION EXCAVATIONS REMAIN DRY DURING CONSTRUCTION. ANY SHEETING OR SHORING REQUIRED FOR DEWATERING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

4.0 CAST-IN-PLACE CONCRETE

1. CONCRETE SHALL BE DESIGNED AND DETAILED IN ACCORDANCE WITH THE BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI-318), AND CONSTRUCTED IN ACCORDANCE WITH THE CRSI MANUAL OF STANDARD PRACTICE.
2. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE 28-DAY STRENGTH OF 4,000 PSI. AIR ENTRAINMENT 4% TO 6% IN ALL EXPOSED CONCRETE WORK. MAXIMUM WATER/CEMENT RATIO OF 0.45.
3. REINFORCING STEEL: ASTM A615 GRADE 60
4. EPOXY COATED REINFORCING STEEL: ASTM A775.
5. REINFORCING STEEL CLEAR COVER SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE:

REINFORCING STEEL IN CONCRETE CAST AGAINST SOIL	3"
REINFORCING STEEL IN CONCRETE EXPOSED TO SOIL OR WEATHER	3"
#5 BARS AND SMALLER	1 1/2"
#6 BARS AND LARGER	2"

NOTE:
TOLERANCE FOR CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 117

6. SPLICES IN REINFORCING STEEL SHALL BE MADE ONLY AT THOSE LOCATIONS WHERE SPLICES ARE SHOWN ON THE STRUCTURAL DRAWINGS AND AT THOSE LOCATIONS WHERE SPLICES HAVE BEEN DETAILED ON THE REINFORCING STEEL PLACING DRAWINGS THAT HAVE BEEN REVIEWED BY THE STRUCTURAL ENGINEER. ALL SPLICES SHALL BE CLASS "B" TENSION LAP SPLICES (SEE TABLES 1 AND 2 BELOW), EXCEPT WHERE INDICATED OTHERWISE ON THE STRUCTURAL DRAWINGS. MECHANICAL SPLICE COUPLERS CAPABLE OF DEVELOPING 125% OF THE TENSILE STRENGTH OF THE REINFORCING STEEL MAY BE USED INSTEAD OF TENSION LAP SPLICES AT THE CONTRACTOR'S OPTION AT ANY LOCATION. COMPRESSION LAP SPLICES PER TABLE 4 MAY BE USED ONLY AT THOSE LOCATIONS WHERE SUCH SPLICES ARE SPECIFICALLY INDICATED. STAGGER SPLICES WHERE REQUIRED TO PROVIDE 1 1/2" CLEAR SPACING BETWEEN REINFORCING STEEL AT SPLICE LOCATIONS.

TABLE 1

REINFORCING STEEL (FY)	BAR SIZE	BAR LOCATION	CONCRETE STRENGTH		
			3 KSI	4 KSI	5 KSI
60 KSI	#3	TOP BARS	2'-4"	2'-0"	1'-9"
		OTHER BARS	1'-9"	1'-6"	1'-5"
	#4	TOP BARS	3'-1"	2'-8"	2'-5"
		OTHER BARS	2'-4"	2'-1"	1'-10"
	#5	TOP BARS	3'-10"	3'-4"	3'-0"
		OTHER BARS	3'-0"	2'-7"	2'-4"
	#6	TOP BARS	4'-8"	4'-0"	3'-7"
		OTHER BARS	3'-7"	3'-1"	2'-9"

NOTES:
A. SPLICE LENGTHS SHOWN IN TABLE ABOVE ARE APPLICABLE FOR SPLICES: OCCURRING UNDER THE FOLLOWING CONDITIONS:
   - GRADE 60 REINFORCING STEEL (U.N.O.)
   - NORMAL WEIGHT CONCRETE
   - MINIMUM BAR SPACING REQUIREMENTS:
   - CLEAR SPACING BETWEEN BARS AT SPLICE LOCATION ≥ DIAMETER AND CLEAR COVER TO BARS OCCURRING PER CODE SPACING WITHIN LENGTH OF SPLICE
   - CLEAR SPACING BETWEEN BARS AT SPLICE ≥ 2X BAR DIAMETER AND CLEAR COVER ≥ BAR DIAMETER.

B. INDICATED SPLICE LENGTHS SHALL BE INCREASED BY THE FOLLOWING FACTORS WHERE THE FOLLOWING CONDITIONS OCCUR:

TABLE 2

CONDITION	SPLICE LENGTH MULTIPLIER
BAR SPACING OR CLEAR COVER LESS THAN REQUIRED PER NOTE #1	1.5
LIGHTWEIGHT CONCRETE	1.3
EPOXY COATED REINFORCING WITH COVER < 3X DIAMETER AND CLEAR SPACING < 6X DIAMETER	1.5
ALL OTHER EPOXY COATED BARS	1.2

C. "TOP BARS" ARE HORIZONTAL BARS LOCATED WHERE MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BARS.

7. SUBMIT TO ENGINEER REINFORCING STEEL SHOP DRAWINGS FOR APPROVAL AND MIX DESIGNS FOR REVIEW PRIOR TO PLACING ANY CONCRETE.
   A. REINFORCING STEEL PLACING DRAWINGS SHALL BE PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF ACI 314-92, "DETAILS AND DETAILING OF CONCRETE REINFORCING". THE PLACING DRAWINGS SHALL SHOW ALL INFORMATION NECESSARY TO FABRICATE AND PLACE THE REINFORCING STEEL.
   B. THE SPACING OF ALL REINFORCING STEEL MUST BE COMPUTED BY THE REINFORCING STEEL DETAILER AND MUST BE INDICATED ON THE PLACING DRAWINGS. EXTENT ARROWS MUST BE USED TO CLEARLY INDICATE THE LOCATIONS WHERE GROUPS OF REINFORCING BARS ARE TO BE INSTALLED.
   C. A LIST OF ALL APPLICABLE REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE INDICATED ON ALL REINFORCING STEEL PLACING DRAWINGS. PLACING DRAWINGS THAT DO NOT SHOW SUFFICIENT INFORMATION NEEDED TO PLACE THE REINFORCING STEEL WILL BE REJECTED.
8. ALL REINFORCEMENT SHALL BE SECURELY HELD IN PLACE WHILE PLACING CONCRETE. IF REQUIRED, ADDITIONAL BARS, STIRRUPS OR CHAIRS SHALL BE PROVIDED BY THE CONTRACTOR TO FURNISH SUPPORT FOR ALL BARS.
9. PROVIDE PLASTIC TIPPED BOLSTERS AND CHAIRS AT ALL LOCATIONS WHERE THE CONCRETE SURFACE IN CONTACT WITH THE BOLSTERS OR CHAIRS IS EXPOSED.
10. PLACING OF CONCRETE SHALL NOT START UNTIL THE PLACEMENT OF REINFORCING HAS BEEN APPROVED BY THE INSPECTION AGENCY.
11. BONDING AGENT SHALL BE USED WHERE NEW CONCRETE IS PLACED AGAINST EXISTING CONCRETE.
12. EPOXY ADHESIVE SHALL BE USED WHERE DOWELS ARE TO BE INSTALLED INTO EXISTING CONCRETE. SUBMIT MANUFACTURER INFORMATION FOR ENGINEER REVIEW.
13. NO SLEEVE SHALL BE PLACED THROUGH ANY CONCRETE ELEMENT UNLESS SHOWN ON THE APPROVED SHOP DRAWINGS OR SPECIFICALLY AUTHORIZED IN WRITING BY THE STRUCTURAL ENGINEER. THE CONTRACTOR SHALL VERIFY DIMENSIONS AND LOCATIONS OF ALL SLOTS, PIPE SLEEVES, ETC. AS REQUIRED FOR MECHANICAL TRADES BEFORE CONCRETE IS PLACED.
14. PRIOR TO CONCRETE PLACEMENT, THE CONTRACTOR SHALL SUBMIT TO THE STRUCTURAL ENGINEER FOR REVIEW, CONCRETE MIX DESIGNS PREPARED IN ACCORDANCE WITH THE SPECIFICATIONS AND REQUIREMENTS INDICATED IN THE GENERAL NOTES.
15. CONCRETE SHALL NOT BE PUMPED THROUGH ALUMINUM PIPES AND SHALL NOT BE PLACED IN CONTACT WITH ALUMINUM FORMS, MIXING DRUMS, BUGGIES, CHUTES, CONVEYORS OR OTHER EQUIPMENT MADE OF ALUMINUM.
16. ALL INSERTS AND SLEEVES SHALL BE CAST-IN-PLACE WHENEVER FEASIBLE. DRILLED OR POWDER DRIVEN FASTENERS WILL BE PERMITTED WHEN PROVEN TO THE SATISFACTION OF THE STRUCTURAL ENGINEER THAT THE FASTENERS WILL NOT SPALL THE CONCRETE AND HAVE THE SAME CAPACITY AS CAST-IN-PLACE INSERTS.
17. CHAMFER ALL EXPOSED CONCRETE CORNERS UNLESS NOTED OTHERWISE ON DRAWINGS.
18. EARLY DRYING OUT OF CONCRETE, ESPECIALLY DURING THE FIRST 24 HOURS, SHALL BE CAREFULLY GUARDED AGAINST. ALL SURFACES SHALL BE MOIST CURED OR PROTECTED USING A MEMBRANE CURING AGENT APPLIED AS SOON AS FORMS ARE REMOVED. IF MEMBRANE CURING AGENT IS USED, EXERCISE CARE NOT TO DAMAGE COATING.
19. COLD WEATHER CONCRETING SHALL BE IN ACCORDANCE WITH ACI-306. HOT WEATHER CONCRETING SHALL BE IN ACCORDANCE WITH ACI-305R.
20. THROUGHOUT CONSTRUCTION, THE CONCRETE WORK SHALL BE ADEQUATELY PROTECTED AGAINST DAMAGE DUE TO EXCESSIVE LOADING, CONSTRUCTION EQUIPMENT, MATERIALS OR METHODS, ICE, RAIN, SNOW, EXCESSIVE HEAT, AND FREEZING TEMPERATURES.
21. PREPARE CONCRETE TEST CYLINDERS FROM EACH DAY'S POUR. CYLINDERS SHALL BE PROPERLY CURED AND STORED. SAMPLE FRESH CONCRETE IN ACCORDANCE WITH ASTM C172.
22. RETAIN LABORATORY TO PROVIDE TESTING SERVICE. SLUMP PER ASTM 143 AIR CONTENT PER ASTM C231 OR C173, CYLINDER TESTS PER ASTM C31 AND C39. ONE SET OF SIX (6) CYLINDERS FOR EACH 50 CUBIC YARDS FOR EACH MIX USED. REPORTS OF ALL TESTS TO BE SUBMITTED TO THE ARCHITECT.

5.0 SPECIAL INSPECTIONS, TESTING AND OBSERVATIONS

GENERAL

1. ACTING AS THE SPECIAL INSPECTION COORDINATOR, THE STRUCTURAL ENGINEER OF RECORD (SER) WILL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS (SSI) TO THE BUILDING OFFICIAL AS REQUIRED TO COMPLY WITH CHAPTER 17 (SPECIAL INSPECTIONS) OF THE 2018 INTERNATIONAL BUILDING CODE (IBC).
2. INSPECTION AND MATERIAL TESTING WILL BE REQUIRED FOR THE FOLLOWING BUILDING SYSTEMS IN COMPLIANCE WITH THE APPLICABLE REFERENCED CODE SECTION. SUBMIT A STATEMENT OF RESPONSIBILITY FOR WIND OR SEISMIC SITES AND PROJECTS IF INDICATED BELOW.

SYSTEM, ELEMENT OR COMPONENT	INSPECTION REQUIRED
SOILS	YES
CONCRETE	YES

3. UNLESS OTHERWISE NOTED, SPECIAL INSPECTIONS ARE OWNER FURNISHED AS REQUIRED BY CHAPTER 17 OF THE IBC.
4. COORDINATE AND PROVIDE ACCESS TO THE WORK FOR REQUIRED SPECIAL INSPECTIONS AND PROVIDE NOTICE OF REQUIRED SPECIAL INSPECTIONS AND STRUCTURAL OBSERVATIONS.
5. THE SER IS NOT RESPONSIBLE FOR CONSTRUCTION SITE SAFETY AND IS NOT REQUIRED TO INSPECT THE WORK FOR COMPLIANCE WITH OSHA REGULATIONS. AFTER COMPLETION OF THE WORK.
6. SHOP INSPECTIONS OF ANY APPROVED FABRICATORS MAY BE WAIVED BY THE BUILDING OFFICIAL OR SER. IF SHOP INSPECTIONS ARE WAIVED A FABRICATOR'S CERTIFICATE OF COMPLIANCE SHALL BE SUBMITTED TO THE SER.

SPECIAL INSPECTIONS AND TESTS

1. SPECIAL INSPECTIONS AND TESTS WILL COMPLY WITH CHAPTER 17 OF THE IBC TOGETHER WITH LOCAL AND STATE AMENDMENTS AND THE PROJECT SPECIFICATIONS.
2. SPECIAL INSPECTIONS WILL BE PROVIDED FOR EACH SYSTEM AND/OR MATERIAL. TESTING WILL BE PERFORMED BY AN APPROVED AND ACCREDITED AGENCY AND SUBJECT TO APPROVAL BY THE BUILDING OFFICIAL.
3. UNLESS OTHERWISE NOTED THE OWNER WILL SECURE AND PAY FOR THE SERVICES OF THE AGENCY TO PERFORM ALL SPECIAL INSPECTION AND ASSOCIATED TESTS.
4. THE SPECIAL INSPECTOR WILL OBSERVE THE INDICATED WORK FOR COMPLIANCE WITH THE APPROVED CONTRACT DOCUMENTS AND SUBMIT RECORDS OF INSPECTION. ALL DISCREPANCIES WILL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR FOR CORRECTION.
5. SPECIAL INSPECTION AND ASSOCIATED TESTING REPORTS WILL BE SUBMITTED TO THE ENGINEER, CONTRACTOR, BUILDING OFFICIAL AND OWNER WITHIN ONE WEEK OF INSPECTION OR WITHIN ONE WEEK OF TEST COMPLETION.
6. IN ADDITION TO THE SUBMISSION OF ONGOING INSPECTION REPORTS, THE APPROVED INSPECTION AND TESTING AGENCIES SHALL SUBMIT AN AGENT'S FINAL REPORT OF SPECIAL INSPECTIONS TO THE SER. THE SER WILL SUBMIT A FINAL REPORT OF VERIFICATION OF SPECIAL INSPECTIONS AFTER REVIEW AND APPROVAL OF THE AGENT'S FINAL REPORT OF SPECIAL INSPECTIONS AFTER COMPLETION OF THE WORK..
7. PERIODIC INSPECTION IS DEFINED AS PART-TIME OR INTERMITTENT OBSERVATION OF WORK REQUIRING SPECIAL INSPECTION BY AN APPROVED SPECIAL INSPECTOR WHO IS PRESENT IN THE AREA WHERE THE WORK IS BEING PERFORMED.
8. CONTINUOUS INSPECTION IS DEFINED AS FULL-TIME OBSERVATION OF WORK REQUIRING SPECIAL INSPECTION BY AN APPROVED SPECIAL INSPECTOR WHO IS PRESENT IN THE AREA WHERE THE WORK HAS BEEN OR IS BEING PERFORMED.

STRUCTURAL OBSERVATIONS

1. THE PROJECT IS EXEMPT FROM THE REQUIREMENTS OF IBC SECTION 1704.6 FOR STRUCTURAL OBSERVATIONS.

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ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

CITY HALL PARKING LOT RECONSTRUCTION
220 SOUTH MAIN STREET
NEWARK, DE 19711

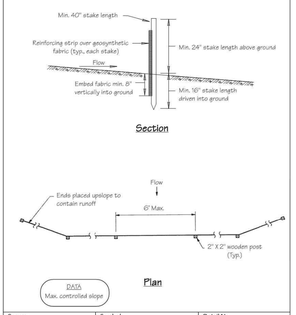
RETAINING WALL NOTES

CITY OF NEWARK
220 SOUTH MAIN STREET
NEWARK, DE 19711

DATE	NO.	REVISIONS	BY

PROJECT	CNEWK22005
DATE	2023-03-27
DRAWING SCALE	AS NOTED
DRAWN BY	
APPROVED BY	

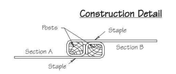
Standard Detail & Specifications
Silt Fence



Source:	Symbol:	Detail No.
Adapted form MD Stds. & Specs. for ESC	SF	DE-ESC-3.1.2.1 Sheet 1 of 2

Effective February 2019

Standard Detail & Specifications
Silt Fence



Construction Notes:

1. Geosynthetic fabric to be fastened securely to fence posts with wire ties or staples.
2. When two sections of filter cloth adjoin each other they shall be overlapped by six inches and folded.
3. Maintenance shall be performed as needed and material removed when "bulges" develop in the silt fence.

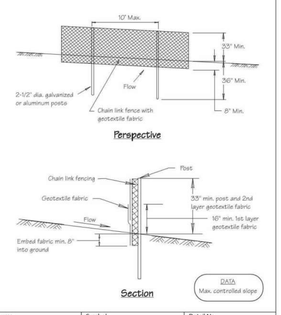
Materials:

1. Stakes: Steel (either T or UI or 2" x 2" hardwood
2. Geosynthetic Fabric: Type GD-I
3. Reinforcing strip: Wooden lath or plastic strip

Source:	Symbol:	Detail No.
Adapted from MD Stds. & Specs. for ESC	SF	DE-ESC-3.1.2.1 Sheet 2 of 2

Effective February 2019

Standard Detail & Specifications
Super Silt Fence



Source:	Symbol:	Detail No.
Adapted from MD Stds. & Specs. for ESC	SSF	DE-ESC-3.1.2.3 Sheet 1 of 2

Effective February 2019

Standard Detail & Specifications
Super Silt Fence

Construction Notes:

1. The poles do not need to be set in concrete.
2. Chain link fence shall be fastened securely to the fence posts with wire ties or staples.
3. Geotextile fabric shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Geotextile fabric shall be embedded a minimum of 8" into the ground.
5. When two sections of geotextile fabric adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence.

Materials:

1. Fencing: Fencing shall be 42 inches in height and constructed in accordance with the latest Delaware Department of Transportation (DeI-DOT) Specifications for Chain Link Fencing (Section 727). The DeI-DOT specification for a 6 foot fence shall be used, substituting 42 inch fabric and 6 foot length posts.
2. Geosynthetic Fabric: Type GD-I

Source:	Symbol:	Detail No.
Adapted from MD Stds. & Specs. for ESC	SSF	DE-ESC-3.1.2.3 Sheet 2 of 2

Effective February 2019

Standard Detail & Specifications
Dust Control

Temporary Methods:

1. Mulches - See **DE-ESC-3.4.5**, Standard Detail and Specifications for Mulching.
2. Vegetative cover - See **DE-ESC-3.4.3**, Std. Detail and Specifications for Vegetative Stabilization.
3. Adhesives - Use on mineral soils only Inot effective on muck soilsl. Keep traffic off these areas. The following table may be used for general guidance:

Type of Emulsion	Water Dilution	Type of Nozzle	Apply Gal/Ac.
Latex emulsion	12.5:1	Fine spray	235
Resin-in-water emulsion	4:1	Fine spray	300
Acrylic emulsion Inon-trafficl	7:1	Coarse spray	450
Acrylic emulsion Itraffic)	3.5:1	Coarse spray	350

4. Tillage - For emergency temporary treatment, scarify the soil surface to prevent or reduce the amount of blowing dust until a more appropriate solution can be implemented. Begin the tillage operation on the windward side of the site using a chisel-type plow for best results.
5. Sprinkling - Sprinkle site with water until the surface is moist . Repeat as needed.
6. Calcium Chloride - Apply as flakes or granular material with a spreader at a rate that will keep the soil surface moist. Re-apply as necessary.
7. Barriers - Place barriers such as solid board fences, snow fences, hay bales, etc. at right angles to the prevailing air currents at intervals of approx. 10X their height.

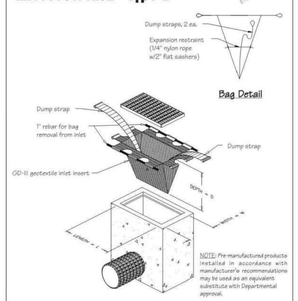
Permanent Methods:

1. Vegetative cover - See **DE-ESC-3.4.3**, Std. Detail and Specifications for Vegetative Stabilization.
2. Stone - Apply layer of crushed stone or coarse gravel to protect soil surface.

Source:	Symbol:	Detail No.
Adapted from VA ESC Handbook		DE-ESC-3.4.8 Sheet 1 of 1

Effective February 2019

Standard Detail & Specifications
Inlet Protection - Type 2



Source:	Symbol:	Detail No.
Adapted from ACF Products, Inc.	IP-2	DE-ESC-3.1.5.2 Sheet 1 of 2

Effective February 2019

Standard Detail & Specifications
Inlet Protection - Type 2

Notes:

1. This practice shall only be used in situations in which Inlet Protection - Type 1 cannot be used due to site constraints. These include, but are not limited to partially completed parking areas, streets, roads, etc.
2. It may be necessary to transition from Type 1 to Type 2 Inlet Protection as construction proceeds.
3. For areas where there is a concern for oil run-off or spills, insert shall meet one of the above specifications with an oil-absorbant pillow or shall be made completely from an oil-absorbant material with a woven pillow.

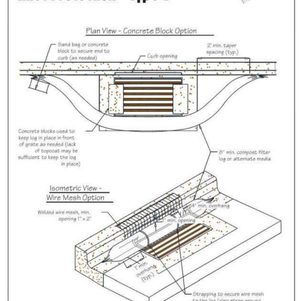
Materials:

The geotextile inlet insert shall meet or exceed the specifications of Type GD-III geotextile in accordance with Appendix A-3 of the Delaware Erosion & Sediment Control Handbook.

Source:	Symbol:	Detail No.
Adapted from ACF Products, Inc.	IP-2	DE-ESC-3.1.5.2 Sheet 2 of 2

Effective February 2019

Standard Detail & Specifications
Inlet Protection - Type 3



Source:	Symbol:	Detail No.
Adapted from Filtrexx™ International	IP-3	DE-ESC-3.1.5.3 Sheet 1 of 3

Effective February 2019

Standard Detail & Specifications
Inlet Protection - Type 3

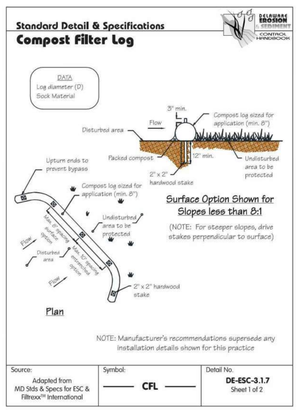
Notes:

1. This practice shall only be used in situations in which Inlet Protection – Type 1 cannot be used due to site constraints. These include, but are not limited to partially complete parking areas, streets, roads, etc., having a throat or curb opening. It should be used in conjunction with Type 2 Inlet Protection when a grate is also present.
2. The filter log sock fabric shall be high durability netting material to resist puncture and wear in the traffic areas. If compost media is used to fill the sock it must meet the Standards and Specifications for Compost Material in the Appendix, except that the maximum pass through for a 3/8" screen shall be 20% to allow for higher flow through. Additives, such as soluble phosphorus and petroleum hydrocarbons, can be mixed with the compost media to aid in pollutant removal, if desired. Reference the Compost Filter Log design guidelines for additional requirements on the high durability netting material, compost media, and sock tilling and installation procedures. Reference the design alternatives below for additional log media options.
3. The maximum contributing drainage area shall be 3 acres, or as recommended by the manufacturer. 8" diameter socks shall be used for standard roadway applications. If in a highly disturbed area, the Engineer or Site Reviewer may opt for larger socks, either 12" or 18" depending on the need. If used as a replacement for Type 1 Inlet Protection with special approval, minimum 12" diameter socks shall be used.) The top of the log may need to be flattened so that it is always below the top of curb elevation with a minimum 1" opening in order to prevent localized flooding.
4. Concrete blocks shall be used to aid in the log shape and prevent it from entering into the throat. They should be placed between the log and the throat opening, and used to secure the ends of the log against the curb if needed. The end of the log shall extend a minimum of 2 feet past the end of the throat opening. If a grate is also present in addition to the throat opening, the concrete blocks can either be laid perpendicular to the curb (recommended) so that the log lies on the outside of the grate, or parallel to the curb so that the log lies on top of the grate inote, Type 2 Inlet Protection is also used in conjunction with Type 3 if a grate is present. Sand bags can be used as an alternate to the concrete blocks at the end of the log to secure the log against the curb.

Source:	Symbol:	Detail No.
Adapted from Filtrexx™ International	IP-3	DE-ESC-3.1.5.3 Sheet 2 of 3

Effective February 2019

Standard Detail & Specifications
Compost Filter Log



Source:	Symbol:	Detail No.
Adapted from MD Stds & Specs for ESC & Filtrexx™ International	CFL	DE-ESC-3.1.7 Sheet 1 of 2

Effective February 2019

Standard Detail & Specifications
Compost Filter Log

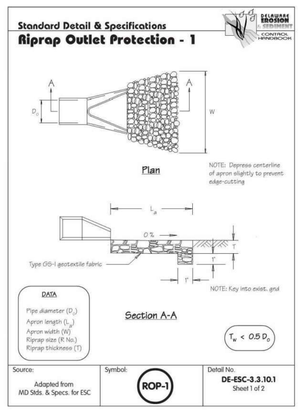
Construction Notes:

1. Prior to installation, clear bedding area of obstructions including rocks or debris larger than 1 inch and fill in any sharp depression areas.
2. If socks are prepared on-site, fill the sock fabric using a pneumatic blower so that the logs are rigid and do not deform. Terminate at the desired length.
3. For trenched applications, excavate 2 to 4 inches below grade along the width and length of the compost filter log.
4. Install the compost filter logs perpendicular to the flow direction and parallel to the slope with the beginning and end of the installation pointing up the slope a minimum of 1 foot elevation difference. On sites where this is not possible, upturn at a minimum length of 10' at a 30 degree angle to prevent runoff bypass.
5. For untrenched applications, blow or hand pack soil, mulch, or compost on the upslope side of the log, filling the bottom void area.
6. Stake the filled log every 10 feet maximum through the center of the sock for trenched applications, or every 8 feet for untrenched. The stake shall be a 2" by 2" hardwood. It should extend 12" below grade and protrude at least 3" above the top of the sock. If located on a slope greater than 8:1, the stake shall be angled downslope at a 45 degree angle to prevent the force of the water from dislodging to log.
7. When the length of the compost filter log needed exceeds the available compost filter sock length, the next sock shall be overlapped a minimum of 12" before being filled, and a stake placed through both socks at the overlap.
8. Remove accumulated sediment when it has reached half of the effective height of the log.
9. Inspect weekly and after rain event. If sock is degrading or the sock is failing, vegetate to secure the compost, replace the log, or reinforce with an additional log. If the log has been crushed due to construction equipment, it can be "fluffed" back to its effective height. If the effective height can no longer be restored, the log shall be replaced or reinforced with an additional compost filter log.

Source:	Symbol:	Detail No.
Adapted from MD Stds & Specs for ESC & Filtrexx™ International	CFL	DE-ESC-3.1.7 Sheet 2 of 2

Effective February 2019

Standard Detail & Specifications
Riprap Outlet Protection - 1



Source:	Symbol:	Detail No.
Adapted from MD Stds. & Specs. for ESC	ROP-1	DE-ESC-3.3.10.1 Sheet 1 of 2

Effective February 2019

Standard Detail & Specifications
Riprap Outlet Protection - 1

Construction Notes:

1. The subgrade for the riprap shall be prepared to the required lines and grades as shown on the plan. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
2. The riprap shall conform to the grading limits as shown on the plan.
3. Filter cloth shall be protected from punching, cutting or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of cloth over the damaged area. All connecting joints should overlap a minimum of 1 ft. If the damage is extensive, replace the entire filter cloth.
4. Stone for the riprap or gabion outlets may be placed by equipment. Riprap shall be placed in a manner to prevent damage to the filter cloth. Hand placement will be required to the extent necessary to prevent damage to the conduits, structures, etc.

Source:	Symbol:	Detail No.
Adapted from MD Stds. & Specs. for ESC	ROP-1	DE-ESC-3.3.10.1 Sheet 2 of 2

Effective February 2019

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ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

CITY HALL PARKING LOT RECONSTRUCTION
220 SOUTH MAIN STREET
NEWARK, DE 19711

SEDIMENT AND STORMWATER
DETAILS
CITY OF NEWARK
220 SOUTH MAIN STREET
NEWARK, DE 19711

NO.	DATE	REVISIONS	BY
6	11/6/20	EXISTING UTILITY REVISION	EDJ
5	10/23/20	STORM SEWER REVISION	EDJ
4	10/1/20	SANITARY SEWER REVISION	EDJ
3	9/18/20	ISSUED FOR CONSTRUCTION	EDJ
2	3/17/20	ADDENDUM #2	EDJ
1	d	ADDENDUM #1	EDJ

PROJECT	CNEWK22005
DATE	2023-05-18
DRAWING SCALE	N.T.S.
DRAWN BY	MRW/ALS
APPROVED BY	MJE

CS4601

SHEET 18 OF 21

\\pennoni.com\data\Accounts\CNEWK\cnewk22005 - rod parking lot fencing and repaving\DESIGN_SHEETS\CS4601.dwg PLOTSTYLE: Pennoni MCS.stb PROJECT STATUS: — PLOTTED: 5/18/2023 2:49 PM, BY: Andrew Shields

Standard Detail & Specifications
Vegetative Stabilization

TEMPORARY SEEDING BY RATES, DEPTHS AND DATES											
Mix #	Species[6]	Seeding Rate		Optimum Seeding Dates[1] O = Optimum Planting Period; A = Acceptable Planting Period							Planting Depth[3]
				Coastal Plain			Piedmont			All	
	Certified Seed	lb/Ac[5]	lb/1000 sq.ft.	2/1-4/30	[2] 5/1-8/14	8/15-10/31	3/1-4/30	[2] 5/1-7/31	8/1-10/31	10/31-2/1	
1	Barley	125	4	O	A	O	O	A	O		1-2 inches 2-3" sandy soils
2	Oats	125	4	O	A	A	O	A	A		1-2 inches 2-3" sandy soils
3	Rye	125	4	O	A	O	O	A	O	A	1-2 inches 2-3" sandy soils
4	Perennial Ryegrass	125	4	O	A	O	O	A	O		0.5 inches 1-2" sandy soils
5	Annual Ryegrass	125	4	O	A	O	O	A	O	A	0.5 inches 1-2" sandy soils
6	Winter Wheat	125	4	O	A	O	O	A	O	A	1-2 inches 2-3" sandy soils
7	Foxtail Millet	30 PLS	0.7		O			O			0.5 inches 1-2" sandy soils
8	Pearl Millet	20 PLS	0.5		O			O			0.5 inches 1-2" sandy soils

1. Winter seeding requires 3 tons per acre of straw mulch for proper stabilization.
2. May be planted throughout summer if soil moisture is adequate or seeded area can be irrigated.
3. Applicable on slopes 3:1 or less.
4. Fifty pounds per acre of Annual Lespedeza may be added to 1/2 the seeding rate of any of the above species.
5. Use varieties currently recommended for Delaware. Contact a County Extension Office for information.
6. Warm season grasses such as Millet or Weeping Lovegrass may be used between 5/1 and 9/1 if desired. Seed at 3-5 lbs. per acre. Good on low fertility and acid areas. Seed after frost through summer at a depth of 0.5".

NOTE: Alternative seed mixes may be used with prior approval from the Department or Delegated Agency.

Source:	Symbol:	Detail No.
Delaware ESC Handbook		DE-ESC-3.4.3 Sheet 1 of 4

Effective February 2019

Standard Detail & Specifications
Vegetative Stabilization

PERMANENT SEEDING AND SEEDING DATES
[illegible]

NOTE: Alternative seed mixes may be used with prior approval from the Department or Delegated Agency.

Source:	Symbol:	Detail No.
Delaware ESC Handbook		DE-ESC-3.4.3 Sheet 2 of 4

Effective February 2019

Standard Detail & Specifications
Vegetative Stabilization

PERMANENT SEEDING AND SEEDING DATES (cont.)
[illegible]

NOTE: Alternative seed mixes may be used with prior approval from the Department or Delegated Agency.

Source:	Symbol:	Detail No.
Delaware ESC Handbook		DE-ESC-3.4.3 Sheet 3 of 4

Effective February 2019

Standard Detail & Specifications
Vegetative Stabilization

Construction Notes:

1. Site Preparation
   a. Prior to seeding, install needed erosion and sediment control practices such as diversions, grade stabilization structures, berms, dikes, grassed waterways, and sediment basins.
   b. Final grading and shaping is not necessary for temporary seedings.
2. Seedbed Preparation

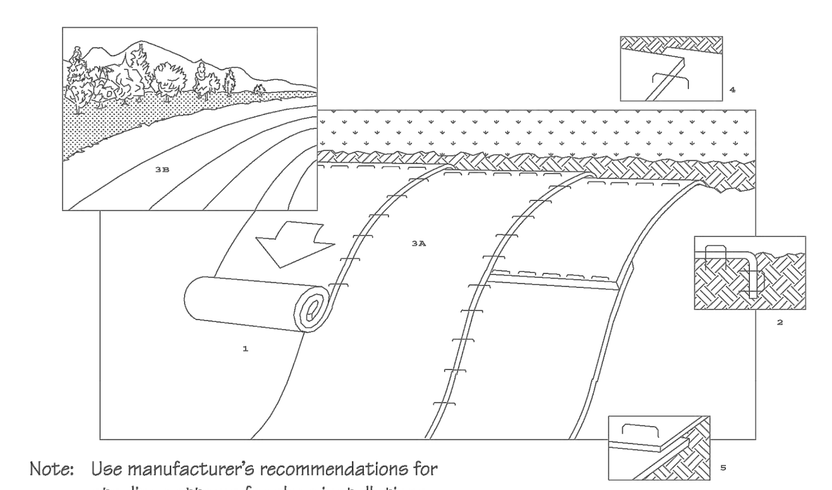
   It is important to prepare a good seedbed to insure the success of establishing vegetation. The seedbed should be well prepared, loose, uniform, and free of large clods, rocks, and other objectionable material. The soil surface should not be compacted or crusted.
3. Soil Amendments
   a. Lime - Apply liming materials based on the recommendations of a **soil test** in accordance with the approved nutrient management plan. If a nutrient management plan is not required, apply dolomitic limestone at the rate of 1 to 2 tons per acre. Apply limestone uniformly and incorporate into the top 4 to 6 inches of soil.
   b. Fertilizer - Apply fertilizer based on the recommendations of a **soil test** in accordance with the approved nutrient management plan. If a nutrient management plan is not required, apply a formulation of 10-10-10 at the rate of 600 pounds per acre. Apply fertilizer uniformly and incorporate into the top 4 to 6 inches of soils.
4. Seeding
   a. For **temporary stabilization**, select a mixture from **Sheet 1**. For a **permanent stabilization**, select a mixture from **Sheet 2** or **Sheet 3** depending on the conditions. Alternative seed mixes may be used with prior approval from the Department or Delegated Agency.
   b. Apply seed uniformly with a broadcast seeder, drill, cultipacker seeder or hydroseeder. All seed will be applied at the recommended rate and planting depth.
   c. Seed that has been broadcast should be covered by raking or dragging and then lightly tamped into place using a roller or cultipacker. If hydroseeding is used and the seed and fertilizer is mixed, they will be mixed on site and the seeding shall be done immediately and without interruption.
5. Mulching

   All mulching shall be done in accordance with detail **DE-ESC-3.4.5**.

Source:	Symbol:	Detail No.
Delaware ESC Handbook		DE-ESC-3.4.3 Sheet 4 of 4

Effective February 2019

Standard Detail & Specifications
Stabilization Matting - Slope



Note: Use manufacturer's recommendations for stapling patterns for slope installations.

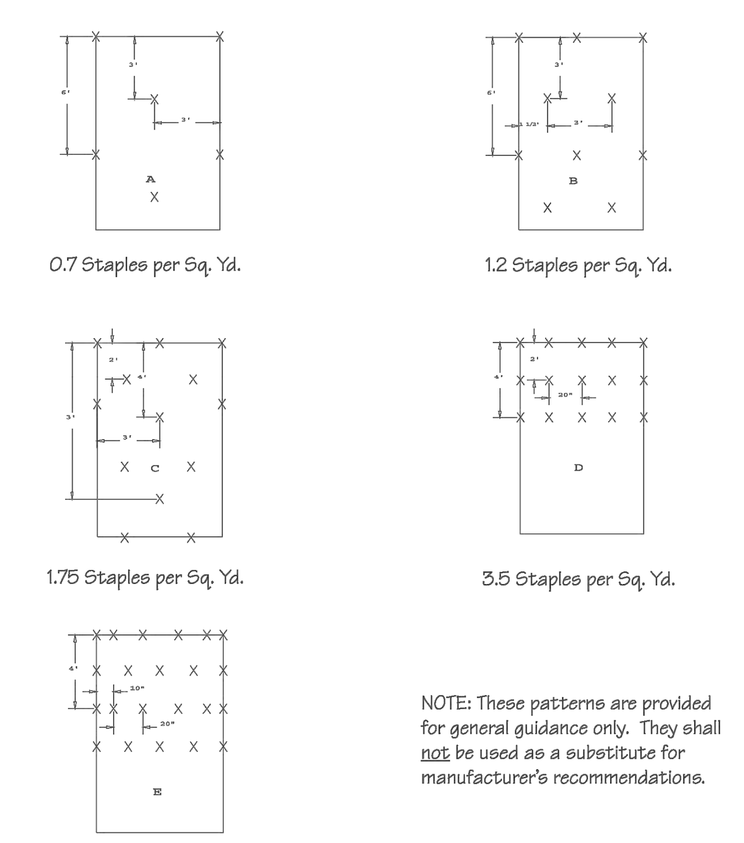
Perspective

Construction Notes:

1. Prepare soil before installing matting, including application of lime, fertilizer, and seed.
2. Begin at the top of the slope by anchoring the mat in a 6" deep X 6" wide trench. Backfill and compact trench after stapling.
3. Roll the mats (A) down or (B) horizontally across the slope.
4. The edges of parrallel mats must be stapled with approx. 2" overlap.
5. When mats must be spliced down the slope, place mats end over end (shingle style) with approx. 4" overlap. Staple through overlapped area, approx. 12" apart.

Source:	Symbol:	Detail No.
Adapted from North American Green, Inc.	SM-S	DE-ESC-3.4.6.1 Sheet 1 of 2 Effective FEB 2019

Standard Detail & Specifications
Stabilization Matting - Slope



Stapling Patterns

Source:	Symbol:	Detail No.
Adapted from North American Green, Inc.	SM-S	DE-ESC-3.4.6.1 Sheet 2 of 2 Effective FEB 2019

Standard Detail & Specifications
Topsoiling

Construction Notes:

1. **Site Preparation** (Where Topsoil is to be added)

   Note: When topsoiling, maintain needed erosion and sediment control practices such as diversions, grade stabilization structures, berms, dikes, waterways and sediment basins.

   a. Grading - Grades on the areas to be topsoiled which have been previously established shall be maintained.

   b. Liming - Where the topsoil is either highly acid or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet). Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

   c. Tilling - After the areas to be topsoiled have been brought to grade, and immediately prior to dumping and spreading the topsoil, the subgrade shall be loosened by discing or by scarifying to a depth of a least 3 inches to permit bonding of the topsoil to the subsoil. Pack by passing a bulldozer up and down over the entire surface area of the slope to create horizontal erosion check slots to prevent topsoil from sliding down the slope.

2. **Topsoil Material and Application**

   Note: Topsoil salvaged from the existing site may often be used but it should meet the same standards as set forth in these specifications. The depth of topsoil to be salvaged shall be no more than the depth described as a representative profile for that particular soil type as described in the soil survey published by USDA-SCS in cooperation with Delaware Agricultural Experimental Station.

Source:	Symbol:	Detail No.
USDA - NRCS		DE-ESC-3.4.1 Sheet 1 of 2 Effective FEB 2019

Standard Detail & Specifications
Topsoiling

Construction Notes (cont.)

a. Materials - Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand or other soil as approved by an agronomist or soil scientist. It shall not have a mixture of contrasting textured subsoil and contain no more than 5 percent by volume of cinders, stones, slag, coarse fragment, gravel, sticks, roots, trash or other extraneous materials larger than 1-1/2 inches in diameter. Topsoil must be free of plants or plant parts of bermudagrass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistles, or others as specified. All topsoil shall be tested by a reputable laboratory for organic matter content, pH and soluble salts. A pH of 6.0 to 7.5 and an organic content of not less than 1.5 percent by weight is required. If pH value is less than 6.0 lime shall be applied and incorporated with the topsoil to adjust the pH to 6.5 or higher. Topsoil containing soluble salts greater than 500 parts per million shall not be used.

Note: No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed to permit dissipation of toxic materials.

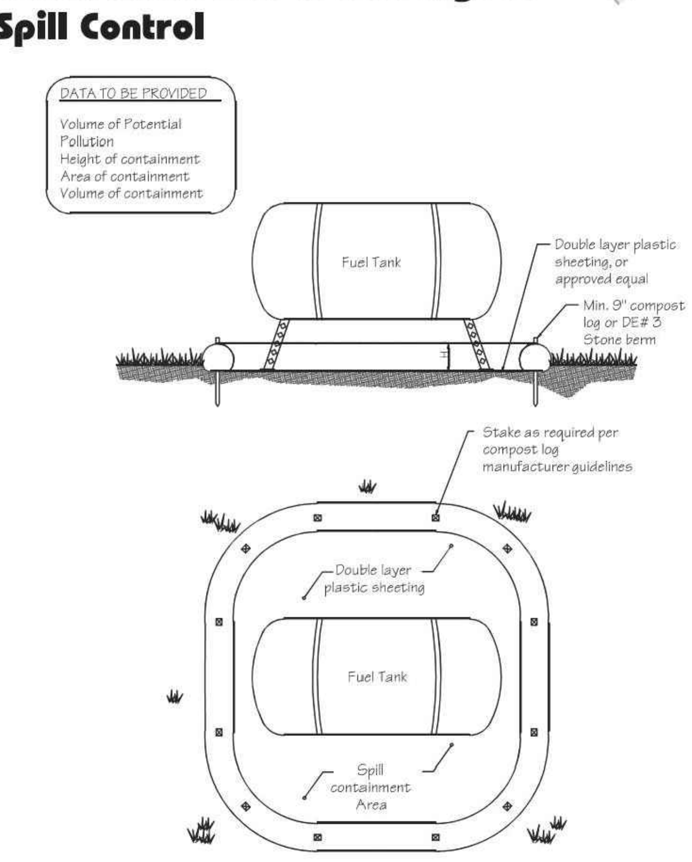
b. Grading - The topsoil shall be uniformly distributed and compacted to a minimum of four (4) inches. Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets. Topsoil shall not be placed while in a frozen or muddy condition, when the subgrade is excessively wet, or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

Note: Topsoil substitutes or amendments as approved by a qualified agronomist or soil scientist, may be used in lieu of natural topsoil. Compost material used to improve the percentage of organic matter shall be provided by a certified supplier.

Compost amendments that are intended to meet specific post-construction stormwater management goals shall further meet the requirements of **Appendix 3.06.2 Post Construction Stormwater Management BMP Standards and Specifications, Section 14.0 Soil Amendments.**

Source:	Symbol:	Detail No.
USDA - NRCS		DE-ESC-3.4.1 Sheet 2 of 2 Effective FEB 2019

Standard Detail & Specifications
Construction Site Waste Mgt & Spill Control



Source:	Symbol:	Detail No.
Delaware ESC Handbook		DE-ESC-3.6.1 Sheet 1 of 5

Effective February 2019

Standard Detail & Specifications
Construction Site Waste Mgt & Spill Control

Pollution Prevention – Spill Prevention

1. Fueling should only take place in signed designated areas, away from downstream drainage facilities and watercourses.
2. Fueling must be with nozzles equipped with automatic shut-off to control drips. Do not top off.
3. Protect the areas where equipment or vehicles are being repaired, maintained, fueled or parked from storm water run-on and runoff.
4. Use barriers such as berms to prevent storm water run-on and runoff, and to contain spills.
5. Place a "Fueling Area" sign next to each fueling area.
6. Store hazardous materials such as fuel, solvents, oil and chemicals in secondary containment.
7. Inspect vehicles and equipment for leaks on each day of use. Repair fluid and oil leaks immediately.
8. Absorbent spill clean-up materials and spill kits must be available in fueling areas and on fuel trucks.
9. If fueling is to take place at night, make sure the fueling area is sufficiently illuminated.
10. Properly dispose of used oil, fluids, lubricants and spill clean-up materials.

CLEAN UP SPILLS

1. If it is safe to do so, immediately contain and clean up any chemical and/or hazardous material spills.
2. Properly dispose of used oil, fluids, lubricants and spill clean-up materials.
3. Do not bury spills or wash them down with water.

LEAKS AND DRIPS

1. Use drip pans or absorbent pads at all times. Place under and around leaky equipment.
2. Do not allow oil, grease, fuel or chemicals to drip onto the ground.
3. Have spill kits and clean up material on-site.
4. Repair leaky equipment promptly or remove problem vehicles and equipment from the site. Clean up contaminated soil immediately.
5. Store contaminated waste in sealed containers constructed of suitable material. Label these containers properly.
6. Clean up all spills and leaks. Promptly dispose of waste and spent clean up materials.

Source:	Symbol:	Detail No.
Delaware ESC Handbook		DE-ESC-3.6.1 Sheet 2 of 5

Effective February 2019

Standard Detail & Specifications
Construction Site Waste Mgt & Spill Control

Notes:

The Construction Site Pollution Prevention Plan should include the following elements:

1. **Material Inventory**

   Document the storage and use of the following materials:
   a. Concrete
   b. Detergents
   c. Paints (enamel and latex)
   d. Cleaning solvents
   e. Pesticides
   f. Wood scraps
   g. Fertilizers
   h. Petroleum based products
2. **Good housekeeping practices**
   a. Store only enough product required to do the job.
   b. All materials shall be stored in a neat, orderly manner in their original labeled containers and covered.
   c. Substances shall not be mixed.
   d. When possible, all of a product shall be used up prior to disposal of the container.
   e. Manufacturers' instructions for disposal shall be strictly adhered to.
   f. The site foreman shall designate someone to inspect all BMPs daily.
3. **Waste management practices**
   a. All waste materials shall be collected and stored in securely lidded dumpsters in a location that does not drain to a waterbody.
   b. Waste materials shall be salvaged and/or recycled whenever possible.
   c. The dumpsters shall be emptied a minimum of twice per week, or more if necessary. The licensed trash hauler is responsible for cleaning out dumpsters.

Source:	Symbol:	Detail No.
Adapted from USEPA Pub. 840-B-92-002		DE-ESC-3.6.1 Sheet 3 of 5

Effective February 2019

Standard Detail & Specifications
Construction Site Waste Mgt & Spill Control

Notes (cont.)

   d. Trash shall be disposed of in accordance with all applicable Delaware laws.
   e. Trash cans shall be placed at all lunch spots and littering is strictly prohibited. Recycle bins shall be placed near the construction trailer.
   f. If fertilizer bags can not be stored in a weather-proof location, they shall be kept on a pallet and covered with plastic sheeting which is overlapped and anchored.
4. **Equipment maintenance practices**
   a. If possible, equipment should be taken to off-site commercial facilities for washing and maintenance.
   b. If performed on-site, vehicles shall be washed with high-pressure water spray without detergents in an area contained by an impervious berm.
   c. Drip pans shall be used for all equipment maintenance.
   d. Equipment shall be inspected for leaks on a daily basis.
   e. Washout from concrete trucks shall be disposed of in a temporary pit for hardening and proper disposal.
   f. Fuel nozzles shall be equipped with automatic shut-off valves.
   g. All used products such as oil, antifreeze, solvents and tires shall be disposed of in accordance with manufacturers' recommendations and local, state and federal laws and regulations.
5. **Spill prevention practices**
   a. Potential spill areas shall be identified and contained in covered areas with no connection to the storm drain system.
   b. Warning signs shall be posted in hazardous material storage areas.
   c. Preventive maintenance shall be performed on all tanks, valves, pumps, pipes and other equipment as necessary.
   d. Low or non-toxic substances shall be prioritized for use.

Source:	Symbol:	Detail No.
Adapted from USEPA Pub. 840-B-92-002		DE-ESC-3.6.1 Sheet 4 of 5

Effective February 2019

Standard Detail & Specifications
Construction Site Waste Mgt & Spill Control

Notes (cont.)

   e. Contact information for reporting spills through the DNREC 24-Hour Toll Free Number shall be prominently posted.
6. **Education**
   a. Best management practices for construction site pollution control shall be a part of regular progress meetings.
   b. Information regarding waste management, equipment maintenance and spill prevention shall be prominently posted in the construction trailer.

CONTACT INFORMATION

DNREC 24-Hour Toll Free Number	**800-662-8802**
DNREC Solid & Hazardous Waste Management Section	**302-739-9403**

Source:	Symbol:	Detail No.
Adapted from USEPA Pub. 840-B-92-002		DE-ESC-3.6.1 Sheet 5 of 5

Effective February 2019

Pennoni
PENNONI ASSOCIATES INC.
1900 Market Street, Suite 300
Philadelphia, PA 19103
T 215.222.3000 F 215.222.3588

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

CITY HALL PARKING LOT RECONSTRUCTION
220 SOUTH MAIN STREET
NEWARK, DE 19711

SEDIMENT AND STORMWATER DETAILS
CITY OF NEWARK
220 SOUTH MAIN STREET
NEWARK, DE 19711

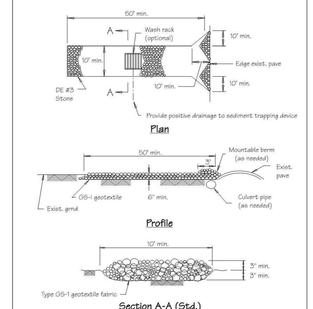
DATE	NO.	REVISIONS	BY
11/6/20	6	EXISTING UTILITY REVISION	EDJ
10/23/20	5	STORM SEWER REVISION	EDJ
10/1/20	4	SANITARY SEWER REVISION	EDJ
9/18/20	3	ISSUED FOR CONSTRUCTION	EDJ
3/17/20	2	ADDENDUM #2	EDJ
d	1	ADDENDUM #1	EDJ

PROJECT	CNEWK22005
DATE	2023-05-18
DRAWING SCALE	N.T.S.
DRAWN BY	MRW/ALS
APPROVED BY	MJE

CS4602

Standard Detail & Specifications

Stabilized Construct. Entrance

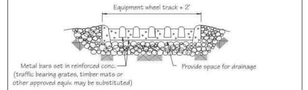


Source:	Symbol:	Detail No.
Adopted from VA ESC Handbook	SCE	**DE-ESC-3.4.7** Sheet 1 of 2

Effective February 2019

Standard Detail & Specifications

Stabilized Construct. Entrance



Construction Notes:

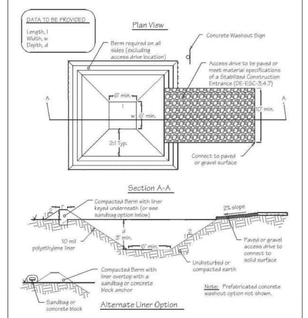
1. Stone size - Use DE #3 stone.
2. Length - As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum length would apply).
3. Thickness - Not less than size (6) inches.
4. Width - Ten (10) foot minimum, but not less than the full width at points where ingress or egress occurs.
5. Geotextile - Type GS-1 placed over the entire area prior to placing of stone.
6. Surface Water - All surface water flowing or diverted toward construction entrances shall be piped across the entrance. If piping is impractical, a mountable berm with 5:1 slopes will be permitted.
7. Maintenance - The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately.
8. Washing - Vehicle wheels shall be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.
9. Inspection - Periodic inspection and needed maintenance shall be provided after each rain.

Source:	Symbol:	Detail No.
Adopted from VA ESC Handbook	SCE	**DE-ESC-3.4.7** Sheet 2 of 2

Effective February 2019

Standard Detail & Specifications

Concrete Washout



Source:	Symbol:	Detail No.
Adopted from Colorado Urban Storm Drainage Criteria Manual, Vol 3	CW	**DE-ESC-3.6.2** Sheet 1 of 2

Effective February 2019

Standard Detail & Specifications

Concrete Washout

Construction Notes:

1. Locate washout area a minimum of 50 feet from open channels, stormdrain inlets, wetlands or waterbodies.
2. Locate washout area so that it is accessible to concrete equipment (service with a minimum 10 foot wide gravel accessway), but so it is not in a highly active construction area causing accidental damage.
3. Minimum dimensions for prefabricated units are 4 feet by 4 feet by 1 foot deep with a minimum 4mil polyethylene plastic liner. Minimum dimensions for constructed concrete washout areas are 6 feet by 6 feet by 3 feet deep, with a minimum 10mil polyethylene liner, 2:1 side slopes, and a 1 foot high by 1 foot wide compacted fill berm.
4. The liner must be free of tears or holes and placed over smooth surfaces to prevent puncturing. For excavated washouts, anchor the liner underneath the berm or overlap with sandbags or concrete blocks to hold in place.
5. Provide a sign designating the washout area, and for large construction sites, provide signs throughout directing traffic to its location.
6. Allow washed out concrete mixture to harden through evaporation of the wastewater. Once the facility has reached 75 percent of its capacity, remove the hardened concrete by reusing the broken aggregate onsite, recycling, or disposing of offsite. The hardened material can be buried on site with minimum of 1 foot of clean, compacted fill.
7. Apply a new liner before reusing the station for additional washouts after maintenance has occurred.

Source:	Symbol:	Detail No.
Adopted from Colorado Urban Storm Drainage Criteria Manual, Vol 3	CW	**DE-ESC-3.6.2** Sheet 2 of 2

Effective February 2019

Standard Detail & Specifications

Soil Stockpile

Source:	Symbol:	Detail No.
Adopted from Colorado Urban Storm Drainage Criteria Manual, Vol 3	SP	**DE-ESC-3.7.3** Sheet 1 of 2

Effective February 2019

Standard Detail & Specifications

Soil Stockpile

Construction Notes:

1. Locate stockpiles so that they are 50 feet from any storm drain inlet, open channel, wetland or waterbody. Redirect any concentrated flow around the stockpile using an approved erosion and sediment control measure.
2. Secure the perimeter of the stockpile with an approved erosion and sediment control perimeter device.
3. If stockpile is to remain inactive for more than 14 calendar days, the stockpile must be vegetated. Follow the temporary vegetation specifications. The vegetation chosen shall last the duration of the stockpile; the stockpile shall be restabilized if the temporary vegetation dies or erosion results.

Source:	Symbol:	Detail No.
Adopted from Colorado Urban Storm Drainage Criteria Manual, Vol 3	SP	**DE-ESC-3.7.3** Sheet 2 of 2

Effective February 2019

Standard Detail & Specifications

Geotextile Dewatering Bag

NOTE: Pre-manufactured products installed in accordance with manufacturer's recommendations may be used as an equivalent substitute with Departmental approval.

Source:	Symbol:	Detail No.
Adopted from ACF Products, Inc.	GB	**DE-ESC-3.2.1.2** Sheet 1 of 2

Effective February 2019

Standard Detail & Specifications

Geotextile Dewatering Bag

Construction Notes:

1. The dewatering bag should be placed so the incoming water flows into and through the bag, and then flow off the site without creating more erosion. The neck should be tied off tightly to stop the water from flowing out of the bag without going through the walls. The dewatering bag should be placed on a gravel bed to allow water to flow in all directions.
2. The dewatering bag is considered full and should be disposed when it is impractical for the bag to filter the sediment out at a reasonable flow rate. At this point, it should be replaced with a new bag.
3. Disposal may be accomplished as directed by the construction reviewer. If the site allows, the bag may be buried on site and seeded, visible fabric removed and seeded or removed from site to a proper disposal area.

Materials:

1. The geotextile fabric shall be a Type GD-IV.
2. The dewatering bag shall be sewn with a double needle machine using high strength thread. All structural seams will be sewn with high strength, double stitched 7" type. Seam strength test will have the following minimum average roll values:

Type	TEST METHOD	TEST RESULT
Heavy duty	ASTM D-4884	100 lb / in

3. The dewatering bag shall have an opening large enough to accommodate a four (4) inch discharge hose with attached strap to tie off the hose to prevent the pumped water from escaping from the bag without being filtered.

Source:	Symbol:	Detail No.
Adopted from ACF Products, Inc.	GB	**DE-ESC-3.2.1.2** Sheet 2 of 2

Effective February 2019

PENNONI ASSOCIATES INC.
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T 215.222.3000 F 215.222.3588

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

CITY HALL PARKING LOT RECONSTRUCTION
220 SOUTH MAIN STREET
NEWARK, DE 19711

SEDIMENT AND STORMWATER
DETAILS
CITY OF NEWARK
220 SOUTH MAIN STREET
NEWARK, DE 19711

NO.	DATE	REVISIONS	BY
6	11/6/20	EXISTING UTILITY REVISION	EDJ
5	10/23/20	STORM SEWER REVISION	EDJ
4	10/1/20	SANITARY SEWER REVISION	EDJ
3	9/18/20	ISSUED FOR CONSTRUCTION	EDJ
2	3/17/20	ADDENDUM #2	EDJ
1	d	ADDENDUM #1	EDJ

PROJECT	CNEWK22005
DATE	2023-05-18
DRAWING SCALE	N.T.S.
DRAWN BY	MRW/ALS
APPROVED BY	MJE

CS4603

SHEET 20 OF 21

\\pennoni.com\data\Accounts\CNEWK\cnewk22005 - roof parking lot fencing and repaving\[DESIGN_SHEETS\CS4603.dwg PLOTTED: 5/18/2023 1:01 PM, BY: Andrew Shields PLOTSTYLE: Pennoni MCS.stb PROJECT STATUS: —

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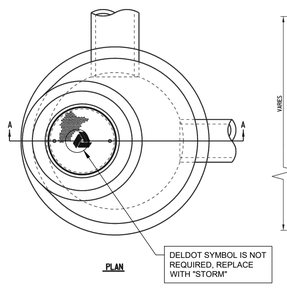
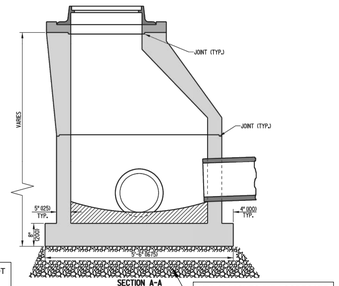


PLAN



SECTION A-A

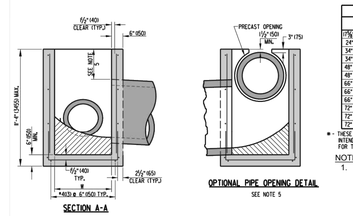
ROUND MANHOLE ASSEMBLY

NOTE: ROUND MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M 199.

DELAWARE DEPARTMENT OF TRANSPORTATION	MANHOLE DETAILS			APPROVED	6/12/01
	STANDARD NO. D-6 (2001)	SHT. 2	OF 4	RECOMMENDED	6/15/01

06/06/2001

SCALE = N.T.S.



INLET BOX SCHEDULE		
W	H	FABRICATION TOLERANCE
17⅝" (450)	11⅝" (295)	+1" (25)
24" (610)	24" (610)	+1" (25)
34" (865)	8" (455)	-1" (25)
34" (865)	24" (610)	-1" (25)
48" (1220)	30" (760)	+6" (150)
48" (1220)	48" (1220)	+6" (150)
66" (1675)	30" (760)	+6" (150)
66" (1675)	48" (1220)	+6" (150)
66" (1675)	66" (1675)	+6" (150)
72" (1830)	24" (610)	-1" (25)
72" (1830)	48" (1220)	-1" (25)
72" (1830)	72" (1830)	-1" (25)

*- THESE BOXES ARE TO BE USED FOR LAWN INLETS AND ARE NOT INTENDED TO BE USED IN THE TRAVELWAY. THE MAX DEPTH FOR THESE BOXES IS 4'-0"(1220). SEE NOTE 8 FOR REINFORCEMENT.

NOTE:
1. STEPS ARE REQUIRED ON ALL BOXES WHOSE DEPTH IS 4'-0" OR GREATER

WALL REINFORCEMENT SCHEDULE		
INTERIOR WALL DIMENSION	AREA OF HORIZONTAL REINFORCEMENT PER FOOT (mm²)	AREA OF VERTICAL REINFORCEMENT PER FOOT (mm²)
	#4 (bar)	#4 (bar)
LESS THAN 4'-0"(1220)	0.132 (85)	0.132 (85)
4'-0"(1220) TO 4.5'-0"(1370)	0.165 (105)	0.132 (85)
4.5'-0"(1370) TO 5'-0"(1525)	0.198 (128)	0.132 (85)
5'-0"(1525) TO 5.5'-0"(1675)	0.239 (154)	0.132 (85)
5.5'-0"(1675) TO 6'-0"(1830)	0.284 (183)	0.132 (85)

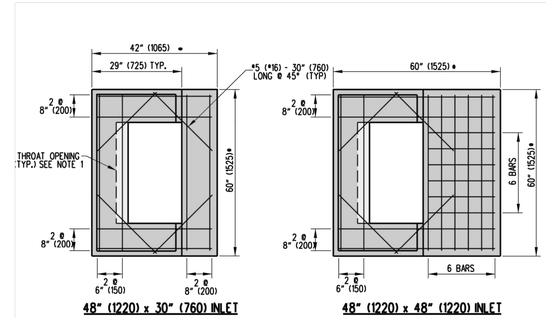
24" (610) x 24" (610) LAWN INLET BOX DETAIL

17⅝" (450) x 11⅝" (295) LAWN INLET BOX DETAIL

NOTES:
1. INLET BOXES SHALL BE PRECAST OR CAST-IN-PLACE.
2. PIPES SHALL NOT BE INSTALLED THROUGH ANY CORNER OF THE INLET BOX.
3. RISER SECTIONS MAY BE USED FOR DEEP INLET BOXES.
4. PIPES MAY BE INSTALLED NEAR OR THROUGH JOINTS FOR RISER SECTIONS.
5. WHEN THE COVER ABOVE THE PIPE IS LESS THAN 4'-0"(1220) TO THE COVER SLAB OR TOP UNIT OPENING, THE PORTION OF BOX WALL ABOVE THE PIPE MAY BE REMOVED AS SHOWN IN THE OPTIONAL PIPE OPENING DETAIL. THE AREA ABOVE THE PIPE SHALL THEN BE FORMED AND FILLED WITH HIGH-STRENGTH, NON-SHRINK GROUT MIXED WITH COARSE AGGREGATE IN A 1:1 RATIO BY WEIGHT.
6. CONCRETE FLOW CHANNEL SHALL BE WRAPPED FOR POSITIVE DRAINAGE.
7. WHEN INLET BOX IS PRECAST, PIPE OPENING SHALL BE BETWEEN 3"(75) AND 4"-0"(1220) LARGER THAN OUTSIDE DIAMETER OF PIPE AND SHALL NOT ENCROACH ON ADJACENT WALL.
8. REINFORCEMENT FOR LAWN INLET BOXES SHALL BE 4"-0"(1220) X 4"-0"(1220), #4 X #4 @12" (305) X @12" (305) WELDED WIRE.

DELAWARE DEPARTMENT OF TRANSPORTATION	INLET BOX DETAILS			APPROVED	SIGNATURE ON FILE	01/31/2010
	STANDARD NO. D-4 (2009)	SHT. 1	OF 1	RECOMMENDED	SIGNATURE ON FILE	01/14/2010

08/19/2009



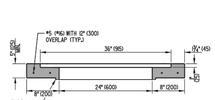
NOTES :
1). RELOCATE ENCROACHING REINFORCING BARS WHEN USING TYPE B UNIT.
2). COVER SLABS SHALL BE PRECAST AND MUST BE SIZED TO FIT INLET BOX DIMENSIONS.
3). ALL BARS ARE TO BE #5 (#16) SPACED @ 6" (150) UNLESS NOTED OTHERWISE. TOP REINFORCEMENT SHALL BE 0.11 IN² (70 mm²) HORIZONTAL REINFORCEMENT PER FOOT IN BOTH DIRECTIONS.
4). MINIMUM BAR COVER = 1½" (38).

* - DIMENSIONS TO MATCH OUTSIDE TO OUTSIDE DIMENSIONS OF BOX.

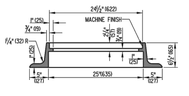
ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

SCALE = N.T.S.

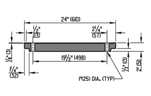
NOTE: TOP UNIT IS TO BE CAST IN PLACE TO GRADE AS SPECIFIED ON PLAN SHEETS OR AS DIRECTED BY ENGINEER.



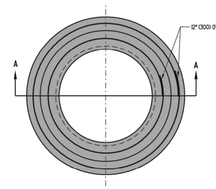
SECTION A-A



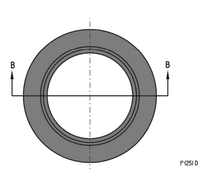
SECTION B-B



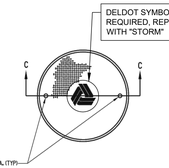
SECTION C-C



TOP UNIT



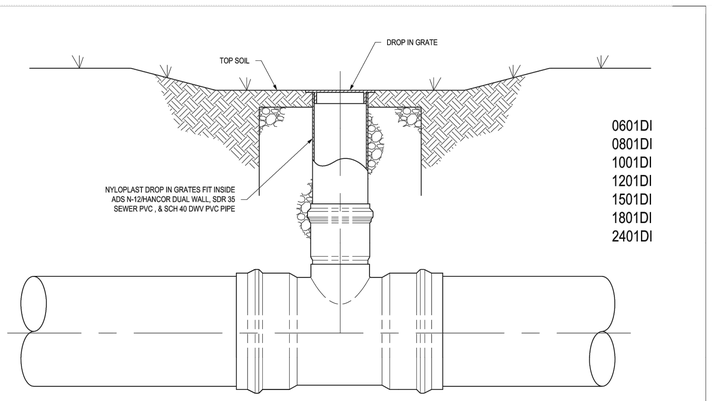
FRAME



COVER

DELAWARE DEPARTMENT OF TRANSPORTATION	MANHOLE DETAILS			APPROVED	6/12/01
	STANDARD NO. D-6 (2001)	SHT. 3	OF 4	RECOMMENDED	6/15/01

05/23/2003



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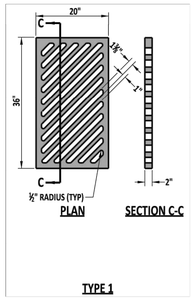
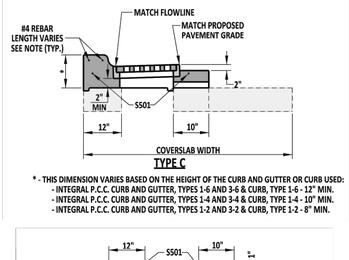


TYPE 1

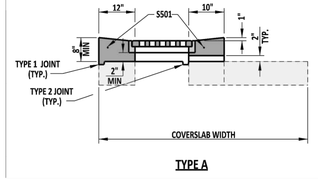
INLET GRATE

NOT TO SCALE

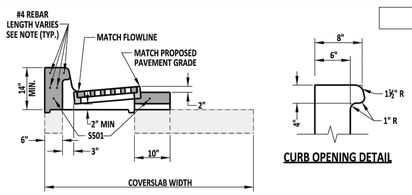


* - THIS DIMENSION VARIES BASED ON THE HEIGHT OF THE CURB AND GUTTER OR CURB USED:
- INTEGRAL P.C.C. CURB AND GUTTER, TYPES 1-6 AND 3-6 & CURB, TYPE 1-6 - 12" MIN.
- INTEGRAL P.C.C. CURB AND GUTTER, TYPES 1-4 AND 3-4 & CURB, TYPE 1-4 - 10" MIN.
- INTEGRAL P.C.C. CURB AND GUTTER, TYPES 1-2 AND 3-2 & CURB, TYPE 1-2 - 8" MIN.

TYPE C



TYPE A

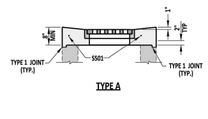


TYPE B

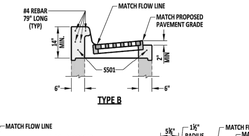
SEE CURB OPENING DETAIL ON THIS SHEET

CURB OPENING DETAIL

SCALE : NTS



TYPE A



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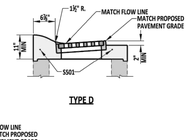

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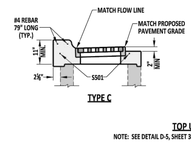
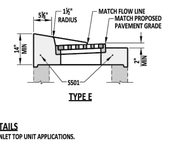


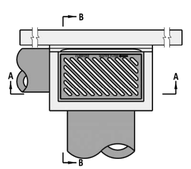
TYPE C



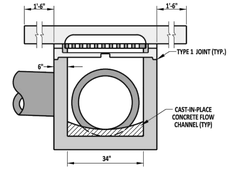
TYPE E

TOP UNIT DETAILS

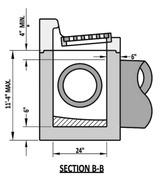
NOTE: SEE DETAIL D-5, SHEET 3 OF 9 FOR INLET TOP UNIT APPLICATIONS.



TOP VIEW



SECTION A-A



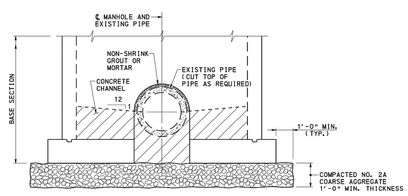
SECTION B-B

DRAINAGE INLET DETAILS

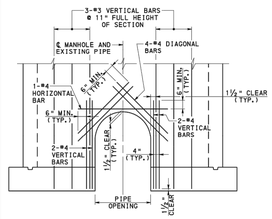
NOTE: REFER TO PREVIOUS SHEETS FOR REINFORCING REQUIREMENTS
* - SEE OPTIONAL PIPE OPENING DETAIL ON STANDARD NO. D-5, SHEET 1 OF 1

DELAWARE DEPARTMENT OF TRANSPORTATION	34" x 24" DRAINAGE INLET DETAILS			APPROVED	SIGNATURE ON FILE	01/07/2013
	STANDARD NO. D-5 (2012)	SHT. 6	OF 9	RECOMMENDED	SIGNATURE ON FILE	12/20/2012

12/4/2012



TYPE A - DOGHOUSE MANHOLE CONSTRUCTION DETAIL



ADDITIONAL REINFORCEMENT ADJACENT TO PIPE OPENING

DOGHOUSE MANHOLE

NOT TO SCALE

NOTE(S):
1. PIPE OPENINGS FOR EXISTING PIPE:
   - PROVIDE HORIZONTAL PIPE OPENINGS AT LEAST 4" BUT NOT MORE THAN 8" LARGER THAN THE OUTSIDE DIAMETER OF THE EXISTING PIPE
   - PROVIDE VERTICAL PIPE OPENINGS AS REQUIRED TO ACCOMMODATE THE MANHOLE ASSEMBLY AND EXISTING PIPE.
   - LOCATE PIPE OPENINGS TO PROVIDE A MIN. OF 12" OF CONCRETE BETWEEN THE TOP OF THE BASE SECTION AND THE TOP OF THE PIPE OPENING.
   - PIPE OPENING IS NOT PERMITTED TO BE GREATER THAN 50% OF THE INSIDE DIAMETER OF THE MANHOLE.
2. EXISTING PIPE:
   - SUPPORT EXISTING PIPE AS REQUIRED DURING CONSTRUCTION OPERATIONS.
   - NEATLY CUT THE TOP HALF OF THE EXISTING PIPE ALONG THE SPRING LINE BETWEEN THE INSIDE FACE OF THE NEW MANHOLE.
3. SET DOGHOUSE MANHOLE TRULY VERTICAL ADJUST PIPE OPENING HEIGHTS AS REQUIRED TO ACCOMMODATE EXISTING PIPE SLOPE.

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CITY HALL PARKING LOT RECONSTRUCTION
220 SOUTH MAIN STREET
NEWARK, DE 19711

SEDIMENT AND STORMWATER
DETAILS
CITY OF NEWARK
220 SOUTH MAIN STREET
NEWARK, DE 19711

NO.	DATE	REVISIONS	BY
6	11/6/20	EXISTING UTILITY REVISION	EDJ
5	10/23/20	STORM SEWER REVISION	EDJ
4	10/1/20	SANITARY SEWER REVISION	EDJ
3	9/18/20	ISSUED FOR CONSTRUCTION	EDJ
2	3/17/20	ADDENDUM #2	EDJ
1	d	ADDENDUM #1	EDJ

PROJECT	CNEWK22005
DATE	2023-05-18
DRAWING SCALE	1"=
DRAWN BY	MRW/ALS
APPROVED BY	MJE

CS4604

SHEET 21 OF 21