

BATTERY PARK CITY AUTHORITY

REQUEST FOR PROPOSALS

FOR

Synthetic Turf Installation Services

West Thames Lawn

Table of Contents

Table of Contents.....	2
I. SUMMARY	3
II. DESCRIPTION OF BPCA	3
III. SERVICES REQUIRED	4
IV. KEY DATES, CONTRACT TERM AND MINIMUM QUALIFICATIONS.....	4
A. Key Dates	4
B. Anticipated Contract Term	4
C. Minimum Qualification Requirements	5
V. GENERAL REQUIREMENTS	5
A. Questions regarding MBE/WBE participation, joint ventures and sub-contracting goals.....	5
B. Restricted Period.....	5
C. Submission of Proposals	5
D. Mandatory Forms.....	6
VI. PROPOSAL FORMAT AND CONTENTS.....	6
A. Proposal Format.....	6
B. Proposal Content.....	6
C. RFP Questions	7
D. RFP Additional Information Request	8
E. Cost Proposal	9
VII. THE EVALUATION PROCESS.....	9
A. Objectives	9
B. Interviews.....	10
C. Evaluation Criteria for Selection	10
D. Basis for Contract Award	10
VIII. NON-COLLUSION.....	10
IX. IRAN DIVESTMENT ACT	10
X. ENCOURAGING USE OF NEW YORK STATE BUSINESSES IN CONTRACT PERFORMANCE	11
EXHIBIT A	12
EXHIBIT B.....	15
EXHIBIT C.....	21
EXHIBIT D	22
EXHIBIT E.....	23

I. SUMMARY

Battery Park City Authority d/b/a Hugh L. Carey Battery Park City Authority (“BPCA”) requests proposals (each individually, a “Proposal” or collectively, the “Proposals”) from contractors (each individually, a “Proposer” or collectively, the “Proposers”) to provide Synthetic Turf Installation services to BPCA for the West Thames Lawn, located between Rector Place and West Street, along with eastern border of Battery Park City, in Lower Manhattan (the “Lawn”). Synthetic Turf Installation services shall include, but not be limited to: providing all materials, site protection, labor and equipment necessary to perform the turf conversion, and related fencing and landscape edging systems (the “Project”), in accordance with the scope of work indicated in Exhibit A (the “Scope of Work”).

The Lawn comprises approximately 12,000 square feet and was originally constructed as a sod lawn for passive recreational use; however, actual usage has tended more toward informal active children’s play. As a result, it has proven virtually impossible to maintain the Lawn in a suitable condition for continuous use, and the Lawn must be frequently closed to public use in order to allow for adequate care and recovery. Moreover, the Lawn is not available for use between November and April of each year, further restricting the public’s access to and enjoyment of this important community resource. The purpose of this Project is to convert the Lawn’s existing sod surface to a new artificial turf system and construct other related features within the immediate area as indicated in the Drawings and Specifications attached hereto as Exhibit A (the “Construction Documents”) and to complete the project within a timeframe that ensures minimization of downtime, quality of work product and reasonableness of cost.

Minority-Owned Business Enterprises (“MBE”) and Women-Owned Business Enterprises (“WBE”) are encouraged to submit Proposals.

This request for proposals, the attachments and any additional information submitted herewith, (collectively, the “RFP”) does not obligate BPCA to complete the selection and contract award process. BPCA reserves the right: 1) to accept or reject any and all Proposals; 2) to request additional information from any or all Proposers to assist BPCA in its evaluation process; 3) to amend or withdraw this RFP prior to the announcement of the selected firm; and 4) to award the proposed services, in whole or in part, to one or more firms. In case of an amendment to the RFP, all Proposers will be provided with a copy of any such amendment(s) and will be afforded the opportunity to revise their Proposals in response to the RFP amendment.

II. DESCRIPTION OF BPCA

BPCA is a public benefit corporation created in 1968 under the laws of the State of New York for the purpose of financing, developing, constructing, maintaining, and operating a planned community development of the Battery Park City site as a mixed commercial and residential community.

Under the Battery Park City Authority Act (the “Act”), BPCA has the following powers, among others: to borrow money and to issue negotiable bonds, notes or other obligations and to provide for the rights of the holders thereof; to acquire, lease, hold, mortgage and dispose of real property and personal property or any interest therein for its corporate purposes; to construct, improve, enlarge, operate and maintain Battery Park City; to make bylaws for the management and regulation of its affairs, and, subject to agreements with bondholders, for the regulation of Battery Park City; to make contracts and to execute all necessary or convenient instruments, including leases and subleases; to accept grants, loans and contributions from the United States, or the State of New York or the City of New York (the “City”), or any agency or instrumentality of any of them, or from any other source and to expend the proceeds for any corporate purpose; to fix, establish and collect rates, rentals, fees and other charges; and to do all things necessary or convenient to carry out the powers expressly granted by the Act. BPCA has no taxing power.

Since its inception, BPCA has caused the staged development of Battery Park City, in individual parcels, creating a richly diversified mixed use community providing residential and commercial space, with related amenities such as parks, open spaces, plazas, recreational areas and a waterfront esplanade. Most individual parcels of land in Battery

Park City were developed into residential and commercial buildings by tenants (“Ground Lease Tenants”) under long-term ground leases with BPCA. The Ground Lease Tenants are responsible for the maintenance, insurance and defense and indemnification of BPCA with regard to those leased parcels.

One of BPCA’s key responsibilities under the Act is to operate, maintain and repair the parks and open spaces in and around Battery Park City’s residential and commercial areas. This function has been delegated by BPCA to the Battery Park City Parks Conservancy Corporation (“BPCPC”) through a written Management Agreement. BPCPC carries out its mission by maintaining 36 acres of parks, playgrounds and open spaces, including a mile-long waterfront esplanade. BPCPC also develops programs and manages public events for the Battery Park City community. BPCA owns and has built out a commercial condominium unit in a residential building in Battery Park City, which serves as the BPCPC headquarters.

To obtain a copy of BPCA’s most recently completed audited financial statements, please visit BPCA’s official website at www.batteryparkcity.org. The audited financial statements and related reports found on BPCA’s website will provide you with an overview of the operations for which BPCA is responsible and the areas of expertise in which the selected Proposer must be proficient. For an overview of BPCPC’s operations, please visit its website at www.bpcparks.org.

III. SERVICES REQUIRED

- A. The selected Proposer will be required to perform the services set forth in the Scope of Work, attached as Exhibit A hereto.
- B. All work to be performed by the selected Proposer shall be performed under the supervision of a project manager in charge of this engagement (the “Lead Manager”), who must ensure that the work completed for BPCA is performed competently and in a timely manner.

IV. KEY DATES, CONTRACT TERM AND MINIMUM QUALIFICATIONS

A. Key Dates

The following is a list of key dates, up to and including the date Proposals are due to be submitted, which is subject to change at BPCA’s discretion:

- Request for Proposals issued: August 18, 2015.
- Pre-proposal meeting: August 25, 2015 10:30 am. The meeting will be held at the BPCA offices, located at 200 Liberty Street, New York, NY 10281
- Deadline to submit questions to BPCA: August 26, 2015 by 5:00 p.m. (by email only). All questions regarding this RFP should be submitted in writing via email to the “Designated Contact”: Michael LaMancusa, Contracts Administrator, Battery Park City Authority, at michael.lamancusa@bpca.ny.gov.
- Deadline for BPCA’s response to substantive questions: August 31, 2015 (via BPCA website).
- **DUE DATE FOR RESPONSES TO RFP: September 9, 2015 by 3:00 p.m. (the “Due Date”).**
- Selection and notification of successful Proposer: To be determined.
- Contract start date: October 2015.

B. Anticipated Contract Term

It is anticipated that the term of the contract awarded pursuant to this RFP (the “Contract”) will be nine (9) months; however, it is expected that the Scope of Work will be substantially completed within twenty (20) weeks of Project commencement. BPCA reserves the right to terminate the Contract at any time, with or without cause, upon thirty (30) days written notice. BPCA reserves the right to terminate the Contract at any time, without prior notice, if the individual(s) identified in the Proposal as the Lead Partner and/or Lead Manager for this engagement cease to be employed by the selected Proposer.

C. Minimum Qualification Requirements

The following are the Minimum Qualification Requirements for this RFP. **Proposals that fail to comply with these requirements will be rejected.**

- The Proposer must have at least five (5) years of experience in providing synthetic turf installation and related fencing and landscape edging construction as indicated in the Scope of Work.

V. GENERAL REQUIREMENTS

A. Questions regarding MBE/WBE participation, joint ventures and sub-contracting goals

Please see **Exhibit B** (attached) for contractor requirements and procedures for business participation opportunities for New York State certified MBEs/WBEs and equal employment opportunities for minority group members and women.

For questions relating to MBE/WBE participation, joint ventures and sub-contracting goals ONLY, please contact “MBE/WBE Designated Contact” Mr. Anthony Peterson at 212.417.2337.

B. Restricted Period

Applicants are restricted from making contact with anyone other than the Designated Contact or MBE/WBE Designated Contact specified above during the period from the date of publication of the notice of this RFP in the New York State Contract Reporter through approval of the Contract by BPCA (the “Restricted Period”). Employees of BPCA are required to record certain contacts during the Restricted Period, including, but not limited to, any oral, written or electronic communication with a governmental entity under circumstances where a reasonable person would infer that the communication was intended to influence BPCA’s conduct or decision regarding the governmental procurement, and to make a determination of responsibility based, in part, upon any such contact. Failure to abide by this process may result in a finding that the firm is a non-responsive Proposer.

C. Submission of Proposals

Proposals are due no later than 3:00 p.m. on September 9, 2015

Proposers must submit six (6) paper copies of their Proposals and one (1) electronic CD-Rom copy in a sealed package clearly marked “**Proposal Enclosed - Synthetic Turf Installation Services**” to the Designated Contact **by messenger, overnight courier or certified mail** to the following address:

Michael LaMancusa,
Contracts Administrator,
Battery Park City Authority
One World Financial Center, 24th Floor
New York, NY 10281

BPCA is not responsible for any internal or external delivery delays which may cause any Proposal to arrive beyond the stated Due Date. To be considered, Proposals must arrive at the time and place specified herein and

be time stamped by BPCA's time stamp prior to the Due Date. Please leave ample time for building security, as late Proposals will not be accepted. Proposals submitted by fax or electronic transmission will NOT be accepted. A Proposer may, after submitting a Proposal, amend its Proposal by submitting a second, amended Proposal, clearly labeled "**Amended Proposal Enclosed - Synthetic Turf Installation Services**," as long as the amended Proposal is submitted by the Due Date.

Public access to Proposals shall be governed by the relevant provisions of the Freedom of Information Law, Article 6 of the New York State Public Officers Law, and regulations adopted pursuant thereto.

D. Mandatory Forms

Proposers must complete and include with their Proposal all "Mandatory Forms," which can be found at the following URL address: http://www.batteryparkcity.org/pdf_n/Mandatory_Forms_Packet.pdf, by the Due Date.

These Mandatory Forms include the following:

1) NYS Standard Vendor Responsibility Questionnaire – **Submit with the Cost Proposal (as described below), one (1) original unbound set of a completed NYS Standard Vendor Responsibility Questionnaire with original ink signatures. Do not include the Standard Vendor Responsibility Questionnaire in the bound copies of the Cost Proposal.** The NYS Standard Vendor Responsibility Questionnaire must be notarized and signed by the individual(s) authorized to bind the firm contractually. Indicate the title or position that the signer holds within the firm.

2) State Finance Law § 139 Form 1 – **one original unbound completed SFL 139 Form 1: Professional's Certifications Pursuant to SFL § 139-j and § 139-k with original signature.** State Finance Law § 139 Forms 1 must be signed by the individual(s) authorized to bind the firm contractually.

3) W-9 form.

4) Statement of Non-Collusion.

5) Diversity Forms.

VI. PROPOSAL FORMAT AND CONTENTS

A. Proposal Format

The Proposal must be printed on 8½" x 11" paper. Pages should be numbered. The Proposal will be evaluated on the basis of its content, not length and should be limited to no more than ten (10) pages, exclusive of the Transmittal Letter and the Appendices listed below. BPCA reserves the right to disqualify Proposals that fail to comply with any of these instructions.

B. Proposal Content

A Proposal in response to this RFP must include the following sections in the order listed:

1) Transmittal Letter, as follows:

The Proposal must include a signed Transmittal Letter from a person within the firm who is authorized to bind the firm, preferably the Lead Manager. **Transmittal Letters must be signed. Proposals with unsigned Transmittal Letters will be rejected.**

The Transmittal Letter must include a representation by the Proposer that, except as disclosed in the Proposal, no officer or employee of the Proposer is directly or indirectly a party to or in any other manner interested financially or otherwise in this RFP.

- 2) Corporate Overview of the proposer.
- 3) Firm's discussion of its understanding of the Services Required (see Section III).
- 4) Firm's Responses to the RFP Questions and RFP Additional Information Request, set forth below.
- 5) Firm's Cost Proposal, as described below.
- 6) Firm's response to the question regarding the use of New York State businesses set forth in Section X of the RFP.

C. RFP Questions

- 1) Describe your firm's background, size, and history as it may be relevant to the Scope of Work, with an emphasis on synthetic turf installation and related fencing and landscape edging systems.
- 2) Describe the relevant special services your firm provides, particularly those that may not be offered by other firms.
- 3) Discuss your approach to the Project, briefly addressing your step-by-step approach for securing the site, routing of pedestrian traffic and outlining the proposed procedures for executing the site protection work.
- 4) Describe your experience and methodology in handling soils and plantings.
- 5) Provide a list of all proposed sub-contractors for the completion of the work.
- 6) Itemize the work you intend to perform with your firm's resources and/or workforce as well as the work for which you propose to use sub-contractors.
- 7) Describe your proposed team's experience (including both direct contract work and work performed under subcontracts) with similar work for other public agencies and authorities, with a particular emphasis on New York State and City, and Federal government, agencies and authorities. Include contract dates, the nature of the work performed, the contracting agency, the contract number (if known) and the supervisor for each.
- 8) Within the past three years, have there been any significant developments in your firm such as changes in ownership or restructuring? Do you anticipate any significant changes in the near future? If so, please describe.
- 9) How does your firm identify and manage conflicts of interest?
- 10) Has your firm or any of the firm's partners/employees been disciplined or censured by any regulatory body within the last 5 years? If so, please describe the relevant facts.
- 11) Within the last five years, has your firm, or a partner or employee in your firm, been involved in litigation or other legal proceedings relating to the provision of synthetic turf installation or other construction-related services? If so, please provide an explanation and the current status or disposition of the matter.
- 12) Are there any potential conflict of interest issues in representing BPCA?
- 13) List any professional or personal relationships your firm's Lead Partner or Lead Manager may have with BPCA's Board and/or staff members of BPCA. Identify the Lead Partner and/or Lead Manager who will be the primary contact person in providing services to BPCA, and who will be listed as a "key person" in any contract with BPCA.
- 14) List any other management personnel you intend to assign to this engagement and the area(s) of specialization for each such individual. Describe the role of each identified individual who will be assigned to this engagement.
- 15) Describe your proposed team's experience with similar work for other public agencies and authorities, with a particular emphasis on New York State agencies and authorities.
- 16) Describe your firm's "backup plan" in the event one or more of the managers assigned to this engagement leave the firm.

17) Proposers shall identify any and all exceptions taken to BPCA's standard form of contract attached hereto as Exhibit C, detailing the reasons for such exceptions. No exceptions to the contract will be considered by BPCA after submission of the proposals. BPCA maintains the right to reject proposals based on non-conformance with the standard form of contract.

18) In the past five years, have any clients terminated their working relationship with your firm? If so, please provide a brief statement of the reasons. Provide the name of the client and each such client's in-house counsel's name, address and telephone number.

19) Please provide any additional information which would serve to distinguish your firm from other firms and that you believe may be relevant to this RFP and your capability to perform the services required.

D. RFP Additional Information Request

1) Insurance:

a. Do you impose any limitations on liability through your contracts?

b. Describe the levels of coverage for any insurance your firm carries. List the insurance carrier(s) or provide an insurance certificate showing your firm's coverage in accordance with the following:

- Commercial General Liability Insurance limits shall not be less than \$1,000,000 per each occurrence and \$2,000,000 in the aggregate;
- Umbrella Liability limits shall not be less than \$10,000,000;
- Automobile liability (Combined Single Injury, Bodily Injury and Property Damage) limits shall not be less than \$1,000,000;
- Workman's Compensation shall not be less than statutory limits;
- Employers Liability shall not be less than \$1,000,000;
- Disability Insurance as required by applicable provisions of law;
- Contractors Pollution Liability shall not be less than \$5,000,000;
- Professional Liability shall not be less than \$2,000,000.

The costs of the insurance shall be included in the Proposal. BPCA, BPCPC and the State of New York must be listed as Additional Insured on CG 2010 (11/85) or similar and should be included on all levels of insurance held by each Proposer and all sub-contractors.

All policies must provide coverage on a primary and non-contributory basis and there must be a waiver of subrogation against all additional insureds.

c. **Bonding:** Provide a letter from your surety(ies) stating that you are able to provide a payment and performance bond as required by the standard form of contract (**Exhibit C**).

2) Progress Schedule

Attach a bar chart schedule for performance of the Project, showing the sequencing of the work with durations for each element, staffing levels, work shifts, all Project milestones and successful overall completion, keeping in mind that it is BPCA's objective to interrupt the public's access to and use of the West Thames Lawn for as brief a duration as is feasible and to substantially complete the Scope of Work (including any Add Alternates) no later than March 1, 2016.

3) References:

Please provide at least three (3) client references for whom your firm has performed similar work to that requested in this RFP. For each client, please provide the name, address and telephone number for the client's project manager or primary project contact.

4) Appendices:

- a. Provide resumes for all key management personnel listed in your Proposal, including the staff that your firm is proposing to assign to this Project.
- b. Provide a copy of each addendum submitted by BPCA with regard to this RFP (if applicable) and a signed acknowledgment of receipt of each addendum.

5) Financial Statements:

Provide a copy of your firm's most recent Audited Financial Statements (within the last year).

6) MBE/WBE & EEO Policy Statement

Attach the completed MBE/WBE & EEO Policy Statement form provided as part of Exhibit B.

E. Cost Proposal

Three copies of the Cost Proposal must be submitted in a separately sealed envelope, as directed below. To submit a complete Cost Proposal, Proposer must submit each of the following:

- 1) A lump sum amount for performance of all services described as Base Bid services in the Scope of Work, in the form of the cost proposal attached hereto as Exhibit D.
- 2) Separate lump sum amounts for performance of all services described in each of the two Add Alternates in the Scope of Work, in the form of the cost proposal attached hereto as Exhibit D.

The Cost Proposal, regardless of whether it is bound, must be submitted in its own separate envelope within the sealed package containing all other Proposal documents. For the avoidance of doubt, the Cost Proposal must be submitted separately and unbound from the remainder of the Proposal documents.

VII. THE EVALUATION PROCESS

A. Objectives

The primary objective of the evaluation process is to select a firm that:

- Demonstrates a thorough understanding of the scope of the engagement and the specific responsibilities which it entails;
- Possesses adequate resources to handle assigned responsibilities and to handle unforeseen circumstances that may arise;
- Assigns highly skilled, experienced, diligent, responsible and professional personnel to perform the required services;
- Maintains high ethical standards and has an unblemished reputation;
- Has no conflict of interest between its work for BPCA and that for other clients.

The selection process will begin with the review and evaluation of each of the written Proposals. The purpose of this evaluation process is twofold: (1) to examine the responses for compliance with this RFP and (2) to identify the complying firms that have the highest probability of satisfactorily performing the Services Required. The evaluation process will be conducted in a comprehensive and impartial manner by a committee of BPCA's employees selected by BPCA (the "Committee"). **The Committee will evaluate the Proposals based upon the evaluation criteria for selection set forth below.**

BPCA will reject and return unopened to the Proposer any Proposal received after the RFP Due Date. All timely submitted Proposals will be reviewed to determine if they contain all required submittals specified herein. Incomplete Proposals may be rejected.

B. Interviews

BPCA reserves the right to determine whether interviews will be necessary for any or all of the Proposers. The purpose of the interview is to further document a Proposer's ability to provide the Services Required, and to impart to the Committee an understanding of how specific services will be furnished. The proposed Lead Manager, as well all other key personnel proposed to provide the services must be present and participate in the interview. Each Proposer interviewed will be evaluated on the basis of whether the interview substantiates the characteristics and attributes claimed by the Proposer in its written response to this RFP and any other information requested by the Committee prior to the interview.

C. Evaluation Criteria for Selection

Selection will be based upon the following criteria:

- | | |
|---|-----|
| 1) Experience performing work with similar materials and installation methods, including | 40% |
| - Synthetic turf installation | |
| - Fencing | |
| - Landscaping | |
| 2) Approach to work, staffing and schedule, including the following factors: | 40% |
| - Project methodology & sequencing; | |
| - Construction commencement and duration; and | |
| - Qualifications of proposed Project staffing | |
| 3) Cost Proposal: | 10% |
| 4) Proposed MBE/WBE utilization plan (the "Utilization Plan") and/or Firm MBE/WBE status: | 10% |

D. Basis for Contract Award

The Contract will be awarded to the highest rated Proposer whose Proposal is determined to be responsive.

VIII. NON-COLLUSION

By submitting a Proposal, Proposers hereby warrant and represent that any ensuing Contract has not been solicited or secured directly or indirectly in a manner contrary to the laws of the State of New York, and that said laws have not been violated and shall not be violated as they relate to the procurement or the performance of the Contract by any conduct, including the paying or giving of any fee, commission, compensation, gift, or gratuity or consideration of any kind, directly or indirectly, to any member of the board of directors, employee, officer or official of BPCA.

IX. IRAN DIVESTMENT ACT

By submitting a Proposal or by assuming the responsibility of any Contract awarded hereunder, Proposers hereby certify that they are not on the "Entities Determined To Be Non-Responsive Bidders/Offerers Pursuant to The New York State Iran Divestment Act of 2012" list ("Prohibited Entities List") posted on the New York State Office of General Services website at: <http://www.ogs.ny.gov/about/regs/docs/ListofEntities.pdf> and further certify that they will not utilize any subconsultant that is identified on the Prohibited Entities List on this Contract. The selected Proposer agrees that should it seek to renew or extend any Contract awarded hereunder, it must provide the same

certification at the time the Contract is renewed or extended. The selected Proposer also agrees that any proposed assignee of the Contract will be required to certify that it is not on the Prohibited Entities List before BPCA may approve a request for assignment of the Contract.

During the term of any Contract awarded hereunder, should BPCA receive information that a person (as defined in State Finance Law §165-a) is in violation of the above-referenced certifications, BPCA will review such information and offer the person an opportunity to respond. If the person fails to demonstrate that it has ceased its engagement in the investment activity which is in violation of the New York State Iran Divestment Act of 2012 within 90 days after the determination of such violation, then BPCA shall take such action as may be appropriate and provided for by law, rule, or contract, including, but not limited to, seeking compliance, recovering damages, or declaring the selected Proposer in default of the awarded Contract.

BPCA reserves the right to reject any request for renewal, extension, or assignment for an entity that appears on the Prohibited Entities List prior to the renewal, extension, or assignment of the Contract, and to pursue a responsibility review with the selected Proposer should it appear on the Prohibited Entities List hereafter.

X. ENCOURAGING USE OF NEW YORK STATE BUSINESSES IN CONTRACT PERFORMANCE

New York State businesses have a substantial presence in State contracts and strongly contribute to the economies of the state and the nation. In recognition of their economic activity and leadership in doing business in New York State, Proposers for this Contract for commodities, services or technology are strongly encouraged and expected to consider New York State businesses in the fulfillment of the requirements of the Contract. Such partnering may be as subcontractors, suppliers, protégés or other supporting roles.

Proposers need to be aware that all authorized users of this Contract will be strongly encouraged, to the maximum extent practical and consistent with legal requirements, to use responsible and responsive New York State businesses in purchasing commodities that are of equal quality and functionality and in utilizing services and technology. Furthermore, Proposers are reminded that they must continue to utilize small, minority and women-owned businesses, consistent with current State law.

Utilizing New York State businesses in State contracts will help create more private sector jobs, rebuild New York's infrastructure, and maximize economic activity to the mutual benefit of the contractor and its New York State business partners. New York State businesses will promote the contractor's optimal performance under the Contract, thereby fully benefiting the public sector programs that are supported by associated procurements.

Public procurements can drive and improve the State's economic engine through promotion of the use of New York businesses by its contractors. The State therefore expects bidders/proposers to provide maximum assistance to New York businesses in their contracts. The potential participation by all kinds of New York businesses will deliver great value to the State and its taxpayers.

Proposers can demonstrate their commitment to the use of New York State businesses by responding to the question below:

Will New York State businesses be used in the performance of this contract? ☐ Yes ☐ No

If yes, identify New York State businesses that will be used and attach identifying information.

EXHIBIT A

GENERAL DESCRIPTION AND SCOPE OF WORK

The selected Proposer shall provide all labor, equipment, tools, materials and construction services necessary to complete the Project, in accordance with the Construction Documents (the “Work”). The Work shall include, but not be limited to:

Base Bid

- A. Pre-construction, performance of a detailed existing conditions survey of the RT-9A pedestrian walkway between Albany Street and Rector Street and provision of a comprehensive report of current conditions and any existing damage;
- B. Securing of all required permits for the Work from NYSDOT and/or NYCDOT.
- C. Securing and safeguarding of all staging areas, access areas and the Project site, as required to perform the Work and insure public safety;
- D. Protection of all existing sidewalks, pavers, fences, walls, light poles, trees, utilities, and associated facilities as required to insure their preservation throughout the duration of the Project;
- E. Removal and storage of portions of existing 3’-6” high Eastern fencing as required to facilitate construction operations;
- F. Removal of existing sod and sub base as indicated on the Construction Documents;
- G. Performance of a permeability test to be witnessed by the engineer of record and a Battery Park City Authority representative;
- H. Installation of sub base and drainage layers as indicated in the Construction Documents;
- I. Performance of all site grading as needed;
- J. Installation of new synthetic turf carpet with infill, brock pad and geo-textile fabric as indicated in the Construction Documents;
- K. Restoration and/or repair of any paving, paving stones, walkways, curbs, fencing, landscaping or other items damaged or destroyed outside of the Project site by virtue of accessing and delivering materials and equipment to the Project site and/or by virtue of performance of the Work;
- L. Cleaning of site and contractor access paths;
- M. Provision of appropriate warranties for all materials;
- N. Provision of as-built drawings documenting the Project work;
- O. Installation of new fencing as indicated on the Construction Documents;

Add Alternates

- 1. Provision and installation of new drinking fountain misting station and all related excavation, plumbing and other work, as indicated in the Construction Documents;
- 2. Provision and installation of new benches, planters, landscape planting materials and all related work, as indicated in the Construction Documents

Schedule

The project must be 100% complete (including any Add Alternate work, but with the exception of plantings) no later than April 1, 2016; however, additional evaluation points (under “Approach to Work and Schedule”) will be awarded to Proposers that provide a verifiable schedule resulting in substantial completion of the Project in advance of this date, with the earliest credible completion dates receiving the highest “Approach to Work and Schedule” points.

Attachment A-1

Plans



BATTERY PARK CITY AUTHORITY

WEST THAMES PARK - SYNTHETIC TURF LAWN

DRAFT - BID DOCUMENTS

PROJECT NO. 210801264

AUGUST 13, 2015

OWNER

HUGH L. CAREY BATTERY PARK CITY AUTHORITY
ONE WORLD FINANCIAL CENTER, 24TH FLOOR
NEW YORK, NY 10281

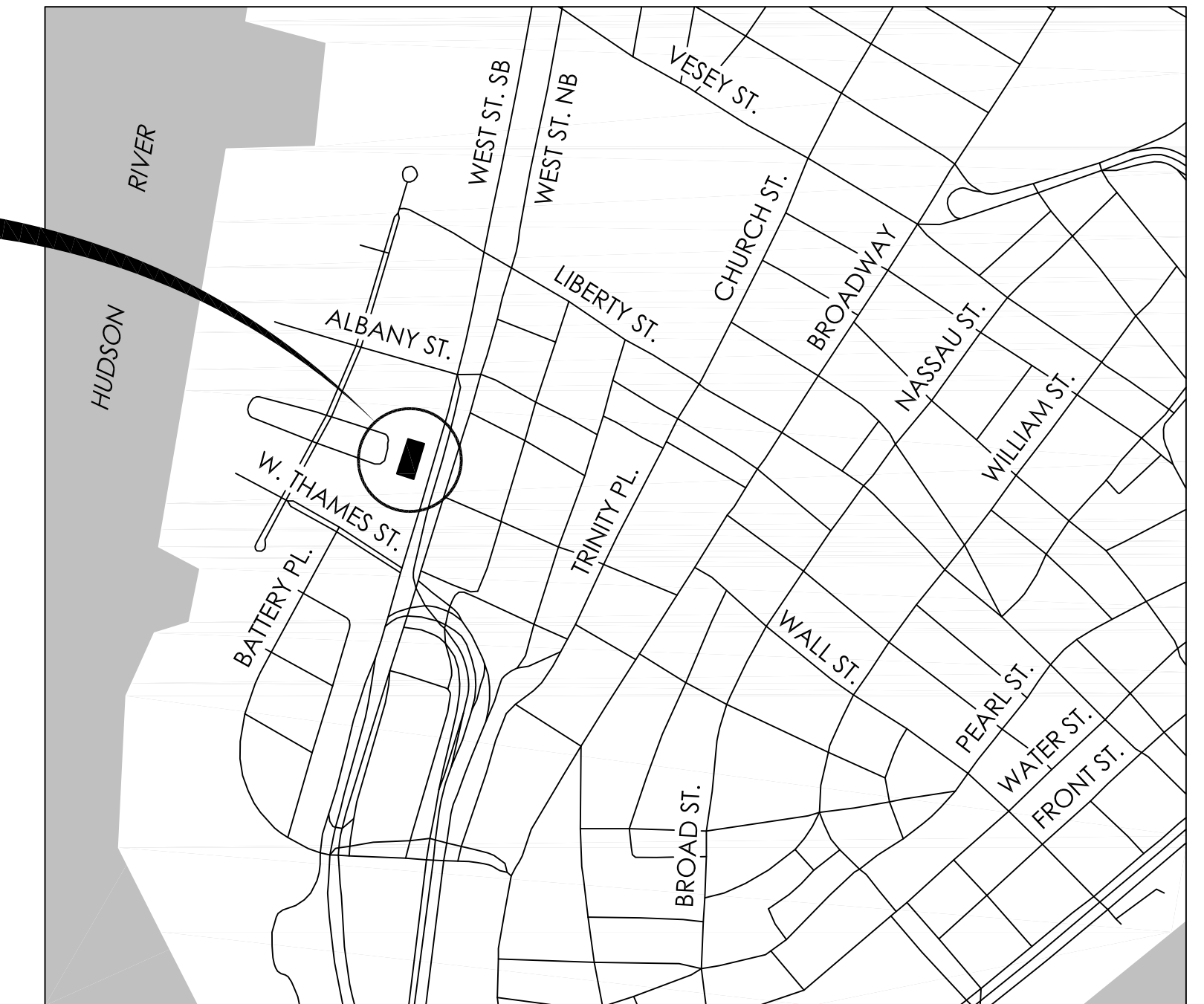
SPORTS CONSULTANT / LANDSCAPE ARCHITECT

STANTEC CONSULTING SERVICES, INC.
226 CAUSEWAY STREET, 6TH FLOOR
BOSTON, MA 02114

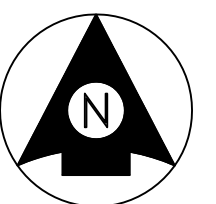
CIVIL ENGINEER

STANTEC CONSULTING SERVICES, INC.
50 WEST 23RD STREET, 8TH FLOOR
NEW YORK, NY 10010

PROJECT LOCATION



LOCATION MAP
NOT TO SCALE



LOCATION INFORMATION

Street Name: West Street (Rte.9a) - West Thames Park, Battery Park City
Borough: Manhattan
Special District: Battery Park City District (BPC)

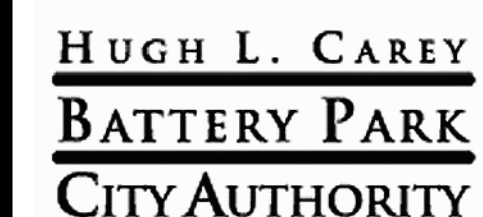
INDEX OF SHEETS

SHEET NO.	TITLE
	COVER SHEET
EX-1	EXISTING CONDITIONS PLAN
SP-1	SITE PREPARATION PLAN
L-1	LAYOUT AND MATERIALS PLAN
L-2	GRADING AND UTILITIES PLAN
L-3	SITE DETAILS
L-4	8' HT. FENCE
L-5	DRINKING FOUNTAIN (ADD ALTERNATE NO. 1)
L-6	RAISED PLANTER (ADD ALTERNATE NO. 2)
L-7	RAISED PLANTER (ADD ALTERNATE NO. 2)



The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing - any errors or omissions shall be reported to Stantec without delay.

The Copyrights to all designs and drawings are the property of Stantec. Reproduction or use for any purpose other than that authorized by Stantec is forbidden.



1. EXISTING CONDITIONS SHOWN HEREIN ARE BASED ON BOTH A FIELD SURVEY, CONDUCTED BY VOLLMER ASSOCIATES LLP DURING 2003 AND 2004, AND THE CONFORMED SET OF CONSTRUCTION PLANS FOR THE ROUTE 9A – WEST ST. PROMENADE PROJECT, PREPARED BY STANTEC CONSULTING SERVICES INC., DATED DECEMBER 17, 2009.
2. IRRIGATION LINES HAVE BEEN DIGITIZED FROM AN AS–BUILT DRAWING FOR THE ROUTE 9A – WEST ST. PROMENADE PROJECT, TITLED "AB–014" AND DATED JULY 29, 2011.
3. UNDERDRAINS HAVE BEEN DIGITIZED FROM AN AS–BUILT DRAWING FOR THE ROUTE 9A – WEST ST. PROMENADE PROJECT, TITLED "AB–010" AND DATED APRIL 8, 2010.
4. UNDERGROUND UTILITIES WERE COMPILED FROM AVAILABLE RECORD PLANS OF UTILITY COMPANIES AND PUBLIC AGENCIES AND ARE APPROXIMATE ONLY.
5. CAUTION: 12'-0" OVERHEAD CLEARANCE AT RECTOR BRIDGE. CONTRACTOR TO VERIFY HEIGHT IN FIELD.

NEW YORK STATE EDUCATION LAW
It is a violation of Article 145, Section 720 of the NYS Education Law for any person, unless he is acting under the direction of a licensed Professional Engineer, to alter this document in any way. If an item bearing the seal of an Engineer is altered, the altering ENGINEER shall affix to the item his seal and the notation "Altered By" followed by his signature and the date of such alteration and a specific description of the alteration.

2. DRAWINGS REVISED AS PER STANTEC QA/QC REVIEW	JF		15.08.13
1. DRAWINGS REVISED AS PER COMMENTS FROM PDC	JF	DN	15.07.27
Revision	By	Appd.	YY.MM.DD

C. FINAL CHECK SET	JF		15.08.13
B. REVISED - DRAFT BID DOCUMENTS	JF	DN	15.07.27
A. DRAFT BID DOCUMENTS	JF	DN	15.07.14
Issued	By	Appd.	YY.MM.DD

File Name: 01_01246_EC.dwg	EG	DN	JF	15.07.14
	Dwn	Chkd	Dson	YY MM DD

Permit-Seq

Client/Project

BATTERY PARK CITY AUTHORITY

WEST THAMES PARK
SYNTHETIC TURF LAWN

New York, NY

Title

EXISTING CONDITIONS PLAN

Project No. 210801264	Scale AS NOTED	
Drawing No. EX-1	Sheet 1 of 9	Revision 0



The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing - any errors or omissions shall be reported to Stantec without delay. The Copyrights to all designs and drawings are the property of Stantec. Reproduction or use for any purpose other than that authorized by Stantec is forbidden.



HUGH L. CAREY
BATTERY PARK
CITY AUTHORITY

2. DRAWINGS REVISED AS PER STANTEC QA/QC REVIEW	JF			15.08.13
1. DRAWINGS REVISED AS PER COMMENTS FROM PDC	JF	DN		15.07.27
Revision	By	Appd.		YYMM.DD
C. FINAL CHECK SET	JF			15.08.13
B. REVISED - DRAFT BID DOCUMENTS	JF	DN		15.07.27
A. DRAFT BID DOCUMENTS	JF			15.07.14
Issued	By	Appd.		YYMM.DD

File Name: 02_01246_SP.dwg	EG	DN	JF	15.07.14
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit-Sea

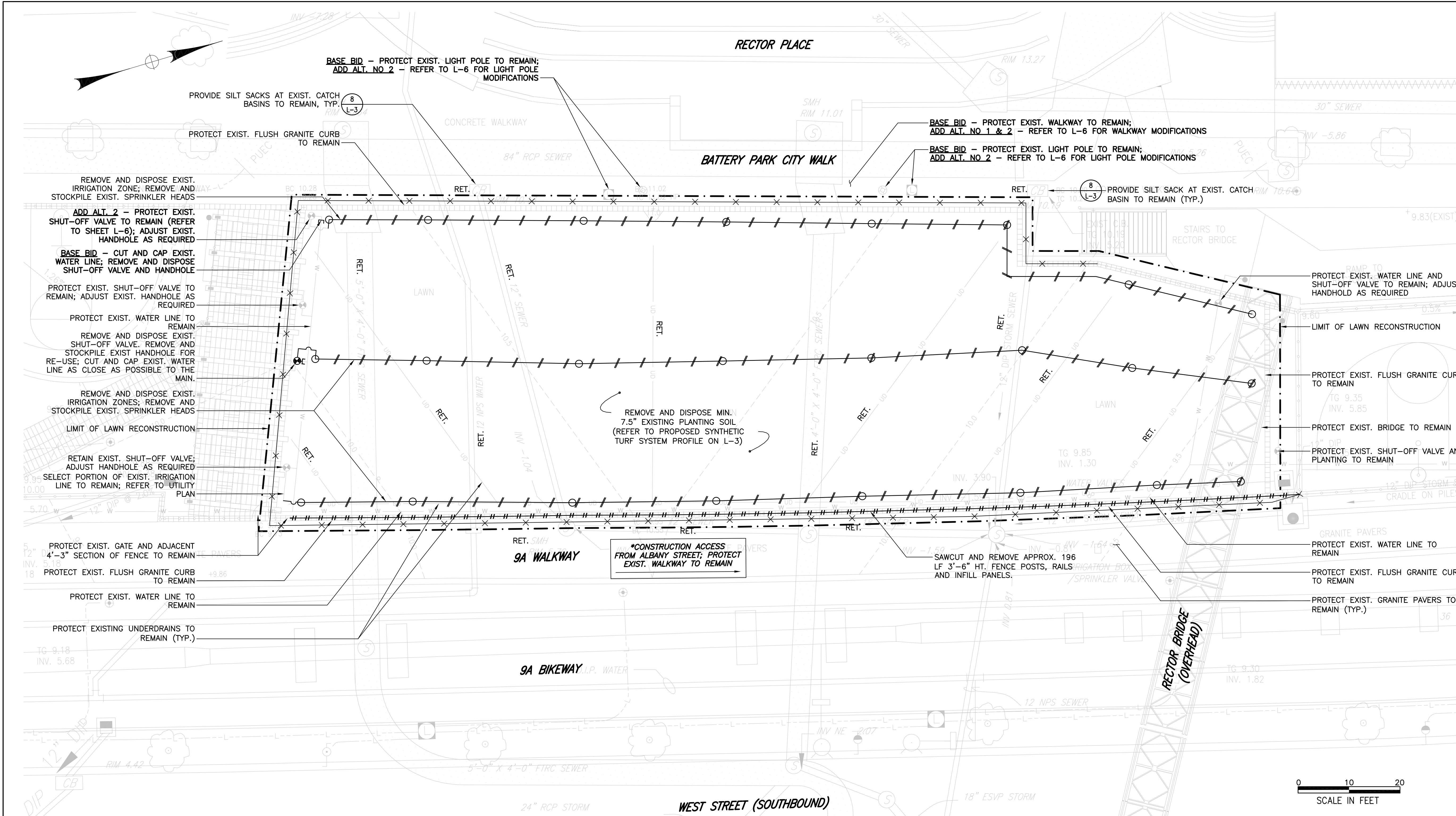
Client/Project

Battery Park City Authority
WEST THAMES PARK
SYNTHETIC TURF LAWN
New York, NY

Title

SITE PREPARATION PLAN

Project No. 210801264	Scale AS NOTED	
Drawing No. SP-1	Sheet 2 of 9	Revision 0



SITE PREPARATION NOTES

1. THE OWNER'S REPRESENTATIVE SHALL BE CONSULTED AND WILL REVIEW THE WORK ON SITE WITH THE CONTRACTOR BEFORE ANY WORK SHALL COMMENCE.
2. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS IN THE FIELD AND REPORT ANY DISCREPANCIES BETWEEN PLANS AND ACTUAL CONDITIONS TO THE OWNER'S REPRESENTATIVE PRIOR TO STARTING WORK.
3. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING CONDITIONS TO REMAIN THAT ARE DUE TO CONTRACTOR OPERATIONS.
4. ALL ITEMS TO BE REMOVED THAT ARE NOT STOCKPILED FOR LATER REUSE ON THE PROJECT OR DELIVERED TO THE OWNER SHALL BE LEGALLY DISPOSED OF OFF SITE BY THE CONTRACTOR.
5. THE LOCATIONS OF UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED ON THE SURVEY REFERENCED ON SHEET EX-1. THE CONTRACTOR SHALL CONTACT DIGNET (1-800-272-4480) AND THE PROPER LOCAL AUTHORITIES OR RESPECTIVE UTILITY COMPANIES TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. ANY DAMAGE DUE TO FAILURE OF THE CONTRACTOR TO CONTACT THE PROPER AUTHORITIES SHALL BE BORNE BY THE CONTRACTOR.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS EFFORTS OF THE DEMOLITION WITH ALL TRADES.
7. THE CONTRACTOR SHALL COORDINATE ALL ADJUSTMENT OR ABANDONMENT OF UTILITIES WITH THE RESPECTIVE UTILITY COMPANY.
8. THE CONTRACTOR SHALL MAINTAIN OR ADJUST TO NEW FINISH GRADE AS NECESSARY ALL UTILITY AND SITE STRUCTURES SUCH AS LIGHT POLES, SIGN POLES, MAN HOLES, CATCH BASINS, HAND HOLES, WATER AND GAS GATES, HYDRANTS, ETC., FROM MAINTAINED UTILITY AND SITE SYSTEMS UNLESS OTHERWISE NOTED OR DIRECTED BY THE OWNER'S REPRESENTATIVE.
9. CONTRACTOR MUST SAFELY MAINTAIN ACCESS TO AREAS OF THE PARK OUTSIDE THE LIMIT OF WORK THROUGHOUT CONSTRUCTION, INCLUDING THE TRELLIS STRUCTURE, THE STAIRS AT RECTOR BRIDGE AND THE BATTERY PARK CITY WALK.
10. CONTRACTOR MUST SUBMIT PROPOSED PEDESTRIAN DETOUR PLANS FOR REVIEW AND APPROVAL IF TEMPORARY CLOSURE OF WALKWAYS IS REQUIRED. PEDESTRIAN DETOURS MUST BE REMOVED AT THE END OF EACH WORK DAY. CONTRACTOR WILL BE RESPONSIBLE FOR SUBMISSION AND COORDINATION OF SUCH CLOSURES WITH ALL REGULATING AGENCIES SUCH AS, BUT NOT LIMITED TO, NEW YORK STATE DEPARTMENT OF TRANSPORTATION.
11. STORAGE AND / OR STOCKPILE OF MATERIAL ON EXISTING WALKWAYS WILL NOT BE PERMITTED.

CONSTRUCTION SEQUENCE







SUGGESTED SEQUENCE OF CONSTRUCTION IS AS FOLLOWS:

1. OBTAIN PLAN APPROVAL AND ALL OTHER APPLICABLE PERMITS.
2. HOLD PRE-CONSTRUCTION CONFERENCE AT LEAST ONE WEEK PRIOR TO STARTING CONSTRUCTION.
3. INSTALL SEDIMENT CONTROL FENCE AND TEMPORARY CONSTRUCTION FENCE WHERE APPLICABLE.
4. INSTALL INLET PROTECTION AT EXISTING DRAINAGE STRUCTURES.
5. INSTALL STABILIZED CONSTRUCTION ENTRANCE TO PREVENT TRACKING OF SOIL ONTO ROADWAYS.
6. PERFORM SELECTIVE DEMOLITION OF SITE FEATURES.
7. ESTABLISH ROUGH GRADES OF SITE ENSURING THAT THE DISTURBED SOIL IS STABILIZED ON A DAILY BASIS.
8. INSPECT ALL EROSION AND SEDIMENT CONTROL PRACTICES WEEKLY AND AFTER EACH RAINFALL EVENT. PERFORM REPAIRS AND NECESSARY MAINTENANCE IMMEDIATELY. REMOVE SEDIMENT FROM BEHIND THE SILT FENCE WHEN IT BECOMES APPROXIMATELY SIX INCHES DEEP.
9. MODIFY STORMWATER INFILTRATION SYSTEM.
10. COMPLETE FINE GRADING AND CONSTRUCT NEW SYNTHETIC TURF LAWN.
11. CLEAN OUT ALL DRAINAGE STRUCTURES AND PIPES.
12. REMOVE TEMPORARY EROSION CONTROL MEASURES UPON COMPLETION OF WORK AS IDENTIFIED BY THE QUALIFIED INSPECTOR.

EROSION CONTROL MEASURES

1. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SITE EXCAVATION OR DISTURBANCE AND SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROCESS. THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME.
2. SEDIMENT TRAPS SHALL BE INSTALLED AT ALL DRAINAGE STRUCTURES. STRAW WATTLES AND SILTATION SACKS ARE TO BE MAINTAINED AND CLEANED UNTIL CONSTRUCTION FINISHED.
3. SEDIMENT BARRIERS SHALL BE INSPECTED AND APPROVED BEFORE CONSTRUCTION CAN START.
4. THE UNDERSIDE OF STRAW WATTLES SHOULD BE KEPT IN CLOSE CONTACT WITH THE EARTH AND RESET AS NECESSARY.
5. CLEAN OUT CATCH BASINS, DRAIN MANHOLES, STORM DRAIN PIPES, AND DETENTION BASINS AFTER COMPLETION OF CONSTRUCTION.
6. ALL COLLECTED SEDIMENT AND DISCARDED TEMPORARY EROSION CONTROL MATERIALS SHALL BE DISPOSED OF PROPERLY TO AN APPROVED LOCATION.
7. THE BOTTOM OF SEDIMENTATION BASINS SHALL BE PERIODICALLY CLEANED PER THE DIRECTION OF THE OWNER'S REPRESENTATIVE. DISPOSE OF SEDIMENT PROPERLY.
8. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, CONTRACTOR TO REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AT THE OWNER'S REPRESENTATIVES DIRECTION.
9. DAMAGED OR DETERIORATED ITEMS WILL BE REPAIRED IMMEDIATELY AFTER IDENTIFICATION OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
10. THE CONTRACTOR'S SITE SUPERINTENDENT WILL BE RESPONSIBLE FOR DAILY INSPECTIONS, MAINTENANCE, AND REPAIR ACTIVITIES.

LEGEND

	LIMIT OF LAWN RECONSTRUCTION
	8' CONSTRUCTION FENCE
	REMOVE AND DISPOSE EXIST. IRRIGATION ZONE, REMOVE AND STOCKPILE EXIST SPRINKLER HEADS
	SAWCUT AND REMOVE FENCE POSTS, RAILS, AND INFILL PANELS
	EXISTING SHUT-OFF VALVE
	EXISTING IRRIGATION SPRAY HEAD

NEW YORK STATE EDUCATION LAW
It is a violation of Article 145, Section 4 of the NYS Education Law for any person, unless he is acting under the direction of a licensed Professional Engineer, to alter any document in any way. If an item bearing the seal of an Engineer is altered, the altered ENGINEER shall affix to the item his seal and the notation "Altered By" followed by his signature and the date of such alteration, and a specific description of the alteration.



HUGH L. CAREY
BATTERY PARK
CITY AUTHORITY

2. DRAWINGS REVISED AS PER STANTEC QA/QC REVIEW	JF		15.08.13
1. DRAWINGS REVISED AS PER COMMENTS FROM PDC	JF	DN	15.07.27
Revision	By	Appd.	YY.MM.DD
C. FINAL CHECK SET	JF		15.08.13
B. REVISED - DRAFT BID DOCUMENTS	JF	DN	15.07.27
A. DRAFT BID DOCUMENTS	JF	DN	15.07.14
Issued	By	Appd.	YY.MM.DD

File Name:	03_01246_LM.dwg	EG	DN	JF	15.07.14
		Dwn.	Chkd.	Dgn.	YY.MM.DD

Permit-Seal

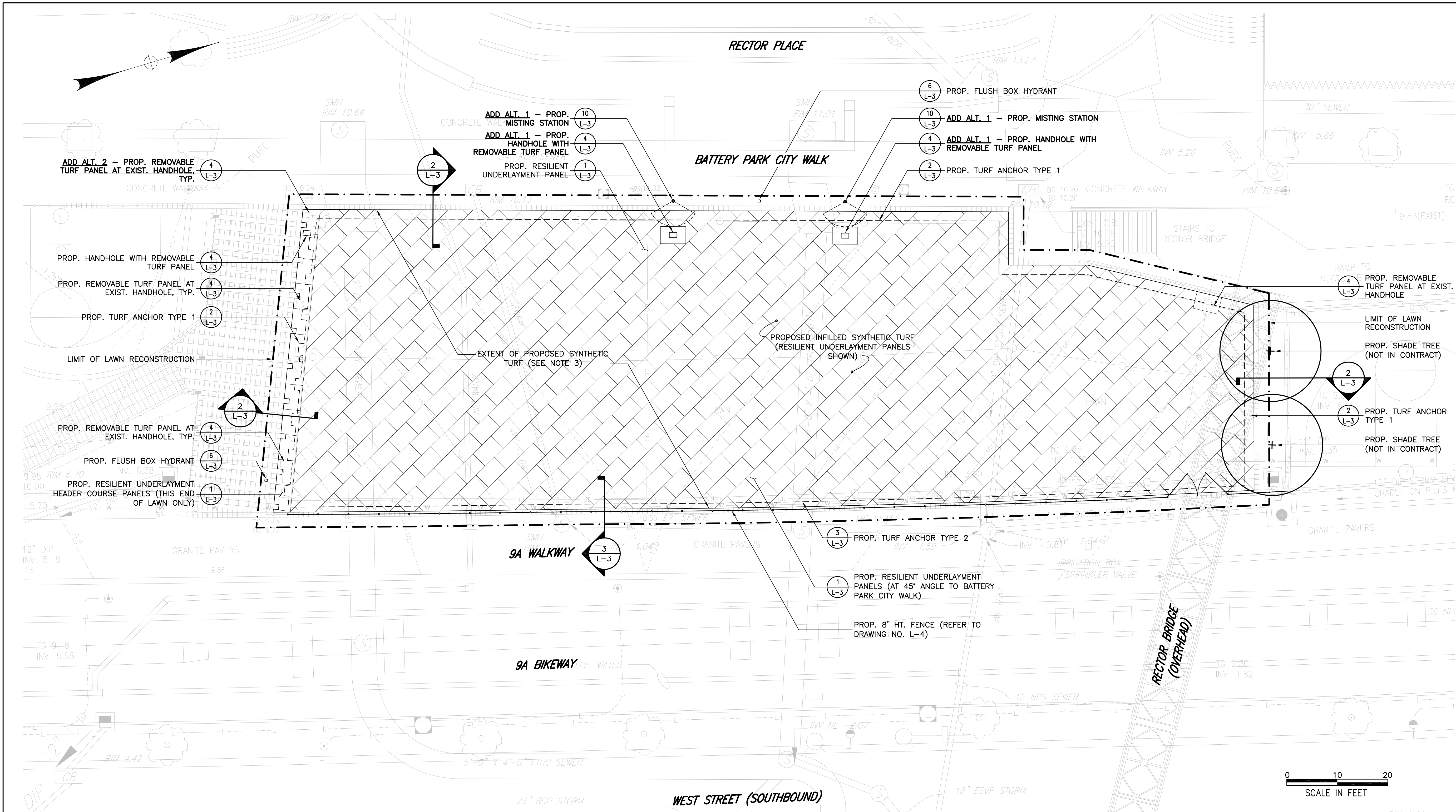
Client/Project

Battery Park City Authority
WEST THAMES PARK
SYNTHETIC TURF LAWN
New York, NY

Title

LAYOUT AND MATERIALS PLAN

Project No.	Scale
210801264	AS NOTED
Drawing No.	Sheet
L-1	3 of 9
	Revision
	0



LAYOUT AND MATERIALS NOTES

- CONTRACTOR(S) SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL CONSTRUCTION DOCUMENTS, SPECIFICATIONS, AND SITE CONDITIONS PRIOR TO BIDDING AND PRIOR TO CONSTRUCTION.
- ANY DISCREPANCIES BETWEEN DRAWINGS, SPECIFICATIONS, AND SITE CONDITIONS SHALL BE REPORTED IMMEDIATELY TO THE OWNER'S REPRESENTATIVE FOR CLARIFICATION AND RESOLUTION PRIOR TO BIDDING OR CONSTRUCTION.
- EXTENT OF PROPOSED INFILLED SYNTHETIC TURF SYSTEM TO MATCH EXTENT OF EXISTING NATURAL GRASS LAWN.
- TURF FIBER, BACKING, AND SECONDARY BACKING WILL BE POLYOLEFIN BASED PRODUCTS - MAKING THEM RECYCLABLE. PROPOSED INFILL WILL BE COMPRISED OF SAND AND TPE (THERMOPLASTIC ELASTOMER (VIRGIN RUBBER)). TPE WILL BE LIGHT GREEN IN COLOR. REFER TO PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION REGARDING INFILLED SYNTHETIC TURF SYSTEM.

LEGEND

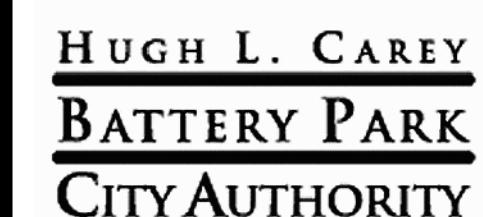
- LIMIT OF LAWN RECONSTRUCTION
- PROPOSED RESILIENT UNDERLAYMENT PANELS

NEW YORK STATE EDUCATION LAW
It is a violation of Article 145, Section 7209 of the NYS Education Law for any person, unless he is acting under the direction of a licensed Professional Engineer, to alter this document in any way. If an item bearing the seal of an Engineer is altered, the altering ENGINEER shall affix to the item his seal and the notation "Altered By" followed by his signature and the date of such alteration and a specific description of the alteration.



The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing - any errors or omissions shall be reported to Stantec without delay.

The Copyrights to all designs and drawings are the property of Stantec. Reproduction or use for any purpose other than that authorized by Stantec is forbidden.



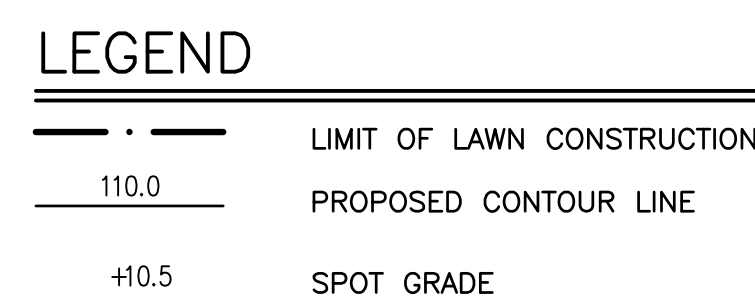
2. DRAWINGS REVISED AS PER STANTEC QA/QC REVIEW	JF				15.08.13
1. DRAWINGS REVISED AS PER COMMENTS FROM PDC	JF	DN			15.07.27
Revision	By		Appd.		YYMM.DD
C. FINAL CHECK SET	JF				15.08.13
B. REVISED - DRAFT BID DOCUMENTS	JF	DN			15.07.27
A. DRAFT BID DOCUMENTS	JF	DN			15.07.14
Issued	By		Appd.		YYMM.DD
File Name: 04_01246_UP.dwg	EG	DN	JF		15.07.14
	Dwn.	Chkd.	Dign.		YYMM.DD

Client/Project

WEST THAMES PARK
SYNTHETIC TURF LAWN
New York, NY

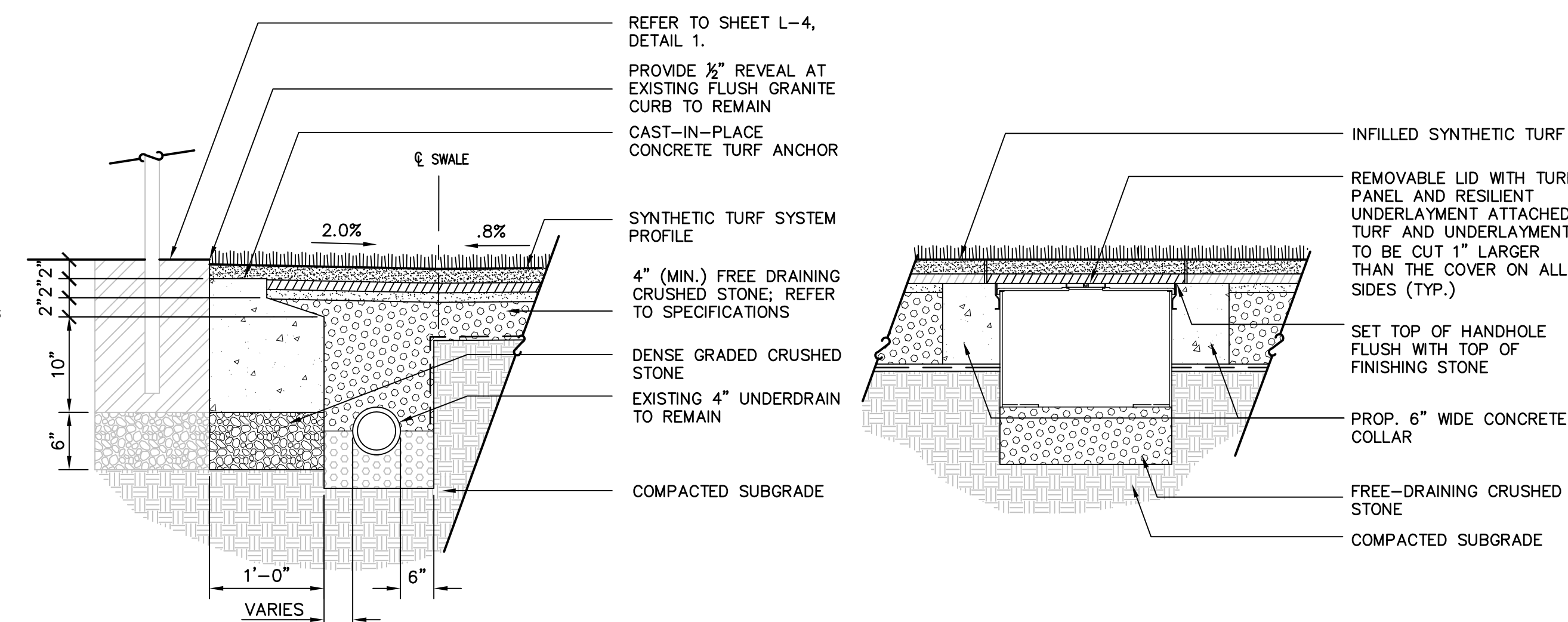
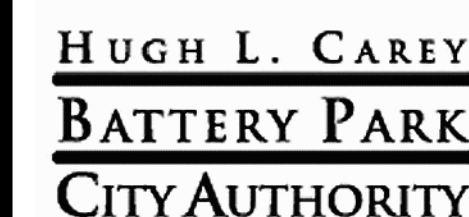
GRADING AND UTILITIES PLAN

Project No. 210801264	Scale AS NOTED	
Drawing No. L-2	Sheet 4 of 9	Revision 0

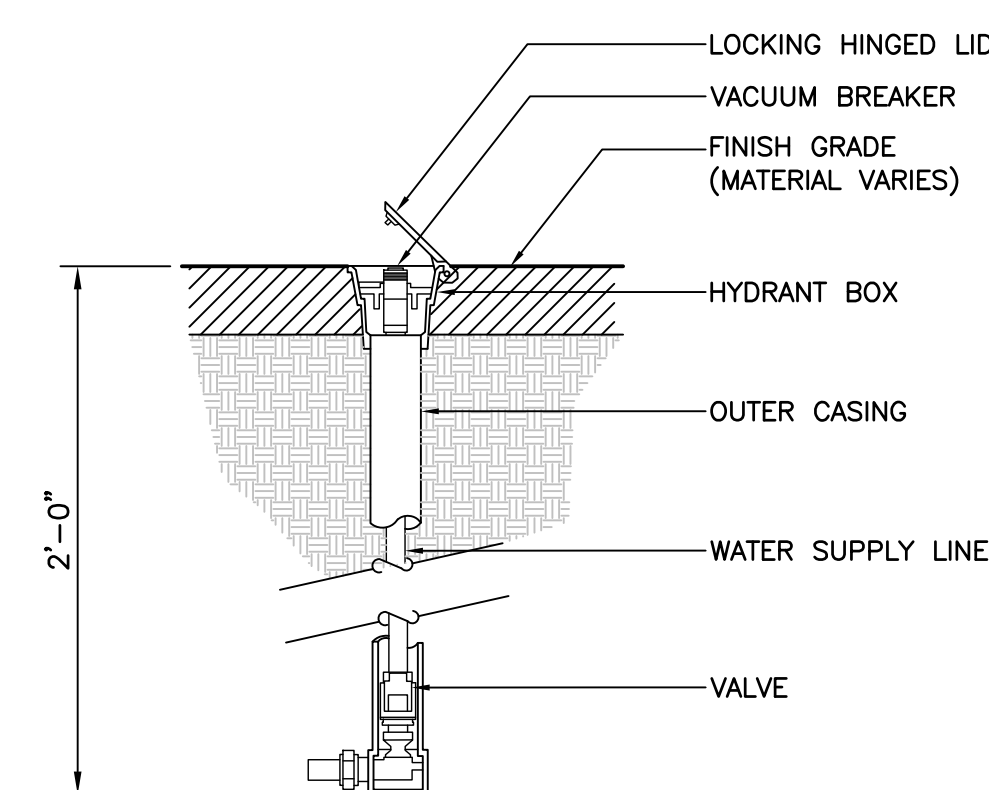


1. WHERE PROPOSED GRADES MEET EXISTING GRADES, CONTRACTOR SHALL BLEND GRADES TO PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING AND NEW WORK. PONDING AT TRANSITION AREAS WILL NOT BE ALLOWED.
2. THE CONTRACTOR SHALL MEET ALL EXISTING GRADES ON WALKWAYS. GRADES SHALL BE MEASURED AT TWO FOOT INTERVALS. CROSS SLOPES ON ALL WALKS AND PATHS OF TRAVEL SHALL NOT EXCEED 1.5%. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IMMEDIATELY IF DISCREPANCIES ARISE BETWEEN THE ACTUAL GRADES SHOWN ON THE PLANS AND THE MAXIMUM ALLOWABLE GRADES INDICATED HERE.
3. ENSURE ALL EXISTING (TO REMAIN), AND PROPOSED MANHOLE COVERS PROPERLY IDENTIFY UTILITY SERVICED.
4. CONTRACTOR SHALL VERIFY EXISTING GRADES AND NOTIFY OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES.
5. CONTRACTOR TO ADJUST UTILITY ELEMENT MEANT TO BE FLUSH WITH GRADE (CLEAN-OUTS, UTILITY MANHOLES, CATCH BASINS, INLETS, ETC.) THAT IS AFFECTED BY SITE WORK OR GRADE CHANGES, WHETHER SPECIFICALLY NOTED ON PLANS OR NOT.
6. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MAY BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ALL UNDERGROUND UTILITIES.
7. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.
8. THE CONTRACTOR SHALL ALTER THE MASONRY OF THE TOP SECTION OF ALL EXISTING DRAINAGE STRUCTURES AS NECESSARY FOR CHANGES IN GRADE, AND RESET ALL WATER AND DRAINAGE FRAMES, GRATES, AND BOXES TO THE PROPOSED FINISH SURFACE GRADE.
9. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF ALL GAS, ELECTRIC, TELEPHONE, AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.
10. CONTRACTOR SHALL MAINTAIN, OR ADJUST TO NEW FINISH GRADE, AS NECESSARY ALL UTILITY AND SITE STRUCTURES SUCH AS: LIGHT POLES, SIGN POLES, MANHOLES, CATCH BASINS, HAND HOLES, WATER AND GAS GATES, HYDRANTS, ETC., FROM MAINTAINED UTILITY AND SITE SYSTEMS, UNLESS OTHERWISE NOTED OR DIRECTED BY OWNER'S REPRESENTATIVE.
11. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION, AT THE CONTRACTOR'S EXPENSE.
12. PROTECT AND MAINTAIN EXISTING ON-SITE DRAINAGE STRUCTURES AND PIPES UNLESS OTHERWISE NOTED.

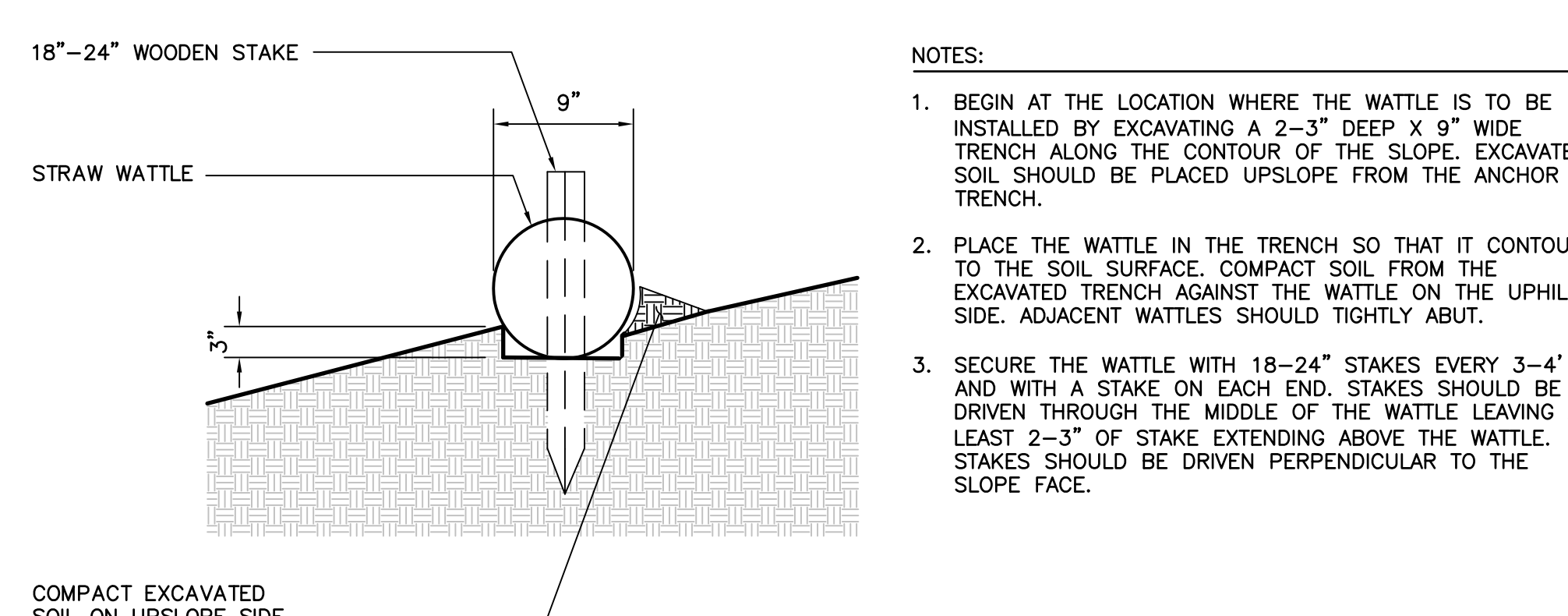
NEW YORK STATE EDUCATION LAW
It is a violation of Article 145, Section 720 of the NYS Education Law for any person, unless he is acting under the direction of a licensed Professional Engineer, to alter this document in any way. If an item bearing the seal of an Engineer is altered, the altering ENGINEER shall affix to the item his seal and the notation "Altered By" followed by his signature and the date of such alteration and a specific description of the alteration.



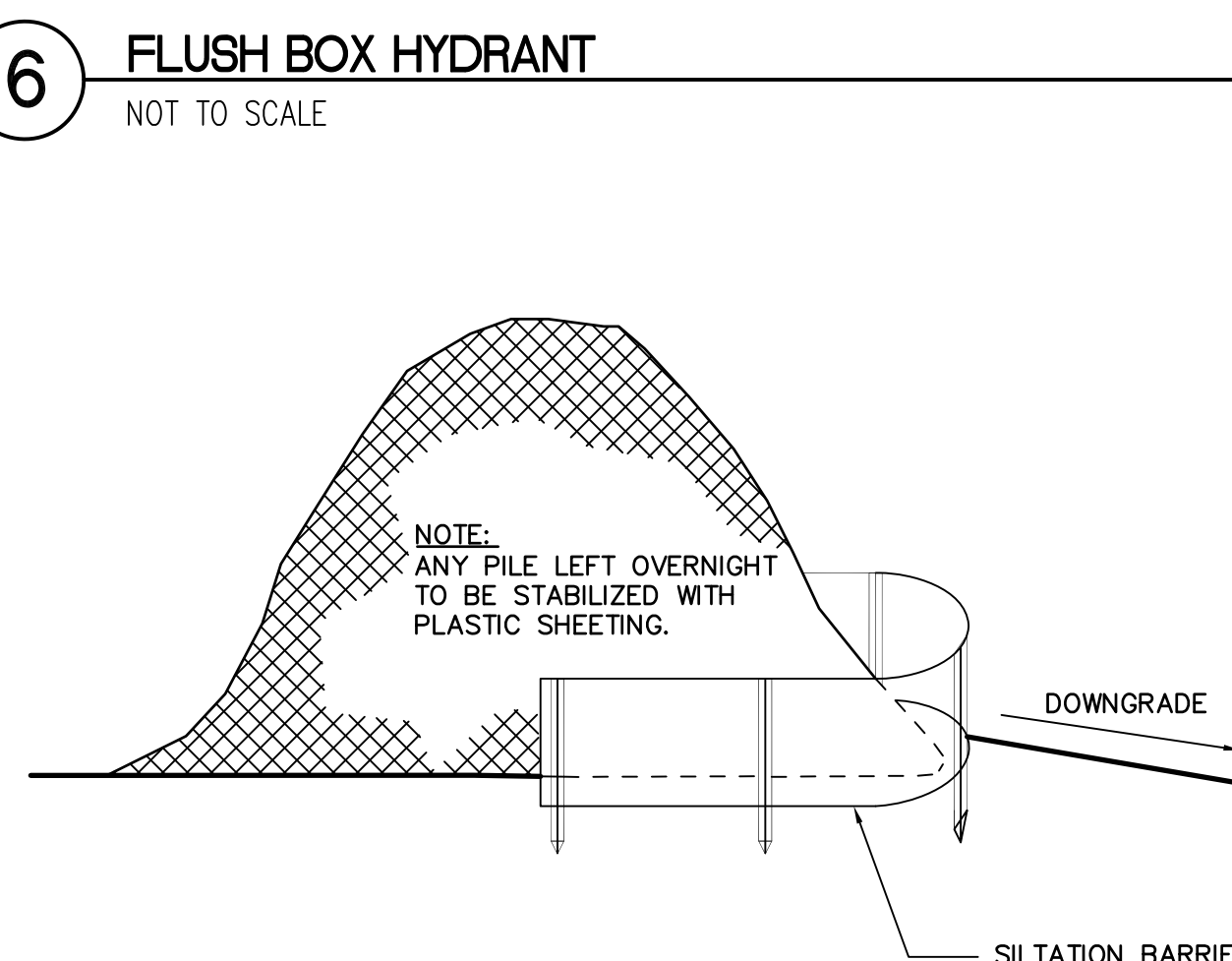
4 NEW / RESET HANDHOLE
NOT TO SCALE



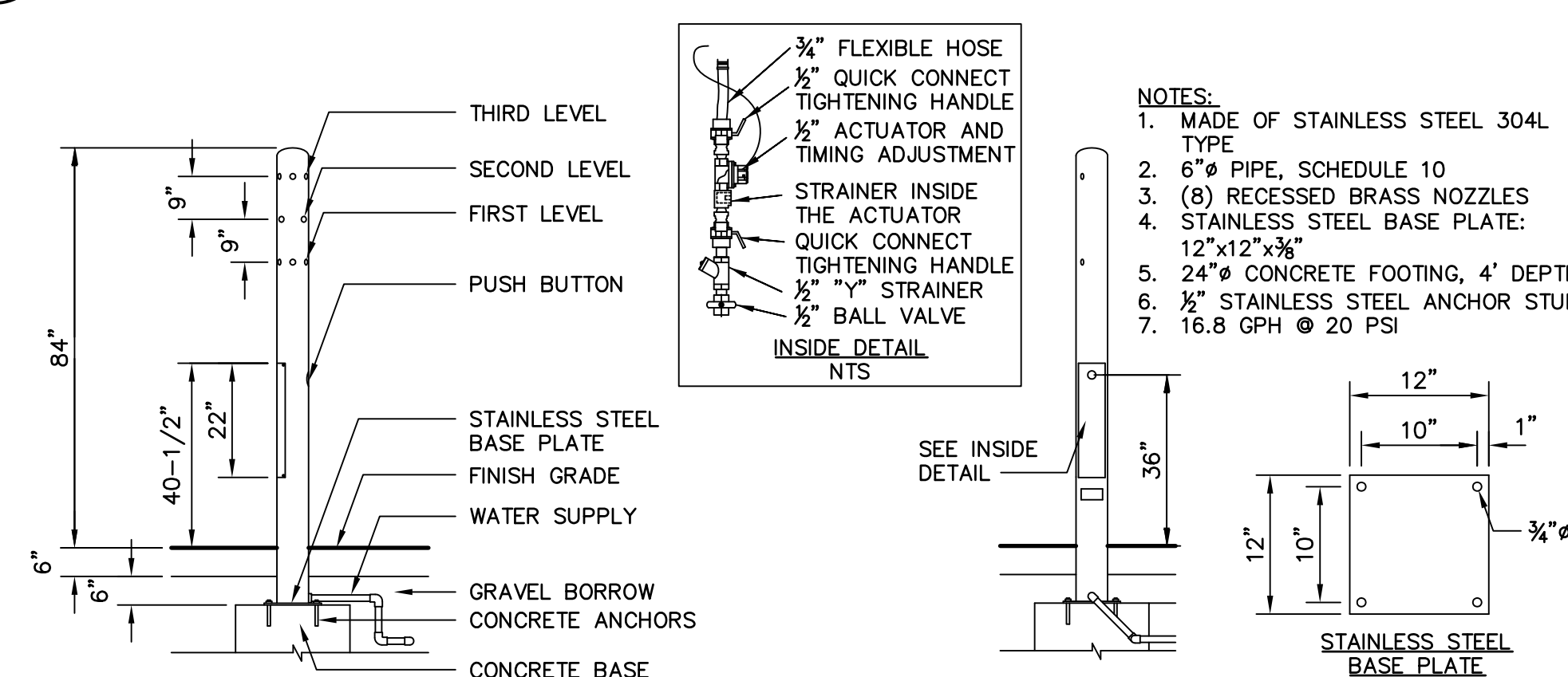
7 STRAW WATTLE
NOT TO SCALE



5 MODIFICATIONS TO EXISTING UNDERDRAINS



10 MISTING STATION (ADD ALT. 1)
NOT TO SCALE



10 MISTING STATION (ADD ALT. 1)
NOT TO SCALE

C. FINAL CHECK SET	JF		15.08.15
B. REVISED - DRAFT BID DOCUMENTS	JF	DN	15.07.20
A. DRAFT BID DOCUMENTS	JF	DN	15.07.15
Issued	By	Appd.	YY.MM.DD

Permit-Seal

Client/Project

Battery Park City Authority
WEST THAMES PARK
SYNTHETIC TURF LAWN
New York, NY

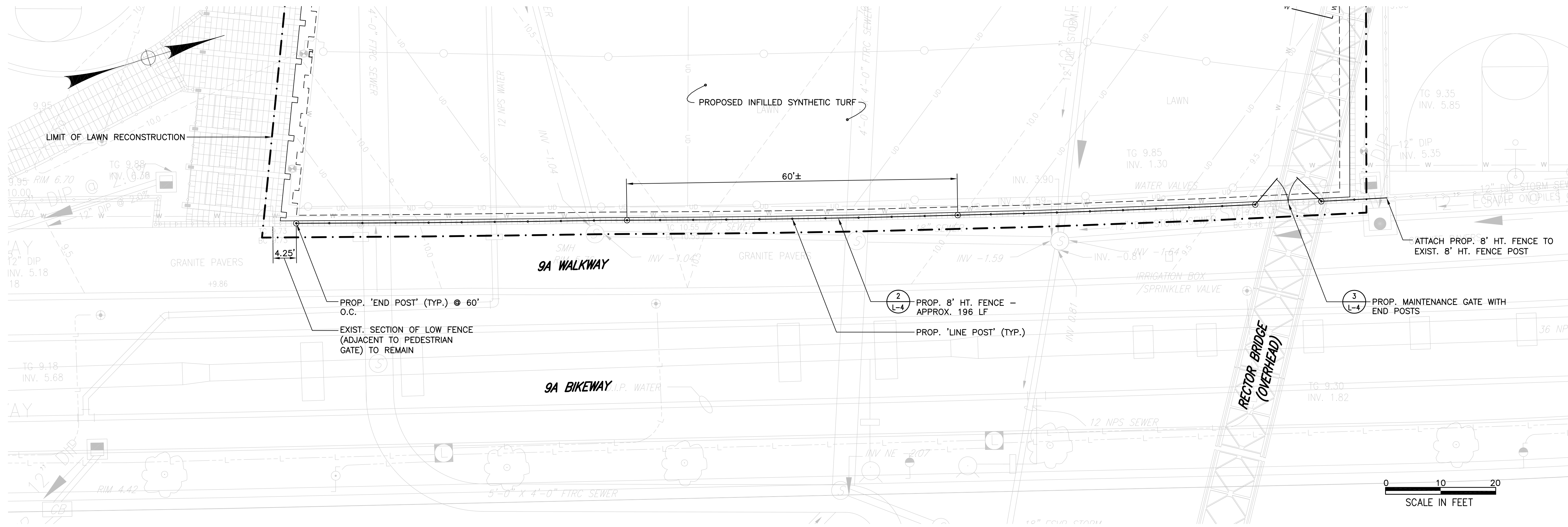
Title

Project No. 210801264	Scale AS NOTED	
Drawing No. L-3	Sheet 5 of 9	Revision 0

NEW YORK STATE EDUCATION LAW
It is a violation of Article 145, Section 720 of the NYS Education Law for any person, unless he is acting under the direction of a licensed Professional Engineer, to alter this document in any way. If an item bearing the seal of an Engineer is altered, the altering ENGINEER shall affix to the item his seal and the notation "Altered By" followed by his signature and the date of such alteration and a specific description of the alteration.

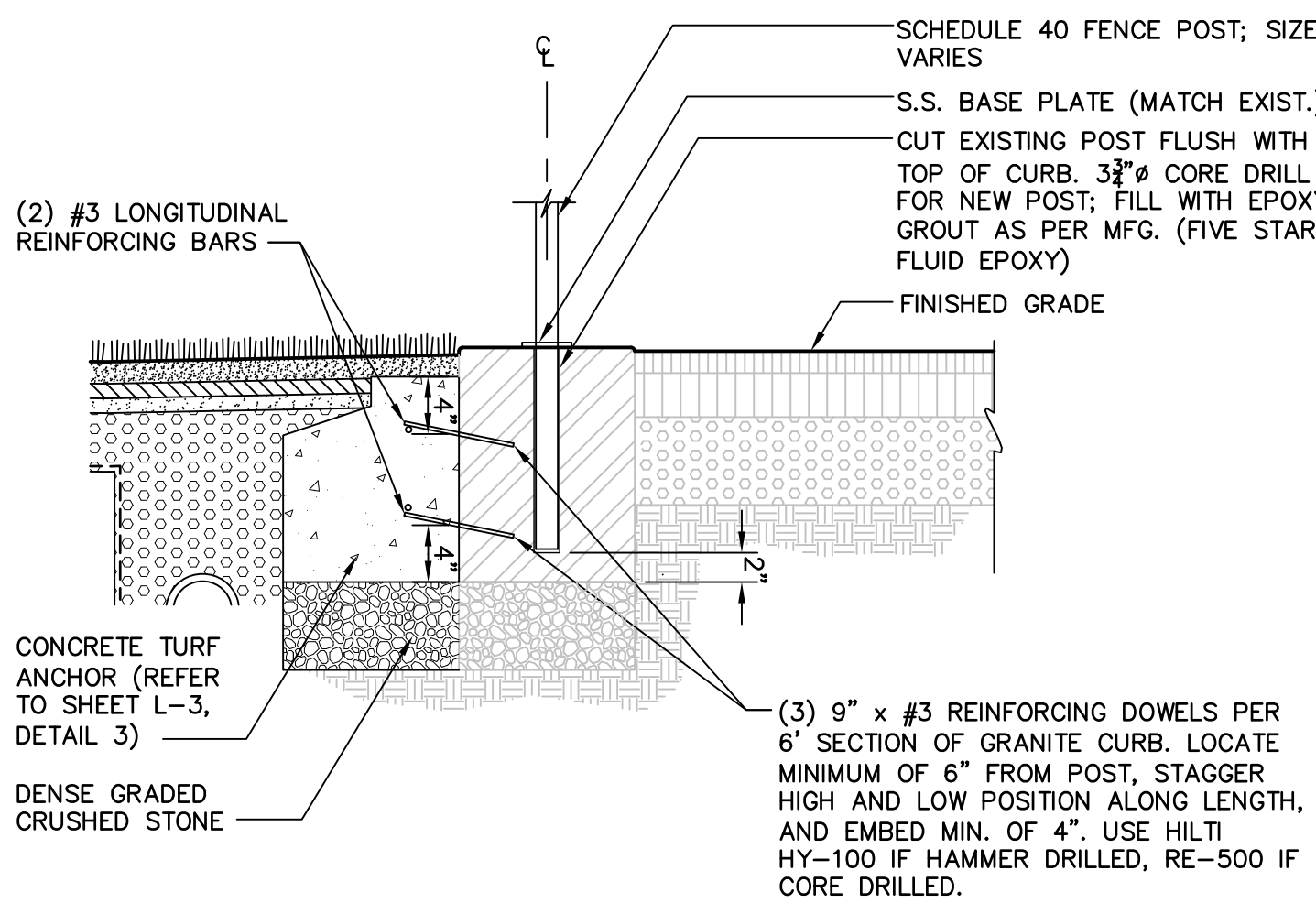


HUGH L. CAREY
BATTERY PARK
CITY AUTHORITY

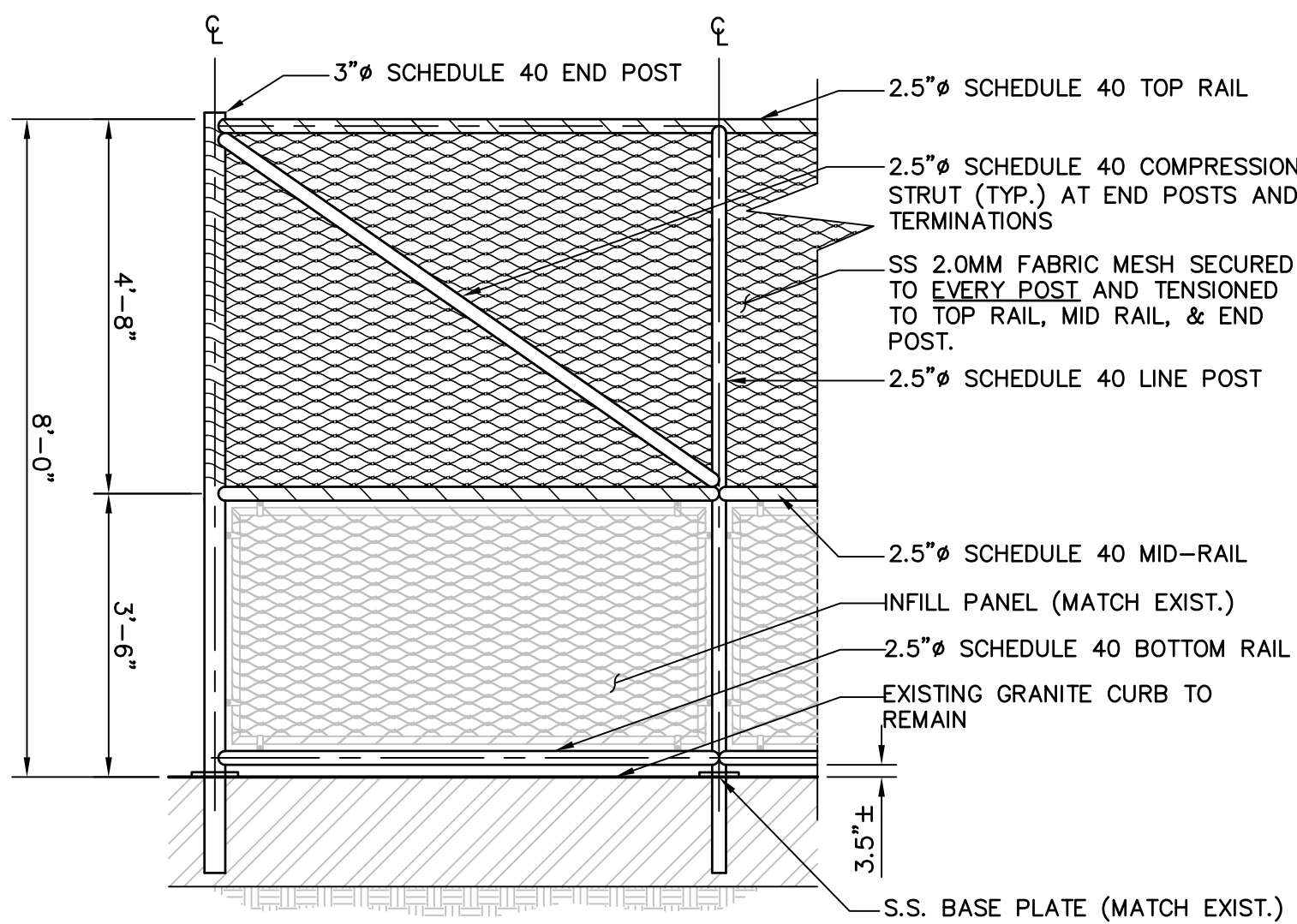


LEGEND

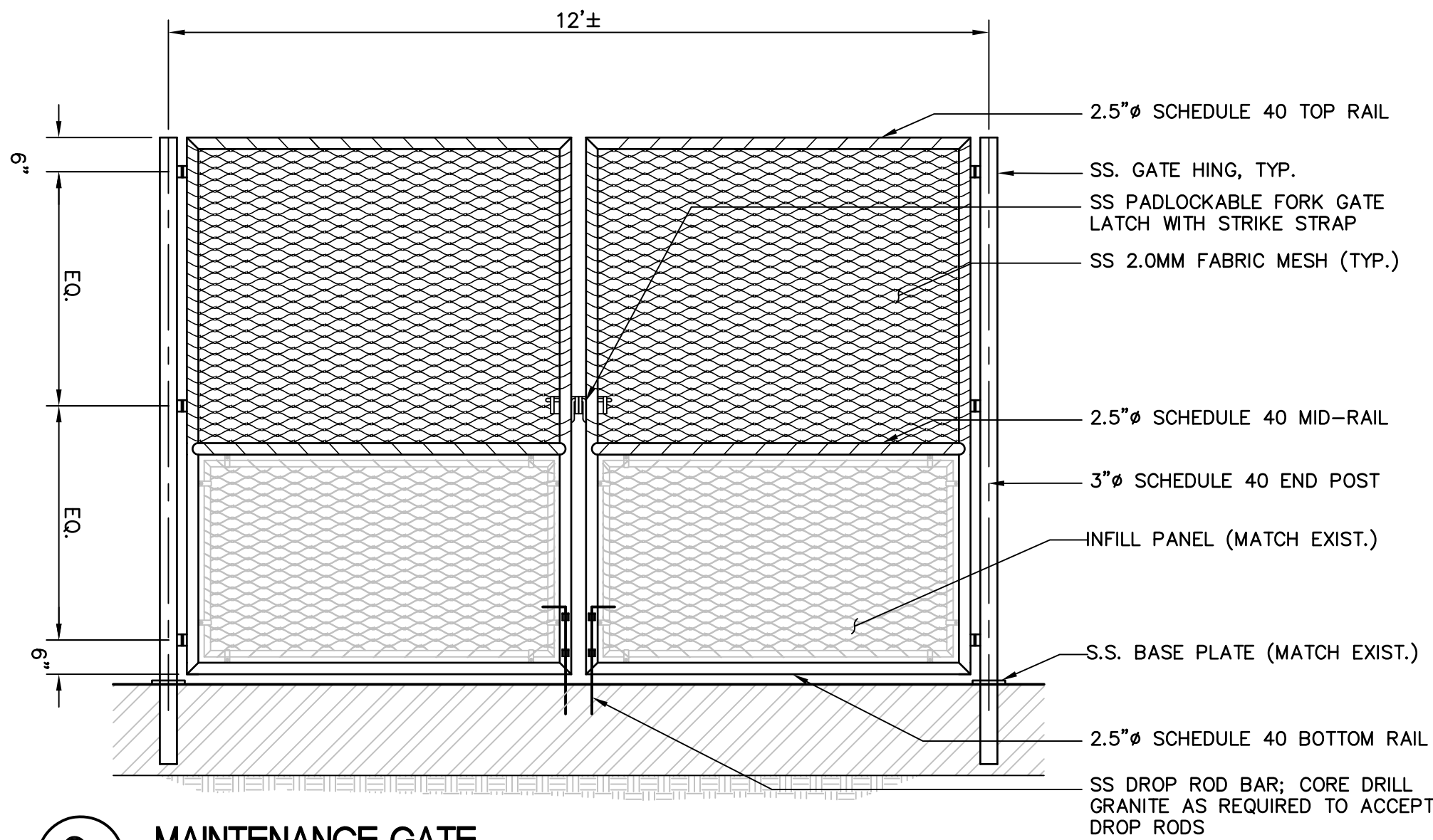
- LINE POST
- ⊙ END POST



1 MODIFICATIONS TO EXISTING GRANITE CURB
NOT TO SCALE



2 8'-0" HT. FENCE
NOT TO SCALE



3 MAINTENANCE GATE
NOT TO SCALE

NEW YORK STATE EDUCATION LAW
It is a violation of Article 145, Section 7209 of the NYS Education Law for any person, unless he is acting under the direction of a licensed Professional Engineer, to alter this document in any way. If an item bearing the seal of an Engineer is altered, the altering ENGINEER shall affix to the item his seal and the notation "Altered By" followed by his signature and the date of such alteration and a specific description of the alteration

2. DRAWINGS REVISED AS PER STANTEC QA/QC REVIEW	JF				15.08.13
1. DRAWINGS REVISED AS PER COMMENTS FROM PDC	JF	DN			15.07.27
Revision	By	Appd.			YY.MM.DD
C. FINAL CHECK SET	JF				15.08.13
B. REVISED - DRAFT BID DOCUMENTS	JF	DN			15.07.27
A. DRAFT BID DOCUMENTS	JF	DN			15.07.14
Issued	By	Appd.			YY.MM.DD
File Name: 06_01246_A1A.dwg	EG	DN	JF		15.07.14
	Dwn.	Chkd.	Desgn.		YY.MM.DD
Permit-Seal					

Client/Project

Battery Park City Authority

WEST THAMES PARK
SYNTHETIC TURF LAWN

New York, NY

Title
8' HT. FENCE

Project No. 210801264	Scale AS NOTED
Drawing No. L-4	Sheet 6 of 9
	Revision 0



The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing - any errors or omissions shall be reported to Stantec without delay.

The Copyrights to all designs and drawings are the property of Stantec. Reproduction or use for any purpose other than that authorized by Stantec is forbidden.



HUGH L. CAREY
BATTERY PARK
CITY AUTHORITY

2. DRAWINGS REVISED AS PER STANTEC QA/QC REVIEW	JF		15.08.1
1. DRAWINGS REVISED AS PER COMMENTS FROM PDC	JF	DN	15.07.2
Revision	By	Appd.	YY.MM.DD
C. FINAL CHECK SET	JF		15.08.1
B. REVISED - DRAFT BID DOCUMENTS	JF	DN	15.07.1
A. DRAFT BID DOCUMENTS	JF	DN	15.07.1
Issued	By	Appd.	YY.MM.DD

File Name: 07_01246_A1B.dwg	EG	DN	JF	15.07.1
	Dwn.	Chkd.	Dsgn.	YY.MM.D

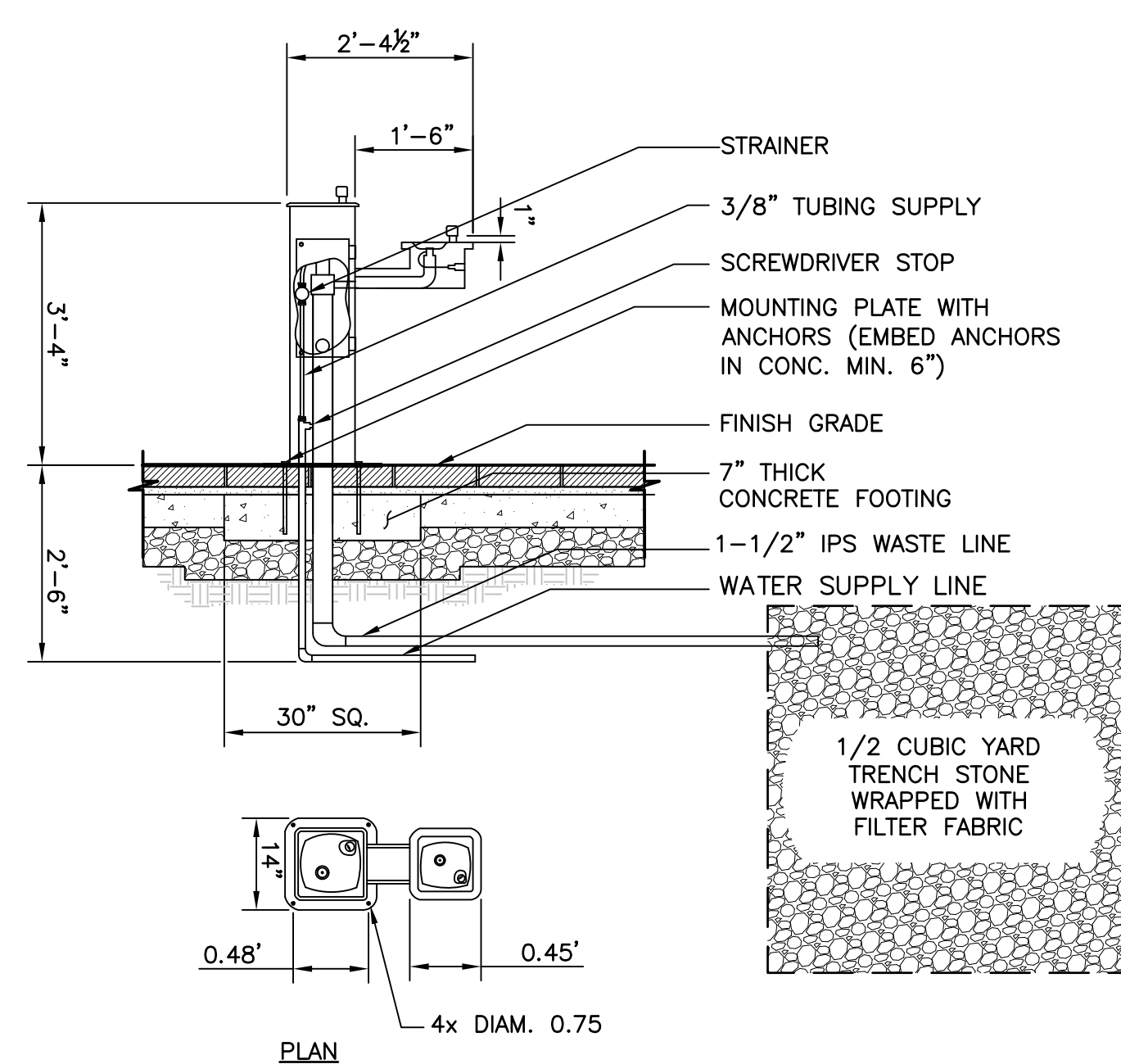
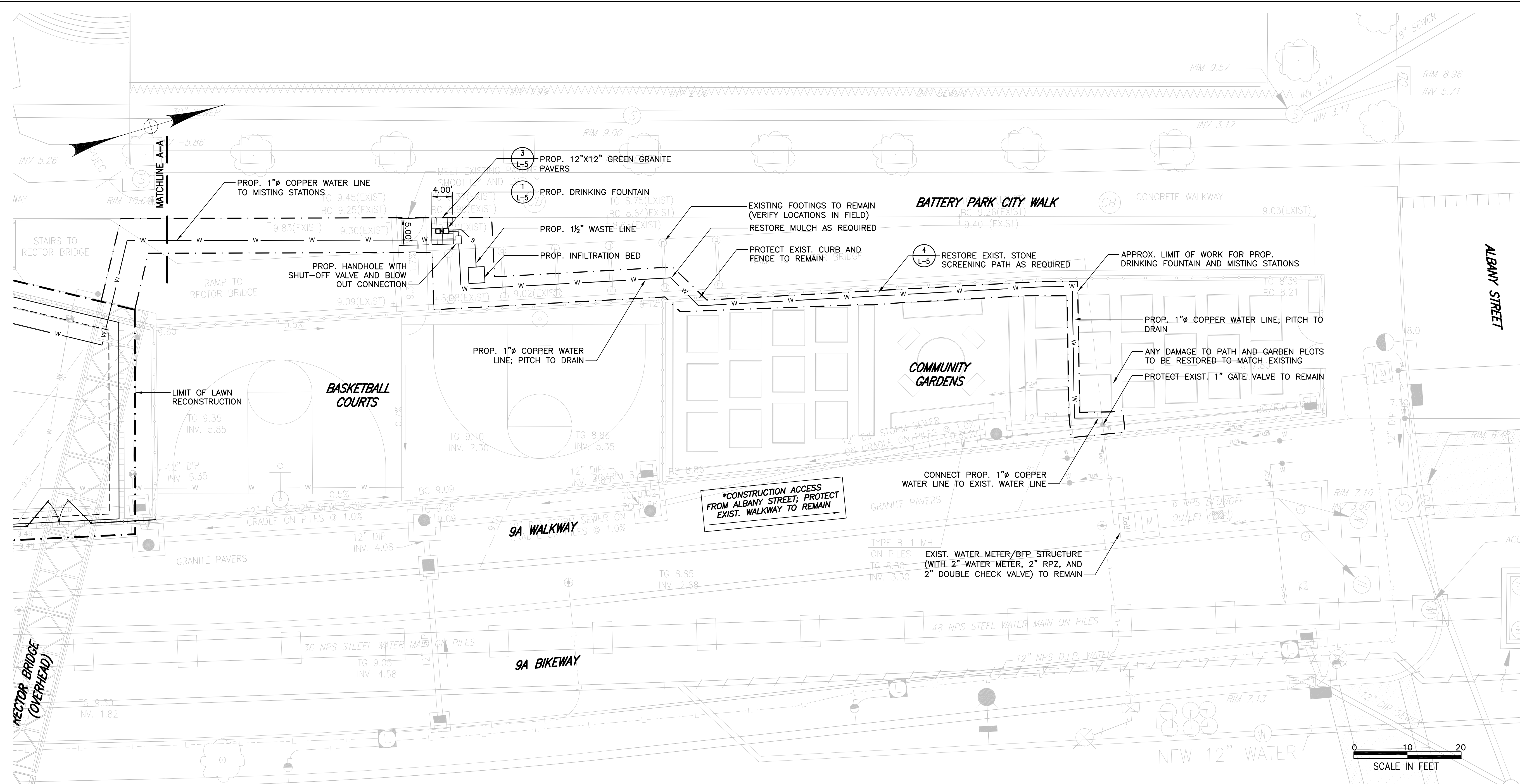
Permit-Seal

Client/Project

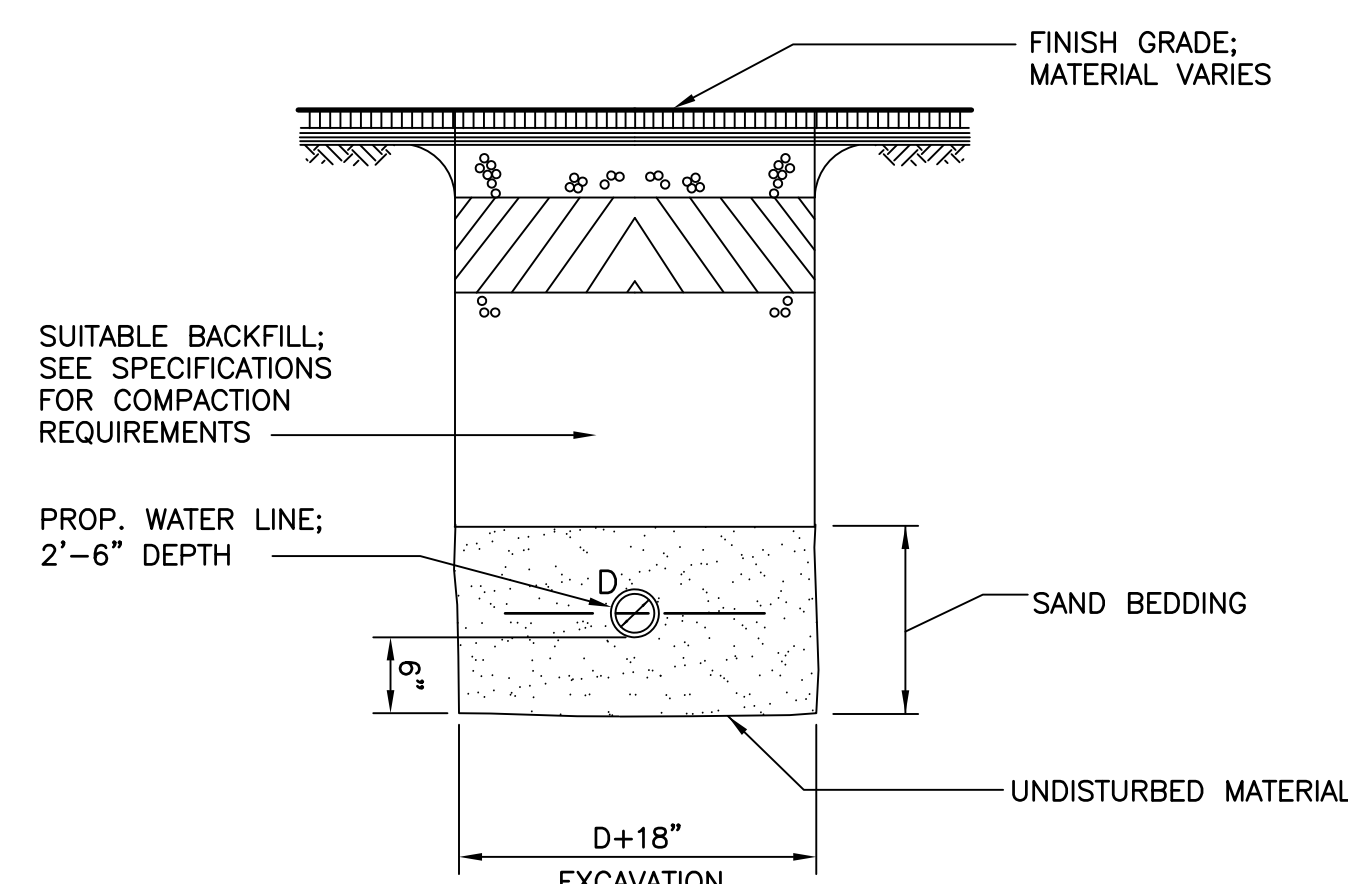
Battery Park City Authority
WEST THAMES PARK
SYNTHETIC TURF LAWN
New York, NY

Title
DRINKING FOUNTAIN
(ADD ALTERNATE NO. 1)

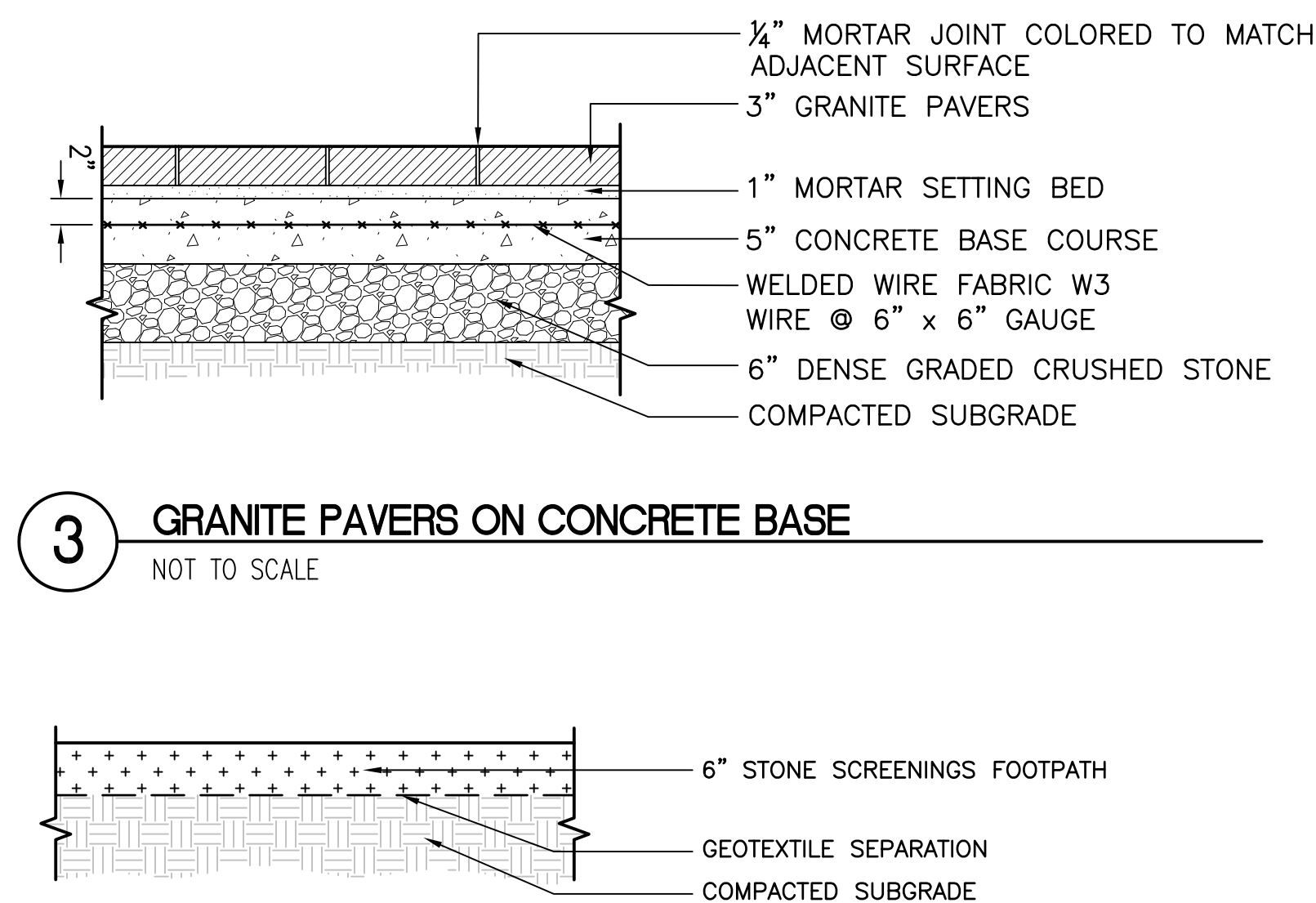
Project No. 210801264	Scale AS NOTED	
Drawing No. L-5	Sheet 7 of 9	Revision 0



1 DRINKING FOUNTAIN
NOT TO SCALE



2 WATER LINE TRENCH
NOT TO SCALE

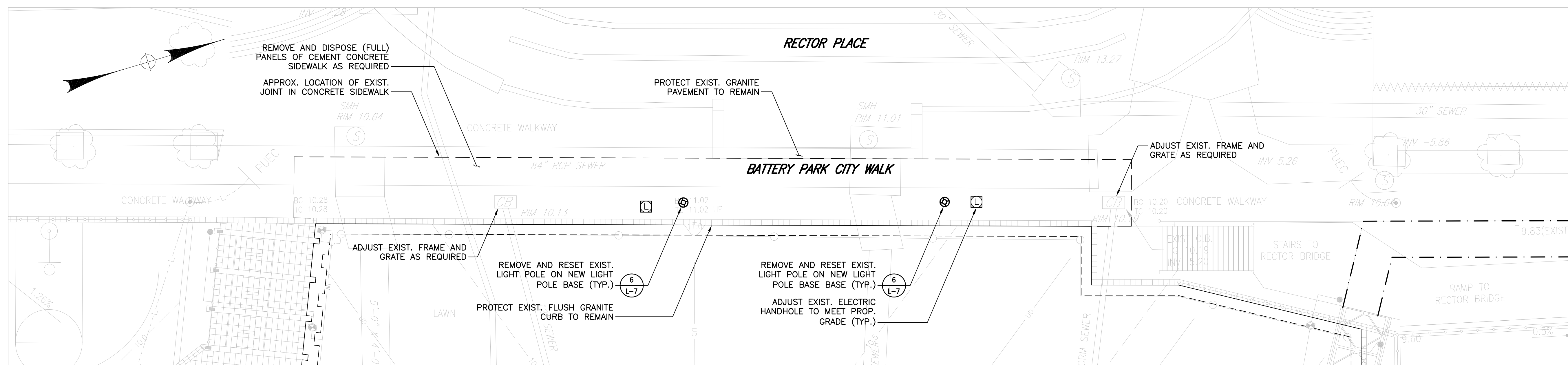


4 STONE SCREENINGS PATH

NEW YORK STATE EDUCATION LAW
It is a violation of Article 145, Section 7 of the NYS Education Law for any person, unless he is acting under the direction of a licensed Professional Engineer, to alter a document in any way. If an item bearing the seal of an Engineer is altered, the alterer shall affix to the item his seal and the notation "Altered By" followed by his signature and the date of such alteration, and a specific description of the alteration.

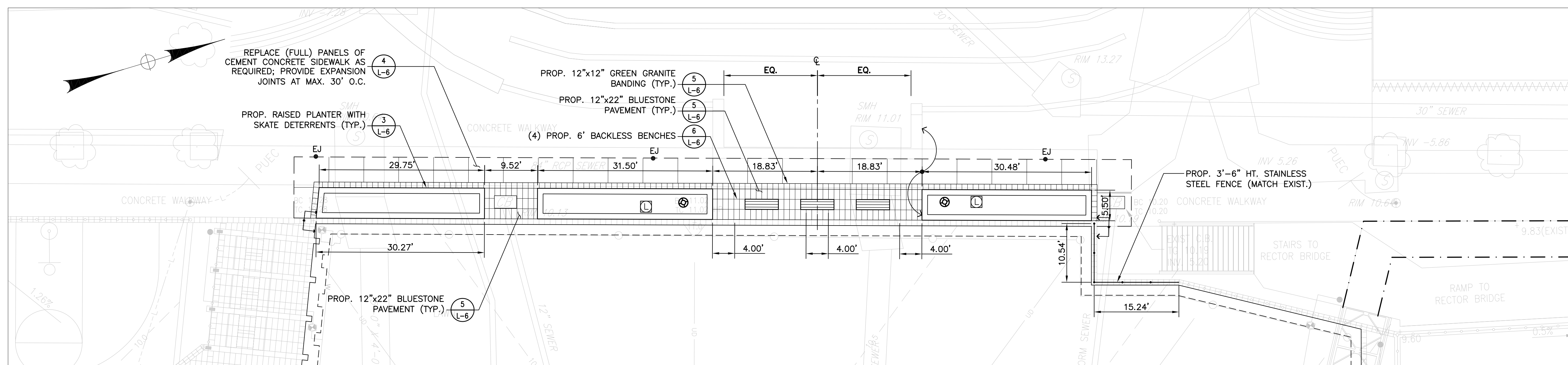


HUGH L. CAREY
BATTERY PARK
CITY AUTHORITY



1 RAISED PLANTER - SELECTIVE DEMOLITION PLAN

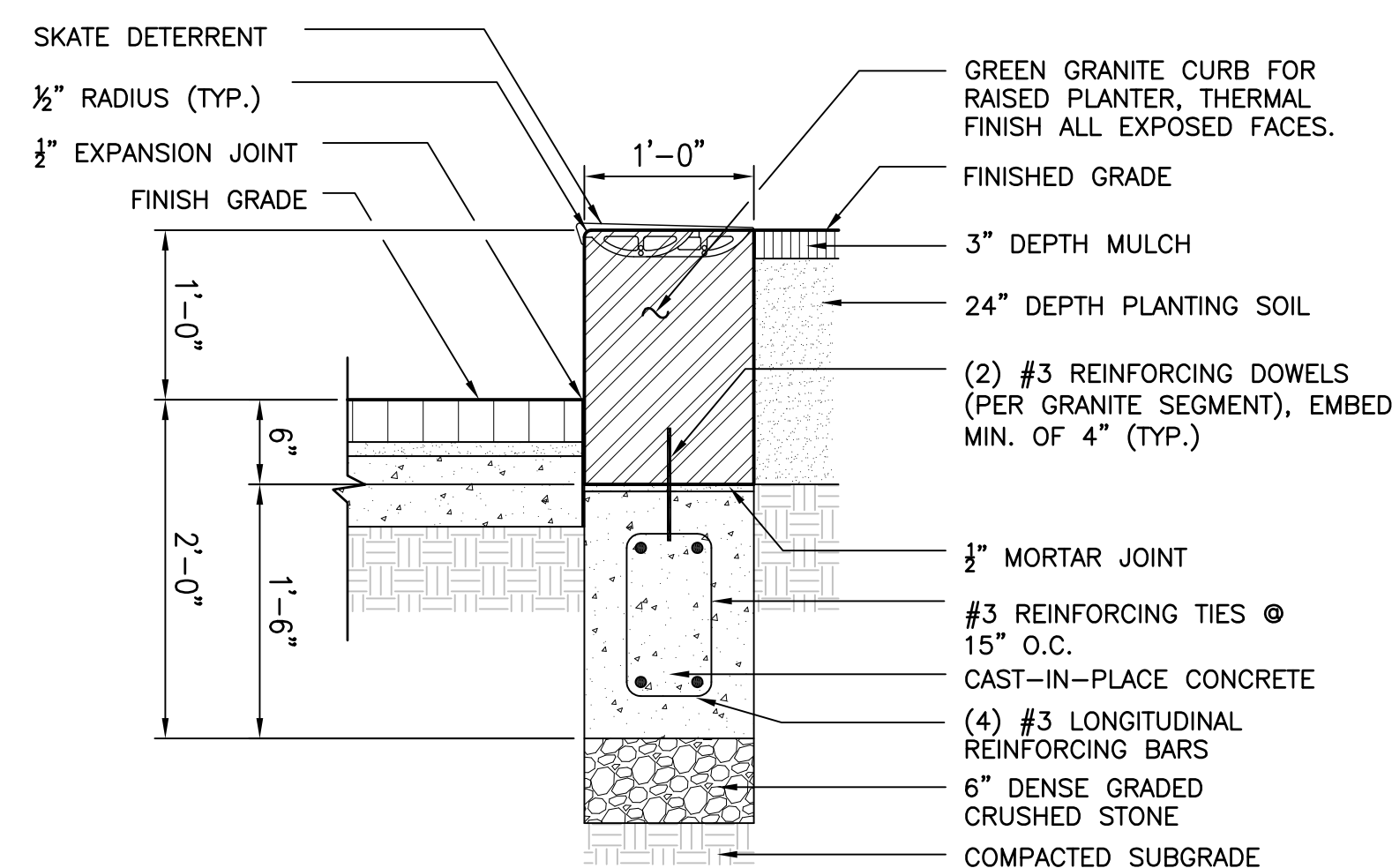
SCALE: 1" = 10'-0"



2 RAISED PLANTER - LAYOUT AND MATERIALS PLAN

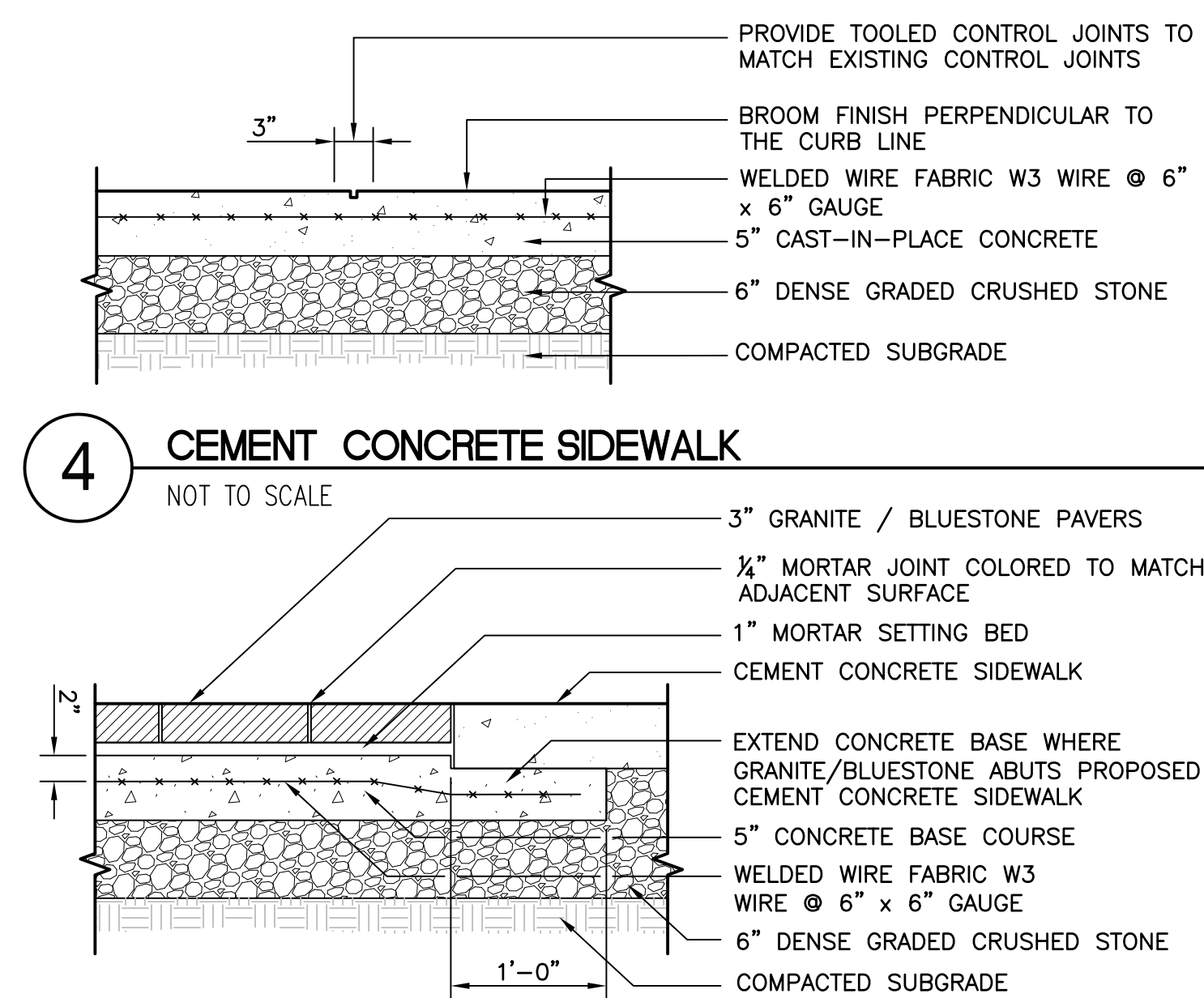
SCALE: 1" = 10'-0"

NOTE:
CONTRACTOR TO PROVIDE FULL SHOP DRAWINGS OF
RAISED PLANTER WITH LAYOUT OF SKATE
DETERRENTS AS PER MANUFACTURERS REQUIREMENTS



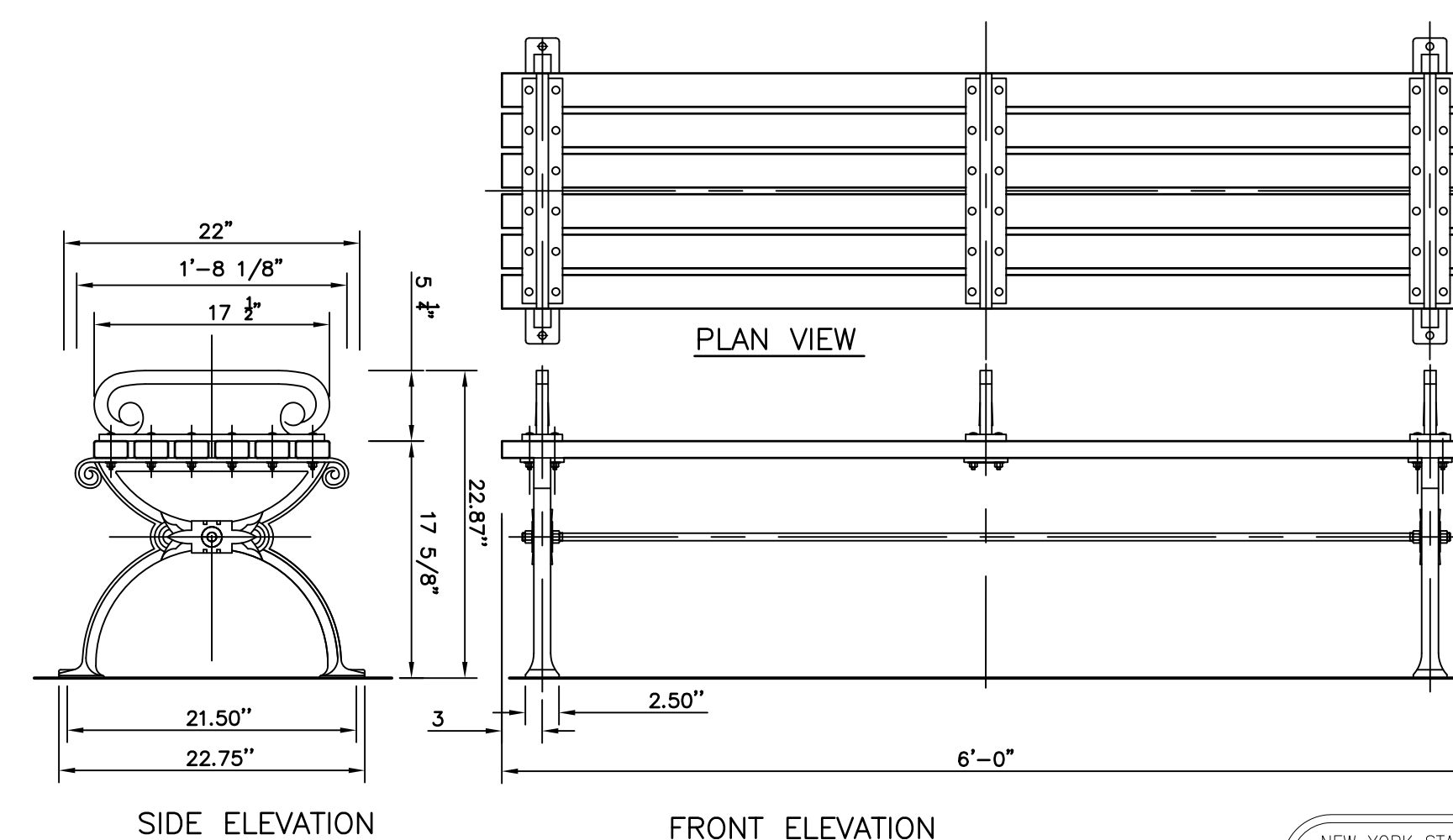
2 RAISED PLANTER

NOT TO SCALE



5 GRANITE AND BLUESTONE PAVERS ON CONCRETE BASE

NOT TO SCALE



6' BACKLESS BENCH

NOT TO SCALE

NEW YORK STATE EDUCATION LAW
It is a violation of Article 145, Section 7 of the NYS Education Law for any person, unless he is acting under the direction of a licensed Professional Engineer, to alter a document in any way. If an item bearing the seal of an Engineer is altered, the alterer shall affix to the item his seal and the notation "Altered By" followed by his signature and the date of such alteration, and a specific description of the alteration.

2. DRAWINGS REVISED AS PER STANTEC QA/QC REVIEW	JF		15.08.11
1. DRAWINGS REVISED AS PER COMMENTS FROM PDC	JF	DN	15.07.11
Revision	By	Appd.	YY.MM.DD
C. FINAL CHECK SET	JF		15.08.11
8. REVISED - DRAFT BID DOCUMENTS	JF	DN	15.07.11
A. DRAFT BID DOCUMENTS	JF	DN	15.07.11
Issued	By	Appd.	YY.MM.DD

File Name: 08_01246_A2.dwg	EG	DN	JF	15.07.1
	Dwn	Chkd	Dsan	YY MM

Permit-Seal

Client/Project

Battery Park City Authority
WEST THAMES PARK
SYNTHETIC TURF LAWN
New York, NY

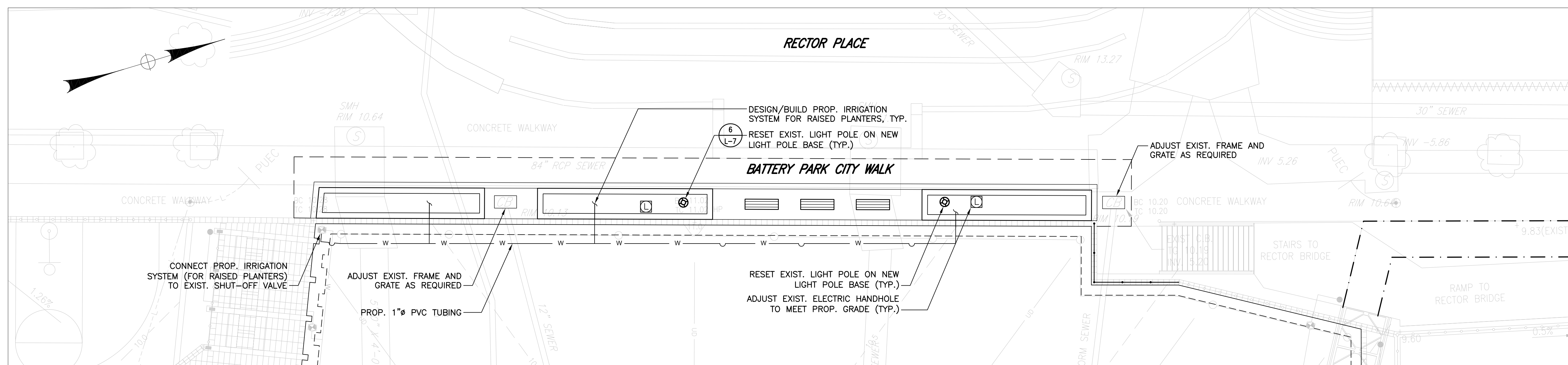
Title

RAISED PLANTER
(ADD ALTERNATE NO. 2)

Project No. 210801264	Scale AS NOTED	
Drawing No. L-6	Sheet 8 of 9	Revision 0

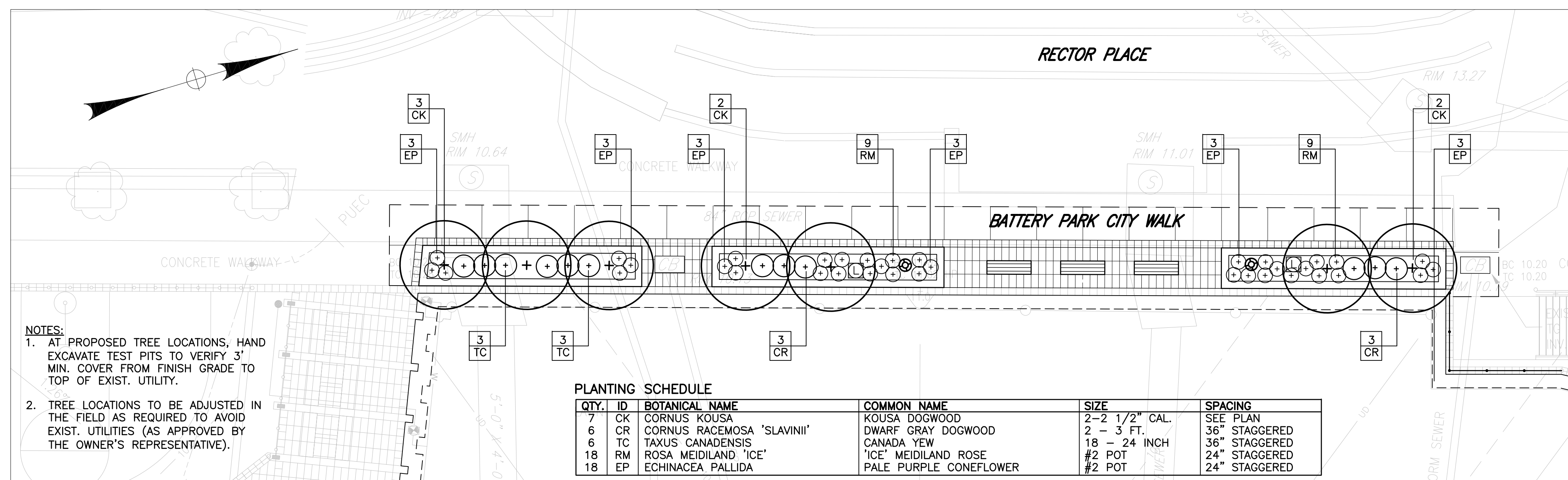


HUGH L. CAREY
BATTERY PARK
CITY AUTHORITY



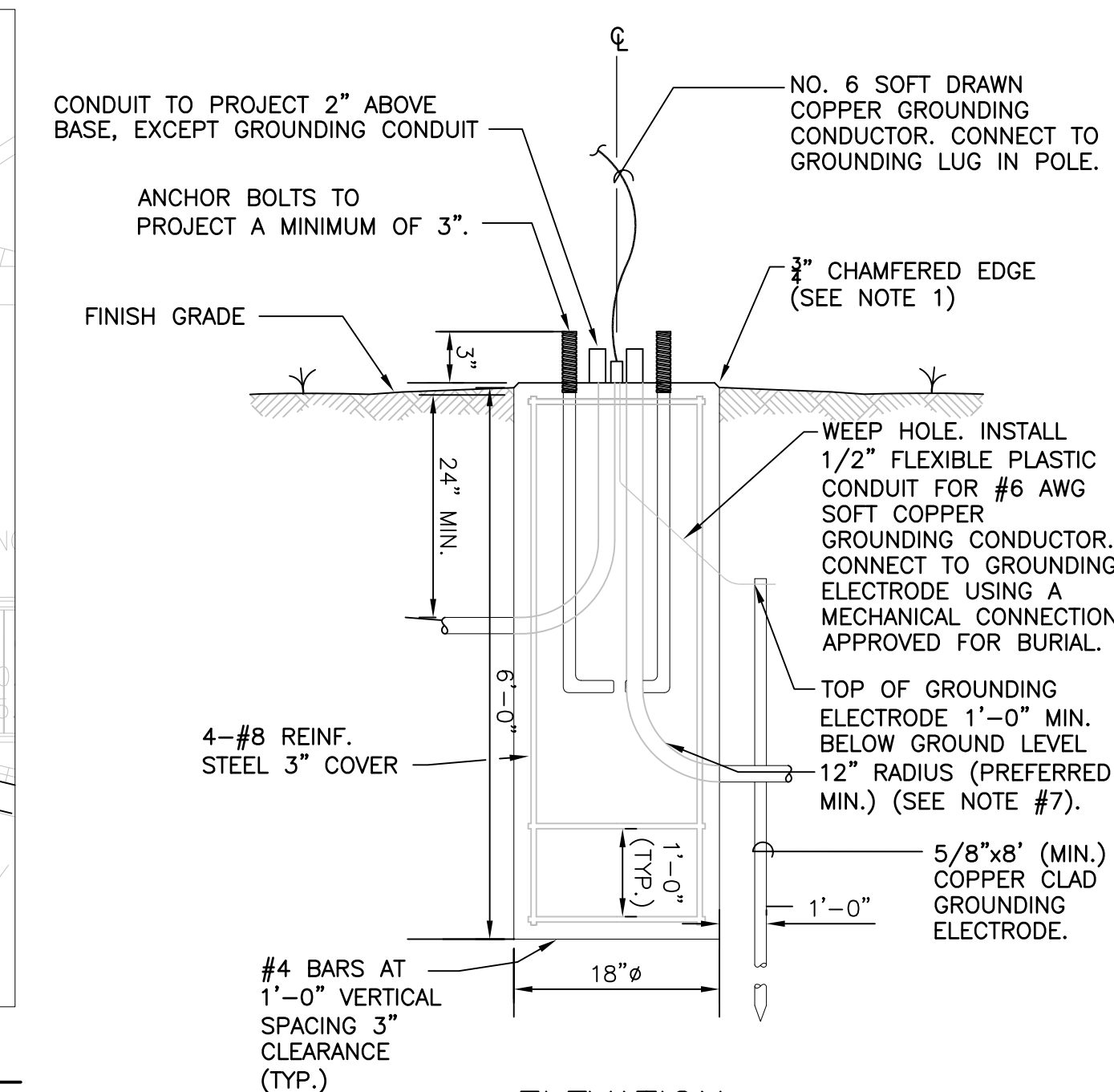
1 RAISED PLANTER - UTILITY PLAN

SCALE: 1" = 10'-0"



RAISED PLANTER - PLANTING PLAN

SCALE: 1" = 10'-0"



2. DRAWINGS REVISED AS PER STANTEC QA/QC REVIEW	JF		15.08.11
1. DRAWINGS REVISED AS PER COMMENTS FROM PDC	JF	DN	15.07.11
Revision	By	Appd.	YY.MM.DD
C. FINAL CHECK SET	JF		15.08.11
8. REVISED - DRAFT BID DOCUMENTS	JF	DN	15.07.11
A. DRAFT BID DOCUMENTS	JF	DN	15.07.11
Issued	By	Appd.	YY.MM.DD

File Name: 08_01246_A2.dwg	EG	DN	JF	15.07.1
	Dwn.	Chkd.	Dsgn.	YY.MM.D

Permit-Seq

Client/Project

Battery Park City Authority

WEST THAMES PARK
SYNTHETIC TURF LAWN

New York, NY

Title

RAISED PLANTER
(ADD ALTERNATE NO. 2)

Project No. _____

Scale AS NOTED

Drawing No. _____

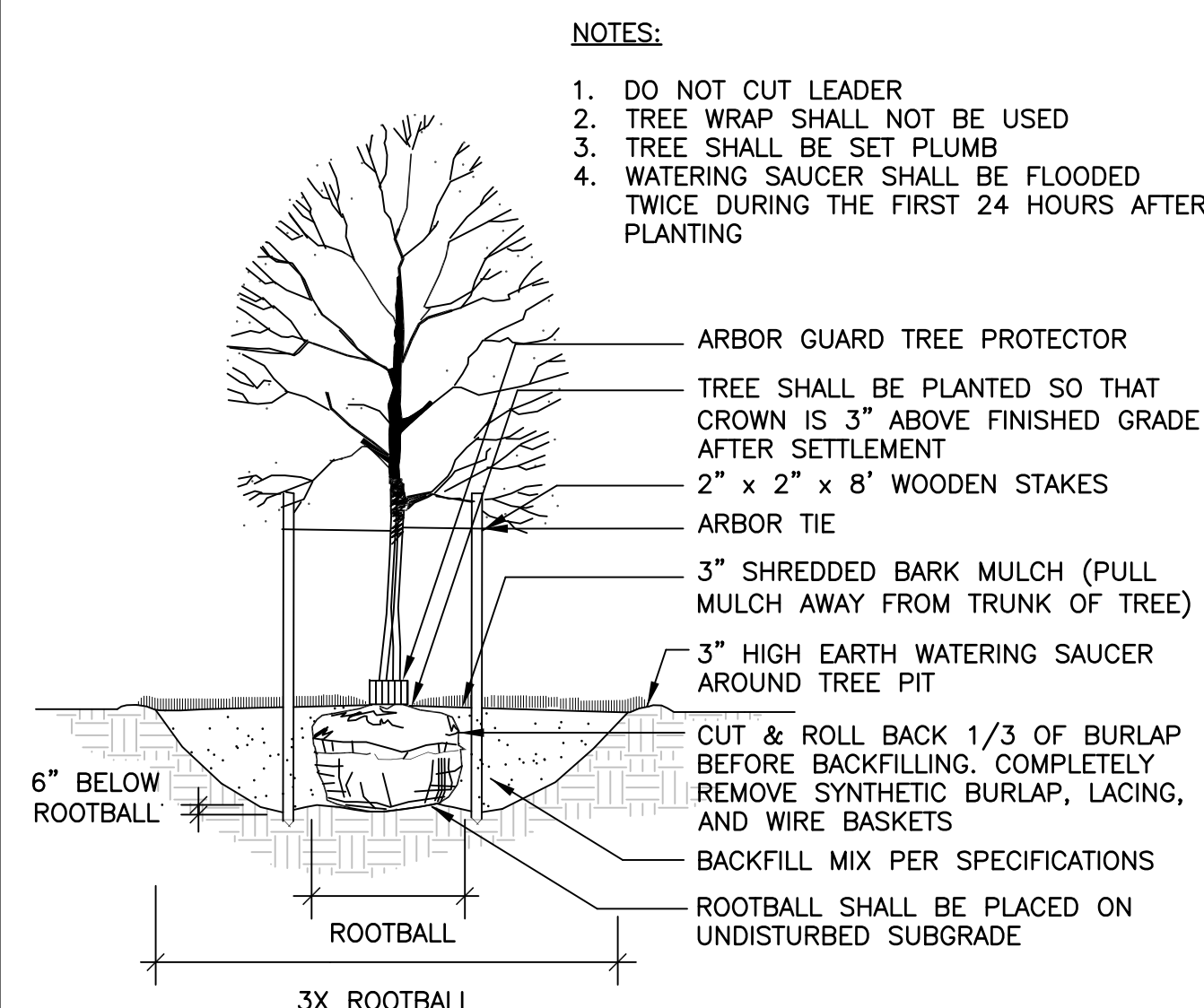
Sheet

Revision

L-7

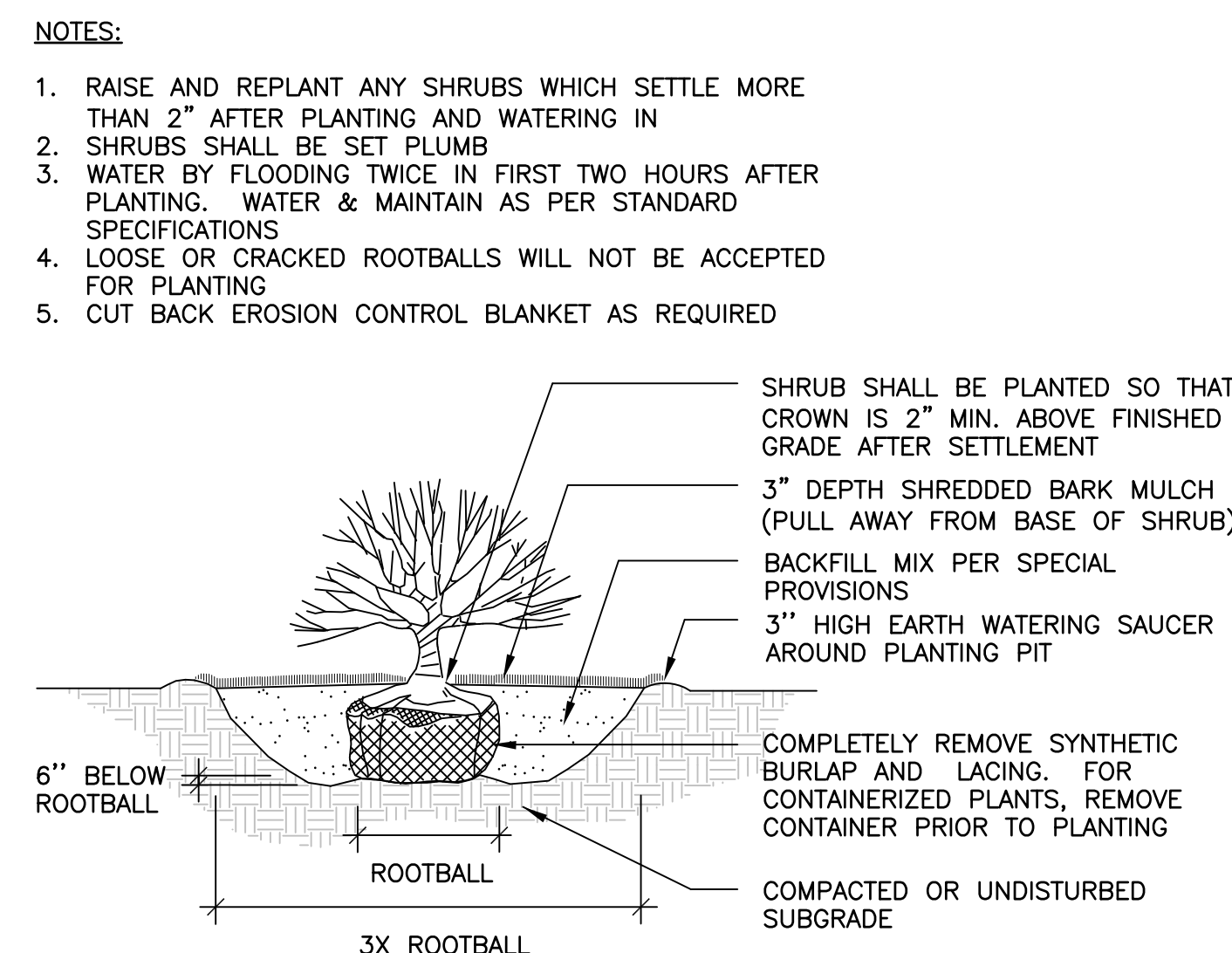
9 of 9

0



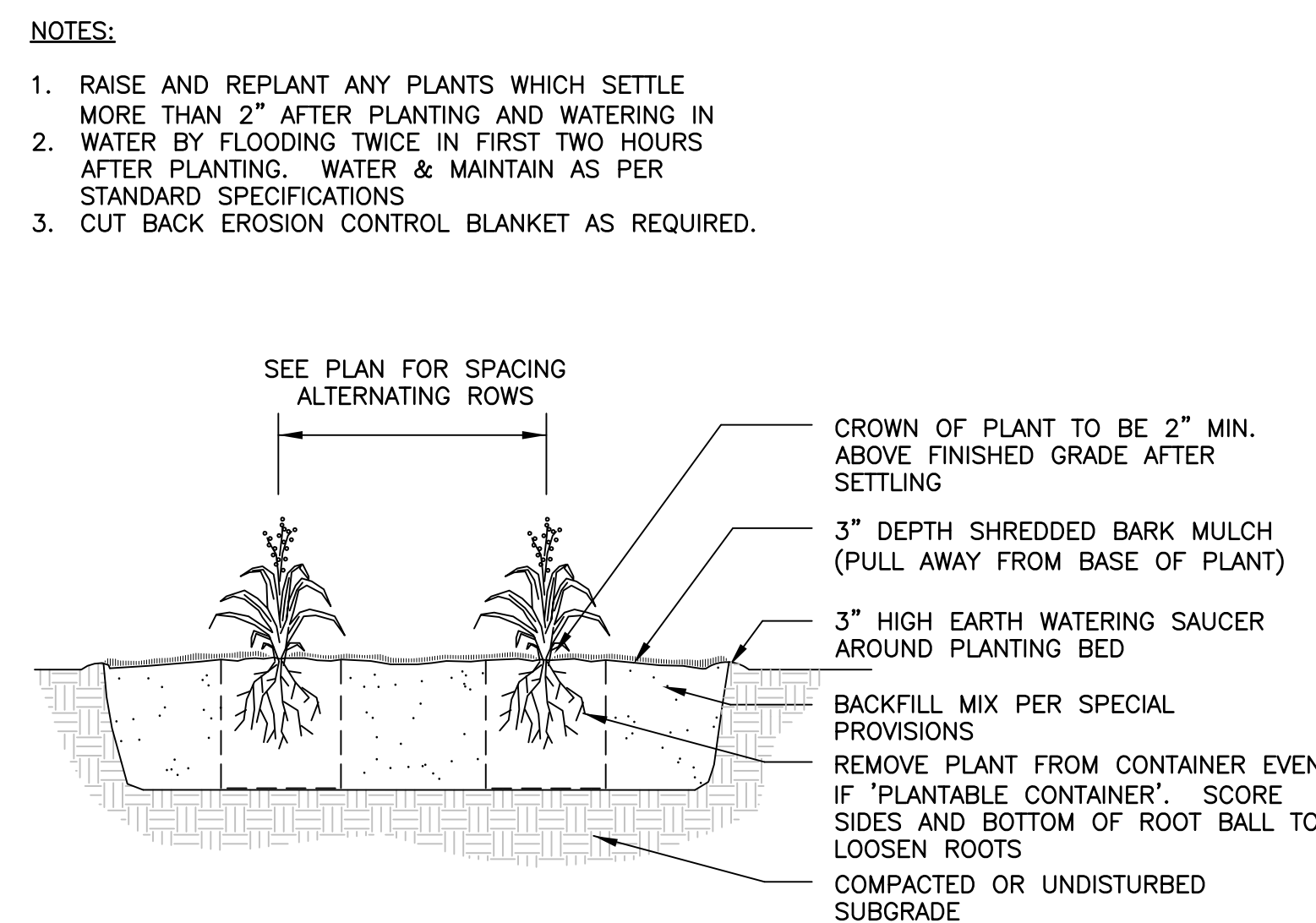
2 DECIDUOUS TREE PLANTING

NOT TO SCALE



4 SHRUB PLANTING

NOT TO SCALE



5 GROUND COVER / PERENNIAL PLANTING

NOT TO SCALE

LIGHT POLE BASE NOTES:

1. ALL CONCRETE BASES SHALL HAVE A SMOOTH LEVEL TOP SURFACE FINISHED WITH A 3/4" RADIUS EDGING TOOL.
2. ALL REINFORCING STEEL TO CONFORM TO THE REQUIREMENTS FOR "REINFORCING STEEL".
3. TEMPLATE FOR ANCHOR BOLTS, STAINLESS STEEL ANCHOR BOLTS, NUTS AND WASHERS TO BE OBTAINED BY CONTRACTOR PRIOR TO CONSTRUCTION OF BASES.
4. CONDUIT SIZE - AS SHOWN ON THE PLANS.
5. ALL EXPOSED METAL HARDWARE EXCEPT ANCHOR BOLTS SHALL BE GALVANIZED STEEL.
6. IF THE ELECTRICAL CONDUIT IN THE CONCRETE BASE IS GALVANIZED STEEL, GROUNDING BUSHINGS SHALL BE USED.
7. THE MINIMUM RADIUS FOR RIGID METALLIC OR NONMETALLIC ELECTRICAL CONDUIT SHALL BE SIX TIMES THE INSIDE DIAMETER OF THE CONDUIT.
8. GROUT TO ELIMINATE ANY SPACE BETWEEN CONCRETE BASE AND METAL BASE OF FIXTURE.

⑥ LIGHT POLE BASE

NOT TO SCALE

NEW YORK STATE EDUCATION LAW
It is a violation of Article 145, Section 2 of the NYS Education Law for any person, unless he is acting under the direction of a licensed Professional Engineer, to alter or tamper with any seal or stamp of a Professional Engineer in any way. If an item bearing the seal of an Engineer is altered, the altered item shall affix to it the item his seal and the notation "Altered By" followed by his signature and the date of such alteration, and a specific description of the alteration.

Attachment A-2
Specifications

BATTERY PARK CITY AUTHORITY

WEST THAMES PARK SYNTHETIC TURF LAWN

DRAFT - TECHNICAL SPECIFICATIONS

AUGUST 13, 2015

OWNER:

HUGH L. CAREY BATTERY PARK CITY AUTHORITY

ONE WORLD FINANCE CENTER, 24TH FLOOR

NEW YORK, NY 10281

T: 212.417.2000 F: 212.417.2001

SPORTS CONSULTANT / LANDSCAPE ARCHITECT:

STANTEC CONSULTING SERVICES INC.

226 CAUSEWAY STREET, 6TH FLOOR

BOSTON, MA 02114

T: 617.523.8103 F: 617.523.4333

CIVIL ENGINEER:

STANTEC CONSULTING SERVICES INC.

50 WEST 23RD STREET, 8TH FLOOR

NEW YORK, NY 10010

T: 212.366.5600 F: 212.366.5629

CONTRACT NAME: West Thames Park – Synthetic Turf Lawn

CONTRACT LOCATION: Borough of Manhattan, City of New York

TABLE OF CONTENTS

TECHNICAL SPECIFICATIONS

DIVISION 1 - GENERAL REQUIREMENTS

Section 01010 - Summary of Work	1
Section 01035 - Unit Prices	3
Section 01150 - Conduct of the Work	4
Section 01190 - Safety	7
Section 01200 - Project Meetings	9
Section 01210 - Price and Payment Procedures	11
Section 01230 - Alternates	15
Section 01300 - Submittals	18
Section 01400 - Quality Control	22
Section 01500 - Temporary Facilities	25
Section 01700 - Project Closeout	27
Section 01720 - Record Documents	29
Section 01740 - Warranties	30
Section 01741 - Construction Waste Management	32
Section 01790 - Demonstration and Training	34

DIVISION 2 - SITE WORK

Section 02000 - Site Requirements	36
Section 02100 - Site Preparation	43
Section 02110 - Selective Site Demolition	46
Section 02200 - Earthwork	52
Section 02370 - Erosion and Sediment Control	71
Section 02512 - Site Water Distribution	77
Section 02630 - Storm Drainage	80
Section 02771 - Granite Curbing and Pavers	86
Section 02772 - Cast-In-Place Concrete Turf Anchor	90
Section 02780 - Bluestone Pavers	93
Section 02792 - Synthetic Turf System	96
Section 02810 - Irrigation System	110
Section 02822 - Stainless Steel Fence	125
Section 02870 - Site Furnishings	132
Section 02950 - Planting	136
Section 02955 - Planting Soil	143

DIVISION 3 - CONCRETE

Section 03100 - Concrete Formwork	152
Section 03200 - Concrete Reinforcing Steel	156
Section 03325 - Cast-In-Place Concrete	159

DIVISION 4 - MASONRY

Section 04100 - Mortar and Grout	164
--	-----

DIVISION 5 - METALS

Not Used

DIVISION 6 - WOOD AND PLASTICS

Not Used

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

Not Used

DIVISION 8 - DOORS AND WINDOWS

Not Used

DIVISION 9 - FINISHES

Not Used

DIVISION 10 - SPECIALITIES

Not Used

DIVISION 11 - EQUIPMENT

Not Used

DIVISION 12 - FURNISHINGS

Not Used

DIVISION 13 - SPECIAL CONSTRUCTION

Not Used

DIVISION 14 CONVEYING SYSTEMS

Not Used

DIVISION 15 - MECHANICAL

Not Used

DIVISION 16 - ELECTRICAL

Section 16050 - Basic Electrical Materials and Methods	167
Section 16500 - Exterior Lighting	174

NOTE: Bidders shall check the attached documents with the above list to verify all parts are included before submitting a bid.

END OF TABLE OF CONTENTS

SECTION 01010
SUMMARY OF WORK

PART 1 - GENERAL

1.01 GENERAL PROVISIONS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.

1.02 REQUIREMENTS INCLUDE

- A. Work Under this Contract
- B. Owner Furnished Products
- C. Contractor Use of Site
- D. Permits and Fees
- E. Time of Completion

1.03 WORK UNDER THIS CONTRACT

- A. Project Description: This project site is located along West Street (Route 9A), between West Thames Street and Albany Street, in the Borough of Manhattan.
 - 1. Protection of existing sidewalks, fences, walls, light poles, trees, utilities, and associated facilities as indicated on the Drawings.
 - 2. Earthwork (including excavation of existing sod and topsoil), modifications to the existing underdrain system, and placement of drainage stone.
 - 3. Installation of filter fabric and resilient underlayment pad.
 - 4. Procurement and installation of new synthetic turf system.
 - 5. Fabrication and installation of new 8' ht. stainless steel fence and maintenance gate.
 - 6. All work either shown on the Drawings or included in the specifications unless specifically indicated as not to be done.
 - 7. Refer to Section 01230 – Alternates.
- B. In addition, the work under the Contract includes:
 - 1. The restoration of any items damaged or destroyed by encroaching upon areas outside the Project Site.
 - 2. Providing and restoring, where appropriate, all temporary facilities.
 - 3. Operations and Maintenance Manuals and training for maintenance personnel.

1.04 CONTRACTOR USE OF SITE

- A. Refer to other sections of the Project Manual for requirements with respect to time for performing work, project limits, and access.

1.05 PERMITS AND FEES

- A. The Contractor, at its cost, shall schedule, secure and obtain all permits, approvals, licenses, and inspections necessary for the proper execution of the work under all sections of this project.

1.06 TIME OF COMPLETION

- A. In accordance with the General Conditions, the Work shall be commenced at the time stated in the Notice to Proceed and shall be completed as noted in the INSTRUCTIONS TO BIDDERS and PROJECT CLOSEOUT sections.

END OF SECTION

SECTION 01035

UNIT PRICES

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. The unit prices for items set forth in the schedule of unit prices shall be used to determine adjustments to the contract sum when changes in the work involving said items are made in accordance with GENERAL CONDITIONS and other Sections of the Contract Documents.

1.02 REQUIREMENTS

- A. Unit prices for changes to the work not part of the Base Bid will be paid in accordance with unit prices listed by the Contractor on the Schedule of unit prices, based on quantities measured in the field.
- B. All unit prices shall include their pro-rata share of all costs for overhead, profit, bond, materials, equipment and disposal required to complete the work item.
- C. The Owner may choose not to approve any or all unit prices if it deems the unit price unreasonable. In this case, the change order process described in the general conditions will be used for work described in the unit price schedule, when any change of the base contract scope is required.

1.03 APPLICABILITY OF UNIT PRICES

- A. The payment lines shall be as indicated in the Contract Documents.
- B. Prior to commencing any change to the work involving removal or placement of materials set forth in the schedule of unit prices, the Contractor shall notify the Owner's Representative in sufficient time to permit proper measurements to be taken on behalf of the Owner. Only quantities which have been approved in writing by the Owner's Representative and/or Owner will be considered in the determination of adjustments to the contract sum.
- C. Performance of work which is not required under the Contract Documents or which is not authorized by Change Order, whether or not such work item is set forth hereunder as a Unit price item, shall not be considered cause for extra payment. The Contractor will be held fully responsible for such unauthorized work, including the performance of all corrective measures required by the Owner's Representative and/or Owner.

1.04 SCHEDULE OF UNIT PRICES

- A. The list of proposed unit prices for the above referenced project is included in the Bid Form for completion by the Contractor.

END OF SECTION

SECTION 01150

CONDUCT OF THE WORK

PART 1 – GENERAL

1.01 GENERAL PROVISIONS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.

1.02 PROJECT MANAGEMENT

- A. The Contractor's attention is directed to the General Conditions.
- B. The work must be completed in a continuous, uninterrupted operation until the close of the project. The Contractor must use sufficient personnel and adequate equipment to complete all the necessary work within the period of time stipulated in the contract documents.
- C. The Contractor is responsible for the security of partially completed work until the project is finally accepted by the Owner.
- D. The Contractor shall ensure continued, safe, unencumbered access to all adjacent properties during the construction period. The Contractor shall phase and otherwise schedule construction in such a manner as to provide required access to all portions of the property not under construction.
- E. Areas of active construction, as noted on the plans, shall be fenced in accordance with the SITE REQUIREMENTS section.
- F. Five days prior to the commencement of site demolition the Contractor shall submit to the Owner's Representative, for review and approval, a plan which indicates the sequence and schedule of construction of this contract. Construction shall not proceed until this plan has been reviewed and accepted.

1.03 COORDINATION

- A. The Contractor shall submit for approval to the Owner a detailed operational plan showing the sequence of operations prior to commencement of any work at the site. Any changes to this operational plan must be approved by the Owner.
- B. The Contractor must retain at the site a competent full time representative for the duration of the work, satisfactory to the Owner. This representative shall not be changed, except with the consent of the Owner. The representative shall be in full charge of the work and all instructions given to this person by the Owner's Representative shall be binding.
- C. The Contractor must supply to the Owner the home telephone number of a responsible person who may be contacted out-of-hours for emergencies on the Project.

1.04 WORK HOURS

- A. Allowable work hours on weekdays (Monday through Friday) are between 7:00 AM and 5:00 PM.

- B. Allowable work hours on weekends (Saturday and Sunday) are between 8:00 AM and 5:00 PM.
- C. Work on-site is NOT ALLOWED on holidays.
- D. Work of a noisy nature such as grading may be conducted between 8:00 AM and 5:00 PM.

1.05 CONSTRUCTION PROGRESS SCHEDULE

- A. Within 10 days after date of the Agreement, the Contractor shall submit preliminary schedule defining planned operations for all Work. Include written certification that subcontractors have reviewed and accepted proposed schedule.
- B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.
- C. Within 10 days after acceptance of preliminary schedule, submit complete schedule. Include written certification that subcontractors have reviewed and accepted proposed schedule.
- D. Submit updated Progress Schedule with each Application for Payment.

1.06 PROGRESS PHOTOGRAPHS

- A. Submit photographs with each application for payment, taken not more than 3 days prior to submission of application for payment.
- B. Maintain one set of all photographs at project site for reference; same copies as submitted, identified as such.
- C. Photography Type: Digital; electronic files.
- D. At the direction of Stantec for recurring views, take photographs of each of the following events:
 - 1. Existing conditions
 - 2. Site and landscaping construction.
 - 3. Final completion, minimum of ten (10) photos.
- E. Digital Photographs: 24 bit color, minimum resolution of 1024 by 768, in JPG format; provide files unaltered by photo editing software.
 - 1. Delivery Medium: Via email.
 - 2. File Naming: Include project identification, date and time of view, and view identification.

1.07 PROJECT COORDINATION

- A. Cooperate with the Owners Representative in allocation of mobilization areas of site; for field offices and sheds, for deliveries access, traffic, and parking facilities.

- D. During construction, coordinate use of site and facilities through the Owners Representative.
- E. During construction, coordinate with contractors working on adjacent sites.
- C. Comply with Owners Representative's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.
- D. Comply with instructions of the Owners Representative for use of temporary utilities and construction facilities.
- E. Coordinate field engineering and layout work under instructions of the Owners Representative.
- F. Make the following types of submittals to the Owners Representative:
 - 1. Requests for interpretation.
 - 2. Requests for substitution.
 - 3. Shop drawings, product data, and samples.
 - 4. Test and inspection reports.
 - 5. Design data.
 - 6. Manufacturer's instructions and field reports.
 - 7. Applications for payment and change order requests.
 - 8. Progress schedules.
 - 9. Coordination drawings.
 - 10. Closeout submittals.

END OF SECTION

SECTION 01190

SAFETY

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.
- B. This Section contains general information that applies to all work performed under the Contract and is inherently made a part of each specification section.

1.02 SUMMARY

- A. It is the responsibility of the Contractor to ensure safe working practices during construction in compliance with all Federal, State and City requirements, and in keeping with the expectations of the Owner. The Contractor and all subcontractors are responsible for:
 - 1. Presenting and implementing a site-specific safety and health program that describes policies and procedures for total management of the safety and health environment of its employees and all other persons and property affected by its construction operations;
 - 2. Providing competent on-site safety supervision in accordance with OSHA regulations at all times during construction, including when subcontractors are present;
 - 3. Obtaining medical attention for injured employees as quickly as possible and initiating a first responder intervention and Emergency Evacuation Procedures as deemed necessary;
 - 4. Complying with all Federal, State, City, and Local safety laws and regulations;
 - 5. Enforcing the use of Personal Protective Equipment (PPE) as specified by OSHA 29 CFR, Part 1926;
 - 6. Providing proper training and education to employees in proper workmanship and safe conduct of construction operations;
 - 7. Documenting and submission of daily safety inspections, toolbox meetings and regular contractor safety meetings.

1.02 SAFETY MEETINGS

- A. The Contractor is responsible for ensuring the conduct of regular job site safety meetings that at a minimum consider the following topics:
 - 1. Safe performance of assigned work tasks;
 - 2. Safe use, operation and maintenance of tools machines and vehicle which the employee uses or operates, including emphasis on understanding and following the manufacturer's operating and maintenance instructions, warnings and precautions;

3. Recognition of safety and health hazards associated with the employee's specific work tasks including the use of measures and work practices to prevent or control those hazards;
4. Recognition, prevention and control of other safety and health hazards in the construction industry procedures, practices and requirements of the employer's work site;

1.03 TRAINING

- A. The Contractor is responsible for ensuring all employees can properly and safely perform the work tasks and operate the tools, equipment, machines and vehicles used in their job;
- B. At a minimum, employees shall be trained to recognize safety hazards associated with their individual work tasks and the preventive and protective measures to deal with such hazards. The training provided by the company shall also recognize and control safety hazards in the construction industry generally. Employees shall demonstrate the ability to perform their assigned task.

END OF SECTION

SECTION 01200
PROJECT MEETINGS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.
- B. This Section contains general information that applies to all work performed under the Contract and is inherently made a part of each specification section.

1.02 PROJECT MEETINGS

- A. Preconstruction Conference: Conduct a preconstruction conference prior to beginning work on site. Require all major subcontractors and suppliers to attend. In general, the meeting shall cover the following subjects:
 - 1. Creation of project team directory listing contract person for each organization.
 - 2. Issuance of Contract Documents.
 - 3. Review of project constraints and work hours.
 - 4. Unloading policies, storage locations, temporary office locations, and temporary facilities.
 - 5. First aid, safety, and security procedures.
 - 6. Cleaning, housekeeping, and waste removal.
 - 7. Change order requirements.
 - 8. Progress payment requirements.
 - 9. Submittal requirements, schedules, and procedures.
 - 10. Record document requirements and procedures.
 - 11. Other subjects as determined by the Contractor or Owner's Representative.
- B. Regular Progress Meetings: Conduct Progress Meetings to aid coordination and planning of the work and to create a forum to resolve coordination and scheduling problems and conflicts. Project meetings will be held as required at the job site. Special project meetings may be called at any time by the Owner's Representative, and shall be attended by the Contractor and any required Subcontractors.
- C. Chairperson and Minutes: The Owner's Representative will chair the meetings and will prepare written meeting minutes.
- D. The Contractor shall require representatives of all major subcontractors and suppliers to attend each Progress Meeting as required. Representatives of Contractor, Subcontractors, and suppliers who are present at Progress Meetings shall have the full authority to commit their respective organizations to decisions, commitments, and

agreements made at Progress Meetings.

- E. Progress Meeting Agenda: Progress Meetings shall have at least the following agenda:
1. Review and approval of minutes and record of previous meeting.
 2. Review progress of work, Progress Schedule, and status of Submittals.
 3. Identify problems that impede planned progress.
 4. Develop corrective measures and procedures to maintain planned schedule.
 5. Review apparent conflicts and other problems, and develop corrective measures.
 6. Monthly review of payment applications.
 7. Pre-installation discussions regarding specific project items.
 8. Other current business.

END OF SECTION

SECTION 01210

PRICE AND PAYMENT PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.

1.02 SECTION INCLUDES

- A. Procedures for preparation and submittal of applications for progress payments.
- B. Documentation of changes in Contract Sum and Contract Time.
- C. Change procedures.
- D. Correlation of Owners Representative submittals based on changes.
- E. Procedures for preparation and submittal of application for final payment.

1.03 SCHEDULE OF VALUES

- A. Submit a printed schedule on AIA Form G703 - Application and Certificate for Payment Continuation Sheet for approval by the Owners Representative.
- B. Schedule of Values in duplicate within 15 days after date of Owner-Contractor Agreement.
- C. Revise schedule to list approved Change Orders with each Application for Payment.

1.04 APPLICATIONS FOR PROGRESS PAYMENTS

- A. Payment Period: Monthly. The Application and Certificate for Payment shall be submitted to the Architect for review at the last weekly project meeting of each month.
- B. Present required information on electronic media printout.
- C. Form: AIA G702 Application and Certificate for Payment and AIA G703 - Continuation Sheet including continuation sheets when required.
- D. For each item, provide a column for listing each of the following:
 - 1. Item Number.
 - 2. Description of work.
 - 3. Scheduled Values.
 - 4. Previous Applications.
 - 5. Work in Place and Stored Materials under this Application.
 - 6. Authorized Change Orders.

7. Total Completed and Stored to Date of Application.
 8. Percentage of Completion.
 9. Balance to Finish.
 10. Retainage.
- G. Execute certification by signature of authorized officer.
- H. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored Products.
- I. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of Work.
- J. Submit three copies of each Application for Payment.
- K. Include the following with the application:
1. Transmittal letter
 2. Construction progress schedule
 3. Current construction photographs
 4. Partial release of liens from major Subcontractors and vendors.
 5. Lien waivers.
 7. Affidavits attesting to off-site stored products.

1.05 MODIFICATION PROCEDURES

- A. Submit name of the individual authorized to receive change documents and who will be responsible for informing others in Contractor's employ or subcontractors of changes to the Contract Documents.
- B. For minor changes not involving an adjustment to the Contract Price or Contract Time, Architect will issue instructions directly to the Contractor.
- C. Architect will advise of minor changes in the Work not involving an adjustment to Contract Sum or Contract Time as authorized by the Conditions of the Contract by issuing supplemental instructions on AIA Form G710.
- D. For other required changes, Architect will issue a document signed by Owner instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.
1. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.
 2. Promptly execute the change.
- E. For changes for which advance pricing is desired, the Architect will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a

stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within 7 days.

- F. Contractor may propose a change by submitting a request for change to the Architects, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors.
- G. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
- H. Substantiation of Costs: Provide full information required for evaluation.
 - 1. On request, provide following data:
 - a. Quantities of products, labor, and equipment.
 - b. Insurance and bonds.
 - c. Overhead and profit
 - d. Justification for any change in Contract Time.
 - e. Credit for deletions from Contract, similarly documented.
 - 2. Support each claim for additional costs with additional information:
 - a. Origin and date of claim.
 - b. Dates and times work was performed, and by whom.
 - c. Time records and wage rates paid.
 - d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.
 - 3. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.
- I. Execution of Change Orders: in accordance with Contract Documents.
- J. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.
- K. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.
- L. Promptly enter changes in Project Record Documents.

1.06 APPLICATION FOR FINAL PAYMENT

- A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.

- B. Application for Final Payment will not be considered until satisfaction of the requirements of the Contract Documents.

END OF SECTION

SECTION 01230

ALTERNATES

PART 1 – GENERAL

1.01 GENERAL PROVISIONS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.
- B. Examine all other Sections of the Specifications for requirements that affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with trades affecting, or affected by, work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 SCOPE

- A. This Section lists the Alternates which appear in the Contract Documents. Consult the individual Sections for requirements applicable to all alternatives.
- B. Bid prices for each Alternate shall include overhead, profit, and all other expenses incidental to the Work under each Alternate.
- C. The Contractor and Subcontractors shall be responsible for examining the scope of each Alternate generally defined herein and for recognizing modifications to the Work caused by the Alternates and including the cost thereof in the bid price.

1.03 ADD ALTERNATE NO. 1

- A. Summary
 - 1. Under this alternate, the amount stated on the Bid Form shall be ADDED to the Base Bid for furnishing and installing, complete-in-place, (1) drinking fountain AND (2) misting stations as shown on the plans and as specified herein.
 - a. As part of the Route 9A Promenade project, a water line “stub” was installed for use with a future drinking fountain. Contractor will be required to locate this “stub” for use with Add Alternate No. 1.
 - 2. Work includes all selective demolition, substitutions, and modifications to the base bid, and work incidental and associated with Add Alternate No. 1 in accordance with the Drawings and specifications.
- B. Related Sections
 - 1. Section 02110 – Selective Site Demolition
 - 2. Section 02200 – Earthwork
 - 3. Section 02771 – Granite Curbing and Pavers
 - 4. Section 02870 – Site Furnishings
 - 5. Section 03100 – Concrete Formwork

6. Section 03200 – Concrete Reinforcing Steel
7. Section 03325 – Cast-In-Place Concrete
8. Section 04100 – Mortar and Grout

1.04 ADD ALTERNATE NO. 2

A. Summary

1. Under this alternate, the amount stated on the Bid Form shall be ADDED to the Base Bid for furnishing and installing, complete-in-place, granite curbing for raised planter beds, 3'-6" ht. stainless steel fencing, backless benches, design / build irrigation system, planting, planting soil, unit pavers, reset light poles on new concrete bases, reset electric hand holes, concrete sidewalk repairs, and all site work associated with Alternate No. 2 as shown on the plans and as specified herein.
 - a. Proposed granite and bluestone pavers are intended to match those that are currently found on site.
2. Work includes all selective demolition, substitutions, and modifications to the base bid, and work incidental and associated with Add Alternate No. 2 in accordance with the Drawings and specifications.

B. Related Sections

1. Section 02110 – Selective Site Demolition
2. Section 02200 – Earthwork
3. Section 02630 – Storm Drainage
4. Section 02771 – Granite Curbing and Pavers
5. Section 02780 – Bluestone Pavers
6. Section 02810 – Irrigation System
7. Section 02822 – Stainless Steel Fence
8. Section 02870 – Site Furnishings
9. Section 02950 – Planting
10. Section 02955 – Planting Soil
11. Section 03100 – Concrete Formwork
12. Section 03200 – Concrete Reinforcing Steel
13. Section 03325 – Cast-In-Place Concrete
14. Section 04100 – Mortar and Grout
15. Section 16050 – Basic Electrical Methods and Materials

16. Section 16500 – Exterior Lighting

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.01 GENERAL PROVISIONS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.

1.02 RELATED DOCUMENTS

- A. Consult the individual sections of the specifications for the specific submittals required under those sections and for further details and descriptions of the requirements.

1.03 GENERAL PROCEDURES FOR SUBMITTALS

- A. Timeliness – Within 5 days after contract award, contractor shall provide a schedule of all required submittals for the Owner's approval. The Contractor shall transmit each submittal to the Owner's Representative at least 21 days in advance of performing related Work or other applicable activities, so that the installation will not be delayed by processing times, including disapproval and re-submittal (if required), coordination with other submittals, testing, purchasing, fabrication, delivery, and similar sequenced activities. No extension of time will be authorized because of the Contractor's failure to transmit submittals to the Owner's Representative in advance of the Work.
- B. Sequence - The Contractor shall transmit each submittal in a sequence which will not result in the approval having to be later modified or rescinded by reason of subsequent submittals which should have been processed earlier or concurrently for coordination.
- C. Contractor's Review and Approval - Only submittals received from and bearing the stamp of approval of the Contractor will be considered for review by the Owner's Representative. Submittals shall be accompanied by a transmittal notice, stating name of Project, date of submittal, "To" or "From" (Contractor, Subcontractor, Installer, Manufacturer, Supplier), Specification Section or Drawing No. to which the submittal refers, purpose (first submittal, re-submittal), description, remarks, distribution record, and signature of transmitter.
- D. Any reference as to a specific type or manufacturer in these specifications is for identification purposes only. Equivalent products will be considered. In the event that samples or specifications on equivalent products are required, it will be at the vendor's expense.
- E. Or-Equivalents - On the transmittal, or on a separate sheet attached to the transmittal, the Contractor shall direct attention to any deviations including minor limitations and variations, from the Contract Documents.
- F. The Contractor and all Subcontractors shall submit to the Owner's Representative for consideration of any Or-equivalent substitution, a written point by point comparison containing the name and full particulars of the proposed product to the product named or described in the Contract Documents.
- G. Such submittal shall in no event be made later than 21 calendar days prior to the incorporation of the item into the Work. In any case in which the time period specified in the Contract Documents from the Notice to Proceed to Substantial Completion is less

than 21 days, the Owner's Representative can waive this requirement.

- H. Upon receipt of a written request for approval of an Or-equivalent substitution, the Owner's Representative shall investigate whether the proposed item shall be considered equivalent to the item named or described in the Contract Documents. Upon conclusion of the investigation, the Owner's Representative shall promptly advise that the item is, or is not, considered acceptable as an Or-equivalent substitution. Such written notice must have the concurrence of the Owner. No time extension shall be granted for additional time required for Owner's review of substitutions.
- I. In no case may an item be furnished on the Work other than the item named or described, unless the Owner's Representative, with the Authority's concurrence, shall consider the item equivalent to the item so named or described.
- J. The equivalency of items offered as "equivalent to" items named or described shall be proved to the satisfaction of the Owner's Representative at the expense of the Contractor or Subcontractor submitting the substitution.
- K. The Owner's Representative and/or the Authority may require that full size samples of both the specified and proposed products be submitted for review and evaluation. The Contractor or Subcontractor, as the case may be, shall bear full cost for providing, delivering, and disposal of all such samples.
- L. The Contractor or Subcontractor, as the case may be, shall assume full responsibility for the performance of any item submitted as an "Or-equivalent" and assume the costs of any changes in any Work that may be due to such substitution.
- M. Processing - All costs for printing, preparing, packaging, submitting, resubmitting, and mailing, or delivering submittals required by this contract shall be included in the Contract Sum.

1.04 OWNER'S REPRESENTATIVE'S ACTION

- A. The Owner's Representative will review the Contractor's submittals and return them with one of the following actions recorded thereon by appropriate markings:
- B. Final Unrestricted Release: Where marked "Reviewed" the Work covered by the submittal may proceed provided it complies with the requirements of the Contract Documents.
- C. Final-But-Restricted Release: When marked "Reviewed as Modified" the Work may proceed provided it complies with the Owner's Representative's notations or corrections on the submittal and complies with the requirements of the Contract Documents. Acceptance of the Work will depend upon these compliances.
- D. Returned for Resubmittal: When marked "Revise & Resubmit" or "Not Reviewed", the Work covered by the submittal (purchasing, fabrication, delivery, or other activity) should not proceed. The submittal should be revised or a new submittal resubmitted without delay, in accordance with the Owner's Representative's notations stating the reasons for returning the submittal.

1.05 SUBMISSION OF SHOP DRAWINGS & PRODUCT DATA

- A. Shop drawings shall be complete, give all information necessary or requested in the individual section of the specifications. They shall also show adjoining Work and details of connection thereto.

- B. Shop drawings shall be for whole systems. Partial submissions will not be accepted.
- C. The Owner's Representative reserves the right to review and approve shop drawings only after approval of related product data and samples.
- D. Shop drawings shall be properly identified and contain the name of the project, name of the firm submitting the shop drawings, shop drawing number, date of shop drawings and revisions, Contractor's stamp of approval, and sufficient spaces near the title block for the Owner's Representative's stamp.
- E. The Contractor shall submit to the Owner's Representative one legible, reproducible transparency and two black line prints of each shop drawing. Transparency and prints shall be mailed or delivered in roll form. A transmittal notice shall accompany each submittal.
- F. When the transparency is returned by the Owner's Representative with the stamp "Revise and Resubmit" or "Rejected", the Contractor shall correct the original drawing or prepare a new drawing and resubmit a transparency and two prints thereof to the Owner's Representative for approval. This procedure shall be repeated until the Owner's Representative's approval is obtained.
- G. When the transparency is returned by the Owner's Representative with the stamp "Reviewed, and no exception taken", the Contractor shall provide and distribute the prints for all Contractor and Subcontractors use, and in addition submit, within 10 calendar days after approval, 5 prints to the Owner's Representative.
- H. The Contractor shall maintain one full set of approved shop drawings at the site.

1.06 SUBMISSION OF SAMPLES

- A. Unless otherwise specified in the individual section, the Contractor shall submit two specimens of each sample.
- B. Samples shall be of adequate size to permit proper evaluation of materials. Where variations in color or in other characteristics are to be expected, samples shall show the maximum range of variation. Materials exceeding the variation of approved samples will not be approved on the Work.
- C. Samples that can be conveniently mailed shall be sent directly to the Owner's Representative, accompanied by a transmittal notice. All transmittals shall be stamped with the Contractor's approval stamp of the material submitted.
- D. All other samples shall be delivered at the field office of the Project Representative with sample identification tag attached and properly filled in. Transmittal notice of samples so delivered with the Contractor's stamp of approval shall be mailed to the Owner's Representative.
- E. If a sample is rejected by the Owner's Representative, a new sample shall be resubmitted in a manner specified herein above. This procedure shall be repeated until the Owner's Representative approves the sample.
- F. Samples will not be returned unless return is requested at the time of submission. The right is reserved to require submission of samples whether or not particular mention is made in the specifications.

1.07 SUBMITTALS FOR PROJECT CLOSEOUT

- A. Submit the following as specified in the technical specifications at project closeout:
 - 1. Project record documents.
 - 2. Operation and maintenance data and manuals
 - 3. Training manuals
 - 4. Warranties.
 - 5. Other items as indicated.
- B. Submit for Owner's benefit during and after project completion.

END OF SECTION

SECTION 01400
QUALITY CONTROL

PART 1 – GENERAL

1.01 GENERAL PROVISIONS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.

1.02 TESTING AND SPECIAL TESTING

- A. Refer to the General Conditions and Supplementary Conditions for general requirements, and technical specifications for specific testing requirements and methods.
- B. Unless otherwise provided in the specifications, the Contractor or assigned subcontractor shall provide all materials, samples, mock-ups or assemblies for all tests specified in various sections of specifications, or as directed by the Owner's Representative, and pay shipping costs of such samples to laboratory or other testing location and facility. Unless specified otherwise, all tests shall be made by an approved independent testing laboratory and reports provided to Owner's Representative.
- C. Tests shall be provided and accomplished in accordance with the standard used as the reference for the particular material or product, unless other test methods or criteria are specified. In the absence of a referenced standard, tests shall be accomplished in accordance with applicable ASTM Standards or Test Methods, current at the date of the Contract Document.
- D. The Owner will employ and pay for any special inspector to provide the inspections during construction as may be required by applicable codes, such as New York State Building Code. The Contractor shall coordinate his operations with the inspector and cooperate with the inspector in the required inspections.
- E. Comply with NYC Codes and Ordinances.

1.03 QUALIFICATIONS OF TESTING AGENCY

- A. "Approved independent testing laboratory" shall mean an independent testing agency acceptable to the Owner and the Owner's Representative and possessing the professional qualifications and equipment to perform the specified tests and to evaluate the report the results.

1.04 QUALITY ASSURANCE

- A. Comply with requirements of ASTM E29 and ASTM D3740.
- B. Laboratory shall maintain a full-time registered Engineer on staff to review services.
- C. Laboratory authorized to operate in State in which Project is located.
- D. Testing equipment shall be calibrated at reasonable intervals with devices of accuracy traceable to either NBS Standards or accepted values of natural physical constants.

1.05 REFERENCES

- A. ASTM D3740 - Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
- B. ASTM E29 - Standard Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.

1.06 PAYMENT FOR TESTS

- A. Tests to be paid for by the Owner will be paid directly to the testing laboratory by the Owner.
- B. The Owner will not pay for tests to determine if a proposed material will initially meet the specified requirements, which will include but not be limited to, concrete aggregate analysis, concrete design mixes, concrete block for initial approval, precast concrete implant tests, brick being considered for selection, analysis of paving aggregate, paving mix designs, and similar tests. The Owner will not pay for testing of mechanical and electrical systems.
- C. The Owner will pay for those field tests to determine the quality of materials and workmanship at the site. The following is the list of the type of tests the Owner will pay for, where tests are specified or later determined as necessary:
 - 1. Infiltration tests (Dual ring infiltramator)
- D. The Contractor or assigned Subcontractor shall be responsible for, and shall pay for, all off-site and on-site tests except those listed in Paragraph 1.06.C.
- E. The Owner's Representative shall have the right to witness all off-site and on-site tests performed by the Contractor or assigned subcontractor and the Contractor shall furnish adequate notice of when tests will be made.
- F. When in the opinion of the Owner's Representative, additional tests or inspections are required because of the manner in which the Contractor executes its work, such tests and inspections shall be paid for by the Owner, but will be deducted from the contract price. Examples of such tests and inspections are:
 - 1. Tests of materials substituted for previously accepted materials, or substitute for specified materials; retests made necessary by failure of materials to comply with the requirements of the specifications; load tests made necessary because of portions of the structure not fully meeting specifications or plan requirements, etc.

1.07 TESTS TO DEMONSTRATE QUALIFICATION

- A. In addition to tests specified, should the Contractor propose a product, material, method of assembly that is of unknown or questionable quality to the Owner's Representative, the Owner's Representative may require and order suitable tests to establish a basis for acceptance or rejection. Such tests will be paid for by the Contractor, or by the Subcontractor requesting approval. "Standard" test reports on "similar" material will not be acceptable.
- B. The Owner and Owner's Representative reserve the right to require certification or other proof that the material, assembly, equipment, system or other product furnished or proposed to be furnished, for this Project is in compliance with any test or standard called for. The certificate shall be signed by a representative of the independent testing laboratory.

- C. Any tests required to qualify the Contractor or any of his workmen for any phase of the work, and any test of a method, system or equipment that may be required by specification or law to qualify the item for use, shall be made or taken without additional reimbursement.
- D. If exploratory work is required to determine the cause of defects, the cost of such work shall be borne by the Contractor or assigned subcontractor responsible for such work if the work is found, in the judgment of the Owner's Representative to be defective. If the Contractor or assigned subcontractor responsible for the work is adjudged by the Owner's Representative to be not at fault, exploratory testing will be paid by the Owner.

1.08 INSPECTIONS

- A. Should the specifications, Owner's Representative's instructions, laws, ordinances or any public authority require any work to be inspected or approved, the Contractor shall give timely notice of its readiness for inspection and a reasonable date fixed for such inspection. If any work requiring inspection should be covered up without approval or consent of the approving agency, it must be uncovered for examination at Contractor's expense.

1.09 CERTIFICATES

- A. Except for test reports provided and signed by approved independent testing laboratories, all certificates required by the specification shall be signed by an authorized official of the firm providing the certificate, with the signature notarized, when such certificates by the producer are acceptable to the Owner's Representative.

1.10 RETEST RESPONSIBILITY

- A. Where results of required inspections, tests or similar prove unsatisfactory and do not indicate compliance of related work with requirements of the contract documents, then retests are responsibility of Contractor or assigned subcontractor, regardless of whether original test was Contractor's responsibility. Retesting of work revised or replaced by Contractor is Contractor's responsibility, where required tests were performed on original work.
- B. Owner's decision on unsatisfactory testing resulting or retesting of work based on consultation with Testing Laboratory and Owner's Representative is final.

END OF SECTION

SECTION 01500

TEMPORARY FACILITIES

PART 1 - GENERAL

1.01 GENERAL PROVISIONS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.
- B. The Contractor shall be responsible for providing and maintaining all temporary facilities until Substantial Completion. Removal of such, prior to Substantial Completion must be with the concurrence of the Owner's Representative. The Contractor bears full responsibility for re-providing any facility removed prior to Substantial Completion if required for the work.
- C. Removal of all temporary facilities shall be a condition precedent to Substantial Completion unless directed otherwise by the Owner's Representative or specifically noted in the Specifications.
- D. The Contractor must comply with all safety laws and regulations of the State of New York, the United States Government, and local government agencies applicable to work under this contract.

1.02 TEMPORARY TELEPHONES

- A. Telephone service, in the form of a cellular phone and beeper, shall be available on site.
- B. The Contractor shall pay for all equipment charges for the foregoing temporary telephones and for all calls and charges in connection therewith.

1.03 TOILETS

- A. The Contractor shall provide portable bathroom facilities as required.

1.04 TEMPORARY CONSTRUCTION FENCE

- A. The Contractor shall be responsible for providing and maintaining temporary fencing or barricades around the construction and additional fencing or barricades as may be necessary to assure the safety of all persons authorized or unauthorized. Such protective measures shall be located and constructed as required by local, state and federal ordinances, laws, codes or regulations at no additional cost to the Owner.

1.05 TEMPORARY STRUCTURES AND MATERIAL HANDLING

- A. Materials shall be handled, stored, installed, cleaned, and protected in accordance with the best practice in the industry and, except where otherwise specified in the Contract Documents, in accordance with manufacturer's specifications and directions.

1.06 TEMPORARY WATER

- A. The Contractor may make use of the available water supply at the site for construction purposes, provided the permission of the Owner is obtained beforehand and only as long as the water is not used wastefully.
- B. The Contractor shall provide all necessary connections, piping and hoses to utilize the

available sources of water.

- C. The Contractor shall provide an adequate supply of cool drinking water with individual drinking cups for personnel on the job.
- D. In the event that water is unavailable, the contractor shall be responsible for providing water from off site sources.

1.07 TEMPORARY ELECTRICITY

- A. Where available, the Contractor may make use of the electricity at the site, metered and paid for by the Owner, provided that the Contractor shall supply proper adapters and extension cords. Where heavy duty electric equipment drawing current in excess of 15 amp. is involved, the Contractor shall provide temporary service to supply the power. The temporary electric service shall include, but not be limited to labor, materials, and equipment necessary to supply temporary power of adequate capacity for the project. Transformers and meters, when required by the power company, will be furnished by the power company and the Contractor shall bear the costs therefore.
- B. Temporary electrical work shall be performed under the direct supervision of at least one master electrician, who will be present on the project at all times when such work is being performed.
- C. All temporary work shall be provided in conformity with the National Electric Code, State Laws and requirements of the power company.
- D. The Contractor shall dismantle and completely remove from the project site, temporary electrical facilities only when the permanent electrical system is operational.

1.08 WINTER CONDITIONS

- A. Remove snow and ice which may impair progress of work, be detrimental to workmen or impair trucking, delivery or moving of materials at job site, or prevent adequate drainage at site or adjoining areas.

END OF SECTION

SECTION 01700
PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 GENERAL PROVISIONS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.

1.02 RELATED DOCUMENTS

- A. This section supplements the General Conditions and Division 1.
- B. Consult the individual sections of the specifications for specific items required under those sections.

1.03 SUBSTANTIAL COMPLETION

- A. Prior to requesting Substantial Completion as provided in the General Conditions the Contractor shall make a thorough inspection of the Work. During this inspection the Contractor shall prepare a comprehensive list of all items remaining to be completed or corrected. This list shall include all remaining Contractor and Subcontractor items to be provided under the Contract Documents.
- B. Upon completion of the list, the Contractor shall notify, in writing, the Owner's Representative that the Work is Substantially Complete. The Owner's Representative shall then conduct a similar thorough inspection. If the Owner's Representative agrees that the Work is Substantially Complete, the Owner's Representative will promptly make a thorough inspection and prepare a monetized punch list, setting forth in accurate detail any items on the Contractor's list and additional items that are not acceptable or incomplete. The Contractor shall coordinate all Subcontractors to achieve prompt completion of the punch list.
- C. The Contractor shall not be relieved of the responsibility to provide Contract items left off of the Owner's Representative's punch list.
- D. If the Owner's Representative determines that the Work is not Substantially Complete, the Owner's Representative shall inform the Contractor of those items that must be completed before the Owner's Representative will prepare a monetized punch list. Upon completion of those items, the Contractor shall again request the Owner's Representative to prepare a punch list.
- E. When the punch list has been prepared, the Owner's Representative will arrange a meeting with the Contractor and Subcontractors to identify and explain all punch list items and answer questions on work which must be done before final acceptance.
- F. The Owner's Representative may revise the punch list, from time to time, to ensure that all items of Work are properly completed.
- G. The Owner's Representative shall prepare the Certificate of Substantial Completion in accordance with the General Conditions.

1.04 OPERATING AND MAINTENANCE INSTRUCTIONS

- A. Prior to final payment and completion the Contractor shall provide all Operating Manuals and Maintenance Instructions as required by the Contract Documents and as requested by the Owner.
- B. Consult the individual sections of the specifications for the specific requirements for those sections and for further details and descriptions of the requirements.
- C. Operating Instructions and Manuals:
 - 1. The Contractor shall collect all of the above instructions and copies of all approved submittals and bind them into three complete sets in three ring binders, and submit them to the Owner's Representative who will deliver them to the Owner.
 - 2. Submission of operating and maintenance instructions shall be a condition precedent to final payment.
- D. Instruction of Owner's Personnel:
 - 1. Where specified in the individual sections of the specifications, the Contractor and Subcontractor shall instruct the Owner's personnel at the site, in the use and maintenance of equipment installed under the Contract.
 - 2. Submission to the Owner's Representative of a certificate of compliance to this requirement, signed by the Contractor and the Owner's Representative, shall be a condition precedent to final payment.

1.05 FINAL COMPLETION

- A. Related Requirements:
 - 1. The Contractor's attention is directed to the General Conditions of the Contract.
- B. Final Completion:
 - 1. Within 15 days after Substantial Completion, if any of the items on the Owner's Representative's punch list are not complete or if the Contractor has not provided the appropriate Record Drawings, Operating Manuals, Warranties, Guarantees, or Spare Parts, the Owner's Representative may assign a monetary value for each incomplete item as well as any other items.
 - 2. The Contractor shall provide the Owner's Representative with a Notarized Contractor's Certificate and Release and an appropriate Application for Payment. This Application shall be for an amount equal to the remaining balance of the Contract less the amount of the Owner's Representative's monetized punch list and any other items.
 - 3. The Contractor shall complete all remaining Work in accordance with the provisions of the General Conditions of the Contract.
 - 4. Upon completion of all remaining items, and after receipt of all appropriate Shop Drawings, Record Drawings, Operating Manuals, Warranties, Guarantees and Spare Parts required by the Contract Documents, The Contractor shall provide a notarized Contractor's Certificate and Release and a final Application for Payment to complement this closeout process.

END OF SECTION

SECTION 01720

RECORD DOCUMENTS

PART 1 – GENERAL

1.01 GENERAL PROVISIONS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.

1.02 RECORD DOCUMENTS

- A. Record Documents shall consist of all the Contract Drawings.
- B. From the sets of drawings furnished by the Owner, the Contractor shall reserve one set for record purposes. From this set, the Contractor shall detach and furnish, at no charge to all Subcontractors, the drawings of their portion of the Work for the same purpose.
- C. The Contractor and the above Subcontractors shall keep their record set on the site at all times and note on it in colored ink or pencil, neatly and accurately, at the end of each working day, the exact location of their work as actually installed. This shall include the location and dimensions of underground and concealed Work, and any variations from the Contract Drawings. All changes, including those issued by Addendum, Change Order or instructions by the Owner's Representative shall be recorded. Record Drawings shall be prepared for the entire project and include all Work.
- D. As-built drawing requirements:
 - 1. Synthetic Turf – Overall layout including all removable turf covers, identifying the element below.
- E. The Owner's Representative may periodically inspect the Record Drawings at the site. The proper and current maintenance of the information required on these drawings shall be a condition precedent to approval of the monthly requisitions for periodic payment.
- F. At Substantial Completion the Contractor shall submit the complete set of Record Drawings to the Owner's Representative. The Owner's Representative will review these drawings and return them to the Contractor with necessary comments.
- G. Upon receipt of an AUTOCAD compatible disk of the original contract drawings from the Owner's Representative, the Contractor and Subcontractors shall transfer the As-Built information shown on the Record Drawings and adjust the drawing to match existing conditions (i.e. erase items removed during construction, revise contours accordingly, etc.). This electronic drafting shall be done by an experienced CAD operator and match the original Drawings.
- H. From the disks, the Contractor shall, at his own expense, prepare and submit two sets of black line prints to the Owner's Representative. Each sheet shall be clearly marked "Record Drawing" and bear the date of printing. Submission of accurate Record Drawings and their approval by the Owner's Representative shall be a condition precedent to final payment.
- I. The Contractor shall submit all hard and electronic copies of the drawings to the Owner's Representative.

END OF SECTION

SECTION 01740

WARRANTIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.
- B. This Section contains general information that applies to all work performed under the Contract and is inherently made a part of each specification section.

1.02 WARRANTY REQUIREMENTS

- A. Warranties Required: All materials, equipment, and work of the Project shall be covered by comprehensive written warranties. Refer to individual specification sections for additional specific warranty requirements. For work not specified to have additional specific warranty requirements or warranties longer than one year, provide a comprehensive one year written warranty signed by the Contractor and Subcontractor.
- B. Warranty Limitations: Warranties required under the Contract are in addition to and not in lieu of any remedy or warranty to which the Owner is entitled under law. Warranties required under the Contract shall not be interpreted as a waiver of any of the Owner's rights.
- C. Warranty Procurement: Do not purchase or subcontract for materials, equipment or work until it has been verified that parties required to provide and sign warranties are willing to do so and that warranty language, content, and form are approved by the Owner.
- D. Warranties are Irrevocable: After a specific warranty's language, content, and form has been approved by the Owner and after the work covered by a specific warranty is subcontracted or purchase order given to a manufacturer, the warrantor shall not revoke or withhold the warranty for any reason including, without limitation, non-payment or incomplete payment by any party other than the Owner, except that if the work has not been installed in compliance with the warrantor's installation requirements, then the warranty may be temporarily withheld until corrections are made and the warrantor's installation requirements have been met.
- E. Warranty Forms: Submit written warranty forms to Owner through Owner's Representative for approval prior to award of subcontract, submission or purchase order, and execution of warranty. The manufacturer's standard warranty forms may not comply with the requirements of the Contract Documents. Special warranty terms, conditions, and requirements are often specified and required.
- F. Standard Warranty Form: In the absence of specific written permission by the Owner, provide all warranties including the Contractor's comprehensive one year warranty on fully executed copies of the "Standard Warranty Form" included in this Section.
 - 1. Executed Warranties: Furnish original or certified copies of each executed warranty to Owner for warranty and maintenance manuals. Comply with requirements of the RECORD DRAWINGS section.
- G. Work Covered by Warranty: Contractor and warrantor shall remove and replace other

work damaged as a result of failure of warranted materials, equipment, or work, and shall remove and replace other work which must be removed and replaced to provide access to and replacement of materials, equipment, or work covered under warranty. Warranties shall include full payment to the Owner for work related to warranty repair or replacement including, without limitation, painting.

- H. Pro-Rated Warranties: Unless otherwise specified or approved in writing by Owner, each warranty shall cover full cost of replacement or repair, and shall not be pro-rated on basis of useful service life or warranty period.
- I. Warranty Extensions: Work repaired or replaced under warranty shall be provided with a new warranty equal to the full length of the original warranty. The new warranty shall begin on the date of Owner's acceptance and use of the replaced or repaired item.
- J. Warranty Effective Starting Date: All warranties shall begin on Date of Final Acceptance of the entire project or Owner's acceptance of the work or item covered by the warranty, whichever is later, and the warranty coverage shall continue for the period specified. If no specific warranty period is specified, the warranty shall extend for one year (365 days).
- K. Contractor's Responsibilities for Warranties: The Contractor shall implement and invoke all guarantees and warranties provided by subcontractors, manufacturers, material suppliers, and other parties, including warranties longer than one year duration. The Contractor shall make every effort to facilitate, expedite, and aid the Owner in warranty claims the Owner may have throughout the warranty periods.

END OF SECTION

SECTION 01741

CONSTRUCTION WASTE MANAGEMENT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.
- B. This Section contains general information that applies to all work performed under the Contract and is inherently made a part of each specification section.

1.02 WASTE MANAGEMENT REQUIREMENTS

- A. Battery Park City Authority requires that this project generate the least amount of trash and waste possible.
- B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.
- C. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.
- D. Required Recycling, Salvage, and Reuse: The following may not be disposed of in landfills:
 - 1. Aluminum and plastic beverage containers.
 - 2. Corrugated cardboard.
 - 3. Wood pallets.
 - 4. Clean dimensional wood: May be used as blocking or furring.
 - 5. Synthetic turf and infill.
- E. Methods of trash/waste disposal that are not acceptable are:
 - 1. Burning on the project site.
 - 2. Burying on the project site.
 - 3. Dumping or burying on other property, public or private.
 - 4. Other illegal dumping or burying.
 - 5. Incineration, either on- or off-site.
- F. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, state and local requirements, pertaining to legal disposal of all construction and demolition waste materials.

1.03 SUBMITTALS

- A. Waste Management Plan: Include the following information:
1. Landfill Options: The name, address, and telephone number of the landfill(s) where trash/waste will be disposed of, the applicable landfill tipping fee(s), and the projected cost of disposing of all project trash/waste in the landfill(s).
 2. Landfill Alternatives: List all waste materials that will be diverted from landfills by reuse, salvage, or recycling. a. List each material proposed to be salvaged, reused, or recycled.
 3. Meetings: Describe regular meetings to be held to address waste prevention, reduction, recycling, salvage, reuse, and disposal.
 4. Materials Handling Procedures: Describe the means by which materials to be diverted from landfills will be protected from contamination and prepared for acceptance by designated facilities; include separation procedures for recyclables, storage, and packaging.
 5. Transportation: Identify the destination and means of transportation of materials to be recycled; i.e. whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler.

END OF SECTION

SECTION 01790

DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.
- B. This Section contains general information that applies to all work performed under the Contract and is inherently made a part of each specification section.

1.02 SUMMARY

- A. Demonstration of products and systems is indicated in specification sections.
- B. Training of Owner personnel in operation and maintenance is required for:
 - 1. Synthetic turf as specified in individual product Section.

1.03 SUBMITTALS

- A. Operation and Maintenance Manuals
- B. Draft Training Plans: Owner will designate personnel to be trained; tailor training to needs and skill-level of attendees.
 - 1. Submit to Owners Representative for review and inclusion in overall training plan.
 - 2. Submit not less than four weeks prior to start of training.
 - 3. Revise and resubmit until acceptable.
- C. Training Manuals: Provide training manual for each attendee; allow for minimum of two attendees per training session.
 - 1. Include applicable portion of O&M manuals.
 - 2. Include copies of all hand-outs, slides, overheads, video presentations, etc., that are not included in O&M manuals.
 - 3. Provide one extra copy of each training manual to be included with operation and maintenance data.
- D. Training Reports:
 - 1. Identification of each training session, date, time, and duration.
 - 2. Sign-in sheet showing names and job titles of attendees.

1.04 DEMONSTRATION

- A. Demonstrations conducted during system start-up do not qualify as demonstrations for the purposes of this section, unless approved in advance by Owner.

- B. Demonstration may be combined with Owner personnel training if applicable.
- C. Operating Equipment and Systems: Demonstrate operation in all modes, including start-up, shut-down, seasonal changeover, emergency conditions, and troubleshooting, and maintenance procedures, including scheduled and preventive maintenance.
 - 1. Perform demonstrations not less than two weeks prior to Substantial Completion.
 - 2. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

END OF SECTION

SECTION 02000

SITE REQUIREMENTS

PART 1 – GENERAL

1.01 GENERAL PROVISIONS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.

1.02 EXAMINATION OF SITE

- A. Prior to bidding the Contractor shall thoroughly examine the site and the Contract Documents to ensure his knowledge of conditions and requirements affecting the work. No claim for extra compensation or extension of time will be allowed for Contractor's failure to comply with this requirement nor will any condition at the site, whether or not in agreement with conditions shown or called for on the Bid and Contract Documents, be allowed as a basis for such claims, except as otherwise specifically provided for.

1.03 DISCOVERY

- A. If during the demolition, excavation, disposal, or other work, articles of unusual value, or of historical or archeological significance are encountered, the ownership of such articles is retained by the Owner, and information regarding their discovery shall be immediately furnished to the Owner's Representative. If the nature of the article is such that the work can not proceed without danger of damaging same, work in that area shall be immediately discontinued until the Owner's Representative and/or Owner has decided the proper procedure to be followed. Any time lost thereby shall be a condition for which the time of the contract may be extended. All costs incurred after discovery in the salvaging of such articles shall be borne by the Owner.

1.04 COORDINATION WITH EXISTING UTILITIES

- A. The Contractor shall give all advance notice to public utility companies as required by law, and shall provide proper disposition, subject to Owner's Representative's and/or Owner's approval of all existing pipe lines, conduits, sewers, drains, poles, wiring, and other utilities that in any way interfere with the work, whether or not they are specifically shown on the Drawings. He shall immediately notify the Owner and appropriate authorities when coming across an unknown utility line, and await decision as to how to dispose of same. When an existing utility line must be cut and plugged or capped, moved, or relocated, or has become damaged he shall notify the Owner and the Utility company involved, and assure the protection, support, or moving of utilities to adjust them to the new work. The Contractor shall be responsible for all damage caused to existing, active utilities under the work of this Contract, whether or not such utilities are shown on the Drawings, including resultant damages or injuries to persons or properties.
- B. Written notice shall be given by the Contractor to all public service corporations owning or having charge of publicly or privately owned utilities of his intention to commence operations affecting such utilities at least one (1) week in advance of the commencement of such operations, and the Contractor shall at that time file a copy of such notice with the Owner's Representative.
- C. Before the Contractor begins any work or operations which might damage any subsurface structures, he shall carefully locate all such structures and conduct his operations so as to avoid any damage to them.

- D. Agents of various public service agencies, municipal and State departments may be entering on the work site to remove existing facilities, to construct or place new facilities or to make alterations to existing facilities.
- E. Prior to starting work or erecting permanent construction signing, the Contractor shall notify the "DigNet" of New York City and Long Island (formerly the New York City / Long Island One-Call Center), 104-70 Queens Blvd., Suite 312, Forest Hills, NY 11375, Tel: 800-272-4480, Fax: 800-524-7599, not less than two (2) full business days and not more than ten (10) full business days before commencing excavation. The Contractor will receive a notification ticket from DigNet which should be presented to the Owner's Representative as proof of the call. Once located and marked, the Contractor shall maintain such marks and access to installations to permit repairs and maintenance of service if interrupted.
- F. The Contractor shall perform the work in cooperation with the various agencies in a manner that causes the least interference with the operations of the aforementioned agencies and shall have no claim for due to said work of these agencies.
- G. Written notice shall be given by the Contractor to all public service corporations or municipal and State officials owning or having charge of publicly or privately owned utilities of his intention to commence operations affecting such utilities at least one week in advance of the commencement of such operations. The Contractor shall, at the same time, file a copy of such notice with the Owner's Representative and Owner.

1.05 WARNING

- A. Install warning fencing around all excavations and in all areas designated on the Drawings and as directed. Maintain fencing in place throughout length of construction period as directed by the Owner's Representative. After completion of construction, take down fencing and remove from the site.

1.06 SITE LAYOUT

- A. Contractor shall employ personnel trained and registered as a Civil Engineer or as a registered Surveyor by the State of New York to field stake all site features.
- B. Contractor shall maintain a level and transit on the job, and shall employ personnel for use thereof trained and registered as a Civil Engineer or as a registered Surveyor by the State of New York. The Owner and the Owner's Representative shall have reasonable use of these instruments at all times.
- C. Existing survey information on Drawings is for Contractor's use. Contractor shall establish benchmarks in at least two widely separated locations, and shall establish and maintain grades, lines, levels and other dimensional reference guides as required. The Contractor shall annotate project record documents to indicate all modifications of grades, utilities, etc.

1.07 PROTECTION OF PROPERTY AND THE PUBLIC

- A. Construct all fences, barricades, and protective facilities required for the protection of the public, in accordance with local and State regulations. Furnish and install all signs, lights, reflectors, and all such protection facilities as may be required.
- B. Contractor shall hold the Owner harmless from all claims arising from the use of public streets, sidewalks, and adjoining premises for construction purposes.

- C. Keep all access roads and walks clear of debris, materials, construction plans, and equipment, during work operations. Repair streets, drives, curbs, sidewalks, fences, poles and the like, where disturbed by construction. Leave them in as good conditions after completion of the work as before operations started.
- D. Provide ways and means to control the flow of water from every source which may cause delay or damage during the work operations.
- E. Protect all planting, landscaping, trees, and site improvements as indicated on the Drawings.
- F. The Contractor shall be responsible for the maintenance of construction barriers and traffic barriers in order to maintain traffic, over, through, or around the work included in his Contract with the maximum of safety and practicable convenience to such traffic during the life of the Contract, and whether or not work has been suspended temporarily. Contractor shall take all precautions for preventing injuries to persons or damage to property to or about the work.
- G. The work shall be carried on and barriers erected in such a manner as to provide safe passage at all times for public travel and with least obstruction to traffic. The Contractor shall provide and maintain, at his own expense, in a safe and passable condition, such temporary by-passes as created by the barriers as may be necessary to accommodate both pedestrian and vehicular traffic.
- H. The Contractor shall maintain all legally required means of egress.
- I. Where the new construction or repair work coincides with the presently traveled way, the Contractor shall carry on his work so that travel will not be obstructed.
- J. Whenever gale or high winds are forecast, take proper measures to secure all loose material, equipment or other items which could blow about and be damaged or cause damage to other work. No such loose items shall be left unsecured at end of working day.
- K. All signs shall conform to local By-Laws and the Manual of Uniform Traffic Control Devices.

1.08 POLICE

- A. Whenever, in the opinion of the Owner or the Owner's Representative, traffic is sufficiently congested or public safety is endangered the Contractor will furnish police officers to direct traffic or to keep traffic off the area affected by construction operations. Such officers shall be in addition to flagmen required under other provisions of the Contract, and the cost shall be borne by the Contractor.
- B. The employment of traffic flagmen or the presence of police officers shall in no way relieve the Contractor of any responsibility or liability which is his under the terms of the Contract.

1.09 FIRE ACCESS

- A. The Contractor shall maintain fire lanes as required by the local Fire Department throughout the course of construction.

1.10 SPECIAL SECURITY AND CONTRACTOR'S RESPONSIBILITY FOR THE WORK

- A. The owner shall not provide security within the storage, staging, or construction areas nor will the owner assume responsibility for acts of vandalism within these areas.
- B. Until written acceptance of the physical work by the Owner's Representative and/or Owner, the Contractor shall assume full charge thereof and he shall take every necessary precaution against damage to the work by action of the elements, or from any cause whatever, whether arising from the actions of the Contractor or not.
- C. The Contractor shall bear all losses resulting to him on account of vandalism.
- D. The Contractor shall rebuild, repair, restore, and make good all damages to any portion of the work occasioned by any of the above causes before the completion and written acceptance of the physical work, and shall bear the expense thereof.
- E. Should the Contractor fail to take prompt action whenever conditions make it necessary, the Owner shall make emergency repairs or cause the same to be made, with the stipulation that the costs for such repairs shall be charged against the Contractor and deducted from monies due to him.
- F. In case of suspension of work from any cause whatever, the Contractor shall be responsible for the project and shall take such precautions as may be necessary to prevent damage to the project, provide for normal drainage and shall erect any necessary temporary structures, signs, or other facilities at his expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established plantings and seeding furnished under this Contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

1.11 TEMPORARY BRACING, SHORING, SHEETING, TIE DOWN

- A. Provide all sheeting, shoring, bracing, underpinning, reinforcement and other temporary supports as may be required to maintain the integrity of, and prevent damage to, any structure or finish to be subjected to or adjacent to cutting work. Patch to restore to sufficient final strength, and acceptable appearance, subject to Owner's Representatives and/or Owner's approval.

1.12 SITE DRAINAGE

- A. Contractor shall take over responsibilities for existing site drainage upon entering premises, and maintain such drainage during the life of his Contract in a manner approved by the Owner's Representative and/or Owner and so as not to adversely affect adjacent areas.
- B. Keep excavations, pits, trenches and other construction areas free of water at all times, including backing up of drains and sewers. Provide hydraulic equipment to control surface and ground water. Pumping equipment shall be adequate to remove all hydrostatic pressure from structures until sufficient strength has been developed by the structure to protect work from displacement or other damage.
- C. Maintain ground water level where required sufficiently below excavation level at all times to maintain stable working platform. Ground water shall be controlled so as to avoid adverse effects on established ground water elevation of adjacent sites.

1.13 SITE TRENCHING AND EXCAVATION

- A. Open excavation adjacent to the traveled way or shoulders shall not remain through the hours of darkness, holiday or periods of shutdown, unless adequately protected and specifically authorized by the Owner's Representative.
- B. If live service connections are to be interrupted by excavations of any kind, the Contractor shall not break the service until new services are provided. Abandoned services shall be plugged off or otherwise made secure.
- C. Full compensation for furnishing all labor, materials, tools, equipment and incidentals for doing all the work involved in protecting or repairing property as specified in this section, shall be considered included in the Contract price, and no additional compensation will be allowed therefore.
- D. Before starting any work for this Contract, the Contractor shall prepare and submit to the Owner's Representative for approval, a plan which indicates the traffic routing proposed by the Contractor during the various stages and time periods of the work and the temporary barricades, signs, cones, drums and other safety and traffic control devices to be employed during each stage and time period of the work to maintain traffic and access to abutting properties.
- E. Particular care should be taken to establish and maintain methods and procedures which will not create unnecessary or unusual hazards to public safety. Traffic control and safety devices required only during working hour operations shall be removed at the end of each working day.
- F. Signs having messages that are irrelevant to normal traffic conditions shall be removed or properly covered at the end of each work period. Signs shall be kept clean at all times and legends shall be distinctive and unmarred.
- G. All trenches within the right-of-way in pavements to remain shall be hot patched at the end of each work day as directed.
- H. All existing and other materials not required or needed for use on the project, and not required to be removed and stacked, shall become the property of the contractor and shall be removed from the site and legally disposed of. No separate payment will be made for this work, but all costs in connection therewith shall be included in the bid price of this Contract.

1.14 WINTER CONDITIONS

- A. Remove snow and ice which may impair progress of work, be detrimental to workmen, or impair trucking, delivery or moving of materials at job site, or prevent adequate drainage at site or adjoining areas.

1.15 COORDINATION

- A. The General Contractor shall be responsible for the proper fitting of all work and the coordination of the operations of all trades, subcontractors, or material and equipment engaged upon the work. He shall be prepared to guarantee each of his subcontractors the dimensions which they may require for the fitting of their work to all surrounding work and shall perform or cause the subcontractors to perform all cutting, fitting or adjusting and patching necessary to make all parts of the work come together properly and be fit to receive or be received by that of other Contractors.
- B. Before commencing any work, or any phase of the work, the Contractor shall prepare a sequence of operations for all work under this Division, and shall submit it for approval by the Owner's Representative and Owner at a Pre-Construction Conference.

- C. Before commencing any work, the Contractor shall consult with the Owner regarding any use of any facility, including, but not limited to, loading docks, parking areas, storage areas, etc., that may be required to prosecute the work.
- D. If, in the judgment of the Owner's Representative, continued work under the approved sequence of operations may interfere with the operations of any other construction projects at any time during the progress of the work, the Owner's Representative may direct the Contractor to accelerate, interrupt, or cease work at particular points. The Contractor shall make reasonable changes in the sequence of operations to accommodate these directions, at no additional cost to the Owner.
- E. The Contractor shall be responsible for the proper fitting of all work and the coordination of the operations of all trades, Subcontractors, or material and equipment engaged upon the work. He shall be prepared to guarantee each of his Subcontractors the dimensions which they may require for the fitting of their work to all surrounding work and shall perform or cause the subcontractors to perform all cutting, fitting or adjusting and patching necessary to make the several parts of the work come together properly and to fit the work to receive or be received by that of other Contractors.
- F. The General Contractor shall give his personal supervision to the work or have a competent superintendent with the authority to act for him on the job at all times during the progress of the work. The Contractor shall also provide an adequate staff for the proper coordination and expedition of his work.
- G. The General Contractor shall lay out his own work and shall be responsible for all lines, elevations, and measurements of the grading, landscaping and other work executed by him under the Contract. He shall exercise proper precaution to verify the dimensions shown on the Drawings before laying out the work, and will be held responsible for any error resulting from his failure to exercise such precaution.
- H. The Contractor's responsibility for the coordination of all work under the Contract shall be complete, and shall extend to all modifications in the work, whether or not such modifications entail a change in the Contract price. Where the Contract Documents allow an optional material or method, the Contractor shall provide all other coordination and additional work that such change necessitates, without any additional cost to the Owner.

1.16 MEASUREMENTS

- A. Before ordering any material or doing any work, the Contractor shall verify all measurements and shall be responsible for the correctness of same. No extra charge or compensation will be allowed on account of difference between actual dimensions and the measurements indicated on the Drawings; any difference which may be found shall be submitted to the Owner's Representative and/or Owner, in writing, for consideration before proceeding with the work.

1.17 CONDUCT OF WORK

- A. The Contractor shall coordinate with the Owner and Owner's Representative, work in connection with adjacent occupied buildings or areas, driveways, walks or other facilities which would prevent access thereto or interrupt, restrict or otherwise infringe upon the Owner's use thereof.
- B. Damage to existing work, if caused by Contractor's operations under this Contract, shall be repaired at Contractor's expense.

- C. The Contract Site shall be shown on Drawings, and shall include the entire area bounded by the "Contractor's Work Area" or "Limit of Work" lines when required for performance of work under this Contract.
- D. Any street or other paving, curbs and/or sidewalks damaged as the result of work under this Contract, whether within or outside of the limits of the work, shall be repaired and/or replaced with new matching construction by the Contractor causing such damage, at his expense, and in a manner satisfactory to the Owner's Representative and authorities having jurisdiction thereover.
- E. Where existing curbs or walks are to remain, or after new curbs or walks are constructed and trucking is required over them, they shall be suitably protected in an approved manner.
- F. The Contractor shall provide continuous, lawful, safe, adequate and convenient access to the site. Access to the site shall generally be via existing roadways and paved surfaces which the Contractor shall maintain and restore to original condition. Contractor shall construct and maintain in good usable condition temporary roads or appurtenances as required, and when no longer required, remove temporary construction and restore such areas to their original condition.

1.18 CLEANING UP

- A. The following specific cleaning work shall be done:
 - 1. Concrete and masonry shall be cleaned free of all foreign matter. If, in opinion of the Owner's Representative, further cleaning of specific areas is required they shall be scrubbed with water or other cleaning agents. Acid cleaners shall not be used, except as may otherwise specifically be permitted in the trade sections.
 - 2. Surfaces with integral finishes shall be washed with clean water, mild soap and soft rags, thoroughly rinsed, and then wiped with clean, soft white rags. Abrasive cleansers shall not be used.
 - 3. Painted surfaces shall be cleaned free of all foreign matter, and if necessary, shall be lightly scrubbed at specific stains with clean water, mild soap, and soft rags thoroughly rinsed, and wiped with clean, soft white rags.
 - 4. Metal surfaces, hardware, equipment, and similar items shall be cleaned free of all foreign matter and, if necessary, shall be lightly scrubbed at specific stains with clean water, mild soap, and soft rags, thoroughly rinsed and wiped with clean soft, white rags. Abrasive cleaners shall not be used.
 - 5. All advertising matter and temporary instructional material shall be removed from exposed surfaces throughout.

1.19 PROJECT CLOSEOUT

- A. Punch List: When the Owner's Representative and/or Owner inspects the work for Substantial Completion, he will prepare and issue to the Contractor a "Punch List" of items to be corrected before final acceptance of work and payment can be made.

END OF SECTION

SECTION 02100
SITE PREPARATION

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.
- B. Examine all other Sections of the Specifications for requirements that affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with trades affecting, or affected by, work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 WORK INCLUDED

- A. Perform all work required to complete the work of the Section, as indicated. Such work includes, but is not limited to, the following:
 - 1. Disposing of rubbish, refuse, trash and debris where indicated on the plans.
 - 2. Protection from injury to or defacement of trees and other vegetation and objects indicated on the plans or designated by the Owner's Representative to be preserved.
 - 3. Maintenance of silt fencing and removal.
 - 4. Secure required permits and approvals from municipality, utility companies, and other governing bodies having jurisdiction.
 - 5. Provide all site protection, enclosures and other temporary construction and protection required by conditions, ordinances, etc. including all fences, barricades, guard rails, warning lights, and other items necessary and required by life safety codes.
 - 6. Perform cleanup and maintenance of site and surrounding access ways during entire project operations.

1.03 RELATED WORK UNDER OTHER SECTIONS

- A. Selective Site Demolition
- B. Erosion and Sedimentation Control

1.04 JOB CONDITIONS

- A. General: The Contractor shall visit and accept the site as he finds it, and shall inform himself of the character and the type of site items to be removed. The Contractor shall walk the site with the Owner's Representative prior to commencing work to review the full scope of demolition and items to remain. The Owner assumes no responsibility for the actual condition or structural adequacy of any existing construction to be demolished.

- B. Damage or loss to site improvements shall be at the risk of the Contractor from and after the date of Contract execution, and no such damage or loss shall relieve the Contractor from any obligation under the Contract.
- C. Disposal: Dispose of cleared, grubbed, and removed material off the site. Burning of materials on the job site will not be permitted.
- D. Traffic: Conduct operations and removal of debris to ensure minimum interference with the normal use of corridors, public ways and other adjacent facilities. Do not close or obstruct traffic ways, corridors, streets, walks or other used facilities without the written permission of the Owner and authorities having jurisdiction.
- E. Protection: Prevent injury to persons and damage to property. Immediately repair damaged property to its condition before being damaged.
- F. Shoring and Bracing: Provide adequate shoring and bracing to prevent uncontrolled collapse or damage to existing structures or utilities.
- G. Dust and Noise Control: Take effective measures to prevent windblown dust and to control noise to avoid creating a nuisance. Avoid creating ice hazards in freezing weather.
- H. Utilities: Maintain all utilities except those requiring removal or relocation. Keep utilities in service and protect from damage. Do not interrupt utilities serving used areas without first obtaining permission from the utility company and the Owner's Representative. Provide temporary services as required.

PART 2 - PRODUCTS

2.01 CONSTRUCTION FENCING

- A. Reference drawings for construction fencing materials and details.

2.02 STOCKPILE COVER

- A. Reinforced polypropylene tarps, resistant to ultraviolet radiation.
- B. Secured with ropes and anchors, as required and approved by the Owner's Representative.
- C. Stockpiles shall be surrounded with siltation barriers, refer to plans and Erosion Control Specification for details.

PART 3 - EXECUTION

3.01 SELECTIVE DEMOLITION

- A. Refer to the SELECTIVE DEMOLITION section for removal of items.

3.02 EXCAVATION

- A. The Contractor shall adjust existing grade in areas indicated, using survey equipment or a string level to ascertain finish grades.
- B. Remove excess material and fill in low areas as required. Reuse of surplus material is

subject to approval of Owner's Representative.

- C. All excavations shall be properly guarded and protected so as to prevent them from becoming dangerous to persons or property.

3.03 CLEANUP

- A. All areas within the project site shall be raked clean of all trash and other debris upon completion of the work. All excess materials shall be disposed of as directed by the Owner's Representative.
- B. Any soil or similar material which has been brought onto paved areas by hauling operations or otherwise shall be removed promptly, keeping these areas clean at all times.

END OF SECTION

SECTION 02110
SELECTIVE SITE DEMOLITION

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.

1.02 SUMMARY

- A. This Section includes the following:
 - 1. Demolition and removal of selected site elements.
 - 2. Removal and salvage of selected site elements.
 - 3. Removal and reinstallation of selected site elements.
 - 4. Repair procedures for selective demolition operations.

1.03 RELATED SECTIONS

- A. Related sections include:
 - 1. SITE PREPARATION for site clearing and removal of above- and below grade improvements.

1.04 DEFINITIONS

- A. Remove and Dispose (R&D): Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Stockpile (R&S): Detach items from existing construction and deliver them to Owner ready for reuse.
- C. Remove and Reset (R&R): Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Existing to Retain (RET): Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.05 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from Project site.

1.06 SUBMITTALS

- A. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with

project names and addresses, names and addresses of architects and owners, and other information specified.

- B. Proposed Dust Control and Noise Control Measures: Submit statement or drawing that indicates the measures proposed for use, proposed locations, and proposed time frame for their operation. Identify options if proposed measures are later determined to be inadequate.
- C. Schedule of Selective Demolition Activities: Indicate the following:
 - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
- D. Inventory: After selective demolition is complete, submit a list of items that have been removed and salvaged.
- E. Pre-demolition Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces, which might be misconstrued as damage caused by selective demolition operations. Contractor to submit before Work begins.
- F. Landfill Records: Submit receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes to Owner's Representative.

1.07 QUALITY ASSURANCE

- 1. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- 2. Standards: Comply with ANSI A10.6 and NFPA 241.
- 3. Pre-demolition Conference: Conduct conference at Project site to review methods and procedures related to selective demolition including, but not limited to, the following:
 - 1. Inspect and discuss condition of construction to be selectively demolished.

1.08 PROJECT CONDITIONS

- A. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.
 - 1. Do not close or obstruct walkways, parking stalls, driveways, or other occupied or used facilities without written permission from authorities having jurisdiction.
- B. Owner assumes no responsibility for condition of areas to be selectively demolished.
 - 1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
 - 2. Before selective demolition, Owner will remove the following items:
 - a. Items to be identified by Owner.
- C. Storage or sale of removed items or materials on-site will not be permitted.

- D. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

PART 2 - PRODUCTS

2.01 REPAIR MATERIALS

- A. Use repair materials identical to existing materials.
 - 1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
 - 2. Use materials whose installed performance equals or surpasses that of existing materials.
- B. Comply with material and installation requirements specified in individual Specification Sections.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- B. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- C. When unanticipated conditions that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Owner's Representative.

3.02 UTILITY SERVICES

- A. Existing Utilities: Maintain adjacent services and protect them against damage during selective demolition operations.
- B. Do not interrupt existing utilities unless authorized in writing by Owner and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to authorities having jurisdiction.
 - 1. Provide at least seventy-two (72) hours' notice to Owner if shutdown of service is required during changeover.

3.03 PREPARATION

- A. Pest Control: Employ a certified, licensed exterminator to control rodents and vermin before and during selective demolition operations as necessary or as directed by Owner's Representative.
- B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
2. Erect temporary protection, such as walks, fences, and railings where required by authorities having jurisdiction.
3. Protect existing site improvements, appurtenances, and landscaping to remain.

3.04 POLLUTION CONTROLS

- A. Dust Control: Use water mist, temporary enclosures, and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations.
 1. Do not use water when it may damage existing construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.
- B. Disposal: Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

3.05 SELECTIVE DEMOLITION

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations.
- B. Removed and Salvaged Items: Comply with the following:
 1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers.
 3. Store items in a secure area until delivery to Owner. Transport items to Owner's storage area.
 4. Protect items from damage during transport and storage.
- C. Removed and Reinstalled Items: Comply with the following:
 1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment if necessary.
 2. Store items in a secure area until reuse.
 3. Protect items from damage during transport and/or storage.
 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- D. Existing Items to Retain: Protect items indicated to remain against damage and soiling during selective demolition. When permitted by Owner's Representative, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

3.06 PATCHING AND REPAIRS

- A. General: Promptly repair damage to adjacent construction caused by selective demolition operations.
- B. Repairs: Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
- C. Finishes: Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.

3.07 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- B. Burning: The burning of demolished materials is prohibited.

3.08 SELECTIVE DEMOLITION SCHEDULE

- A. Existing Construction to Be Removed and Disposed:
 - 1. Select portions of fence, rails, hardware, and posts where shown on the drawings.
 - 2. Irrigation zones where shown on the drawings.
 - 3. Natural grass lawn area as shown on the drawings.
 - 4. Select areas of cement concrete sidewalk as shown on the drawings (ADD ALT. NO. 1 & 2).
- B. Existing Items to Be Removed and Salvaged:
 - 1. Sprinkler heads to be carefully removed and transported to Owner's storage area.
- C. Existing Items to Be Removed and Reinstalled:
 - 1. Utility covers, frames, grates, and hand holes where shown on the plans.
 - 2. Light Poles where shown on the plans (ADD ALT. NO. 2).
- D. Existing Items to Retain:
 - 1. All existing construction and items not specifically indicated on plans, or directed by the Owner, to be removed including, but not limited to the following:
 - a. All fencing except where specifically identified for removal, refurbishment, or modification.
 - b. All curbing except where specifically identified for removal or modification.
 - c. All utilities, manholes, and catch basins, except where specifically identified for removal or modification.

- d. All drains and underdrains except where specifically identified for removal or modification.
- e. All trees, bushes, and groundcover except where specifically identified for removal or relocation.
- f. All light poles, bases, and electrical conduit except where specifically identified for removal or relocation.
- g. All sidewalks except where specifically identified for removal or modification.
- h. Rector Bridge, including the ramp and stairs.

END OF SECTION

SECTION 02200

EARTHWORK

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. The GENERAL CONDITIONS and all other Sections of Division I, General Requirements apply to this section.
- B. Provide all facilities, labor, materials, tools, equipment, transportation, supervision, and related work necessary to complete the Work specified in this Section, and shown on the Drawings.
- C. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the Work of this Section.
- D. Coordinate Work with that of all other trades affecting or affected by Work of this Section. Cooperate with such trades to assure the steady progress of all Work under the Contract.

1.02 SCOPE OF WORK

- A. The scope of work described herein without limiting the generality thereof, consists of furnishing and installing the following items of work and related items incidentally thereto as shown on the Drawings and as specified herein:
 - 1. Protection and preservation of existing foundations, walkways, vegetation, utilities, Owner, Owner's Representative, and the general public from damage or injury during conduct of the work, including but not limited to machinery use and movements, runoff, siltation, dust, and/or excessive noise or ground vibrations.
 - 2. Excavate all materials, including soils, boulders, abandoned utilities, structures, foundations, pavements, curbs and all other materials and obstructions as necessary to install new utilities, pavements, synthetic turf lawn and associated equipment, and other site improvements indicated on the Drawings.
 - 3. Provide adequate dust control and maintain adjacent streets and sidewalks in a clean and unencumbered state over the full duration of the project.
 - 4. Remove and legally dispose off-site of all at-grade and below grade structures including buried foundations, utilities, pavements, and other buried structures.
 - 5. Provide, place, moisture condition, compact, and grade fill and other materials to the horizontal and vertical limits to construct the proposed site improvements and achieve the lines and grades as shown on the Drawings.
 - 6. Trench excavation, bedding and backfill for all structures, foundations, and utilities, including compaction.
 - 7. Furnishing, designing and installing all temporary sheeting, shoring, and bracing of excavations, including trenches, to permit safe access as required and to prevent damage to completed portions of the Work or existing structures.

8. Furnish from approved borrow source(s) fill or backfill materials for placement and compaction on-site as required to complete the work of this Section. Provide specified materials from off-site sources as required.
9. Dewatering as necessary to control precipitation and run-off to allow all work to be conducted in the dry. Construct recharge structures as necessary to recharge all collected dewatering effluent on the project site as necessary to:
 - a. Provide erosion control measures during the Work and control surface runoff.
 - b. Maintain a dry and stable subgrade for final excavations, synthetic turf lawn subgrade preparation, foundation construction and backfilling.
 - c. Control and remove seepage, groundwater, and surface water in the excavations in order to maintain a dry and stable subgrade.
10. The Contractor shall be solely responsible for all aspects of site safety. The Contractor shall implement all measures required by OSHA, or other agency having jurisdiction over the Work, to protect the health and safety of the Contractor's personnel, other personnel on-site, and the general public from hazards associated with the Work.
11. Perform all Work in accordance with all federal, state, county, local, and city agencies and authorities having jurisdiction over the Work. All Work performed under this section shall conform to the latest edition of appropriate codes, standards and regulations.

1.03 RELATED SECTIONS AND DOCUMENTS

- A. Carefully examine all of the Contract Documents for requirements which affect the Work of this Section.

1.04 DEFINITIONS AND REFERENCE STANDARDS

- A. Sports Consultant / Landscape Architect / Civil Engineer: Stantec Consulting Services Inc.
- B. Owner: Hugh L. Carey Battery Park City Authority
- C. Owner's Representative: Stantec Consulting Services Inc.
- D. Contractor: The person or organization identified in the Agreement as being responsible for the work under this Section. The term Contractor shall also refer to an authorized representative of the Contractor.
- E. Earthwork is all excavation, handling, conditioning, and backfilling operations of all soil, boulders, and other materials for new below-grade construction and site development, including obstructions and utility relocation and construction, regardless of the nature of the material encountered, the water content thereof, and type of equipment required for excavation.
- F. Subgrade Elevation or Level is the vertical excavation level and slopes indicated on the Drawings to which the excavation shall be conducted. For foundation bearing subgrades, this level will be to the elevations indicated on the Drawings.

- G. Zone of Influence is the zone beneath a structure or utility defined by imaginary lines extending outward 2 ft laterally beyond the bottom edge of a footing or slab or from the springline of a utility and down on a one horizontal to one vertical (1H:1V) slope to the top of the naturally-deposited soils.
- H. Unclassified Bulk Excavation: Removal of all materials for new construction including soil, boulders, obstructions, regardless of the nature of the material encountered, the water content thereof, and type of equipment required for excavation; and the proper disposal of excavated material not required or suitable for use as specified backfill material.
- I. Rock: Rock (or bedrock) is defined as naturally occurring, intact material which cannot be broken and removed by large power equipment, and requires the use of hoe rams, impact hammers, systematic drilling and blasting, or other mechanical means to fracture and remove. Rock does not include loose, broken, weathered, fractured, or fragmented rock that can be excavated with a large backhoe or excavator.
- J. Boulders: Boulders encountered in any site excavation, of any dimension, and of any hardness or geometry, are considered part of Unclassified Bulk Excavation. The Contractor is responsible for the means and methods of removal and excavation of boulders, and the proper disposal of boulders not suitable for reuse at the site as determined by the Owner's Representative.
- K. AASHTO: American Association of State Highway and Transportation Officials
- L. ASTM: Specifications of the American Society for Testing and Materials
- M. ACI: American Concrete Institute
- N. AWS: Standard Code for Welding in Building Construction, of the American Welding Society
- O. Code: Current Edition of New York State Building Code
- P. NYSDEC: New York State Department of Environmental Conservation
- Q. EPA: Environmental Protection Agency
- R. NYSDOT: New York State Department of Transportation
- S. NYSDOH: New York State Department of Health
- T. OSHA: Occupational Safety and Health Administration
- U. PCI: Pre-stressed Concrete Institute

1.05 RELATED WORK SPECIFIED ELSEWHERE

- A. The following related items of work are not included in this Section, but will be performed under the designated Section:
 - 1. Site Preparation
 - 2. Erosion and Sediment Control
 - 3. Site Water Distribution
 - 4. Storm Drainage
 - 5. Synthetic Turf System

1.06 SITE CONDITIONS

- A. The Contractor shall become thoroughly familiar with the site, consult records and drawings of adjacent structures and of existing utilities and their connections, and note all conditions which may influence the work of this Section.
- B. By submitting a bid, the Contractor affirms that he has carefully examined the site and all conditions affecting work under this Section. No claim for additional costs will be allowed because of lack of full knowledge of existing conditions or grades as related to the Drawings.
- C. The Contractor may, at his own expense, conduct additional subsurface testing as required for his own information after approval of the Owner.
- D. The Contractor shall be responsible for determining the quantities of earth materials, excavation and backfill, and export of material necessary to complete the Work under this Section. All earth materials, excavation and backfill and export of material shall be included in the Contractor's Base Bid.
- E. Information on the Drawings and in the Specifications relating to subsurface conditions, natural phenomena, and existing utilities and structures is from the best sources presently available. Such information is furnished only for the information and convenience of the Contractor, and the accuracy or completeness of this information is not guaranteed.
- F. Plans, surveys, grade measurements, and dimensions under which the work is to be performed are believed to be correct, but the Contractor shall have examined them for himself during the bidding period, as no additional compensation will be made for errors and inaccuracies that may be found therein.

1.07 JOB CONDITIONS

- A. Site Information: Data on indicated grades, utilities and other existing conditions are not intended as representations or warranties of accuracy.
- B. Existing Utilities: Locate existing utilities in the work area. If utilities are to remain in place, provide adequate means of protection during installation of site improvements.
- C. Protection: The Contractor shall use all means necessary to protect existing footings, slabs, pavement, utilities, etc., and the materials of this and other sections before, during and after installation. All work shall be executed in such a manner as to prevent any damage to existing utilities, streets, curbs, paving to remain, existing plant materials, and adjoining properties. In the event of damage, make all repairs and replacements necessary to the approval of the Owner's Representative and at no additional cost to the Owner.
- D. Clean-up: The Contractor shall remove all debris, construction equipment and scrap material from areas within the limit of work prior to inspection for acceptance.

1.08 QUALITY ASSURANCE

- A. Codes and standards: Perform site improvements work in compliance with applicable requirements of governing authorities having jurisdiction.

- B. Qualifications of workers: Use adequate numbers of skilled workers who are trained in the necessary crafts and who are completely familiar with the specified requirements and methods needed for proper performance of the work of this Section.
- C. The Owner may at their discretion retain an Engineer or Qualified Testing Agency under the supervision of the Owner's Representative to perform on-site observation and testing during the Work. The presence of the Engineer on-site and the observations and testing performed by the Engineer shall not relieve the Contractor from completing the Work in accordance with the Contract Documents. During final stages of excavation, subgrade preparation, and controlled filling operations, the Contractor shall provide sufficient notice to the Engineer prior to the work and shall cooperate with the Engineer in all respects to facilitate any testing or observations required. The Contractor shall not place a layer of fill until the Engineer has approved the underlying subgrade surface. The Engineer will make such tests, in accordance with the methods specified below, as are deemed necessary to determine compliance with these Specifications. The services of the Engineer may include, but are not limited to, the following:
 - 1. Perform laboratory grain size and compaction testing of backfill materials proposed by the Contractor for on-site use.
 - 2. Observe and make judgments relating to compliance with project specifications for excavation, dewatering, subgrade preparation, fill placement, and compaction of fill materials.
 - 3. Perform field unit weight testing to measure in-situ material density, water content and percent compaction of fill materials.
 - 4. During the course of the Work, the Engineer will inform the Contractor if the Work is not in conformance with the Contract Documents.
 - 5. The Contractor shall not place or compact any fill, prepare subgrades or place concrete on bearing surfaces unless the Engineer is present. The Contractor shall keep the Engineer informed, at all times, of work activity schedule and allow the Engineer sufficient time to arrive on-site, and perform the necessary observation of activities.
- D. Costs related to testing or replacement of nonconforming Work or materials, and/or delays caused by nonconforming Work or materials, shall be paid for by the Contractor at no additional cost to the Owner.
- E. The presence of the Engineer does not constitute supervision or direction of the Contractor's work. Neither the presence of the Engineer, nor any observations and testing performed by him, nor any notice or failure to give notice shall excuse the Contractor from conformance with these Specifications or from defects discovered in his work or from the Contractor's responsibility for site safety including both persons and property.
- F. Tolerances
 - 1. Construct finished soil and backfill surfaces to plus or minus 1/2-in. of the elevations indicated.
 - 2. Maintain moisture content of fill material as it is being placed within plus or minus two percent of the optimum moisture content of the material as determined by the laboratory tests specified herein.

3. Compaction of backfill shall be at least to the percentage of the material's maximum dry density as indicated in this Section.

1.09 SUBMITTALS

- A. The Contractor shall forward submittals to the Owner's Representative a minimum of three weeks prior to any planned work related to the Contractor's submittals.
 1. The time period(s) for submittals are the minimum required by the Owner's Representative to review, comment, and respond to the Contractor. The Owner's Representative may require resubmission(s) for various reasons. The Contractor is responsible for scheduling specified submittals and re-submittals so as to prevent delays in the work.
 2. The Contractor's submittals shall be reviewed and accepted by the Owner's Representative prior to conducting any work.
 3. Acceptance of the Contractor's submittals by the Owner's Representative does not relieve the Contractor of the responsibility for the adequacy, safety, and performance of the Work.
- B. Earthwork Submittals
 1. A detailed (1 in. = 10 ft scale) plan and written description showing proposed schedule and sequence of excavation/filling (in plan and cross-section) including site access, truck routes, wheel wash stations and staging areas. Proposed earthwork sequencing and procedures shall include detailed descriptions of all methods, operations and equipment proposed for soil excavation, subgrade preparation, and backfilling.
 2. Details of compaction equipment, including descriptions, product literature, specifications and ratings, proposed for use in compacting fill and backfill materials.
 3. Manufacturer's literature and technical data for all geotextile and filter fabric material proposed for use on the project site.
 4. For each type of off-site material to be utilized as fill or backfill, the Contractor shall deliver to the Engineer's laboratory two (2) 50-lb bag samples from each borrow source or supplier for review and laboratory sieve and compaction testing at least ten (10) business days (i.e. 2 weeks) prior to first use on-site. With each sample provide the following documentation:
 - a. Location and name of material source
 - b. Proposed on-site use
 - c. Present and past usage of the source site and material
 - d. All previously existing report(s) associated with an assessment of the source site as relates to the presence of oil or hazardous materials
 5. If the subject borrow material does not originate from a commercial borrow source or if directed by the Owner or Owner's Representative (due to the nature of the material), the Contractor shall conduct chemical testing on proposed fill material

and submit results prior to delivery to the site, at no additional cost to the Owner. Testing shall be conducted by a certified testing laboratory and shall include the following analytical test data:

- a. Volatile Organic Compounds, (EPA 8260) every 250 cy;
- b. Semi-Volatile Organic Compounds, (EPA 8270) every 300 cy;
- c. Pesticides/PCBs (EPA 8080) every 500 cy;
- d. Total Petroleum Hydrocarbons (EPA 9071/418.1) every 150 cy;
- e. Thirteen Priority Pollutant Metals (EPA 7000 Series) every 250 cy;
- f. Total Cyanide (EPA 9010) every 300 cy;
- g. Total Phenols (EPA 9065) every 300 cy;
- h. Extractable and Volatile Petroleum Hydrocarbons every 150 cy.
- i. TCLP for those total parameters which exceed twenty (20) times the TCLP criteria every 250 cubic yards.

C. Temporary Excavation Support

1. Proposed methods to provide temporary lateral earth support. The submittal shall be prepared and stamped by a Professional Engineer registered in the State of New York.

D. Dewatering Submittals

1. Drawings and supporting engineering calculations for the proposed surface water control, dewatering systems, sediment control tanks, bag filters, and treatment systems, including their relation to water disposal points.
2. Shop drawings showing proposed types and details of dewatering systems to be used. The submittal shall include the arrangements, locations and depths of the proposed systems, a complete description of equipment and materials to be used and the procedure to be followed in installation, primary power source, operation, maintenance and removal in relation to the proposed sequence of excavation, foundation construction and backfilling; and the proposed locations of points of discharge of water and their relationship to sediment control facilities.

1.10 LINES, GRADES AND TOLERANCES

- A. The Contractor shall be responsible for establishing all lines, grades, and other survey control to complete the Work. The Contractor shall be responsible for the maintenance and protection of the survey control reference points and location stakes. The Contractor shall employ a New York-licensed Registered Land Surveyor or Registered Civil Engineer, familiar with building construction, who shall establish lines and levels. The Contractor shall be responsible for the correct location of the proposed facilities, including locations and elevations of fills and utilities.
- B. Finished grades, contours, and elevations indicated on the Drawings describe final surface elevations for completed construction. Spot elevations shall take precedence over contours. The Contractor shall review the Drawing details and Specifications carefully to ascertain specific work limits and requirements for this Contract.

1.11 COORDINATION

- A. All work shall comply with all rules, regulations, laws and ordinances of the City of New York, State of New York, DOH, OSHA, and all other authorities having jurisdiction.
- B. Prior to start of earthwork operations, the Contractor shall arrange an on-site meeting with the Owner and Owner's Representative for the purpose of establishing the Contractor's schedule of operations and monitoring procedures and requirements.
- C. As construction proceeds, the Contractor shall be responsible for notifying the Owner's Representative at least two working days prior to the start of earthwork operations requiring monitoring and/or testing.
- D. Cooperate with the Owner's Representative in obtaining field samples and conducting field testing. Furnish incidental labor in connection with the required sampling and testing.

1.12 EXCAVATION SUPPORT

- A. The Contractor shall be responsible for design and construction of all necessary excavation support systems and open-cut excavations.
- B. Excavations and the evaluation of the need for earth support shall be performed by a Registered Civil Engineer in the State of New York, retained by the Contractor. The design and construction of all open-cut and retained excavations shall be in accordance with all applicable local, state and OSHA regulations and prudent engineering judgment based on site conditions.

1.13 UTILITY CLEARANCE AND PERMITS

- A. It shall be the responsibility of the Contractor to obtain required permits, licenses, and certificates from all authorities having jurisdiction over this work. Copies of these permits shall be submitted for review prior to the commencement of work.
- B. Do not interrupt, break, or disconnect utilities without first obtaining permission from the utility company and Owner. If interruption is unavoidable, provide a detailed work plan and schedule for temporary services and interruptions for Owner's and the User Agency's approval. Provide temporary services as necessary to serve occupied and used facilities when utilities must be interrupted, or if acceptable to Owner, the utility owner, and adjacent property owners, schedule interruption when the least amount of inconvenience will result.
- C. Provide all protection, including sheeting and shoring, and temporary support, as necessary to prevent damage to existing utilities.
- D. Prior to beginning any excavation or fill placement, accurately locate and mark underground utilities and appurtenances in the Project site area. Excavate to and expose utilities at locations, and conduct field surveys as necessary to determine locations of existing utilities.
- E. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult the utility owner immediately for directions. Cooperate with Owner and public and private utility companies in keeping respective facilities and services in operation. Repair damaged utilities to the satisfaction of utility company.

- F. In case of any damage or injury caused in the performance of work the Contractor shall, at his own expense make good such damage or injury to the satisfaction of, and without cost to, Owner. Existing utilities damaged during the project work shall be repaired or replaced to their condition prior to commencement of earthwork operations.
- G. Inactive or abandoned utilities encountered during construction operations shall be removed, plugged or capped. The location of such utilities shall be noted on the Record Drawings and reported in writing to Owner.

1.14 PROTECTION OF PERSONS AND PROPERTY

- A. The Contractor shall be responsible for the health and safety of all workers engaged in the Work.
- B. The Contractor shall protect all existing and newly constructed structures, utilities, streets and other facilities from damages caused by settlement, lateral movement, undermining, physical striking, washout and any other effects created by the Contractor's operations. Sheet piling or shoring shall be provided as required to protect adjacent facilities, at no additional cost to Owner. The Contractor shall immediately notify Owner of any damage or impacts caused to any facility, and shall immediately repair or replace such impacted facility in accordance with the direction of Owner.
- C. The Contractor is solely responsible for job site safety, and for the protection of all persons and property within and near the site from adverse impacts of the Work. Immediately repair damaged property to the condition before being damaged.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. All soil materials proposed for importing to the site shall be clean, newly-borrowed, mineral soil materials from approved borrow sources, free of any contamination. Materials from construction sites or other non-commercial borrow sources shall not be imported to the site without prior approval of Owner's Representative.
- B. All soil materials to be used as fill will be evaluated based on information submitted by the Contractor to Owner's Representative. Materials may be rejected for use based on the results of the evaluation. Materials shall not be brought to site without prior written approval of Owner's Representative. Off-site materials which are rejected for use, if brought to the site, along with any on-site materials impacted by the off-site materials, shall be immediately removed by the Contractor at his own expense, and legally disposed of off-site. Costs and responsibility resulting from any regulatory requirements due to unauthorized hauling of materials to the site shall be borne completely by the Contractor.
- C. Processed materials consisting of a mixture of two or more soil types (such as sand and crushed stone), or crushed concrete, or other crushed construction materials (such as brick or concrete) are not acceptable for use as fill without prior approval of Owner's Representative.
- D. Common Fill (also called "Ordinary Fill"): Common Fill shall consist predominately of mineral, granular soil, free of organic materials, loam, trash, wood, snow, ice, frozen soil, clay, bottles, cans, and other compressible, decomposable or deleterious materials. Common fill from on-site can contain moderate amounts of brick and concrete fragments not exceeding the size limitations indicated below. Common Fill shall have physical

properties such that it may be readily spread and compacted without excessive weaving or instability. Common Fill shall not contain particles larger than 8 inch size when compacted with heavy self-propelled vibratory compaction equipment, and not larger than 4 in. size when compacted using hand-operated equipment. Common Fill shall not contain greater than 30% by weight of material passing a No. 200 sieve. On-site excavated fill may be reused as Common Fill provided it is processed to meet the above requirements.

- E. Sand Borrow: Sand Borrow shall consist of clean, inert, hard, durable grains of quartz or other hard, durable rock, free from loam or clay, surface coatings and deleterious materials. The maximum size for Sand Borrow shall be ¾ inch. The allowable amount of material passing a No. 200 sieve shall not exceed 10 percent by weight.
- F. Dense Graded Crushed Stone: Dense Graded Crushed Stone shall consist of off-site angular stone material that is hard, durable and free of deleterious materials. Dense graded crushed stone shall conform to the following:

<u>Sieve Size (ASTM D422)</u>	<u>Percent Passing by Weight</u>
2 in.	100
1-1/2 in.	70 - 100
¾ in.	50 - 85
No. 4	30 - 55
No. 50	8 - 24
No. 200	3 - 10

- G. Gravel Borrow: Gravel borrow shall consist of inert material that is hard, durable stone and coarse sand, free from loam and clay, surface coatings, and deleterious materials. Gradation requirements for gravel shall be determined by AASHTO-T11 and T27 and shall conform to the following:

<u>Sieve Designation</u>	<u>Percent Passing</u>
½ inch	50-85
No. 4	40-75
No. 50	8-28
No. 200	0-10

Maximum size of stone in gravel shall be 2 inches in largest dimension.

- H. Stone Screenings: Material for top course shall consist of ¾ inch (+/-) bluestone screenings, free from clay lumps, organic or other deleterious material. Fines shall be evenly mixed throughout the aggregate. Screenings shall be graded within the following limits:

<u>Passing Sieve (Dry Analysis)</u>	<u>Percent by Weight</u>
¾ inch	100%
No. 4	90-100%
No. 6	75-90%
No. 20	30-50%
No. 40	20-40%
No. 80	10-25%
No. 200	5-15%

- I. Free Draining Trench Stone: Refer to Section 02792 – Synthetic Turf System.
- J. Free Draining Crushed Stone: Refer to Section 02792 – Synthetic Turf System.

- K. Free Draining Finishing Stone: Refer to Section 02792 – Synthetic Turf System.
- L. Geotextile:
 - 1. “Type 1” - For below the resilient underlayment, at the drinking fountain infiltration bed, at underdrains, and at stone dust walkways: geotextile shall consist of a needlepunched non-woven, synthetic, chemically resistant non-biodegradable fabric to act as a filter/soil separator to be laid directly on approved soil subgrades prior to placement of Granular or Drainage Fill. Minimum of 6 ounces per square yard required. Mirafi 160N, or approved equal, shall be used.
 - 2. “Type 2” - For synthetic turf areas below the drainage stone: geotextile shall consist of a woven, synthetic, chemically resistant non-biodegradable fabric to act as a filter/soil separator to be laid directly on approved soil subgrades prior to placement of Free Draining Crushed Stone. Minimum of 6 ounces per square yard required. Mirafi 600x, or approved equal, shall be used.

2.02 EQUIPMENT

- A. Compaction equipment shall consist of power-driven mechanical tampers and rollers as approved by the Owner’s Representative and in confined areas, hand-guided vibratory equipment.
- B. The Contractor shall provide sufficient earthmoving equipment in good working order to complete the Work in accordance with these specifications and consistent with the construction schedule.

PART 3 - EXECUTION

3.01 GENERAL

- A. The ground adjacent to excavations shall be graded to direct surface water away from excavations. The Contractor shall remove (by pumping or other means approved by the Owner’s Representative) groundwater to a depth of 2 ft below excavation bottoms at all times. Prevent erosion at all times.
- B. Contractor shall provide all bracing, and shoring necessary to perform excavations as required to protect adjacent features, or to conform to governing laws. No extra payment will be made for any bracing, shoring, or underpinning.
- C. Examine the site and all work prepared by others and become familiar with existing site conditions. Report to the Owner in writing any conditions detrimental to the proper and timely completion of the work of this Section. Do not proceed with the work until unsatisfactory conditions have been corrected in an acceptable manner.

3.02 USE OF MATERIALS

- A. Common Fill: If existing on-site soils are deemed suitable for re-use by the Owner’s Representative, the materials shall be placed and compacted in a manner conforming to the applicable Specifications. For use to raise general site grades; in landscaped areas; and as otherwise indicated on the Drawings, provided the material can be readily spread and compacted, without instability. Oversize particles and unsuitable debris shall be

removed during or prior to placement. On-site materials which meet the requirements of these Specifications may be used as Common Fill.

- B. Sand Borrow: Use for utility (electrical conduit, water lines & irrigation lines) bedding only as indicated on the Drawings. Depending on the application, filter fabric may be required in conjunction with Sand Borrow placed within a course backfill zone to prevent particle migration.
- C. Dense Graded Crushed Stone: Use as indicated on the Drawings.
- D. Gravel Borrow: Use as indicated on the Drawings.
- E. Stone Screenings: Stone screenings will be used to repair footpaths in the Community Garden area.
 - 1. The top course shall be installed in two (2) lifts. Each lift shall be 2 inches in thickness for a total of 4 inches top course installed. Upon the well compacted subbase, the 2 inch thick top course first lift shall be spread and rolled. After spreading, rake level, smooth and grade screenings to desired finish as shown on the plans and to the direction of the Engineer. In all cases grades shall be provided to insure positive drainage.
 - 2. When practical, compact each lift of the material using an approved riding roller 1,000 to 1,500 lbs. (do not use the vibratory unit) making 3 to 4 passes. When impractical use 1 inch lifts and compact with pneumatic or plate compactors. Hand tamp within 2 feet of tree trunks taking care not to damage the roots.
 - 3. With fog nozzle, water lightly but thoroughly. Pressure should not disturb leveled surface.
 - 4. When the water sheen has disappeared and the surface looks damp, roll it again.
 - 5. Upon correction of any discrepancies in the first lift, the Contractor shall spread the second 2 inch lift. Properly rolling as directed above. Rolling shall continue only until a smooth thoroughly compacted surface is achieved; with a minimum of three passes over the entire surface. When impractical use 1 inch lifts and compact with pneumatic or plate compactors.
 - 6. Any significant irregularities shall be smoothed out prior to final acceptance of work. Smoothing shall be accomplished by rewetting/saturating rough areas thoroughly, and then rolling the paving again with the appropriate roller.
- F. Boulders, if encountered, shall be segregated and stockpiled on site for the potential use as landscaped features, or for optional on-site crushing. The Contractor shall save, segregate, and stockpile such boulders as indicated by the Owner, or Owner's Representative(s), and dispose of the remaining boulders as part of the Base Bid Price. Unused boulders remain the responsibility of the Contractor, who is responsible for removal and proper disposal away from the job site.
- G. All unsuitable material, and suitable material not required for the proper completion of the Contract, will become the property of the Contractor and shall be removed and properly disposed of away from the job site as part of the Base Bid Price.
- H. If contaminated material is suspected or encountered during an excavation, the Contractor shall contact the Owner or Owner's Representative as soon as possible. Direction on how

to proceed and disposition of the excavated material will be provided by the Owner or Owner's Representative.

3.03 EXCAVATION

- A. Perform all excavations in accordance with OSHA requirements. The Contractor shall be solely responsible for maintaining site safety, in accordance with OSHA, the Contractor's Health and Safety Plan and other applicable regulations.
- B. Excavation shall include the removal of all materials encountered including earth, boulders, rock, pavement, demolition debris, incidental structures, utilities, and other materials as required to complete the Work specified in this Section and as shown on the Drawings.
- C. The Contractor shall handle, segregate to prevent intermixing of materials, protect, and stockpile as required to complete the Work specified in this Section and as shown on the Drawings.
- D. Do not remove material from the site, without permission of the Owner's Representative.
- E. Where soil has been softened, frozen or otherwise disturbed, due to the presence of water or as a result of unfavorable weather, remove the unstable, disturbed material and replace with suitable material as directed by the Owner's Representative, at no additional cost to the Owner.
- F. Where excavation is carried out below indicated grade or beyond the lines of excavation, backfill to the indicated grade and compact with acceptable materials, at no additional cost to the Owner and at the direction of the Owner's Representative.
- G. When excavation has reached required subgrade elevations, notify the Owner's Representative who will observe the excavation and bearing conditions. Excavations required to proceed deeper due to disturbance of the subgrade, or variation in subsurface conditions shall be completed at no cost to the Owner.
- H. Excavate trenches to the depth indicated or required. Carry the depth of trenches sufficiently deep to install required bedding materials and to establish the indicated flow lines and invert elevations. Maintain all trench excavations in a safe manner and in accordance with applicable laws and regulations. Dimensions of trench excavations shall be maintained as small as practical to safely conduct the work.

3.04 UNAUTHORIZED EXCAVATIONS

- A. Unauthorized excavation consists of removal of materials beyond required design subgrade elevations or dimensions without specific direction from the Owner's Representative. Unauthorized excavation, as well as remedial work directed by the Owner, shall be at the Contractor's expense.
- B. Backfill and compact unauthorized excavations with Granular Fill encapsulated in filter fabric or other materials specified by the Owner's Representative.

3.05 SUBGRADE PREPARATION

- A. General:
 - 1. Complete the excavations to the required subgrade elevations.

2. All final excavated subgrades shall be proof-rolled prior to placing any fill materials or continuing with construction. Proof-rolling in open areas shall consist of a minimum of 6 passes of a suitable sized static, self-propelled roller. Proof-rolling in confined areas such as within trenches shall consist of a minimum of 4 passes of a large vibratory-plate compactor imparting a centrifugal (dynamic) force of 11,000 lbs.
 3. Soft or weaving soils or other materials observed during proof-rolling shall be overexcavated and replaced with compacted lifts of common fill or other materials as directed by the Owner's Representative.
 4. Protect all subgrades after final preparation and during filling or other construction. Disturbance to approved subgrades shall be rectified by the Contractor prior to continuing with the work as directed by the Owner's Representative.
- B. Cold Weather Subgrade Protection:
1. When the atmospheric temperature is less than 32 degrees Fahrenheit (°F), the Contractor shall protect excavation subgrades and concrete from freezing. Cold weather subgrade protection may consist of an earth fill cover, hay cover, insulation cover, heating or other means of protecting the subgrade materials from freezing.
- C. Wet Weather:
1. If fill material placement, spreading, rolling, or compaction operations are interrupted by rain or other unfavorable conditions, do not resume such operations until ascertaining that the moisture content and density of the previously-placed soil are as required by these specifications.

3.06 SHORING, SHEETING, AND BRACING

- A. Provide shoring, sheeting, and bracing at excavations, as required, to assure complete safety against collapse of earth at sides of excavations or earthen slopes.
- B. If, at any place, sufficient or proper supports have not been provided, additional supports shall be placed at the expense of the Contractor. Care shall be taken to prevent voids outside of the sheeting, but if voids are formed, they shall be immediately filled and rammed.
- C. All sheeting and bracing not ordered left in place shall be carefully removed in such a manner as not to endanger the construction of other structures, utilities or property whether public or private. All voids left after withdrawal of sheeting shall be immediately refilled with sand and rammed with tools especially adapted to that purpose or otherwise compacted as directed to achieve the required density.
- D. The portion of sheeting driven below mid-diameter of any pipe shall not be withdrawn and under no circumstances shall any sheeting be cut off at a level lower than one foot above the top of pipe.
- E. Shoring or sheeting shall not constitute a condition for which an increase may be made in the contract price with the exception that if the Owner's Representative directs in writing that certain shoring or sheeting shall be left in place, the contract price will be adjusted in accordance with General Conditions.

- F. Excavation support systems shall be designed to support the earth pressures, hydrostatic pressures, surcharge loads and other forces from existing site conditions, stored material and construction equipment.
- G. Shoring and bracing of trenches and other excavations shall, at a minimum, be in accordance with the latest requirements of the Occupational Safety and Health Administration (OSHA) regulations (29 CFR Part 1926).

3.07 PLACEMENT OF BACKFILL MATERIALS

- A. General:
 - 1. Backfilling activities, including placement and compaction, shall not be performed when air temperatures are at or below 32°F.
 - 2. Backfill excavations as promptly as work permits, but not until the subgrade, or below grade construction, is acceptable to the Owner's Representative.
 - 3. Previously placed, and possibly accepted, backfill shall be excavated and replaced at no additional cost if the backfill does not conform to the Contract Documents or is damaged or disturbed by construction activity.
- B. Backfill Materials:
 - 1. All backfill materials brought to the site must be obtained from a borrow source(s) approved by the Owner's Representative.
 - 2. Backfill placed in landscaped areas shall consist of compacted common fill or other materials as indicated on the Drawings.
- C. Placement, Compaction and Protection:
 - 1. All backfill material shall be placed "in-the-dry" on subgrades acceptable to the Owner's Representative. The Contractor shall dewater excavated areas as required to perform the work in such a manner as to preserve the undisturbed state of the approved subgrade material.
 - 2. Backfill materials shall not be placed on snow, ice, frozen subgrades or uncompacted frozen soil.
 - 3. Backfill materials shall not be frozen when placed or be allowed to freeze prior to or after compaction, placement, or curing. At the end of each day's work during freezing weather, the last lift of fill, after compaction, shall be rolled by a smooth-wheeled roller to eliminate ridges of uncompacted soil.
 - 4. Unless otherwise specified herein, place fill materials in layers not exceeding 12 in. in thickness measured prior to compaction in open areas, and 6 in. in thickness in confined areas, such as in trenches. Compact each layer with a minimum of six coverages of the equipment described below to obtain at least 95 percent of maximum dry unit weight as determined by ASTM Test D1557.
 - 5. Maintain the moisture content of the fill material during placement within plus or minus two percent of the material's optimum moisture content per ASTM D1557, and as required to achieve the specified compaction.
 - 6. Within 3 ft below paved areas (i.e., roadways, sidewalks, parking areas, etc.), place required fill materials in layers not exceeding 9 in. in depth measured prior to compaction and compact each layer by suitable compaction equipment to at

least 95 percent of the material's maximum dry unit weight as determined by ASTM Test D1557.

7. Under landscaped areas, place required fill materials in layers not exceeding 12 in. in thickness prior to compaction and compact by suitable compaction equipment to achieve at least 92 percent of the material's maximum dry unit weight, as determined by ASTM Test D1557 or as required by the Owner's Representative.
8. The Contractor shall not begin backfilling against concrete until the concrete has sufficiently aged to attain the strength required to resist backfill pressures without damage. The Contractor shall correct any damage to the structures caused by backfilling at no added cost to Owner.
9. Moisture Control: Where exposed subgrades or fill materials must be moisture conditioned before compaction, uniformly apply water to surface soil material, to prevent free water from appearing on surface during or subsequent to compaction operations.
 - a. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.
 - b. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing, until moisture content is reduced to a satisfactory value.
10. If weaving or instability is observed during compaction, as judged by the Owner's Representative, compaction efforts shall be discontinued until the Contractor stabilizes the subgrade. If required, the Contractor shall excavate and replace the unstable fill material with acceptable compacted material, at no additional cost to Owner.
11. Compaction by puddling or jetting is prohibited.
12. Control groundwater and surface run-off to minimize disturbance of material being placed. Slope fill surfaces at the end of each day to provide for free surface drainage. Dewater all subgrades prior to filling. Place all fill in-the-dry.
13. Provide suitable transition layers or non-woven filter fabric, as required to prevent the migration of fine material into void spaces of coarser fill materials. Transition layers may consist of limited thickness of dense-graded crushed stone (less than 6 inches thick), lean concrete or other methods approved by the Owner's Representative. Clean crushed stone shall not be placed directly on soil subgrades beneath structures.

D. Trench Backfill

1. Trenches shall be backfilled as soon as practicable.
2. Utility bedding material shall be deposited in the trench, uniformly on both sides of the pipe, for the entire width of the trench as shown on the Drawings. The backfill material shall be placed by hand shovels, in layers not more than 4 inches thick in loose depth, and each layer shall be thoroughly and evenly compacted by tamping on each side of the pipe to provide uniform support around the pipe, free from voids.
3. Trench backfill material (above the utility bedding material shown on the Drawings) may consist of the excavated soils, provided the excavated soils meet

the specific requirements for fill for the intended area (e.g., below slabs, foundations, parking areas , etc.), and can be readily spread and compacted. Landfill debris materials shall not be used as backfill within any utility trenches. Peat and other organic soils shall not be used as trench backfill. Particles larger than two (2) inches shall not be placed within eight (8) inches of any utility pipe. The maximum particle size within any trench backfill material shall be 6 in.

4. All trench backfilling shall be done so as not to disturb the work at any time. The moisture content of the backfill material shall be such that proper compaction will be obtained. Puddling of backfill with water will not be permitted.
5. Any trenches or excavations improperly backfilled or where settlement occurs shall be reopened to the depth required for proper compaction, then refilled and compacted with the surface restored to the required grade and condition, at no additional expense to Owner.
6. During filling and backfilling operations, pipelines may be checked by the Owner's Representative to determine whether any displacement of the pipe has occurred. If the inspection of the pipeline shows poor alignment, displaced pipe or any other defects, the work shall be remedied in a manner satisfactory to the Owner's Representative at no additional cost to Owner.

3.08 COMPACTION REQUIREMENTS

- A. Relative compaction is expressed as a percentage of the maximum dry density at the optimum moisture content as determined by ASTM Test D1557, Method C. Compact fill materials in successive lifts in accordance with the following requirements:

<u>Area</u>	<u>Compaction Requirements</u>	<u>Moisture Content</u>
Under Paved Areas and Sidewalks	92% up to 3 ft below finished grade	--
	95% within 3 ft of finished grade	--
Trench Backfill	93%	--
Planting Areas	See Section 02950	--
Synthetic Turf Lawn Area	See Section 02792	--

- B. The gradation and nature of some on-site materials are such that field unit weight testing methods (sand cone and nuclear density equipment) may not provide representative compaction results. In these cases, the Owner's Representative will use judgment in evaluating if the Contractor achieved the intent of the specification.

3.09 MOISTURE CONTROL AND REUSE OF ON-SITE MATERIALS

- A. Fill that is too wet for proper compaction shall be harrowed, or otherwise dried or treated to achieve a proper moisture content to allow compaction to the required density. If fill cannot be dried within 24 hours of placement, it shall be removed and replaced with drier material, at no additional cost to the Owner.
- B. Fill that is too dry for proper compaction shall receive water uniformly applied over the surface of the loose layer. Sufficient water shall be added to allow compaction to the required density.
- C. No fill material shall be placed, spread or rolled during unfavorable weather conditions. When work is interrupted by heavy rains, fill operations shall not be resumed until the moisture content and the density of the previously placed fill are as specified.

3.10 PROTECTION OF FILLS AND SUBGRADES

- A. Protect all compacted fills from disturbance and traffic. Repair any subgrades that become disturbed or unstable.
- B. Upon completion of the Work, ground surface shall be left in a firm, stable, unyielding, uniform condition, free of ruts and surface irregularities, in accordance with the grading requirements shown on the Drawings.
- C. Uniformly smooth-grade all areas to be graded, as indicated and as directed, including excavated sections and all areas disturbed as a result of the Contractor's operations.

3.11 DEWATERING

- A. The Contractor shall control the grading in areas under construction on the site so that the surface of the ground will properly slope to prevent accumulation of water in excavated areas and adjacent properties.
- B. The Contractor shall excavate interceptor swales and ditches as necessary prior to the start of major earthmoving operations to insure minimal erosion and to keep areas as free from surface water as possible.
- C. Should surface, groundwater or precipitation be encountered during the operations, the Contractor shall furnish and operate pumps or other equipment, and provide all necessary piping to keep all excavations clear of water at all times and shall be responsible for any damage to work or adjacent properties for such water. All piping exposed above surface for this use, shall be properly covered to allow foot traffic and vehicles to pass without obstruction.
- D. Presence of groundwater in soil will not constitute a condition for which an increase in the contract price may be made. Under no circumstances place concrete fill, soil fill, lay piping or install appurtenances in excavation containing free water. Keep utility trenches free of water until pipe joint material has hardened and backfilled to prevent flotation.
- E. The Contractor shall verify that the construction and/or operation of a dewatering system will not adversely affect any well, pond, stream, structure, utility, etc., on or adjacent to the area being dewatered.

3.12 EROSION AND SEDIMENTATION CONTROL

- A. Refer to Section 02370 – Erosion and Sediment Control.
- B. Contractor shall be responsible for all control measures necessary to prevent damage resulting from erosion and sedimentation to on-site and off-site areas.
- C. Temporary straw wattles or other provisions such as de-silting basins, terraces, contour furrows, channel linings, waterways or other measures shall be installed in a manner satisfactory to the Owner's Representative and maintained in good operating conditions.
- D. Contractors shall provide adequate protection and complete the grading as specified without delay on the areas that may be potential contributors to pollution or natural waterways or cause damage because of sedimentation.

3.13 DUST CONTROL

- A. The Contractor shall employ methods and/or materials to prevent spread or dust.
Chemical materials may not be used on subgrades of area to be sodded or planted.

END OF SECTION

SECTION 02370

EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with trades affecting, or affected by, work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 WORK INCLUDED

- A. This Section specifies equipment and materials for an erosion and sediment control program for minimizing erosion and siltation during the construction phase of the project. The erosion and sediment control provisions, including but not limited to silt fence, hay bales, temporary seed cover and erosion control jute netting, detailed on the Drawings and specified herein are the minimum requirements for an erosion control program. The Contractor shall provide additional erosion and sediment control materials and methods as required to affect the erosion and siltation control principles specified herein.

1.03 RELATED WORK UNDER OTHER SECTIONS

- A. Site Preparation
- B. Earthwork
- C. Storm Drainage

1.04 REFERENCES

- A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern.
- B. State of New York Department of Transportation "Standard Specifications" (latest edition).

1.05 SUBMITTALS

- A. Proposed methods, materials to be employed, and schedule for effecting erosion and siltation control and preventing erosion damage shall be submitted for approval. Submittals shall include:
 - 1. Proposed methods for effecting erosion and siltation control including 1" = 30' scale plans (or other appropriate scale as approved by the Owner's Representative) indicating location of erosion control devices and siltation basins.
 - 2. List of proposed materials including manufacturer's product data.
 - 3. Schedule of erosion control program indicating specific dates from implementing

programs in each major area of work.

B. The following samples shall be submitted:

1. Filter fabric 12 x 12 in. Sample
2. Erosion control netting 12 x 12 in. Sample

1.06 EROSION CONTROL PRINCIPLES

A. The following erosion control principles shall apply to the land grading and construction phases:

1. Stripping of vegetation, grading, or other soil disturbance shall be done in a manner which will minimize soil erosion.
2. Whenever feasible, natural vegetation shall be retained and protected.
3. Extent of area which is exposed and free of vegetation and duration of its exposure shall be kept within practical limits.
4. Temporary seeding, mulching, or other suitable stabilization measures shall be used to protect exposed critical areas during prolonged construction or other land disturbance.
5. Drainage provisions shall accommodate increased runoff resulting from modifications of soil and surface conditions during and after development or disturbance. Such provisions shall be in addition to existing requirements.
6. Sediment shall be retained on-site.
7. Erosion control devices shall be installed as early as possible in the construction sequence prior to start of clearing and grubbing operations and excavation work.

B. Cut and fill slopes and stockpiled materials shall be protected to prevent erosion. Slopes shall be protected with permanent erosion protection when erosion exposure period is expected to be greater than or equal to six months, and temporary erosion protection when erosion exposure period is expected to be less than six months.

1. Permanent erosion protection shall be accomplished by seeding with grass and covering with an erosion protection material, as appropriate for prevailing conditions.
2. Temporary erosion protection shall be accomplished by covering with an erosion protection material appropriate for prevailing conditions.
3. Except where specified slope is indicated on Drawings, fill slopes shall be limited to a grade of 3:1 (horizontal: vertical) cut slopes shall be limited to a grade of 2:1.

PART 2 - PRODUCTS

2.01 SILTATION BARRIER

A. Siltation Barrier shall be a wire-bound woodroll snow fence covered with filter fabric. Fence shall be 4 ft. high minimum, and shall have 3/8 in. by 1- 1/2 in. wide pickets,

approximately 2 in. apart, bound together with at least 13 gage minimum, galvanized steel wire.

1. Filter fabric shall be one of the following, or approved equal:

Product	Manufacturer
Trevira Spunbond	Hoechst Fibers Industries
Fabric Type 1120	Spartanburg, SC 29304
Supac N 5NP(UV)	Phillips Fibers Corporation, Greenville, SC 29602

2. Siltation Barrier shall be supported by steel posts, driven a minimum of 3 ft. into the ground. Posts shall be spaced 10 ft. o.c. maximum.
3. Barrier other than that specified above shall be subject to review and acceptance by the Owner's Representative.

2.02 STRAW WATTLES

- A. Straw wattles for construction of erosion control devices shall be Sedimax – SW12 as manufactured by Tensar / North American Green, or approved equal.
- B. Straw wattles shall be composed of agricultural straw and be wrapped in tubular UV-stabilized synthetic net.

2.03 FILTER FABRIC SILT SACK

- A. Filter fabric silt sack for inlet protection shall be woven polypropylene geotextile sewn using a high strength nylon thread sized to fit opening of the inlet structure.
- B. Filter Fabric Silt Sack shall be equivalent to Siltsack® as manufactured by ACF Environmental, Inc.

2.04 TEMPORARY SEED COVER

- A. Seed mixture for temporary cover by hydroseeding application shall conform to the following:

<u>Material</u>	<u>Quan./1000 sf. coverage</u>
Wood Fiber Mulch	27-1/2 lb.
Seed	4 lb.
Annual Ryegrass	1/2 lb.
10-6-4 Fertilizer	22 lb.
Water	69 gal.

1. Wood fiber mulch shall conform to NYSDOT Specifications Section 713-11, "Wood Fiber Mulch".
2. Seed shall conform to NYSDOT Specifications Section 713-04, "Seed".
- B. Hydroseeding equipment may be either portable or truck mounted, with dual agitation, a minimum working volume of 1000 gallons and a minimum spray range of 80 ft.
- C. Hydroseeding equipment must be capable of uniformly applying the slurry mix including wood fiber mulch if required, at the specified rate, and at the required locations.
- D. Hydromulching equipment, either trailer or truck mounted, must be capable of uniformly

applying straw or hay mulch at a minimum mulching rate of 8 tons per hour, at a distance of not less than 80 ft.

2.05 MISCELLANEOUS ITEMS

- A. Aggregate for construction entrances shall be 6" of coarse aggregate material meeting the gradation requirements of size designation #3 on Table 703-4 of the NYSDOT Standard Specifications.
- B. Crushed stone shall be durable, crushed stone or gravel from off-site sources, conforming to the following:

<u>Location or Use</u>	<u>NYSDOT Spec. Section</u>
Stabilized Construction Entrance	703-4

2.06 EROSION CONTROL NETTING (JUTE MESH)

- A. Erosion control netting shall be manufactured of jute fibers with 1" x 1" mesh and be delivered to the site in 4' x 225' rolls. The jute erosion control material shall be fully biodegradable with in 2-3 years pending soil and weather conditions. Roll weight shall be approximately 70 lbs. Shall be equivalent to the erosion control netting manufactured and/or provided by the following companies:
 - 1. Indian Valley Industries, Inc.
Johnson City, NY
(800) 659-5111
 - 2. ACF Environmental
Richmond, VA
(800) 448-3636
 - 3. Emerald Seed and Supply
Portland, OR
(800) 826-8873

PART 3 - EXECUTION

3.01 SILTATION BARRIER

- A. Siltation Barrier shall be constructed and installed as indicated on the Drawings prior to the start of clearing and grubbing operations.

3.02 FILTER FABRIC SILT SACK

- A. Filter Fabric Silt Sack shall be installed at all inlets to the drainage infrastructure as indicated on the plans and as required to avoid sediment entry into drainage system. Silt Sacks to be installed and maintained according to manufacturer's instructions.

3.03 STRAW WATTLE DIKE

- A. Straw wattle dikes shall be constructed as required. Wattles shall be placed in a row with ends tightly abutting the adjacent wattles. Each wattle shall be embedded in the soil a minimum of 3 in. Wattles shall be securely anchored in place by stakes or re-bars driven through the wattles as per the manufacturer's instructions.

3.04 HYDROSEEDING

- A. Seed for temporary cover shall be spread by the hydroseeding method, utilizing power equipment commonly used for that purpose. Seed, fertilizer, mulch and water shall be mixed and applied to achieve application quantities specified. Material shall be applied in 2 equal applications, with the equipment during the second pass moving perpendicular to direction employed during the first pass. Hydroseeding shall not be done when it is raining or snowing, or when wind velocity exceeds 5 mph.
- B. If the results of hydroseeding application are unsatisfactory, the mixture and/or application rate and methods shall be modified to achieve the required results.
- C. After the grass has appeared, all areas and parts of areas which fail to show a uniform stand of grass, for any reason whatsoever, shall be reseeded and such areas and parts of areas seeded repeatedly until all areas are covered with a satisfactory growth of grass.

3.05 MAINTENANCE AND REMOVAL OF EROSION CONTROL DEVICES

- A. Wetland areas, water courses, and drainage swales adjacent to construction activities shall be monitored twice each month for evidence of silt intrusion and other adverse environmental impacts, which shall be corrected immediately upon discovery.
- B. Culverts and drainage ditches shall be kept clean and clear of obstructions during construction period.
- C. Erosion Control Devices
 - 1. Sediment behind the erosion control device shall be checked twice each month and after each heavy rain. Silt shall be removed if greater than 6 in. deep.
 - 2. Condition of erosion control device shall be checked twice each month or more frequently as required. Damaged and/or deteriorated items shall be replaced. Erosion control devices shall be maintained in place and in effective condition.
 - 3. Straw wattles shall be inspected frequently and maintained or replaced as required to maintain both their effectiveness and essentially their original condition. Underside of wattles shall be kept in close contact with the earth below at all times, as required to prevent water from washing beneath them.
 - 4. Sediment shall be removed from the retention ponds at the completion of the Project and periodically during construction. Sediment deposits shall be removed when sediment has accumulated to a depth of 12 in. or as directed.
 - 5. Sediment deposits shall be disposed of off- site, in a location and manner which will not cause sediment nuisance elsewhere.
- D. Removal of Erosion Control Devices
 - 1. Erosion control devices shall be maintained until all disturbed earth has been paved or vegetated, at which time they shall be removed. After removal, areas disturbed by these devices shall be regraded and seeded.
 - 2. Erosion control netting shall be kept securely anchored until start of synthetic lawn construction.
 - 3. Erosion protection material shall be kept securely anchored until acceptance of completed slope or entire Project, whichever is later.

3.06 EROSION CONTROL NETTING (JUTE MESH)

- A. Provided and install in accordance with manufacturer's recommendations and in areas detailed on the Drawings.

END OF SECTION

SECTION 02512

SITE WATER DISTRIBUTION

PART 1 – GENERAL

1.01 GENERAL PROVISIONS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with that of all other trades affecting, or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Installation of on-site water distribution system for (1) drinking fountain and (2) misting stations consisting of piping and all required items and operations including connections to existing water source (ADD ALT. NO. 1).

1.03 SUBMITTALS

- A. Shop Drawings
 - 1. Submit six sets shop drawings or descriptive literature, or both, showing dimensions, joint and other details of all materials to be furnished under this Section. Shop Drawings shall be submitted to the Engineer for approval prior to ordering materials.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under applicable Sections of this Specification.
- B. Deliver and store valves in shipping containers with labeling in place.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Drawings and Specifications are intended to supplement and explain each other. Materials not specifically mentioned in the Specifications shall be as indicated on the Drawings. Where no specific kind or quality of material is given, a first-class standard article shall be furnished.
- B. The Drawings are diagrammatic only and are intended to indicate the extent but not all details of the piping which shall be supplied. All offsets and materials are not shown; however, the Contractor shall furnish these items as if called for or shown.

2.02 WATER SERVICE PIPING AND FITTINGS

- A. Service lines two inches or smaller shall be copper water tubing, Type K, for underground water service and shall be in accordance with ANSI/AWWA C800, latest issue.
- B. Type K copper tubing material shall be in conformance with ASTM B88.
- C. Water service fittings including couplings and adapters, valves and service saddles shall be in conformance with ANSI/AWWA C800, "Underground Service Line Valves and Fittings."
- D. Joints in copper tubing shall be made with three part compression couplings, flared tube fittings, or an approved equal.

2.03 PRECAST CONCRETE HANDHOLES

- A. Precast concrete handholes shall conform to the ASTM C-478 – Latest Edition, with the following exceptions and additional requirements:
 - 1. All cement concrete materials shall be in conformance with the provisions shown in the Cast-in-Place Concrete Section. The minimum 28-day compressive strength of precast concrete shall be 5000 psi.
 - 2. The wall sections shall be not less than six inches thick.
 - 3. Type II cement shall be used except as otherwise noted.
 - 4. Handholes shall be cured by subjecting them to thoroughly saturated steam at a temperature between 100 and 130 degrees F for a period of not less than 12 hours, or when necessary, for such additional time as may be needed to enable them to meet the strength requirements.
 - 5. Each handhole shall be monolithically cast, with metal or metal faced forms, as a four sided box section with open bottom. Unit will be sized to fit cast iron frame and cover specified below.
- B. Brickwork shall be sound, hard, uniformly burned brick regular in shape and size. Brick shall conform to ASTM designation C32. Grade SS shall be used for shelves.
- C. Mortar for brickwork shall be composed of Type II Portland Cement, hydrated lime conforming to ASTM C207 Type S and sand. Sand shall be well graded with no grain larger than will pass a Number 8 sieve. The volume of sand shall not exceed three times the sum of the volume of cement and lime. In general, the proportions of cement to lime shall be one part cement to ½ part lime. Water for mixing mortar shall be potable water.
- D. Cast iron frames and covers for handholes shall be model no. LFC166-000 as manufactured by East Jordan Iron Works, Inc., 301 Spring Street, East Jordan, MI 49727, (800) 626-4653 or approved equal.

PART 3 – EXECUTION

3.01 GENERAL

- A. All water pipes, fittings, valves, hydrants and other water line appurtenances shall be

installed as shown on the Drawings. Backfill materials shall be as shown on the Drawings and as specified in the Earthwork Section.

3.02 WATER SERVICES

- A. Shut-off valves and fittings shall be of a size equal to the size of the service pipe and shall be installed in the locations shown on the Drawings or as ordered by the Engineer. The valves shall be set in a true vertical position and flush with the adjoining ground.

3.03 PRECAST CONCRETE HANDHOLES

- A. Precast concrete handholes will be set plumb.
- B. Frame castings shall be set in full mortar beds true to the lines and grades as directed.
- C. Cement concrete collars shall be placed around the castings after the final setting as shown on the plans or as directed.

END OF SECTION

SECTION 02630
STORM DRAINAGE

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.
- B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this trade.
- C. Provide all facilities, labor, materials, tools, equipment, appliances, transportation, supervision, and related work necessary to complete the work specified in this section, and as shown on the Drawings.
- D. Coordinate work with trades affecting, or affected by, work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 WORK INCLUDED

- A. Synthetic turf lawn under-drain system.
- B. Underdrain cleanouts (UNIT PRICE ITEM).
- C. Adjust existing frames and grates or covers (ADD ALT. NO. 2).

1.03 RELATED WORK UNDER OTHER SECTIONS

- A. Carefully examine all of the Contract Documents for requirements which affect the work in this section. Other specification sections which directly relate to the work of this section include, but are not limited to, the following:
 - 1. Site Preparation
 - 2. Earthwork
 - 3. Synthetic Turf System
 - 4. Irrigation System

1.04 REFERENCES

- A. References herein to any technical society, organization, group or body are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable:
 - 1. ASTM American Society for Testing and Materials
 - 2. ACI American Concrete Institute
 - 3. ANSI American National Standards Institute
 - 4. AASHTO American Association of State Highway and Transportation Officials

5. NYCDEP New York City Department of Environmental Protection
- B. All work shall comply with the pertinent standards of the latest editions of the following Codes and Specifications, unless designated otherwise herein:
1. American Society for Testing and Materials (ASTM), 1916 Race Street, Philadelphia, PA 19101.
 2. American National Standards Institute (ANSI), 1430 Broadway, New York, NY 10018.
 3. American Association of State Highway and Transportation Officials (AASHTO), 341 National Press Building, Washington, D.C. 20004.
 4. NYCDEP Standard Drawings and Specifications
- C. The following standards and definitions are applicable to the work of this Section to the extent referenced herein:
1. ASTM A48 Standard Specification for Gray Iron Castings
 2. ASTM C32 Standard Specification for Sewer and Manhole Brick
 3. ASTM C55 Standard Specification for Concrete Brick
 4. ASTM C62 Standard Specification for Building Brick
 5. ASTM C76 Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
 6. ASTM C139 Standard Specification for Concrete Masonry Units for Construction of Catch Basins and Manholes
 7. ASTM C270 Standard Specification for Mortar for Unit Masonry
 8. ASTM C443 Joints for Circular Concrete Sewer and Culvert Pipe, using Rubber Gaskets.
 9. ASTM C 478 Standard Specification for Precast Reinforced Concrete ManholeSections
 10. ASTM C923 Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals
 11. ASTM D1557 Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures using 10 lb. (4.54 kg) Rammer and 18 inch (457mm) Drop.
 12. ASTM D2729 Polyvinyl Chloride (PVC) Sewer Pipe and Fittings.
 13. ASTM D2321 Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
 14. ASTM D3350 Standard Specification for Polyethylene Plastics Pipe and Fittings Materials

1.05 SUBMITTALS FOR REVIEW

- A. Product Data: Provide data indicating pipe, pipe accessories, and clean-outs.

1.06 SUBMITTALS FOR INFORMATION

- A. Manufacturer's Instructions: Indicate special procedures required to install products specified.
- B. Certificates: Certify that products meet or exceed specified requirements.

1.07 SUBMITTALS AT PROJECT CLOSEOUT

- A. Accurately record actual locations, both horizontally and vertically, of pipe runs, connections, and cleanouts.
 - 1. Three swing ties to existing fixed points shall be provided for each point located on the as-built plan.
- B. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.08 REGULATORY REQUIREMENTS

- A. All work under this Section of the Specifications shall be installed in accordance with the Laws, Ordinances, Rules and Regulations of all Local, State and Federal authorities having jurisdiction, the Rules and Regulations of the National Board of Fire Underwriters, and the Public Utility Companies.

1.09 COORDINATION

- A. Coordinate work under provisions of the applicable Sections of these Specifications.

1.10 EXAMINATION OF CONDITIONS

- A. The Contractor shall fully inform himself of existing conditions of the site before submitting his bid, and shall be fully responsible for carrying out all site work required to fully and properly execute the work of the Contract, regardless of the conditions encountered in the actual work. No claim for extra compensation or extension of time will be allowed on account of actual conditions inconsistent with those assumed, except those conditions described in the GENERAL CONDITIONS.

1.11 DELIVERY, STORAGE AND HANDLING

- A. All materials furnished under this section shall be delivered to the job adequately protected from damage during transit. Pipes shall not be dropped. All pipes shall be examined before laying and no piece shall be installed which is found to be defective.
- B. Pipe and other appurtenances which are defective from any cause, including damage caused by handling, and determined by the Owner's Representative as irreparable shall be unacceptable for installation and shall be replaced at no cost to the Owner.
- C. Storage and handling of pipes and other storm drainage appurtenances shall be in accordance with the manufacturer's recommendations, subject to the approval of the Owner's Representative.

PART 2 - PRODUCTS

2.01 GENERAL

- A. All materials for storm drainage system shall be new and unused. All materials shall meet City/Municipal Standards.

2.02 STORM DRAIN PIPE MATERIALS

- A. High Density Corrugated Polyethylene Pipe: Pipe shall have a full circular cross section with an outer corrugated pipe wall and a smooth inner wall. Pipe manufactured for this specification shall comply with the requirements for test methods, dimensions and markings found in AASHTO Designations M252, and M294. Pipe shall be made from virgin PE compounds which conform to the applicable current edition of the AASHTO Material Specifications for cell classification as defined and described in ASTM D 3350.
- B. Joints and Fittings: Standard 45 Degree “Y” connections, tees, bends, flair ends and other fittings shall be fabricated to sizes shown on the drawings. Coupling Bands shall be per manufacturer's specifications. Couplers shall cover not less than one corrugation on each section of pipe. Fittings shall be made from virgin PE compounds which conform to the applicable current edition of the AASHTO Material Specifications for cell classification as defined and described in ASTM D 3350.
- C. Underdrains shall consist of 4” round corrugated perforated polyethylene pipe, couplings, and fittings. Pipe must be a fully enclosed wall system with perforations. Systems consisting of drainage boards (e.g. egg-carton type construction) with a filter fabric wrap are not acceptable.
 - 1. Acceptable products include:
 - a. N12 Pipe as manufactured by ADS, www.ads-pipe.com, or approved equal.
 - 2. Provide all required fittings as per manufacturer's specification.

2.03 GEOTEXTILE FABRIC

- A. Refer to EARTHWORK section.

2.04 GROUT

- A. Grout shall be non-shrink type similar to:

<u>Product</u>	<u>Manufacturer</u>
Embeco	Master Builders, Cleveland, OH
5 Star Grout	U. S. Grout Corp.
Upcon 262	Upco Co., Cleveland, OH

2.05 CLEANOUTS

- A. Clean-out Cover: Cast iron frames and covers shall conform to ASTM A48, latest issue, Class 30.
- B. Collar: Cast-in-place concrete of type specified in the CAST-IN-PLACE CONCRETE section.

2.06 PORTLAND CEMENT MORTAR

- A. Mortar shall be a Portland cement mortar conforming to ASTM C 270, Type M.
- B. Mortar shall contain a waterproofing admixture. Waterproofing admixture shall be one of the following:

Admixture

Hydratite Plus

Medusa Waterproofing
Omicron Mortarproofing
Mortaron
Hydrocide Powder

Manufacturer

W.R. Grace and Company, 410-531-4000;
www.grace.com.

Medusa Portland Cement Company
Master Builders Company
The Aquabar Company
Sonneborn Building Products

2.07 BEDDING AND COVER MATERIALS

- A. Bedding: Free Draining Crushed Stone as specified in the INFILLED SYNTHETIC TURF section.
- B. Cover: As specified on the drawings and details.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that trench cut and excavation base is ready to receive work and that excavations, dimensions and elevations are as indicated on drawings.

3.02 PREPARATION

- A. Hand trim excavations to required elevations. Correct over excavation with coarse aggregate.
- B. Remove large stones or other hard matter which could damage piping or impede consistent backfilling or compaction.

3.03 BEDDING

- A. Excavate pipe trench in accordance with the EARTHWORK section. Hand trim excavation for accurate placement of pipe to elevations indicated.
- B. Place bedding material at trench bottom, level materials in continuous layer not exceeding 6 inches compacted depth.
- C. Maintain optimum moisture content of bedding material to attain required compaction density.

3.04 INSTALLATION - PIPE

- A. Install pipe, fittings and accessories in accordance with applicable standards and manufacturer's instructions.
- B. Under-drain trench pipes shall connect directly in to a perimeter drain.
- C. Place pipe on bedding to depths indicated on drawings. Notch under pipe joints, where applicable, to provide for uniform bearing under entire length of pipe.
- D. Lay pipe to slope gradients noted on drawings with maximum variation from true slopes of 1/8 inch per foot.
- E. Install bedding at sides and over top of pipe. Provide top cover to minimum compacted thickness as indicated on drawings. Compact to 95%.
- F. Refer to the EARTHWORK section for trenching, bedding, backfilling and compaction

requirements. Do not displace or damage pipe when compacting.

3.05 BRICK MASONRY

- A. Brick Masonry Construction shall be done in a manner to insure watertight construction and all leaks in brick masonry shall be sealed. All workmanship shall conform to the best standard practice and all brick masonry shall be laid by skilled workmen.
- B. All beds on which masonry is to be laid shall be cleaned and wetted properly. Brick shall be wetted as required and shall be damp but free of any surface water when placed in the work. Bed joints shall be formed of a thick layer of mortar which shall be smoothed or furrowed slightly. Head joints shall be formed by applying to the brick to be laid a full coat of mortar on the entire end, or on the entire side as the case requires, and then shoving the mortar covered end or side of the brick tightly against the bricks laid previously. The practice of buttering at the corners of the brick and then throwing the mortar or crappings in the empty joints will not be permitted. Dry or butt joints will not be permitted. Joints shall be uniform in thickness and shall be approximately 1-1/4 inch thick.
- C. Brickwork shall be constructed accurately to dimensions and brickwork at top of manholes shall be to the dimensions of the flanges of the cast-iron frames.
- D. Joints on the inside face of walls shall be tooled slightly concave with an approved jointer when the mortar is thumbprint hard. The mortar shall be compressed with complete contact along the edges to seal the surface of the joints.
- E. All castings to be embedded in the brickwork shall be accurately set and built-in as the work progresses. Cast-iron frames and manhole covers shall be well bedded in mortar and accurately set to finished grades indicated or as directed.
- F. Water shall not be allowed to flow against brickwork or to rise on the masonry for 60 hours after it has been laid, and any brick masonry damaged in this manner shall be replaced as directed at no additional expense to the Owner. Adequate precautions shall be taken in freezing weather to protect the masonry from damage by post.

3.06 ADJUSTING DRAINAGE STRUCTURE FRAME AND GRATE/COVER

- A. Frames and grates or covers shall be adjusted in accordance with NYCDEP standards.

3.07 CLEAN OUTS

- A. Clean Outs shall be installed in accordance with the manufacturer's instructions and recommendations

3.08 CLEANING

- A. At the completion of the work, clean all piping, structures, as well as open drainage courses through and to which water from this construction is directed to the satisfaction of the Owner's Representative.

3.09 PROTECTION

- A. Protect finished work under provisions of applicable sections of these specifications.
- B. Protect pipe and aggregate cover from damage or displacement until backfilling operation is in progress.

END OF SECTION

SECTION 02771

GRANITE CURBING AND PAVERS

PART 1: GENERAL

1.01 GENERAL REQUIREMENTS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.
- B. Examine all other Sections of the Specifications for requirements that affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with trades affecting, or affected by, work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 SCOPE OF WORK

- A. This item of work shall consist of furnishing and setting granite in a concrete foundation or mortar setting bed in accordance with these specifications and in close conformity with the lines and grades shown on the contract drawings or established by the Landscape Architect. Work includes:
 - 1. Granite curbing for raised planter beds (ADD ALT. NO. 2)
 - 2. Granite pavers (ADD ALT. NO. 1 and 2)
 - a. Mortar Setting Bed
 - b. Mortar Joint Filler
 - c. Concrete Base

1.03 RELATED SECTIONS

- A. Refer to Section 02870 – Site Furnishings for information regarding skate deterrents.

1.04 SUBMITTALS

- A. Manufacturer's Product Data: Manufacturer's product data shall be submitted for each type of product specified.
- B. Samples:
 - 1. Curbing: Submit samples showing extreme variations in color and texture. Submit full shop drawings of raised planters showing layout of skate deterrents as per manufacturers requirements.
 - 2. Pavers: Submit product data and a minimum of three individual pavers, showing extreme variations in color and texture.
 - 3. Mortar: Submit product data and color samples.

1.05 QUALITY ASSURANCE

- A. Sample Panel: Construct a sample panel on the specified base and setting bed before start of any paver work.
 - 1. Sample panel shall exhibit proposed color range, texture, bond, jointing, pattern, edge treatment and workmanship.
 - 2. Size of panel shall be 4 ft. x 4 ft., minimum.
 - 3. Sample panel shall be inspected by the Owner's Representative. If the sample is not acceptable, construct additional panels at no cost to the Owner until an acceptable panel is constructed. Accepted panel shall become the standard for the entire job, and shall remain undisturbed until completion of all work.

1.06 ACCESSIBILITY COMPLIANCE

- A. Special attention is to be given to compliance with the Americans with Disabilities Act (ADA).
 - 1. Slopes: The cross pitch (perpendicular to travel) for walkways shall be constructed at 1.5% (2% maximum, 1% minimum). The longitudinal slope (parallel to travel) for walkways shall not exceed 4.5%. The slope of handicapped curb cuts shall be constructed at 7% (8% maximum).
 - 2. Verify slopes with a 2-foot electronic "Smart Level". Pedestrian pavements that do not meet these requirements shall be replaced at the Contractor's expense.
- B. These requirements supersede the grades shown on the plans. If these requirements cannot be met with the grades shown on the plans, notify the Owner's representative immediately for direction.

1.07 PROJECT CONDITIONS

- A. Protection: The Contractor shall use all means necessary to protect the materials of this Section before, during and after installation. In the event of damage, make all repairs and replacements necessary to approval of the Owner's Representative and at no additional cost to the Owner. All work shall be executed in such a manner as to prevent any damage to existing streets, curbs, paving to remain, existing plant materials, and adjoining properties.
- B. The Contractor shall remove all debris, construction equipment and waste material from areas within the limit of work prior to inspection for acceptance.
- C. The Drawings indicate, in general, the alignment and finished grade elevations. The Owner's Representative, however, may make minor adjustments in grades and alignment as are found necessary.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Granite shall be carefully packed by the supplier for shipment.
- B. Granite shall be stored off the ground and protected against staining and other damage.
- C. Aggregate materials shall be kept dry and free from soiling.
- D. Materials damaged in any manner will be rejected and replaced with new materials at no additional cost to the Owner.

PART 2: MATERIALS

2.01 GENERAL

- A. Granite shall be "Abyss Green" as quarried by Granicor.
- B. Granite shall be hard and durable granite of a quality approved by the Landscape Architect, free from seams or other imperfections, and shall have horizontal beds. Natural color variation characteristics of the deposit will be permitted. Whenever granite is sawn, all surfaces that are to be exposed shall be thoroughly cleaned and any iron rust or iron particles removed by sand blasting or other approved methods satisfactory to the Landscape Architect and any saw mark in excess of 1/8 inch shall be removed.

2.02 GRANITE CURBING FOR RAISED PLANTERS

- A. Fabricate curb from approved granite. Submit material sample to Landscape Architect for approval. Curb shall be cut and shaped to the dimensions and sizes shown on the plans. Stone finish shall have a thermal finish on all exposed vertical faces.

2.03 GRANITE PAVERS

- A. Granite pavers shall have 4 edge faces saw cut and be of an overall dimension of 12" x 12" x 3" thick.
- B. Opposite faces of granite pavers shall be parallel and adjoin faces shall be at right angles to each other.
- C. The top wearing face shall be sand blasted.

2.04 CAST-IN-PLACE CONCRETE

- A. All Portland cement and concrete shall be as noted on plans and specified in Section 03325 of this specification.

2.05 SKATE DETERRENTS

- A. Skate deterrents shall be in accordance to Section 02870 – Site Furnishings.

2.06 CONCRETE REINFORCING STEEL

- A. Concrete reinforcing steel shall be in accordance to Section 03200 – Concrete Reinforcing Steel.

2.07 DENSE GRADED CRUSHED STONE

- A. Dense graded crushed stone shall be in accordance to Section 02200 - Earthwork.

2.08 SETTING BED

- A. Mortar for setting bed shall be in accordance to Section 04100 – Mortar and Grout.

2.09 JOINT FILLER

- A. Mortar for joints shall be in accordance to Section 04100 – Mortar and Grout.
- B. Mortar shall be colored to match adjacent surface.

PART 3: EXECUTION

3.01 GRANITE CURBING FOR RAISED PLANTER

- A. Granite Curbing shall be used as a separator between walkway and the planting area, and shall be set plumb and true to line and elevation as shown on the plans.
- B. Granite curbing shall be set on a foundation of cast-in-place concrete.
- C. Install reinforcing dowels as indicated on the drawings.
- D. Install skate deterrents as per manufacturer's requirements.
- E. Align curbing as shown on the Drawings.

3.02 GRANITE PAVER INSTALLATION

- A. The granite pavers shall be laid on a mortar setting bed to the lines and grades shown on the drawings or as directed. Granite pavers shall be cut as required to make tight fitting transitions. Joints shall be approximately 1/4" each end.
- B. After sufficient length of pavers has been laid, the surface shall be tested with a straight edge laid parallel with the top and side surfaces and any variation in vertical or horizontal alignment exceeding 3/8 inch shall be corrected and brought to the proper grade and/or alignment.
- C. Granite pavers shall be acceptable to the Landscape Architect before joints are mortared.
- D. Joints shall be mortar filled and tooled lightly, approximately 1/4 inch depth.
- E. Any pavers disturbed, loosened or damaged during the course of the work, shall be corrected by the Contractor at no additional expense to Owner.
- F. Pavers shall be kept clean and free of mortar droppings or oils that might stain the surface.

END OF SECTION

SECTION 02772

CAST-IN-PLACE CONCRETE TURF ANCHOR

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with that of all other trades affecting, or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 WORK INCLUDED

- A. Perform all work required to complete the work of the Section, as indicated. Such work includes, but is not limited to, the following:
 - 1. Cast-in-Place Turf Anchor for anchoring Infilled Synthetic Turf System.

1.03 RELATED WORK UNDER OTHER SECTIONS

- A. Synthetic Turf System
- B. Cast-in-Place Concrete

1.04 REFERENCES

- A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirement shall govern.
 - 1. American Society for Testing and Materials (ASTM):
 - C 33 Concrete Aggregates
 - C 91 Masonry Cement
 - C 94 Ready-Mix Concrete
 - C 150 Portland Cement
 - C 260 Air Entraining Admixtures for Concrete
 - C 494 Chemical Admixtures for Concrete
 - 2. Department of Transportation Standard Specifications, Construction and Materials dated January 2, 1990; NYSDOT Standard Drawings (latest revision).

1.05 SUBMITTALS

- A. Complete shop drawings of the infilled synthetic turf anchor specified shall be submitted.

1.06 TESTING AND INSPECTION

- A. The Owner reserves the right to have tests made of mortar materials and mortar, at his option, as the job progresses. Tests will be performed by a recognized Testing Laboratory, selected by the Landscape Architect, with all costs paid by the Owner. The

Contractor shall agree to abide by the results of the tests; he shall make all adjustments and changes to mortar and materials to meet the specification requirements at no additional cost to the Owner.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver manufactured products in manufacturer's original, unopened, and undamaged containers with labels intact and legible.
- B. Store and handle manufactured products to prevent damage and deterioration.

PART 2 - PRODUCTS

2.01 CAST-IN-PLACE CONCRETE TURF ANCHOR

- A. Ready-mix concrete shall conform to ASTM C-94, the batch plant shall be certified in compliance with the National Ready Mix Concrete Association standards. Concrete shall be 4000 psi.
- B. Forms shall be steel or wooden forms at the Contractor's option and as approved by the Landscape Architect. Provide forms capable of producing uniform, straight, or curved concrete surfaces. Use only non-staining form release compounds.
- C. Portland Cement shall conform to ASTM C-150, type as required. Use only one brand of cement throughout the project. Limit the temperature of the cement to 140 degrees Fahrenheit when delivered to the batching plant.
- D. Aggregates shall conform to ASTM C-33. Provide aggregates with a long history of successful use in similar work and conditions. Grade fine aggregates from 1/4" to fines. Grade coarse aggregates from 1/4" to size specified.
- E. Water shall be clean, potable and free of all impurities that are detrimental to concrete.
- F. Air-entraining admixtures shall conform to ASTM C-260; use only admixtures which have been accepted in the mix design.
- G. Water reducing admixtures shall conform to ASTM C-494; use only admixtures which have been accepted in the mix designs.
- H. Curing/sealing compound shall be equivalent to Day-Chem Sil-Cure J13.
- I. Expansion materials:
 - 1. Unless otherwise indicated on the drawings, expansion joints shall be located at the end of all curb runs.
 - 2. Expansion joint filler shall be preformed, non-bituminous type joint filler conforming to ASTM D 1752, Type II, similar to Sealtight Cork Expansion Joint Filler, manufactured by W.R. Meadows, Inc., Elgin, IL 60120, or approved equal.
 - 3. Premolded filler shall be one piece for the full depth and width of the joint leaving a sealant recess as indicated and shall be an asphaltic material.
 - 4. Use of multiple pieces of lesser dimensions to make up required depth and width of joint will not be permitted.
 - 5. Except as otherwise noted on the Drawing, joint filler shall be 1/2" thick.

6. Expansion joint shall receive joint backer rod and shall be sealed with approved joint sealer.
7. Control joints shall be tooled in every 20'.

PART 3 - EXECUTION

3.01 CAST-IN-PLACE CONCRETE TURF ANCHOR

- A. Contractor shall excavate area to the lines and grades shown to provide proper footing for all concrete curb.
- B. Contractor shall erect proper formwork to pour the concrete footings where required on Drawings. Formwork shall be free of defects and shall provide a smooth and even finish to the entire curb surface. Install form liners per manufacturer's instructions and as directed by the Landscape Architect.
- C. Pour concrete and finish as indicated on the Drawings. Contractor shall leave forms for a minimum of 48 hours.
- D. Contractor shall protect the concrete against injury from the elements and defacement of any nature during construction.
- E. Strictly comply with industry standards and the recommendations of the National Concrete Masonry Association, and Prestressed Concrete Institute, except where more restrictive requirements are specified in this Section.

END OF SECTION

SECTION 02782
BLUESTONE PAVERS

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.

1.01 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Bluestone pavers (ADD ALT. NO. 2).
 - 2. Mortar setting bed.
 - 3. Mortar joint filler.
 - 4. Concrete base.

1.02 SUBMITTALS

- A. Manufacturer's Product Data: Manufacturer's product data shall be submitted for each type of product specified.
- B. Samples:
 - 1. Pavers: Submit product data and a minimum of three individual pavers, showing extreme variations in color and texture.
 - 2. Mortar: Submit product data and color samples.

1.03 QUALITY ASSURANCE

- A. Sample Panel: Construct a sample panel on the specified base and setting bed before start of any paver work.
 - 1. Sample panel shall exhibit proposed color range, texture, bond, jointing, pattern, edge treatment and workmanship.
 - 2. Size of panel shall be 4 ft. x 4 ft., minimum.
 - 3. Sample panel shall be inspected by the Owner's Representative. If the sample is not acceptable, construct additional panels at no cost to the Owner until an acceptable panel is constructed. Accepted panel shall become the standard for the entire job, and shall remain undisturbed until completion of all work.

1.04 ACCESSIBILITY COMPLIANCE

- A. Special attention is to be given to compliance with the Americans with Disabilities Act (ADA).

1. Slopes: The cross pitch (perpendicular to travel) for walkways shall be constructed at 1.5% (2% maximum, 1% minimum). The longitudinal slope (parallel to travel) for walkways shall not exceed 4.5%. The slope of handicapped curb cuts shall be constructed at 7% (8% maximum).
 2. Verify slopes with a 2-foot electronic "Smart Level". Pedestrian pavements that do not meet these requirements shall be replaced at the Contractor's expense.
- B. These requirements supercede the grades shown on the plans. If these requirements cannot be met with the grades shown on the plans, notify the Owner's representative immediately for direction.

1.05 PROJECT CONDITIONS

- A. Protection: The Contractor shall use all means necessary to protect the materials of this Section before, during and after installation. In the event of damage, make all repairs and replacements necessary to approval of the Owner's Representative and at no additional cost to the Owner. All work shall be executed in such a manner as to prevent any damage to existing streets, curbs, paving to remain, existing plant materials, and adjoining properties.
- B. The Contractor shall remove all debris, construction equipment and waste material from areas within the limit of work prior to inspection for acceptance.
- C. The Drawings indicate, in general, the alignment and finished grade elevations. The Owner's Representative, however, may make minor adjustments in grades and alignment as are found necessary.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Bluestone shall be carefully packed by the supplier for shipment.
- B. Bluestone shall be stored off the ground and protected against staining and other damage.
- C. Aggregate materials shall be kept dry and free from soiling.
- D. Materials damaged in any manner will be rejected and replaced with new materials at no additional cost to the Owner.

PART 2 – PRODUCTS

2.01 BLUESTONE PAVERS

- A. Bluestone Pavers shall be approximately 3 inches thick.
- B. Bluestone shall be uniform in color and texture with no cracks, fractures or other deformities that will compromise structural integrity or aesthetic character.
- C. Exposed surfaces shall be natural cleft.

2.02 SETTING BED

- A. Mortar for setting bed shall be in accordance to section 04100 – Mortar and Grout.

2.03 JOINT FILLER

- A. Mortar for joint filler shall be in accordance to section 04100 – Mortar and Grout.

PART 3 – EXECUTION

3.01 ACCEPTABILITY OF BASE

- A. The Contractor and his Subcontractors shall inspect all subbases for unstable, unsuitable or improperly prepared areas. Do not begin work over unacceptable areas. Beginning work means the Contractor and his Subcontractors accept the subbase, previous work and conditions and shall be held responsible for any corrections required to properly implement the Construction Documents.

3.02 BLUESTONE PAVER INSTALLATION

- A. The bluestone pavers shall be laid on a mortar setting bed to the lines and grades shown on the drawings or as directed. Bluestone pavers shall be cut as required to make tight fitting transitions. Joints shall be approximately 1/4" each end.
- B. After sufficient length of pavers has been laid, the surface shall be tested with a straight edge laid parallel with the top and side surfaces and any variation in vertical or horizontal alignment exceeding 3/8 inch shall be corrected and brought to the proper grade and/or alignment.
- C. Bluestone pavers shall be acceptable to the Landscape Architect before joints are mortared.
- D. Joints shall be mortar filled and tooled lightly, approximately 1/4 inch depth.
- E. Any pavers disturbed, loosened or damaged during the course of the work, shall be corrected by the Contractor at no additional expense to Owner.
- F. Pavers shall be kept clean and free of mortar droppings or oils that might stain the surface.

3.02 PROTECTION OF FINISHED SURFACES

- A. Finished surfaces adjacent to the paving work shall be adequately protected from soiling, staining, and other damage during construction.

END OF SECTION

SECTION 02792
SYNTHETIC TURF SYSTEM

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.
- B. It is the intent of this Section to specify an Infilled Synthetic Turf System that provides a high quality playing surface for multi-purpose athletic uses. The finished surfaces shall be immediately firm, consistent and stable while providing long term durability, safety and shock attenuation. The Infilled Synthetic Turf System Vendor's attention is called to the testing requirements related to G-Max rating per ASTM F355-A. A G-Max rating of less than 80 or in excess of 125 at any time from acceptance through the end of the Warranty Period is unacceptable.
- C. Examine all other Sections of the Specifications for requirements that affect work of this Section whether or not such work is specifically mentioned in this Section.
- D. Coordinate work with trades affecting, or affected by, work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 WORK INCLUDED

- A. Provide an inspection and written certification of subsurface drainage system and free draining subbase compliance with specified drainage rates prior to commencement of subsequent work.
- B. Coordinate Dual Ring Infiltrometer testing (to be paid for by Contractor) at a minimum of five (5) locations upon completion of the Free Draining Finishing Stone layer. Location to be determined by Owner's Representative. Contractor is responsible for coordinating the schedules and restoring the Finishing Stone once tests are completed.
- C. Furnish and install Infilled Synthetic Turf System; including new filter fabric, resilient underlayment, parallel slit film polyethylene fiber, backing and polyethylene secondary backing, and resilient infill mix.
- D. Provide all attachments and penetrations as required to complete the work as shown on the drawings and approved shop drawings.
- E. Provide (8) year warranty for all Infilled Synthetic Turf components and installation.
- F. Provide Owner with turf maintenance training.
- G. Provide Post Construction Turf Maintenance Program.

1.03 RELATED WORK UNDER OTHER SECTIONS

- A. Carefully examine all of the Contract Documents for requirements which affect the work in this section. Other specification sections which directly relate to the work of this section include, but are not limited to, the following:
 - 1. Site Preparation
 - 2. Selective Site Demolition

3. Earthwork
4. Storm Drainage
5. Cast-in-place Concrete Turf Anchor

1.04 REFERENCES

- A. References herein to any technical society, organization, group or body are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable:
1. American Society for Testing and Materials (ASTM).
 2. Consumer Products Safety Commission (CPSC).
 3. Synthetic Turf Council (STC)
 4. American Sports Builders Association (ASBA)

1.05 DEFINITIONS

- A. Base Contractor – The contractor who shall complete the preparation, construction and installation of the field subgrade, drainage, turf anchor, base stone and finishing stone, it is the intent of this project that the General Contractor shall serve as the Base Contractor.
- B. Infilled Synthetic Turf Vendor – The infilled synthetic turf company who will provide all the materials and the warranty over the final product.
- C. Infilled Synthetic Turf Contractor – The Company working for the Vendor who shall oversee the installation of the field.
- D. Infilled Synthetic Turf Installer – The individual who will be on-site installing and overseeing the actual turf field installation.

1.06 QUALITY CONTROL

- A. Experience:
1. The preparation, construction and installation of the field subgrade, drainage, turf anchor, base stone and finishing stone shall be completed by a specialty firm, Base Contractor, who shall have completed ten (10) synthetic turf field projects, each 50,000 s.f. or larger, in the last five (5) years.
 2. Infilled Synthetic Turf System shall be provided by an experienced Infilled Synthetic Turf Vendor which shall have supplied at least thirty (30) outdoor athletic field systems of 50,000 s.f. or greater of the type and installation process herein specified within the last three (3) year period.
 3. Infilled Synthetic Turf System installation shall be performed by an experienced Infilled Synthetic Turf Contractor which shall have laid at least twenty (20) outdoor athletic field systems of 50,000 s.f. or greater of the type and installation process herein specified within the last three (3) year period.
 4. All installation operations shall be performed by personnel fully familiar with the materials and their application under the full time direction and supervision of a qualified technical supervisor, Infilled Synthetic Turf Installer, directly employed by the Infilled Synthetic Turf System Contractor. Installation supervisors shall have a

minimum of five (5) years experience in the installation of Infilled Synthetic Turf Systems and shall have supervised the installation of at least fifteen (15) outdoor athletic field systems of 50,000 s.f. or greater of the type and installation process herein specified within the last three (3) year period.

- B. Source Limitations: Obtain Infilled Synthetic Turf System including tufted synthetic turf yarn, carpet backings and infill materials from a single Tufted Synthetic Turf Manufacturer. Provide additional system components including anchoring materials, seaming products, binders and adhesives, and resilient underlayment meeting the criteria of this Specification Section from single sources.
- C. Inspection and Acceptance: The Infilled Synthetic Turf Contractor and Base Contractor shall inspect the subgrade and drainage system to verify their acceptance of installation and condition and shall confirm acceptance in writing. Commencement of subsequent installation in a given work area indicates acceptance of underlying substrates and systems. Testing of drainage capacity shall be by Dual Ring Infiltrometer by the owner at a minimum of 5 locations after completion of rough and fine grading operations of the Free Draining Finishing Stone.
- D. Planarity and Grade: Deviation in planarity of the finishing stone layer and finished surface shall not exceed 1/8" beneath a 10' straightedge. Deviation from a straight grade between levels on drawings shall not exceed 1/8".
- E. Protection: Heavy equipment or vehicles of any kind should not be allowed on the turf area.
- F. Restoration of Damage: Infilled Synthetic Turf Contractor shall exercise care in the execution of his work and avoid damage or defacement of adjacent or surrounding areas by using suitable protective means. Damage or defacement which occurs shall be remedied at the Infilled Synthetic Turf Contractor's cost to the satisfaction of the Owner.

1.07 SUBMITTALS

- A. In accordance with Conditions of the Contract, submit the following information **AS PART OF THE PROJECT (following Contract signing)**:
 - 1. The Infilled Synthetic Turf Vendor shall provide an Experience Reference List in accordance with Item 1.06.A.2 above. Contractor shall provide contact name and title, employer and telephone number of each reference to enable such data to be validated prior to the commencement of work.
 - 2. The Infilled Synthetic Turf Vendor shall provide a signed letter on company letterhead holding the Owner, Owner's Representative and all other project consultants harmless for any violation of patent rights or infringement.
 - 3. The Infilled Synthetic Turf Vendor shall submit a signed letter on company letterhead stating the Company's specific manufacturing and procurement practices which address Health and Human Safety concerns. The letter shall certify, through the independent testing of all Infilled Synthetic Turf System components installed as part of the Project, that their system's lead and other heavy metal content complies with the United States Consumer Product Safety Commission's (CPSC) most stringent requirement for lead content in children's toys (below 100 ppm), is safe for the environment and for use by people of all ages. Copies of the testing reports shall also be provided in conjunction with the certification. Installation of the field shall not commence until the written certification is received. Adjustments to the project schedule to accommodate testing laboratory schedules will not be granted.
 - 4. The Infilled Synthetic Turf Contractor shall provide an Experience Reference List

in accordance with Item 1.06.A.3 above. Contractor shall provide contact name and title, employer and telephone number of each reference to enable such data to be validated prior to the commencement of work.

5. The Infilled Synthetic Turf Installer shall provide an Experience Reference List in accordance with Item 1.06.A.4 above. Contractor shall provide contact name and title, employer and telephone number of each reference to enable such data to be validated prior to the commencement of work.
6. Contractor shall be prepared, at any point after the bid submission, to submit the documents as listed above in Section 1.06 A 1-6 for any or all of the Alternate Turf Vendors. Owner or Owner's Representative may request the documents electronically.
7. Manufacturer's Literature:
 - a. The Infilled Synthetic Turf Vendor shall provide Cut Sheets for all materials required under this Section including third party ASTM certified lab reports.
 - b. The Infilled Synthetic Turf Vendor shall provide a sample written 8-year labor and materials warranty in compliance with the requirements of this specification.
 - c. The Infilled Synthetic Turf Vendor shall provide Manufacturer's written warranties for all individual components of the Infilled Synthetic Turf System.
8. Shop Drawings:
 - a. Provide details which illustrate the scope of work, including but not limited to materials, cross sections, subsurface and penetration details.
 - b. Provide an underlayment and seaming plan at 1"=20'-0", including locations of removable panels.
 - c. Supply shop drawings (including details) at an approved scale for location, installation and erection of the cast-in-place concrete turf anchor.
9. Product Samples and Information:
 - a. Provide manufacturer's standard color samples of the specific fiber for approval.
 - b. Provide a minimum 12-inch by 12-inch sample of carpet.
 - c. Provide a minimum 12-inch by 12-inch sample of resilient underlayment.
 - d. Provide 12" long sample of seaming tape and/or information on gluing procedures.
 - e. Provide sieve analysis of infill materials for approval.
 - f. Provide a 1-quart sample of the infill mix at the Owner's Representative's approved mix ratio.
10. Mock Up:

- a. Upon approval of all Infilled Synthetic Turf System materials, construct a 6-foot by 6-foot or larger mock up panel on site for approval of the Owner's Representative. The mock up shall include one glued and sewn seam. The mock up panel should be representative in every way of the workmanship, composition, strength, color and texture of the material to be assembled on-site and may be tested for comparison with submitted test data and to establish a datum performance for subsequent site quality control purposes.
- 11. Copies of delivery slips for all Infilled Synthetic Turf System materials delivered to the site.
 - a. **The Infilled Synthetic Turf Contractor must provide the delivery slips of the sand and rubber material to the site to show that the infill material spread on the field is in compliance with the infill ratio specified.**
- 12. Provide Field Maintenance Training and written Maintenance Manual to the Owner.

1.08 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle products in exact accordance with the Manufacturer's requirements and specifications.
- B. Products delivered to the site which are not in compliance with the requirements of this Section shall be removed from the site immediately at no cost to the Owner.

1.09 PROJECT CONDITIONS

- A. Weather Limitations: No part of the construction shall be conducted during a rainfall or when rainfall is imminent, or unless both ambient and materials temperatures are at least 40 degrees F and rising.
- B. After a rainfall, sufficient time shall be given to allow surfaces and infill materials to dry before resuming work. Surfaces and materials shall be dry, as well as clean. Adhesives should not be applied within 12 hours after rainfall, or when rainfall is forecast.
- C. Do not apply Infilled Synthetic Turf System materials or components over wet, frozen, or muddy base.

1.10 WARRANTY

- A. Warranty: The Infilled Synthetic Turf Vendor shall guarantee all self manufactured and procured Infilled Synthetic Turf System materials and workmanship against damage by climatic conditions or proper and normal use (including the use of cleats) for a minimum period of eight (8) years from the official date of Substantial Completion. In addition, the Infilled Synthetic Turf Vendor shall guarantee all self manufactured and procured materials and/or workmanship including such defects as premature decrease in infill height, premature decrease in pile height or weight (stipulated as more than 10% decrease), UV degradation, fading, seam rupture, dislodgement, inadequate drainage or inadequate air transmission. The guarantee shall be in writing and shall be signed by the Infilled Synthetic Turf Vendor stating that any defects, including the need to remove and replace self manufactured and/or procured materials will be repaired at no cost to the Owner within 7 days written notice of the Owner. Vendor shall provide a 3rd party warranty for all of the above.
- B. Performance Testing:

1. The Infilled Synthetic Turf Vendor shall have G-Max testing performed by an approved and certified independent testing laboratory on two (2) occasions. The initial testing shall be prior to requesting Substantial Completion and again between 12 and 15 months after installation. Testing shall consist of shock attenuation per ASTM F-355-A current edition. The Owner and Owner's Representative shall be provided with copies of all testing.
2. Testing shall be performed in accordance with ASTM Test Method F-1936 current edition. Tests shall also be taken at ten (10) random spots as chosen by the Owner's Representative or Owner.
3. At no time shall the G-Max be less than 80 nor exceed 125 at any one point of the turf.
4. In cases where the result of a test falls outside the specified values, additional tests shall be taken in 10-foot increments in 4 opposite directions (north, south, east and west) from the failing test point and each subsequent failing test point until all tests fall within the specified values. The failing area shall be marked off, repaired and retested by the Infilled Synthetic Turf System Contractor until all tests fall within the specified values.
5. G-Max testing during the remainder of the warranty period will be performed by and at the discretion of the Owner. Results of these tests will be provided to the Base Contractor and Infilled Synthetic Turf Contractor.
6. If any tests fall within 5% of the maximum specified value, the Owner, at his discretion may require one additional set of tests at any time during the calendar year to be paid for by the Infilled Synthetic Turf Contractor.

1.11 PATENT RIGHTS AND INFRINGEMENT

- A. There are various established performance criteria throughout this request for products and services. There may exist patent coverage for some means and methods of achieving those performance criteria. Bidders are responsible for ascertaining that means and methods of the products and services which they are providing are not being provided in violation of any such patent rights. Bidders responsibilities are as follows:
 2. To hold harmless, the Owner, the Owner's Representative and all Project Consultants, as to any violation to include dollar amounts that could be owed as a result of damages for infringement including potential treble damages as provided for under U.S. Patent Law.
 3. Any and all costs that the Owner, the Owner's Representative and all Project Consultants would incur in replacing materials and services which are determined to infringe patent rights.
 4. All administrative, legal and other costs that would be incurred as a result of an infringement.
- B. If any product or services proposed to be provided by the bidder are known by the bidder to be subject to any existing claims of infringement, bidder shall notify the Owner and the Owner's Representative of such claim and provide evidence of financial ability to perform on the above hold-harmless requirements.

PART 2 - PRODUCTS

2.01 GENERAL

- A. This specification covers the installation of new outdoor multi-sport Infilled Synthetic Turf Systems comprised of tufted synthetic turf with infill, filled into the pile. The system also includes resilient underlayment. The installed systems shall have a permeability rate in excess of 20 inches per hour. The tufted synthetic turf is comprised of parallel slit film polyethylene pile sewn into a polyethylene backed carpet meeting F.D. Doc FF1-70 and ASTM D-2859 flammability requirements, with an abrasion index of less than 25 per ASTM F1015 and meeting acceptable values for Static Coefficient of Friction per ASTM F1551.
- B. Acceptable Infilled Synthetic Turf Contractors/Vendors are:
1. Astroturf, Dalton, GA. (413) 543-0969 / Applied Landscape Technologies, Inc., Montville, NJ (973) 402-6544 or approved equal.

2.02 INFILLED SYNTHETIC TURF BASE AND DRAINAGE MATERIALS

A. Geotextile Fabric

1. Refer to Section 02200 – Earthwork.

B. Free Draining Trench Stone:

1. Shall be double washed crushed stone consisting of inert angular material derived from a stone quarry that is hard, durable, washed stone, free of deleterious materials. Gradation shall conform to the following:

<u>Sieve Designation</u>	<u>% Passing by Weight</u>	
	Minimum	Maximum
1 in	100	---
¾ in	90	100
½ in	10	50
3/8 in	0	20
No. 4	0	5

C. Free Draining Crushed Stone:

1. Shall be double washed crushed stone consisting of inert angular material derived from a stone quarry that is hard, durable, washed stone, free of deleterious materials. Gradation shall conform to the following:

<u>Sieve Designation</u>	<u>% Passing by Weight</u>	
	Minimum	Maximum
1 in.	100	--
5/8 in.	100	--
½ in.	85	100
3/8 in.	15	45
No. 4	0	15
No. 8	0	5

2. Free Draining Crushed Stone shall bridge with selected Free Draining Finishing Stone material to prevent loss of Free Draining Finishing material into Crushed Stone layer.
3. Free Draining Crushed Stone Base to be fine graded to a tolerance of 1/4" in 10' with hydraulically controlled laser grading apparatus.
4. Free Draining Crushed Stone Base shall drain at a rate of no less than 10 inches per hour after compaction.

5. Based upon the type of Free Draining Crushed Stone Base and Free Draining Finishing Stone submitted, other criteria may be required for approval.

D. Free Draining Finishing Stone:

1. Shall be inert angular material derived from a stone quarry that is hard, durable and free of deleterious materials and shall consist of one of the following:
 - a. Durable crushed rock consisting of the angular fragments obtained by breaking and crushing solid or shattered natural rock, and free from a detrimental quantity of thin, elongated or other objectionable pieces.
 - i. A detrimental quantity will be considered as any amount in excess of 15% by total weight.
 - ii. Thin or elongated pieces are defined as follows: Thin stones shall be considered to be such stones whose average width exceeds four (4) times their average thickness. Elongated stones shall be considered to be such stones whose average length exceeds four (4) times their average width.
 - b. Durable crushed gravel stone obtained by artificial crushing of gravel boulders or fieldstone with a minimum diameter before crushing of 8 in.
2. Gradation shall conform to the following requirements (1/2" maximum particle size):

<u>Sieve Designation</u>	<u>% Passing by Weight</u>	
	Minimum	Maximum
1/2 in.	100	--
3/8 in.	85	100
1/4 in.	75	100
No. 4	60	90
No. 8	35	75
No. 16	10	55
No. 30	0	40
No. 60	0	15
No. 100	0	8
No. 200	0	2

3. Free Draining Finishing Stone shall bridge with selected Crushed Stone drainage material to prevent loss of Free Draining Finishing Stone into Crushed Stone layer.
4. Free Draining Finishing Stone Base to be fine graded to a tolerance of 1/8" in 10' with hydraulically controlled laser grading apparatus.
5. Free Draining Finishing Stone Base shall drain at a rate of no less than 10 inches per hour after compaction.
6. Based upon the type of Free Draining Crushed Stone Base and Free Draining Finishing Stone submitted, other criteria may be required for approval.

2.03 RESILIENT UNDERLAYMENT

- A. Shall be Power Base YSR, a resilient polypropylene base material as manufactured by Brock USA, 2840 Wilderness Place, Boulder CO 80301, (p) (303) 544-5800, (f) (303) 544-1273.

- B. Pad composition shall be made of food grade polypropylene, code 5 polypropylene, making it fully recyclable. Manufacture shall have a take-back program for the material after its useful life as a turf pad.
- C. Pieces shall be:
 - 1. Panel Dimensions: 62" x 48" interlocking panels
 - 2. Area: Net coverage per panel 19.54 / sf
 - 3. Thickness: .96" (24mm) +/- .18"
 - 4. Panel Weight: 4.96 lbs/panel.
- D. Panels shall be cut in the field to match the Project Details.

2.04 INFILLED SYNTHETIC TURF SYSTEM

- A. Tufted Synthetic Turf
 - 1. Yarn shall be a UV resistant parallel slit film polyethylene pile equivalent to TenCate XP Blade Plus +HR fiber, designed for use in outdoor infilled synthetic athletic turf applications and meet the following requirements:

a.	Turf Color	Field Green - as approved by the Landscape Architect from the Manufacturer's Standard Colors
b.	Pile Denier	8000 denier minimum per ASTM D 1907
c.	Pile Weight	44 oz. per s.y. minimum per ASTM D 5848
d.	Pile Height	2.0" minimum per ASTM D 5848
e.	Stitch Count	11 stitches per inch per ASTM D 5848
f.	Stitch Gauge	3/8" gauge per ASTM D 5848
g.	Thickness	100 microns minimum per ASTM D 1577
h.	Break Load	30 psi minimum per ASTM D 2256
i.	Elongation at Break	42% minimum per ASTM D 2256
j.	Tuft Bind	7 lbs/ft minimum without fill per ASTM D 1335
k.	Warranty	11-year UV/8 year material and workmanship
- B. Primary Carpet Backing:
 - 1. Shall be Multilayer Thiobac PRO C18 as manufactured TenCate Grass North America, Dayton, TN or approved equal.
- C. Preferred Secondary Coating shall be high quality polyethylene heat treated to hold the yarn in place and shall meet the following requirements:
 - 1. Weight 20 oz. per s.y. minimum

- D. Rolls shall be a minimum of 15 feet wide. Rolls shall be of sufficient length to cover from side to side without head seams.
- E. The Infilled Synthetic Turf System Contractor shall provide butt-sewn seams at a minimum. The sewn portion of seams shall be performed with high strength chord suitable for attaching outdoor Infilled Synthetic Turf carpet. The Infilled Synthetic Turf System Contractor is informed that all seams shall be flat and indiscernible upon installation. Shearing of the slit film pile will not be permitted as a means of achieving a flat seam.
- F. Adhesives for bonding tufted synthetic turf shall be one part moisture cured polyurethane obtained from a single manufacturer and be equivalent Nordot 34-G as manufactured by Synthetic Surfaces, Scotch Plains, NJ (908) 233-6803. Adhesive shall be modified with amendments as recommended by the manufacturer for installation during adverse weather conditions.
- G. If the Infilled Synthetic Turf Contractor intends to modify any of the above criteria, it shall first be approved in writing by the Landscape Architect prior to submitting a bid.

2.05 INFILL MATERIALS

- A. Infill Materials shall be uniformly filled to a depth which leaves no more than 1/2" of exposed pile after settlement, and consists of a free draining homogeneous mixture of TPE granules and silica sand meeting the criteria outlined below. The Turf Contractor and Vendor shall be prepared to, and include in the cost of the project, add additional infill at the specified ratios within 12 months of installing the turf to ensure the infill height meets the specifications following the settlement of the infill.
- B. The infill ratio **by weight** shall be 70:30 silica sand to TPE, with a total weight of 5lbs. per square foot (minimum).
- C. TPE granules specifically manufactured for use as synthetic sports turf infill. The thermoplastic elastomers (TPEs) materials shall be highly resistant to mechanical wear, allowing for intensive use of playing field, ozone and UV-stable, colorfast, odorless, largely unaffected by weather conditions, class 1 flame retardant according to ASTM E648, and an 8 year warranty minimum. TPE shall be high quality 100% virgin thermoplastic elastomer, dust free, equivalent to TTII Pro-Maxx 37 TPE, Target Technologies, Burnaby BC Canada, (604) 421-3620.
- D. Silica sand shall meet the following criteria:
 - 1. Infill sand shall be high quality clean grains of rounded silica sand (SiO₂) equivalent to:
 - a. Granusil 4095
Unimin Corporation, New Cannan, CT
203-966-8880
20/40 HC
 - b. Oglebay Norton, Brady, TX
915-597-0721
20/40 Oil Frac
 - c. US Silica, Ottawa, IL
800-243-7500
 - 2. Angular or sub-angular particles will not be accepted. Sand shall meet the following requirements:

- | | | |
|----|------------------------|-----------------------------|
| a. | Hardness | 7.0 Mohs |
| b. | Moisture Content | <0.1% per ASTM C-566 |
| c. | Specific Gravity | 2.65 g/cm3 per ASTM C-128 |
| d. | Aerated Bulk Density | 92-102 lb/ft2 per ASTM C-29 |
| e. | Compacted Bulk Density | 98-110 lb/ft2 per ASTM C-29 |

- E. Samples of the homogenously blended infill and individual sand and rubber materials shall be submitted to the Owner's Representative for review. Samples shall also be sent by the Contractor to an independent testing laboratory to confirm the infill is free draining and meets (or exceeds) the drainage requirements set forth in this specification. Copies of the testing reports shall be submitted to the Owner's Representative for review. The Contractor is responsible for costs associated with infill testing.

2.06 CAST-IN-PLACE CONCRETE TURF ANCHOR

- A. The concrete turf anchor for attaching the synthetic turf carpet shall be extruded or cast-in-place concrete as specified in Section 02772, Cast-In-Place Concrete Turf Anchor.

PART 3 - EXECUTION

3.01 GENERAL

- A. Prior to the Base Installation, contractor shall notify Landscape Architect/Civil Engineer for subgrade observation.
- B. The surfaces to receive each Infilled Synthetic Turf System shall be inspected and certified the Infilled Synthetic Turf System Contractor as ready for the installation of the Infilled Synthetic Turf System and must be perfectly clean as installation commences and shall be maintained in that condition throughout the process.
- C. All installation operations shall be performed by personnel fully familiar with the materials and their application, under the full time direction and supervision of a qualified technical supervisor directly employed by the Infilled Synthetic Turf System Contractor.

3.02 CAST-IN-PLACE CONCRETE TURF ANCHOR

- A. The cast-in-place concrete turf anchor for attaching the synthetic turf carpet shall be provided and installed as specified in Section 02772, Cast-In-Place Concrete Turf Anchor and as shown on the drawings.

3.03 BASE INSTALLATION

- A. Excavate existing topsoil in accordance with the project details.
- B. Expose existing underdrains and unfold geotextile fabric to expose free draining crushed stone.
- C. Install additional woven ("Type 2") geotextile fabric, free draining trench stone, free draining crushed stone, and free draining finishing stone in accordance with the Earthwork and Storm Drainage Sections and the project details. Note that no geotextile fabric shall be laid between the synthetic turf stone layers.
- D. The Base Contractor shall grade the Free Draining Crushed Stone layer suitably, including proper rolling and compaction, to achieve a tolerance of 1/4" in 10' tolerance.
- E. The Base Contractor shall fine grade the Free Draining Finishing Stone layer suitably, including proper rolling and compaction, to achieve a tolerance of 1/8" in 10' tolerance.

- F. The Base Contractor shall give the Owner's Representative three (3) business days of notice to review the rolled and compacted base and mark areas where there appear to be deficiencies. Upon the results of this review, the Base Contractor shall correct the deficiencies suitably including regrading, proper rolling and compaction and then execute a laser level topological survey on a 10-foot grid pattern. The Base Contractor shall provide a hard copy of the topological survey to the Infilled Synthetic Turf Contractor and the Owner's Representative for review and approval. The Base Contractor shall correct deficiencies suitably within tolerances, including proper rolling and compaction to achieve the final base surface which the synthetic turf system will be placed upon.
- G. The Free Draining Finishing Stone Layer shall be tested to insure a 95% maximum dry density per a standard proctor test. Contractor to complete testing and provide results to Owner's Representative.

3.04 BASE VERIFICATION

- A. The Base Contractor shall verify that the subsurface drainage system is functioning properly prior to commencement of the Infilled Synthetic Turf System installation. Provide verification to Owner's Representative.
- B. Infilled Synthetic Turf Contractor shall provide written verification that he has examined the system and that the base and subsurface drainage system are functioning properly. Commencement of work prior to written verification constitutes acknowledgement that the systems are functioning properly.
- C. As outlined above, the Base Contractor shall coordinate Dual Ring Infiltrometer testing to support verification as described above.
- D. Upon completion and submission of the Dual Ring Infiltrometer testing results and submission of the written certifications by the Base Contractor and Turf Contractor to the Owner's Representative, the synthetic turf installation shall commence.

3.05 INFILLED SYNTHETIC TURF SYSTEM INSTALLATION

- A. Prior to beginning work, the Infilled Synthetic Turf Contractor shall verify in writing that he accepts the base including the grades of the Finishing Stone by the Base Contractor.
- B. Prior to installing the resilient underlayment, the Infilled Synthetic Turf Contractor shall install non-woven ("Type 1") geotextile fabric over the finishing stone layer. Then, the resilient underlayment shall be installed forty-five (45) degrees to the center axis of the lawn area and per the manufacturer's recommendations, under the supervision of an underlayment company representative.
- C. The resilient underlayment shall be installed in accordance with the manufacturer's recommendations and layout. If the turf contractor has not installed the proposed type of underlayment before, a technical installation expert from the pad company must be on-site to oversee installation.
- D. The Owner's Representative shall review the installed underlayment and mark areas that were affected during installation. The Synthetic Turf Contractor shall make repairs to the stone beneath the underlayment as necessary to the satisfaction of the Owner's Representative. This work shall be completed prior to the installation of the synthetic turf carpet.
- E. Tufted Synthetic Turf rolls shall be installed perpendicularly to the center axis of the lawn area. Turf rolls shall be of sufficient length to permit full cross fiend installation. Ne head or cross seams will be allowed. Once all turf rolls have been installed, attach by glue and stainless steel screws at a maximum of 18-inch intervals directly to the turf anchor.

- F. The synthetic turf carpet shall be installed with no wrinkles, ripples or bubbles. Shearing of fibers, slits in the fabric or driven spikes or staples to relieve such defects will not be permitted.
- G. All synthetic turf carpet seams shall be sewn with high strength chord as stated above. All seams shall run side to side across the lawn. Seams shall be flat, tight, and permanent with no separation or fraying. Synthetic turf fiber that is trapped between seams shall be freed from the seams by hand or other approved method to an upright position prior to brushing and infilling. The Owner's Representative shall review the seams to check that all fiber is free prior to infilling operations.
- H. The Owner's Representative shall review the installed carpet and mark areas that were affected during installation. The Synthetic Turf Contractor shall make repairs to the resilient underlayment beneath the carpet as necessary to the satisfaction of the Owner's Representative. This work shall be completed prior to infilling operations.
- I. The Synthetic Turf Contractor shall provide an As-Built Layout Drawing prior to infilling operations with verification and certification that the layout meets the requirements of the approved shop drawings.
- J. Upon completion of seaming and prior to infilling, the entire lawn shall be brushed with a motorized rotary nylon broom to free trapped or tangled fibers and to have all fibers standing upright upon beginning the infilling process. The blended infill materials shall be spread evenly by using a drop spreader in uniform rate multiple applications until the specified infill depth (after settlement) is achieved. Between applications the infill materials shall be brushed in multiple directions with the motorized nylon broom to stand fibers up between infill applications.
- K. Upon completion the Infilled Synthetic Turf Contractor shall provide the Owner with independent testing data stating that the finished lawn falls within the required minimum and maximum G-Max ratings.

3.06 ADDITIONAL TURF MATERIALS

- A. The Synthetic Turf Contractor shall provide excess turf carpet materials to the Owner for use in future repairs. The materials shall be from the same dye lot of fiber as the installed carpet. The following materials shall be supplied:
 - 1. All usable remnants of carpet greater than 4'x4'.
 - 2. One (1) 15'x15' squares of carpet.
 - 3. Three (3) 6'x6' squares of carpet.

3.07 CLEAN UP

- A. Infilled Synthetic Turf System Contractor shall provide the labor, supplies and equipment as necessary for final cleaning of surfaces and installed items.
- B. The Infilled Synthetic Turf System Contractor shall keep the area clean throughout the project and clear of debris.
- C. Surfaces, recesses, enclosures, etc. shall be cleaned as necessary to leave the work area in a clean, immaculate condition ready for immediate occupancy and use by the Owner.
- D. All excess materials shall be properly disposed of off the site by the Base Contractor and Synthetic Turf Contractor as appropriate.

3.08 ACCEPTANCE

- A. Should any imperfections develop in the surface areas prior to the final acceptance of the work they shall be removed and replaced with new materials.
- B. All such repair work shall be done at no additional cost to the Owner.

3.09 MAINTENANCE AND TRAINING

- A. Subsequent to Final Completion, provide the Owner with turf maintenance training as required by the Infilled Synthetic Turf Vendor in compliance with the Synthetic Turf Warranty.

3.10 POST CONSTRUCTION TURF MAINTENANCE PROGRAM

- A. Subsequent to Final Completion, provide the Owner with one (1) year of Post Construction Turf Maintenance Services including but not limited to:
 - 1. A complete inspection of the entire field area to include:
 - a. Inspection of seams, penetrations and connections.
 - b. Inspection of Carpet Pile for premature fading, excessive fibrillation, wear and/or decreased height and weight.
 - c. Inspection of the Infill for depth and consistency.
 - d. Inspection of the Infill for consistency of feel and excessive hardness or softness.
 - 2. Immediate repair or replacement to correct deficiencies noted during inspection.
 - 3. Complete brushing of the turf with a motorized rotary broom to redistribute and level the Infill and rejuvenate the Carpet Pile.
 - 4. Provide a Complete Turf Service Report of all observations and activities to the Owner and Owner's Representative.
 - 5. Provide G-Max testing per 1.10 B. 1, annually.
 - 6. Post Construction Turf Maintenance shall be performed a minimum of two (2) times during the first full year after Final Completion. Post Construction Turf Maintenance shall be performed at the discretion and approval of the Owner and with at least fourteen (14) days prior notice to the Owner.

END OF SECTION

SECTION 02810
IRRIGATION SYSTEM

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.
- B. Coordinate work of this Section with other underground utilities and with trades responsible for their installation. Refer to respective Drawings pertaining to other work.

1.02 WORK TO BE DONE

- A. Install flush box hydrants where shown on the plans.
- B. The design intent for the proposed irrigation system is to adequately irrigate all raised planting beds where noted on the drawings. Work to be done includes furnishing all labor, materials, equipment and services required for a design/build reconfiguration of the existing irrigation system as indicated on the Drawings, as specified herein, or both (ADD ALT. NO. 2).
- C. The Drawings and Specifications must be interpreted and are intended to complement each other. The Contractor shall furnish and install all parts, which may be required by the Drawings and omitted by the Specifications, or vice versa, just as though required by both. Should there appear to be discrepancies or question of intent, the Contractor shall refer the matter to the Owner's Representative for decision, and his interpretation shall be final, conclusive and binding.
- D. All necessary changes to the Drawings to avoid any obstacles shall be made by the Contractor with the approval of the Owner's Representative.
- E. Trench excavation, back filling and bedding materials, together with the testing of the completed installation shall be included in this work.
- F. The work shall be constructed and finished in every respect in a good, workmanlike and substantial manner, to the full intent and meaning of the Drawings and Specifications. All parts necessary for the proper and complete execution of the work, whether the same may have been specifically mentioned or not, or indicated on the Drawings, shall be done or furnished in a manner corresponding with the rest of the work as if the same were specifically herein described.
- G. Record Drawing as well as Operating & Maintenance Manual generation, in accordance to these specifications shall also be included in this work.

1.03 RELATED WORK

- A. Carefully examine all of the Contract Documents for requirements that affect the Work of this Section. A partial listing of sections affecting the work herein are:
 - 1. Earthwork
 - 2. Storm Drainage

3. Planting

1.04 ORDINANCES, PERMITS AND FEES

- A. The Work under this Section shall comply with all ordinances and regulations of authorities having jurisdiction.
- B. The Contractor shall obtain and pay for any and all permits, tests and certifications required for the execution of Work under this Section.
- C. Furnish copies of Permits, Certifications and Approval Notices to the Owner's Representative prior to requesting payment.
- D. The Contractor shall include in their bid any charges by the Utility Company, or other authorities for work done by them and charged to the Contractor.

1.05 EXAMINATION OF CONDITIONS

- A. The Contractor shall fully inform himself of existing conditions on the site before submitting his bid, and shall be fully responsible for carrying out all work required to fully and properly execute the work of the Contract, regardless of the conditions encountered in the actual Work. No claim for extra compensation or extension of time will be allowed on account of actual conditions inconsistent with those assumed, except those conditions described in the General Conditions.

1.06 QUALITY ASSURANCE

- A. It is the intent of these specifications and drawings to provide for a complete irrigation system. Therefore, any items not specifically noted, but reasonably necessary for a complete installation, shall be furnished at no additional cost to the Owner. The system shall efficiently and uniformly irrigate all areas and perform as required by the contract documents. The irrigation system shall be fully automatic with an electric / manual control.
- B. Installer: A firm which has at least five (5) years experience in work of the type and size required by this Section and which is acceptable to the Owner's Representative.
- C. References: The Contractor must supply three references for work of this type and size with their bid including names and phone numbers of contact person(s).
- D. Applicable requirements of accepted Standards and Codes shall apply to the Work of this Section and shall be so labeled or listed:
 - 1. City of New York / New York State Building Codes
 - 2. American Society for Testing & Materials (ASTM)
 - a. ASTM: A536 Ductile Iron Castings
 - b. ASTM: D1784 Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
 - c. ASTM: D1785 Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and CI200.
 - d. ASTM: D2464 Threaded Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.

- e. ASTM: D2466 Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
- f. ASTM: D2564 Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems.
- g. ASTM: B43-98 Brass pipe.
- h. ASTM: B88-99 Seamless Copper Water Tube
- i. ASTM: B828-00 Soldered Copper Joints.
- j. ASTM: F477 Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
- k. ASTM: D2737-99 Polyethylene (PE) Pressure rated tube.
- 3. National Plumbing Code (NPC)
- 4. National Electric Code (NEC)
- 5. National Sanitary Foundation (NSF)
- 6. American Society of Agricultural and Biological Engineers (ASABE)
- 7. Underwriters Laboratories, Inc. (UL)
- 8. Occupational Safety and Health Regulations (OSHA)

1.07 TESTS

- A. Observation: The Owner's Representative will be on site at various times to insure the system is being installed according to the Specifications and Drawings.
- B. Coverage Test: After completion of the system, test the operation of entire system and adjust sprinklers as directed by the Owner's Representative. Demonstrate to the Owner's Representative that all irrigated areas are being adequately covered. Furnish and install materials required to correct inadequacies of coverage due to deviations from the Drawings or where the system has been willfully installed when it is obviously inadequate or inappropriate.
- C. The Owner's Representative shall be notified 48 hours in advance for observations.
- D. During final observation, the contractor shall be responsible for having two-way communication and sufficient personnel to provide instantaneous communication between the observation area and the controller for the system.

1.08 SHOP DRAWINGS

- A. The Contractor shall provide copies of product specification sheets on all proposed equipment to be installed to the Owner's Representative for approval prior to the start of work, in accordance with the parameters of Division-1. Work on the irrigation system may not commence until product sheets are submitted and approved. Submittals shall be marked up to show proper nozzles, sizes, flows, etc. Equipment to be included:
 - 1. Sprinkler heads and spacing

2. Pipe and fittings
 3. Miscellaneous materials
 4. Location of point of connection
 5. Point of connection info. including service line size
 6. Minimum operating pressure of most critical sprinkler
 7. Sleeve locations and sizes
 8. Drip irrigation components and tubing layout
- B. Project Record Documents:
1. The Contractor shall provide and keep up-to-date a complete redlined Record Set of Drawings of the system as the project proceeds. Drawings shall be corrected daily, showing every change from the original Drawings and Specifications. Record Drawings shall specify and exactly locate sprinkler type; pop up height and nozzle for each sprinkler installed. Prints for this purpose may be obtained from Owner's Representative at cost. This redlined record set of drawings shall be kept at job site and shall be used only as a record set.
 2. This redlined set of documents shall also serve as work progress sheets and shall be the basis for measurement and payment for work completed. This record set of drawings shall be available at all times for observation and shall be kept in a location designated by Owner's Representative. Should this record set of drawings not be available for review or not be up-to-date at the time of the observation, it will be assumed no work has been completed. Provide copies of the redlined record set of drawings for Owner's Representative review on a monthly basis.
 3. Make neat and legible notations on this record set of drawings daily as the work proceeds, showing the work as actually installed. For example, should a piece of equipment be installed in a location that does not match the plan, indicate that equipment in a graphic manner in the location of installation and so as to match the original symbols as indicated in the irrigation legend. Should the equipment be different from that specified, indicate with a new graphic symbol both on the drawings and the irrigation legend. The relocated equipment dimensions and northing and easting coordinates should then be transferred to the appropriate drawing in this record set of drawings at the proper time.
 4. On or before the date of final field observation, deliver corrected and completed AutoCAD computer plots of "record drawings" on vellum and AutoCAD electronic files on disk to Owner's Representative as part of contract closeout. Delivery of plots will not relieve Contractor of the responsibility of furnishing required information that may have been omitted from the prints.
- C. At the end of each segment of the project the contractor shall submit the following to the Owner's Representative.
1. Plumbing permits: If none required, so state.
 2. Material approvals.
 3. Pressure line tests: By whom approved and date.

4. Materials furnished: Recipient and date.

1.09 DELIVERY, STORAGE AND HANDLING

- A. Store and handle all materials in compliance with manufacturer instructions and recommendations. Protect from all possible damage. Minimize on-site storage.

1.10 GUARANTEE

- A. The Contractor shall obtain in the Owner's name the standard written manufacturer's guarantee of all materials furnished under this Section where such guarantees are offered in the manufacturer's published product data. All these guarantees shall be in addition to, and not in lieu of, other liabilities that the Contractor may have by law.
- B. In addition to the manufacturers guarantees the Contractor shall warrant the irrigation system, both parts and labor for a period of one (1) year from the date of acceptance by the Owner.
- C. Should any problems develop within the warranty period because of inferior or faulty materials or workmanship, they shall be corrected to the satisfaction of the Owner's Representative at no additional expense to the Owner.
- D. A written warranty showing date of completion and period of warranty shall be supplied upon completion of each segment of the project.

1.11 COORDINATION

- A. The Contractor shall at all times coordinate his work closely with the Owner's Representative to avoid misunderstandings and to efficiently bring the project to completion. The Owner's Representative shall be notified as to the start of work, progression and completion, as well as any changes to the drawings before the change is made. The Contractor shall also coordinate his work with that of his sub-contractors.
- B. The Contractor shall be held responsible for and shall pay for all damage to other work caused by his work, workmen or sub-contractors. Repairing of such damage shall be done by the Contractor who installed the work, as directed by the Owner's Representative.

1.12 MAINTENANCE AND OPERATING INSTRUCTIONS

- A. Contractor shall include in their Bid an allowance for four (4) hours of instruction of Owner and/or Owner's personnel upon completion of check/test/start-up/adjust operations by a competent operator (The Owner's Representative office shall be notified at least one (1) week in advance of check/test/start-up/adjust operations).
- B. Upon completion of work and prior to application for acceptance and final payment, a minimum of three (3) three ring, hard cover binders shall be submitted to the Owner's Representative office. After review and approval, the copies will be forwarded to the Owner. Included in the Maintenance and Operating binders shall be:
 1. Table of Contents
 2. Written description of Irrigation System.
 3. System drawings:

- a. One (1) copy of the original irrigation plan;
- b. One (1) copy of the Record Drawing;
- c. One (1) reproducible of the Record Drawing;
4. Listing of Manufacturers.
5. Manufacturers' data where multiple model, type and size listings are included; clearly and conspicuously indicating those that are pertinent to this installation.
 - a. "APPROVED" submittals of all irrigation equipment;
 - b. Operation:
 - c. Maintenance: including complete troubleshooting charts.
 - d. Parts list.
 - e. Names, addresses and telephone numbers of recommended repair and service companies. A copy of the suggested "System Operating Schedule" which shall call out the controller program required (zone run time in minutes per day and days per week) in order to provide the desired amount of water to each area under "no-rain" conditions.
6. Winterization and spring start-up procedures.
7. Guarantee data.

1.13 PROCEDURE

- A. Notify all city departments and/or public utility owners concerned, of the time and location of any work that may affect them. Cooperate and coordinate with them in the protection and/or repairs of any utilities.
- B. Provide and install temporary support, adequate protection and maintenance of all structures, drains, sewers, and other obstructions encountered. Where grade or alignment is obstructed, the obstruction shall be permanently supported, relocated, removed or reconstructed as directed by the Owner's Representative.

PART 2 - PRODUCTS

2.01 GENERAL

- A. All materials to be incorporated in this system shall be new and without flaws or defects and of quality and performance as specified and meeting the requirements of the system. All material overages at the completion of the installation are the property of the Contractor and shall be removed from the site.
- B. No material substitutions from the irrigation products described in these specifications and shown on the drawings shall be made without prior approval and acceptance from the Owner's Representative.

2.02 PVC PIPE SLEEVES

- A. All pipe sleeves beneath non-soil areas shall be PVC, Class 160 water pipe as manufactured by Certainteed, Cresline, JM or equal. Minimum sleeve size to be 3-inch.

2.03 POLYETHYLENE LATERAL IRRIGATION PIPE

- A. Piping 1-1/4 inch and smaller in size may also be installed with polyethylene (PE3408) pipe, SDR 15, Class 100, Type III, Grade 3, Class C conforming to ASTM D2239, with a minimum pressure rating of 100 psi as manufactured by Oil Creek or equal. Polyethylene pipe shall only be used in landscape areas.

2.04 POLYETHYLENE LATERAL FITTINGS

- A. Fittings for polyethylene pipe shall be insert PVC or Nylon type fittings. Fittings shall conform to NSF standards and be attached with two (2) dog-eared stainless steel clamps. Clamps shall be as manufactured by Oetiker or approved equal.
- B. Supply only pipes and fittings that are marked by the manufacturer with the appropriate ASTM designations and pressure ratings and are free from cracks, wrinkles, blisters, dents or other damage. Fittings shall be per ASTM D2609 as manufactured by Dura, Lasco or approved equal.

2.05 PVC IRRIGATION FITTINGS

- A. Fittings for solvent weld PVC pipe, 2-1/2 inch and smaller in size, shall be Schedule 40 solvent weld PVC fittings as manufactured by Dura, Lasco, Spears or equal.
- B. Fittings shall bear manufacturer's name or trademark, material designation, size, and applicable I.P.S. schedule.
- C. All PVC threaded connections in and out of valves shall be made using Schedule 80 toe nipples and Schedule 40 couplers or socket fittings. Schedule 40 threads will not be approved for installation.
- D. PVC solvent shall be NSF approved, for Type I and Type II PVC pipe, and Schedule 40 and 80 fittings. Cement is to meet ASTM D2564 and FF493 for potable water pipes. PVC solvent cement shall be Rectorseal Gold, IPS Weld-ON 711, Oatey Heavy Duty Cement or equal, and shall be used in conjunction with the appropriate primer. Primer shall be NSF approved, and formulated for PVC and CPVC pipe applications. Primer is to meet ASTM F 656. Primer shall be Rectorseal Jim PR-2, IPS Weld-ON P-68 Clear, Oatey Clear Primer for PVC and CPVC, or equal.
- E. All nipples to be schedule 80 PVC.

2.06 IN-LINE DRIP TUBING

- A. In-line emitters in drip tubing to be 0.92 gallon per hour on pre-installed 12-inch spacing within tube for all tree rings, 0.60 gallon per hour drip tubing for planter bed irrigation.
- B. In-line drip tubing to be as manufactured by Netafim Irrigation, Model TLDL-9-12 and 6-12 or approved equal. Start pressure shall be a minimum of 45 psi (by pressure regulation).

2.07 IN-LINE DRIP TUBING FITTINGS

- A. Fittings for in-line drip tubing shall be constructed of molded brown plastic having a (I.D) of 0.57 inches. Female and male threaded ends shall be capable of mating to standard

pipe threads with tapered threads. In-line drip tubing fittings shall be as manufactured by Netafim, TL Series or approved equal.

- B. Stainless steel clamps shall be used to secure in-line drip tubing to insert barbed fittings. Nominal size shall be 13/16 inches, Part No. 210. Clamps shall be constructed of 304-grade stainless steel. Interior clamp wall shall be smooth to prevent crimping or pinching of tubing. Wall thickness of clamps shall be 0.236 inches with an overall bandwidth of 1/4-inch. Properly secured clamps shall be capable of withstanding a maximum operating pressure of 441 psi. Clamps shall be one "ear" type. Clamps shall be as manufactured by Oetiker or approved equal.
- C. Tubing stakes shall be corrosion resistant steel to secure tubing.

2.08 DISK FILTER

- A. Filters at each drip zone valve shall be a plastic wye-formation filter consisting of a two piece threaded housing with o-ring seal. The filter screen shall be 200-mesh size. Filters shall be sized to mid-range flow and not exceed 1.0 psi pressure loss at 4 gpm.
- B. Filter shall be as manufactured by Rain Bird, Model RBY075MPTX (In-Line) or equal.

2.09 PRESSURE REGULATORS

- A. Pressure regulators shall assure an incoming pressure of 45 psi into drip tubing. Discharge pressure shall not be less than 45 psi. Manifold regulators to match flow rate to mid-range flow.
- B. The pressure regulator shall be as manufactured by Netafim, Model PRV-075-LF-45 or approved equal.

2.10 AUTOMATIC FLUSHING VALVE

- A. Flush valves shall produce 1-gallon flush and be constructed of black molded plastic with insert barbed fitting end configuration. The top of the flush valves shall have six openings from which debris or sediment can pass through from the system to the atmosphere or valve box.
- B. Flush valve shall be as manufactured by Netafim, Model TLFV or approved equal.

2.11 AIR VACUUM / RELIEF VALVES

- A. The air vacuum / relief valves shall be constructed of black plastic with 1/2-inch male pipe thread capable of mating with a threaded PVC reduction bushing.
- B. Air vacuum relief valves shall be as manufactured by Netafim, Model TLAVRV or approved equal.

2.12 CRUSHED STONE

- A. Crushed stone shall be as specified in the Synthetic Turf System Section. Crushed stone shall be used under valve boxes.

2.13 SAND

- A. Sand used for backfilling of trenches; under, around and over PVC lines shall be as specified in the Earthwork Section.

2.14 SPARE PARTS

- A. Contractor shall supply the following tools and equipment to the Owner's Representative before final observation:
 - 1. Two (2) of each type nozzle used in the project.
- B. Before final observation can occur, written evidence that the Owner's Representative has received the tools and equipment must be shown to the Owner.

2.15 ISOLATION VALVES

- A. Isolation valves 2-1/2 inches and smaller in size shall be gate type, of bronze construction, US manufactured, 200 WOG with steel cross handle and 200 psi rating. Gate valves to be manufactured by Nibco, model T-113-K, or approved equal.
- B. Lateral Isolation gate valves, 2-inch and 3-inch in size shall be angle globe valves with a minimum Cv of 100. Ends shall be male swivel with one bolt machined restraint. Body shall be ductile iron, ASTM A536, fusion bond epoxy coated. Bonnet, bonnet bolts, seal assembly, side outlet plug and cross handle assembly shall be 316 stainless steel, ASTM A351. Stem shall be of bronze construction, ASTM B62-C83600. Seal shall be EPDM rubber, ASTM D2000. Valves shall have 200 psi rating. Gate valves to be as manufactured by the Harrington Corporation or approved equal. Valves shall be 2x6x15 and 3x6x15, electro fusion x male swivel.
- C. Mainline Isolation valves 3 inches and larger in size shall be cast iron epoxy coated inside and outside, long bell length ring-tite valves, 200 psi rated, ductile iron gland flange, bronze stem-seal box, o-ring stem seal replaceable under pressure, stainless steel stem, 2 inch operating nut and replaceable disc conforming to AWWA C-509 as manufactured by Nibco, Model P-619-RW or approved equal.

2.16 VALVE BOXES (Landscape)

- A. All valve boxes shall be manufactured from unformed resin with a tensile strength of 3,100 – 5,500 psi conforming to ASTM D638. All boxes shall be green in color. Covers shall be green in color unless otherwise specified.
- B. Valve boxes for single 1 inch and 1-1/2 inch electric valves, isolation valves and quick coupling valves shall be 10 inch round valve boxes with metal detection and bolt down covers.
- C. Valve boxes for single 2 inch and dual electric valves shall be 12 inch standard valve boxes with metal detection and bolt down covers. When multiple electric valves are installed in the same area, they are to be installed two (2) valves per box in a 12 inch standard box.
- D. Valve boxes for 3 inch electric valves shall be 12 inch standard valve boxes with metal detection and bolt down covers.
- E. Valve boxes for wire splices shall be 10 inch round valve boxes with detectable disks. All splices shall be in separate valve boxes and not included with isolation valves. 220 volt splices shall have black lids; 24 volt splices shall have gray lids.
- F. Valve box extensions shall be provided and installed as required for proper box depth. Valve box extensions shall be made by the same manufacturer.

- G. Valve boxes shall be manufactured by Pentek, Carson Specification Grade, NDS Pro Series or approved equal.

2.17 VALVE BOXES (Synthetic Lawn)

- A. Where valves are located within synthetic turf areas, an aluminum access box shall be used. Top of access box shall be outfitted with artificial turf by turf installer.
- B. Where electric valve is located directly downstream of isolation valve, a single valve box shall be used with an aluminum divider.
- C. Valve box shall be Sportsfield Specialties, model Com-Box 3500.0 with risers as necessary.
- D. Installer and/or manufacturer of synthetic turf shall approve Engineer's design and Contractor's product submittal.

2.18 FLUSH BOX HYDRANTS

- A. Hydrants shall be frost resistant, with bronze, tamper-proof lid. The valve shall be non-rotating.
- B. Hydrants shall be two-pipe construction and removal of one bolt shall permit complete disassembly of all working parts.
- C. Hydrant shall be manufactured by Murdock, Model M-577, anti-freeze, or approved equal.

PART 3 - EXECUTION

3.01 GENERAL

- A. Before work is commenced, hold a conference with the Owner's Representative to discuss general details of the work.
- B. Examine all contract documents applying to this Section noting any discrepancies and bringing the same to the attention of the Owner's Representative for timely resolution.
- C. All work indicated on Drawings shall be provided whether or not specifically mentioned in the Specifications.
- D. If there are ambiguities between Drawings and Specifications, and specific interpretation or clarification is not issued prior to bidding, the interpretation or clarification will be made only by Owner's Representative and Contractor shall comply with the decisions. In the event the installation contradicts the directions given, the installation shall be corrected by Contractor at no additional cost to Owner.
- E. Verify dimensions and grades at job site before work is commenced. Do not proceed with installation of the landscape irrigation system when it is apparent that obstructions or grade differences exist or if conflicts in construction details. Legend or specific notes are discovered. All such obstructions, conflicts, or discrepancies shall be brought to the attention of the Owner's Representative.
- F. Make all field measurements necessary for the work noting the relationship of the irrigation work to the other trades. Coordinate with other trades (landscaping and other site work trades). Project shall be laid out essentially as indicated on the Irrigation Plans,

making minor adjustments for variations in the planting arrangement. Major changes shall be reviewed with the Owner's Representative prior to proceeding.

- G. Layout of irrigation lines indicated on Drawings is diagrammatic only. Location of irrigation equipment is contingent upon and subject to integration with all other underground utilities. Contractor shall employ all data contained in the Contract Documents and shall verify this information at the construction site to confirm the manner by which it relates to the installation.
- H. Coordinate installation of all irrigation materials, including pipe, to avoid conflict with the trees, shrubs, or other plantings.
- I. During progress of work, a competent superintendent and all assistants necessary shall be on site. All shall be satisfactory to the Owner's Representative. The superintendent shall not be changed, except with the consent of the Owner's Representative, unless that person proves unsatisfactory and ceases to be employed. The superintendent shall represent the Contractor in his absence and all directions given to the superintendent shall be as binding as if given to the Contractor.
- J. At all times, protect existing irrigation, landscaping, paving, structures, walls, footings, etc. from damage. Any inadvertent damage to the work of another trade shall be reported at once.
- K. Replace, or repair to the satisfaction of the Owner, all existing paving disturbed during course of work. New paving shall be the same type, strength, texture, finish, and be equal in every way to removed paving.

3.02 PIPE AND FITTINGS INSTALLATION

- A. Using proper width trencher chain, excavate a straight (vertical) and true trench to a depth of 2-inch of pipe invert elevation.
- B. Loam or topsoil encountered within the limits of trench excavation for irrigation mains and branch lines shall be carefully removed to the lines and depths as shown on the Drawings and stockpiled for subsequent replacement in the upper 6 inches of the trench from which it is excavated. Such removal and replacement of the quantities of loam shall be considered incidental to the irrigation system and no additional compensation will be allowed therefore.
- C. Pipe shall be laid on undisturbed trench bottom provided suitable base is available - no rock larger than 1-inch or sharp edges; if not, excavate to 2-inch below pipe invert and provide and install sand base or crushed stone upon which to lay pipe.
- D. Back filling shall be accomplished as follows: the first 10-inch of backfill material shall contain no foreign matter and no rock larger than 1-inch in diameter. Carefully place material around pipe and wire and tamp in place. Remainder of backfill shall be laid-up in 6-inch (maximum) lifts and tamped to compaction with mechanical equipment. Compact backfill in trenches to dry density equal to the adjacent undisturbed soil, and conform to adjacent grades without dips, sunken area, humps, or other irregularities. Frozen material shall not be used for backfill.
- E. Do backfilling when pipe is cool. During hot weather cool pipe by operating the system for a short period, or by backfilling in the early part of the morning before the heat of the day.
- F. Do not, under any circumstances, use truck wheels for compacting soil.

- G. Where feasible, Owner's Representative may authorize the use of flooding in lieu of tamping.
- H. Restore grades and repair damage where settling occurs.
- I. Make all solvent-weld joints in strict accordance with manufacturer's recommendations, making certain not to apply an excess of primer or solvent, and wiping off excess solvent from each connection. Allow welded joints at least 15 minutes set-up/curing time before moving or handling. When the temperature is above 80° F, allow connections to set minimum 24 hours before pulling or pressure is applied to the system. When temperature is below 80° F, follow manufacturer's recommendations. Provide and install for expansion and contraction as recommended.
- J. Lateral pipe shall have minimum 16 inches of COVER for PVC and 12 inches of cover for Polyethylene (excavate to invert as required by pipe size).
- K. Cut plastic pipe with handsaw or pipe-cutting tool, removing all burrs at cut ends. All pipe cuts are to be square and true. Bevel cut end as required to conform to Manufacturer's Specifications.
- L. Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in the trench. At times, when installation of the piping is not in progress, the open end(s) of the pipe shall be closed by a watertight plug or other means. All piping, which cannot temporarily be joined, shall be sealed to make as watertight as possible. This provision shall apply during the lunch hour as well as overnight. Pipe not to be installed that day shall not be laid out. Should water enter the trench during or after installation of the piping, no additional piping may be installed or backfilled until all water is removed from the trench. Pipe shall not be installed when water is in the trench, when precipitation is occurring, or when the ambient temperature is at 40° F or below. Pipe installed at temperatures below 40° F shall be removed and replaced at no cost to the Owner. PVC pipe shall be snaked in the trench to accommodate for expansion and contraction due to changes in temperature.
- Q. When installing irrigation pipe the Contractor shall route the pipe as necessary to prevent damage to tree roots. Where trenching must occur near trees, the Contractor shall provide proper root pruning and sealing methods to all roots 1-inch and larger.
- R. Maintain 6-inch minimum clearance between irrigation lines and lines of other trades. Do not install sprinkler lines directly above another line of any kind.
- S. Maintain 1-inch minimum between lines which cross at angles of 45 to 90 degrees.
- T. Exercise care when excavating, trenching and working near existing utilities.
- U. Throughout the guarantee period it will be the responsibility of the Contractor to refill any trenches that have settled due to incomplete compaction.
- V. Pulling of pipe will be allowed provided soil is suitable and specified depth of bury can be maintained.

3.03 PIPE SLEEVING INSTALLATION

- A. Sleeving shall be installed wherever piping is going under a non-soil area. Minimum cover over all sleeving pipe shall be 24 inches.
- B. Sleeving shall extend 18 inches beyond edges of walls and pavement.

3.04 ISOLATION VALVE INSTALLATION

- A. Install isolation valves where indicated on the drawings. Install all isolation valves on a level crushed stone base so that they can be easily opened or closed with the appropriate valve wrench. Install valve box over each isolation valve.
- B. Check and tighten valve bonnet packing before valve box and backfill installation.
- C. Provide and install thrust blocks for ring-tite valves.

3.05 VALVE BOX INSTALLATION

- A. Furnish and install a valve access box for each electric valve, quick coupling, isolation valve and wire splice.
- B. All valve access boxes shall be installed on a minimum 4 inch crushed stone base. Finish elevation of all boxes shall be at grade. All crushed stone to be supplied by the Contractor and installed before valve box. Crushed stone shall not be poured into previously installed valve boxes.

3.06 SPRINKLER INSTALLATION

- C. Sprinklers shall be installed flush to grade.
- D. Sprinklers shall not exceed maximum spacing indicated.
- E. Adjust sprinkler zone after installation using flow control device on valve.

3.07 IN-LINE EMITTER TUBE INSTALLATION

- A. In-line emitter tubing shall be installed in areas designated by hand under the mulch, and shall have an average depth of 4 inches unless otherwise indicated on the drawings. Tubing should not be visible through the mulch. All in-line emitter tubing shall be installed on the high side of the plant material being watered to help insure dispersion of the water.
- B. In-line emitter tubing is to be installed 4 inches from all planter edges and walls. Spacing of in-line emitter tube is to be 12 inches center-to-center in all grid configurations. In-line emitter tubing for tree plantings shall consist of a double ring with:
 - 1. One (1) ring resting on the root ball 6 inches from trunk
 - 2. One (1) ring resting on the root ball 3 inches from edge
- C. All in-line tubing shall have a minimum incoming pressure of 45 psi after pressure regulation.

3.08 FLUSH VALVE INSTALLATION

- A. Flush valves shall be installed on the low elevation ends of poly exhaust headers.

3.09 AIR RELIEF VALVE INSTALLATION

- A. Air relief valve valves shall be installed in the emitter tubing, at high elevation points.

3.10 DRIP PRESSURE REGULATOR INSTALLATION

- A. Pressure regulators shall assure a 45-psi downstream pressure entering drip supply header. Pressure shall be verified by contractor to assure proper operating pressure for the in-line emitter tubing.

3.11 TUBING STAKE INSTALLATION

- A. In-line drip tubing shall be secured with stakes. Stakes shall be spaced to ensure that tubing does not shift location. Stake in-line drip tubing at minimum 5-foot intervals to prevent movement.

3.12 FLUSH BOX HYDRANTS

- A. Flush box hydrants shall be installed where shown on the plan and in accordance with manufacturer's instructions.

3.13 CHECK/TEST/START-UP/ADJUST

- A. Flushing:
 - 1. After all piping, valves, sprinkler bodies, pipe lines and risers are in place and connected, but prior to installation of sprinkler internals, open the control valves and flush out the system under a full head of water.
 - 2. Sprinkler internals, flush caps and riser nozzles shall be installed only after flushing of the system has been accomplished to the full satisfaction of the Owner's Representative.
 - 3. Contractor shall be responsible for flushing the entire system after installation is complete and will be responsible for any clogged nozzles for thirty (30) days after substantial completion of this portion of the landscape irrigation system.
- B. Testing:
 - 1. Leakage test: test all lines for leaks under operating pressure. Repair all leaks and re-test.
 - 2. Coverage test: perform a coverage test in the presence of the Owner's Representative (notify Owner's Representative at least seven (7) days in advance of scheduled coverage test). Representative will determine if the water coverage is complete and adequate. Readjust heads and/or head locations as necessary or directed to achieve proper coverage.
 - 3. All testing shall be at the expense of the Contractor.

3.14 CLEANING AND ADJUSTING

- A. At the completion of the work, all parts of the installation shall be thoroughly cleaned. All equipment, pipe, valves and fittings shall be cleaned of grease, metal cuttings and sludge which may have accumulated by the operation of the system for testing.
- B. Adjust sprinkler heads, valve boxes, and drip tubing to grade as required.
- C. Continue sprinkler coverage adjustment as required by settlement, etc., throughout the guarantee period.
- D. Each control zone shall be operated for a minimum of 5 minutes and all heads checked for consistency of delivering water. Adjustments shall be made to sprinklers that are not

consistent to the point that they match the manufacturer's standards. All sprinkler components, which fail to meet these standards, shall be rejected, replaced and tested until they meet the manufacturer's standards.

3.15 ACCEPTANCE AND OPERATION BY OWNER

- A. Upon completion of the work and acceptance by the Owner, the Contractor shall be responsible for the training of the Owner's Representative(s) in the operation of the system (provide minimum 48 hours written notice in advance of test). The Contractor shall furnish, in addition to the Record Drawings and operational manuals, copies of all available specification sheets and catalog sheets to the Owner's personnel responsible for the operation of the irrigation system. The Contractor shall guarantee all parts and labor for a minimum period of one (1) year from date of acceptance.
- B. Conditions for acceptability of work for start of maintenance by Owner issued by Owner or Owner's Representative shall include but not be limited to:
 - 1. Punch list items complete and approved by Owner or Owner's Representative.
 - 2. Landscape irrigation system complete and in place.
 - 3. Record drawings complete.
 - 4. Maintain installation and watering schedules until all conditions noted above have been completed.

3.16 CLEAN UP

- A. Upon completion of all installation work, Contractor shall remove all leftover materials and equipment from the site in a safe and legal manner.
- B. Contractor shall remove all debris resulting from work of this section.
- C. Contractor shall regrade and lightly compact around sprinkler heads where necessary to maintain proper vertical positioning in relation to established grade.
- D. Contractor shall fill all depressions and eroded channels with sufficient soil mix to adjust grade to ensure proper drainage. Compact lightly filled areas in accord with Drawings requirements.

END OF SECTION

SECTION 02822
STAINLESS STEEL FENCE

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.

1.02 SUMMARY

- A. Furnish and install 8' ht. stainless steel flexible mesh infilled fencing and maintenance gate.
- B. Furnish and install 3'-6" ht. stainless steel flexible mesh infilled fencing (ADD ALT. NO. 2).

1.03 RELATED SECTIONS

- A. Section 04100 – Mortar and Grout

1.04 REFERENCES

- A. General: Standards listed by reference, including revisions by issuing authority, form a part of this specification section to extent indicated. Standards listed are identified by issuing authority, authority abbreviation, designation number, title or other designation established by issuing authority. Standards subsequently referenced herein are referred to by issuing authority abbreviation and standard designation.
- B. American Society for Testing and Material (ASTM International)
 - 1. ASTM A380 - Practice for Cleaning and Descaling Stainless Steel Parts, Equipment and Systems.
 - 2. ASTM A492 - Specification for Stainless Steel Rope Wire.
 - 3. ASTM A554 – Welded Stainless Steel Mechanical Tubing.
 - 4. ASTM A554 – Specification for Welded Stainless Steel Mechanical Tubing
 - 5. ASTM A555 - Stainless Steel Wire.
 - 6. ASTM E985 – Standard Specification for Permanent Metal Railing Systems and Stairs for Buildings
 - 7. ASTM F1145 - Specification for Turnbuckles, Swaged, Welded, Forged.

1.05 STRUCTURAL REQUIREMENTS

- A. Fence and gates assemblies shall withstand a minimum concentrated load of 200 pounds applied horizontally or vertically down at any point on the top rail. Infill area of the fence system capable of withstanding a horizontal concentrated load of 200 ponds applied to one square foot at any point in the system. Load not to act concurrently with loads on top

rail of system in determining stress on the fence. Fence and gate assemblies shall be designed to resist a load of 50 pounds per linear foot (pound per foot) (0.73 kN/m) applied in any direction at the top and to transfer this load through the supports to the structure.

1.06 SUBMITTALS

- A. Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures Section.
- B. Product Data: Submit Manufacturer's product data sheet for specified products.
- C. Shop Drawings: Drawings showing fabrication and installation of fence and gate assemblies including plans, elevations, details of components, anchor details, and attachment to adjoining units of work. Include mesh aperture and rope dimensions, cable and mesh attachment hardware, tensioning devices, mounting methodology.
- D. Samples: Submit samples of mesh and support hardware.
- E. Quality Assurance/Control Submittals:
 - 1. Test reports: Submit any test report demonstrating compliance with intended use and code requirements.
 - 2. Certificates: Submit manufacturer's certificate that product meets or exceeds specified requirements
- F. Closeout Submittals: Submit the Following:
 - 1. Warranty: Submit manufacturer's standard warranty documents
 - 2. Maintenance Data: Include manufacturer's standard cleaning and maintenance instructions to avoid detrimental actions to finishes and performance.

1.07 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Fabricator shall have a minimum 5 years of experience in production of stainless steel fences and guardrails.
 - 2. Installer should be experienced in performing work of this section and should have specialized in installation of work similar to that required for this project.
- B. Mock-Ups: Mock-Ups: Install at project site or appropriate location a job mock-up using acceptable products and manufacturer approved installation methods. Obtain Owner's and Architect's approval of product, application, and workmanship standards. Comply with Division 1 Quality Control (Mock-Up Requirements) Section.
 - 1. Mock-Up Size: (1) fence section (for each proposed fence height) with (1) end post and (1) line post, as well as (1) maintenance gate section.
 - 2. Maintenance and Disposal: Maintain mock-up during construction for workmanship comparison.

- a) Incorporation: Mock-up may be incorporated into final construction upon Owner's approval.
- C. Pre-Installation Meetings: Conduct meetings with Architect, Fabricator, Installer and any other subcontractors whose work involves railing system to verify project requirements, framing and support conditions, mounting surfaces, manufacturer's installation instructions, and warranty requirements. Comply with Division 1 requirements.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. General: Comply with Division 1 Product Requirements Sections Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- B. Delivery: Materials to be delivered to the job site in good condition and adequately protected against damage as fence assemblies are a finished product.
- C. Storage and Protection:
 - 1. Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer.
 - 2. Store materials in a clean, dry location away from uncured concrete and masonry.
 - 3. Stacking should be done in a manner that will prevent bending.
 - 4. Store materials in a secure location.
 - 5. Any protection on the railings during transportation should remain until installed.
- D. Handling: Keep handling on site to a minimum. Exercise caution to avoid damage to finishes of material.

1.09 PROJECT CONDITIONS

- A. Field Measurements: Where fencing is indicated to fit to other construction, check actual dimensions of other construction by accurate field measurements before fabrication; show recorded measurements on final shop drawings.
- B. coordinate fabrication and delivery schedule of fence with construction progress and sequence to avoid delay of fence installation.

1.10 WARRANTY

- A. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official.

PART 2 - PRODUCTS

2.01 STAINLESS STEEL TUBING

- A. Materials

1. All stainless steel tube to be 316L welded stainless steel, ornamental tubing, schedule 40, finished with a #6 polish. Tubing sizes shall be as specified on the drawings.
 - a. Low-carbon stainless steel 316L is to be used to avoid corrosion problems caused by welding.
 - b. The carbon content of the alloy is to be below 0.03%.
 2. All fittings to be 316L stainless steel.
- B. Finishes
1. All machined stainless steel fittings will receive a #8 polish.
 2. All stainless steel tubing to receive a #6 polish.
- C. Fasteners
1. All mechanical fasteners used shall be manufactured from stainless steel.
- D. Fabrication
1. All mitered and welded corners shall be ground smooth to match finish.
 2. Make exposed joints butt tight and flush.
 3. Interior sleeves shall be used for typical splices.
 4. Fasteners are allowed at splice connection.
 5. Verify dimensions on site prior to shop fabrication.

2.02 STAINLESS STEEL FLEXIBLE MESH FENCE INFILL

- A. Mesh infill shall be X-Tend CXE series as manufactured and sold by: Carl Stahl-DécorCable Innovations LLC, 660 W. Randolph Street, Chicago, IL USA 60661. Tel: 800-444-6271, Fax: 312-474-1789, E: sales@decorcable.com, Web: www.decorcable.com, or approved equal.
- B. Stainless Steel Flexible Mesh Fence Infill
1. Material: A492 Type 316 stainless steel 7x7 (or 7x19) wire rope joined with 316 stainless steel ferrules.
 2. Cable Diameter x Mesh Aperture Dimensions
 - a) 2.0mm x 60mm
 3. Mesh Perimeter Finishes:
 - a) Closed loops with loose ferrules for “sewn-on” installation method.
 4. Direction (Grain) of Mesh:
 - a) Horizontal Mesh Direction.

- 5. Ferrule Style
 - a) Seamless AISI 316L Stainless Steel Ferrule
- 6. Support Frame Style
 - a) Round Tubular Edge Supports constructed of Stainless Steel complying with ASTM A 554/555. Supports to be spaced as shown on the Drawings.
- C. Fittings and Accessories
 - 1. General: Attachment Cable Material: ASTM A 492, Type 316 stainless steel 7x7 (or 7x19) wire rope.
 - 2. Accessories: Provide grommet, bushings, washers, swaging ferrules, studs, receivers, fittings and other components as required for system installation.
- D. Fabrication
 - 1. Infill Construction: Infill panels shall be dimensioned and manufactured to specified size as shown on the Drawings.

PART 3 - EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions and product carton instructions for installation.

3.02 EXAMINATION

- A. Site Verification of Conditions: Verify condition of railing and post system to ensure it is acceptable for product installation in accordance with manufacturer's instructions. Do not begin installation until backup surfaces are in satisfactory condition.

3.03 PREPARATION

- A. Coordinate post setting drawings, diagrams, templates, instructions, and directions for installation of anchorages. These include items such as sleeves, concrete inserts, anchor bolts, and miscellaneous items having integral anchors that are to be embedded in concrete and masonry construction.
 - 1. Coordinate delivery of anchorages to project site.
 - 2. Coordinate that blocking is in place for all mounting fasteners.
- B. Clean debris and dust from surfaces and embed holes thoroughly prior to installation.
- C. Prepare surfaces for achieving proper results given the substrate and prior to installation.
- D. Take field measurements after permanent end terminations are in place and prior to preparation of shop drawings and fabrication of infill panels, to ensure fitting of work.

3.04 INSTALLATION

- A. Install fence assemblies to locations and elevations indicated on the drawings and details.
- B. Fit exposed connections accurately together to form tight joints except as necessary for expansion.
- C. Perform cutting, drilling, and fitting required for installation of fence assemblies. Accurately set fence in location, alignment, and elevation, measured from established lines and levels.
- D. Set posts plumb within a tolerance of 1/8 inch.
- E. When fastening to in-place construction, provide anchorage devices and fittings to properly secure fence to in-place construction.
- F. Install mesh infill system in accordance with manufacturer's instructions and the approved shop drawings.
- G. Provide anchorage devices and fittings to secure infill panels to posts and rails. Install mesh panel infill system plumb, level, square, and taut.
- H. Separate dissimilar materials with bushings, grommets or washers to prevent electrolytic corrosion.
- I. Use manufacturer's supplied mounting hardware.
- J. Terminate and tension mesh panels in accordance with manufacturer's instructions or as specified below.
 - 1. Mesh shall be installed on the lawn side of the posts and rails.
 - 2. Installed mesh shall have horizontal diamond direction opened consistently to 60 degrees, plus or minus 2 degrees.
 - 3. Installed mesh shall be secured to intermediate (line) posts with sewing rope.
 - 4. Installed mesh shall be tensioned so that the lateral movement under a 50 pound horizontal load applied over a 25 square inch area does not exceed 3 inches and mesh springs back when released.
- K. Ensure mesh is clean, and without waves, kinks, or sags.
- L. Adjust frame support cable tension and connecting hardware.

3.05 CLEANING

- A. Remove temporary coverings and protection of adjacent work areas.
- B. Clean installed products in accordance with manufacturer's instructions before owner's acceptance. Do not use chlorine-based or abrasive cleaners.
- C. Remove from project site and legally dispose of construction debris associated with this work.

3.06 PROTECTION

- A. Protection: Protect installed product from damage during subsequent construction activities.

END OF SECTION

SECTION 02870

SITE FURNISHINGS

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with trades affecting, or affected by, work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 WORK INCLUDED

- A. Perform all work required to complete the work of the Section, as indicated. Site furnishings work includes, but is not limited to, the following:
 - 1. Drinking Fountain (ADD ALT. NO. 1)
 - 2. Misting Stations (ADD ALT. NO. 1)
 - 3. Backless Benches (ADD ALT. NO. 2)
 - 4. Skate Deterrents (ADD ALT. NO. 2)

1.03 RELATED WORK UNDER OTHER SECTIONS

- A. Earthwork
- B. Cast-in-place Concrete
- C. Site Water Distribution
- D. Irrigation System

1.04 REFERENCES

- A. ASTM - American Society for Testing and Materials:

1.05 QUALITY ASSURANCE

- A. Source: For each type of product required for the work of this Section, provide products of one manufacturer and source for consistency.
- B. Codes and Standards: Perform site furnishings work in compliance with applicable requirements of governing authorities having jurisdiction. Workmanship and finish shall be equal to the best practice of modern shops for each item of work.
- C. Qualifications of Workers: Use adequate numbers of skilled workers who are trained in the necessary crafts and who are completely familiar with the specified requirements and methods needed for proper performance of the work of this Section.

- D. The work of this Section shall be completely coordinated with the work of other Sections. Verify dimensions and work of other trades that adjoin materials of this Section before installing items specified.
- E. Protect site furnishings from paint spatter, splashed concrete and other construction damage by wrapping and taping in place plastic sheeting or heavy kraft paper until adjacent work is completed. Repair any damage to finish in a manner consistent with manufacturer's recommendations.

1.06 SUBMITTALS

- A. Shop Drawings: Supply shop drawings at an approved scale for location, installation, erection and winterization of each site furnishing item under this Section.
 - 1. Submit full shop drawings of raised planters showing layout of skate deterrents as per the manufacturer's requirements.
- B. Product Data: Provide manufacturer's product data showing installation and limitations in use of each site furnishing item. Supply Certificates of Compliance for all materials required for fabrication and installation.
- C. Material Selection and Samples: Submit samples showing the complete range of colors, textures and finishes available for all components required for construction. Work includes but is not limited to the following:
 - 1. Provide one sample, 6 in. x 6 in., of shop-applied finish for each site furnishings item.

PART 2 - PRODUCTS

2.01 DRINKING FOUNTAIN

- A. Provide all materials and equipment and perform all work necessary to furnish and install a fully operational drinking fountain where indicated on the plans and directed by the Engineer.
- B. Drinking fountain shall be a barrier-free, freeze resistant, pedestal mounted drinking fountain, model. no. 3500 FR as manufactured by Haws Corporation, 1455 Kleppe Lane, Sparks, Nevada 89431, (775) 359-4712, or approved equal. NOTE: Freeze resistant bury valve (model no. 6518.2FR) sold separately.
- C. Finish: color to be black.

2.02 MISTING STATIONS

- A. Provide all materials and equipment and perform all work necessary to furnish and install fully operational misting stations where indicated on the plans and directed by the Engineer.
- B. Misting stations shall be model no. 1507-MA-LF-8 as manufactured by Aquajeux International Inc., 1709 Montee Ste-Julie, Ste-Julie (Quebec), J3E 1Y2, (888) 441-2040, www.aquajeux.com, or approved equal. Manufacturer's local representative is ACM Playgrounds, Inc., 157 ½ Steward St., Buchanan, NY 10511, 914-739-6858.
- C. Finish shall be brushed stainless steel.

2.03 BACKLESS BENCHES

- A. Benches shall be 1939 New York World's Fair backless bench, Model No. 6736F (flat seat with armrest), 6 foot length, as manufactured by Kenneth Lynch & Sons, 114 Willenbrock Rd., Oxford, CT 06478, (203) 264-2831, or approved equal.
- B. Bench slats shall be American White Oak FAS grade or equivalent and shall be stained with Deckscapes Exterior Waterborne Clear, as manufactured by Sherwin Williams Woodside, NY.
- C. Cast iron bench standards, bars and brace rod shall be powder coated black.

2.04 SKATE DETERRENTS

- A. Skate deterrents shall be model D R05-12 (316 stainless steel inserts with optional locking pins for grout joint applications) as manufactured by Intelliccept, 1547 N Cuyamaca St., El Cajon, CA 92020, (619) 447-6374, or approved equal.

PART 3 - EXECUTION

3.01 GENERAL

- A. Install and construct manufactured products specified in Part 2 of this section in strict compliance with manufacturer's specifications and recommendations unless otherwise specified herein.
- B. Coordinate work with EARTHWORK section for footing and sub-grade base preparation.
- C. Coordinate work with CAST-IN-PLACE CONCRETE section for concrete footing materials and installation.
- D. Protect, support and brace all site improvements as necessary during construction until ready for use.
- E. Do not begin installations and erection before the finish elevations have been established, unless otherwise permitted.
- F. Plan shows approximate location of site improvements. Final location of all site improvements to be approved prior to excavation and/or installation.

3.02 DRINKING FOUNTAIN

- A. Upon Owner's Representative's approval of location and orientation, install where shown in accordance to details and manufacturer's recommendations. Provide concrete footing, drain line connection, water line connection, and infiltration bed as specified.
- B. Insure methods of winterization of drinking fountain are provided.
- C. Drinking fountain shall be plumb and true to alignment.

3.03 MISTING STATIONS

- A. Upon Owner's Representative's approval of location and orientation, install where shown in accordance to details and manufacturer's recommendations. Provide concrete footing as specified.

- B. Insure methods of winterization of misting stations are provided.
- C. Misting station shall be plumb and true to alignment.

3.04 BACKLESS BENCHES

- A. Upon Owner's Representative's approval of location and orientation, install where shown in accordance to details and manufacturer's recommendations. Provide concrete footing as shown.

3.05 SKATE DETERRENTS

- A. Upon Owner's Representative's approval of shop drawings, install where shown in accordance to details and manufacturer's recommendations.

END OF SECTION

SECTION 02950

PLANTING

PART 1 – GENERAL

1.01 GENERAL PROVISIONS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.
- B. Examine all other Sections of the Specifications for requirements that affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with trades affecting, or affected by, work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Planting of trees, shrubs, vines and groundcovers (ADD ALT. NO. 2).
 - 2. Maintenance and guarantee.

1.03 SUBMITTALS

- A. Submit manufacturer's product data for the following:
 - 1. List of nurseries for selection of plant materials by Owner's Representative;
 - 2. Manufacturer's certificate of compliance for controlled release fertilizer issued by the manufacturer only, showing quantity of material ordered and specific job application;
 - 3. For all plant materials not selected in the field by the Owner's Representative, submit a complete list showing each type, each source of materials, the measured size of each, as well as photographs of materials, with scale figure.

1.04 QUALITY ASSURANCE

- A. Source: For each type of product required for the work of this Section, provide products of one manufacturer and source for consistency.
- B. Codes and Standards: work in compliance with applicable requirements of governing authorities having jurisdiction. Workmanship and finish shall be equal to the best practice of modern shops for each item of work.
- C. Qualifications of Workers: Use adequate numbers of skilled workers who are trained in the necessary crafts and who are completely familiar with the specified requirements and methods needed for proper performance of the work of this Section.

- D. The work of this Section shall be completely coordinated with the work of other Sections. Verify dimensions and work of other trades that adjoin materials of this Section before installing items specified.
- E. All plant materials shall be true to name according to "Standardized Plant Names," published by the American Joint Committee on Horticulture Nomenclature, 1942 edition. Each plant or bundle shall be tagged with the name and size of plants in accordance with the American Nursery & Landscape Association (ANLA), American Standard for Nursery Stock, ANSI Z60.1. In all cases, botanical names shall take precedence over common names.
- F. Quality and size shall conform to the current edition of "Horticultural Standards" for number one grade nursery stock as adopted by American Nursery & Landscape Association (ANLA).
- G. All plants and plant materials shall comply with all Federal, State and local laws and regulations requiring inspection for plant disease and insect control.

1.05 PROJECT CONDITIONS

- A. Protection: The Contractor shall use all means necessary to protect the materials of this Section before, during, and after installation. In the event of damage, make all repairs and replacements necessary to approval of the Owner's Representative and at no additional cost to the Owner. All work shall be executed in such a manner as to prevent any damage to existing streets, curbs, paving to remain, existing plant materials, and adjoining properties.
- B. The Contractor shall remove all debris, construction equipment, and waste material from areas within the limit of work prior to inspection for acceptance.
- C. Utilities: Determine location of underground utilities and perform work in a manner which will avoid possible damage. Hand excavate as required. Maintain grade stakes set by others until removal is mutually agreed upon by all parties concerned.
- D. Excavation: When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions, or obstructions, notify Owner's Representative before planting.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. All products and supplies shall be delivered to the job adequately protected from damage during transit.
- B. All products and supplies shall be stored off the ground and shall be protected against damage. Damaged products and/or supplies will be rejected and shall not be employed in the work.
- C. Deliver all items to the job site in their original containers with all labels intact and legible at time of Owner's Representative's inspection.
- D. Immediately remove from the site all plants which are not true to name, and all materials which do not comply with the specified requirements.
- E. Use all means necessary to protect plant materials before, during, and after installation and to protect the work and materials of all other trades.

- F. Replacements: in the event of damage, immediately make all replacements necessary to the approval of the Owner's Representative and at no additional cost to the Owner.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Planting Soil: Refer to Section 02955 – Planting Soil.
- B. Fertilizer: Fertilizer shall be chosen based on the results of soil tests performed as part of the requirements of this specification. All existing site loam and new topsoil brought to the site shall be tested.
 - 1. Recommendations for amendments shall be made by the testing agency or other qualified soils engineers. The recommendations and product submittals shall be forwarded to the Owner's Representative for approval.
 - 2. Mulch: aged pine bark consisting of the outer bark of pine trees with minimum hardwood bark; Bark shall be thoroughly mixed and aged in stock piles a minimum of 6 months, partially decomposed, dark brown in color, and generally free of chunks of wood thicker than 1/4". Aged pine bark containing an excess of fine particles will not be acceptable.
 - 3. Weed Barrier: Contractor shall furnish a weed barrier for all mulched beds. Weed barrier shall be submitted for approval by the Landscape Architect.
 - 4. Water: Contractor shall furnish hose and connections required for watering all plant materials until completion of the project.
 - 5. Tree Staking - Hardwood Stake - for tree guying - 30" long (min.). For tree staking - 8' long (min.). Install as detailed on the Drawings, where required by site conditions.
 - 6. Wire - pliable No. 12 to 14 gauge galvanized soft steel wire with rubber hose or Chain Lock brand plastic tree tie or approved equivalent, where required by site conditions.
 - 7. Wrapping material - first quality, heavy, waterproof crepe paper manufactured for this purpose; not less than 4" wide, where required by site conditions.

2.02 PLANT MATERIALS

- A. Furnish and install all plants as per Drawings in quantities listed on plant materials list. If there is any discrepancy between quantities listed and shrubs shown, notify the Owner's Representative. Contractor shall be responsible for quantity of shrubs graphically shown on plans.
- B. All plants shall be nursery grown unless authorized to be collected.
- C. Plants: in accordance with USDA Standard for Nursery Stock, latest edition, hardy under climatic conditions similar to locality of project, typical of species or variety, normal habit of growth, sound, healthy, vigorous, well-branched, densely foliated when in leaf, free of disease, insect pests, eggs, or larvae, with well developed root systems.

- D. If plants of specified kind or size are not available within a reasonable distance, substitutions may be made upon request, if approved by Owner's Representative.
- E. Plant Dimensions: conform to USDA Standard for Nursery Stock, latest edition, as specified. Exceptions as follows
 - 1. Plants larger than specified may be used if approved by Owner's Representative at no increase in contract price. Increase spread of roots or earth ball in proportion to size of plant.
 - 2. Undersize plants (10% max.) in any one variety or grade may be used if approved by the Owner's Representative. Provide sufficient plants above size to make average equal to or above specified grade. Undersize plants shall be larger than average size of next smaller grade.
- F. Balled and Burlapped (B & B) plants: dig with firm natural earth roots. Made balls are unacceptable.
 - 1. Protect B & B plants not planted immediately upon delivery with soil, wet moss, or other acceptable material. Prevent voids among roots with careful filling. Bind no plants with wire or rope so as to damage bark or break branches.
- G. Container grown plants: grown in container long enough for root system to have developed sufficiently to hold its soil together firm and whole. Plants loose in container will not be acceptable.
- H. Plants are subject to inspection and approval at place of growth for conformity to specifications as to quality, size, and variety. The expenses incurred by the Owner's Representative for such inspections shall be born by the Contractor. Owner's Representative reserves right of inspection upon delivery at the site or during progress of work or right of rejection due to damage suffered in handling or transportation. Remove defective plants immediately from site. Plants to be accompanied by State Nursery inspection certification, if required.

PART 3 – EXECUTION

3.01 INSPECTION

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to the proper and timely completion of the work. Do not proceed until unsatisfactory conditions have been corrected.

3.02 PLANTING OPERATIONS

- A. The Landscape Architect shall approve all perennial bed outlines and perennial plant locations in the field prior to installation.
- B. Install weed barrier in all mulched beds.
- C. Plant trees and shrubs immediately upon delivery to the site and approval by the Owner's Representative. Layout individual tree and shrub locations; Stake locations, and obtain the Owner's Representatives approval before proceeding with planting work.

- D. Planting may be done whenever weather and soil conditions are favorable or as otherwise authorized by Owner's Representative. If this is not feasible, heel-in material with damp soil or mulch to protect from sun and wind.
- E. Notify Owner's Representative at least one week prior to beginning planting operations.
- F. Excavate tree pits 2'-0" diameter (min.) and shrub pits 12" diameter (min.) greater than ball of earth or spread of roots.
- G. Locate pits prepared and backfilled with planting mixture to grade prior to planting by staking and recording on plans for location when planting proceeds.
- H. Set plants in center of pits, plumb and straight, with crown of plant 1" higher, after settlement, than surrounding finished grade.
- I. When B & B trees are set, compact topsoil mixture around bases of balls to fill all voids. Remove burlap, ropes or wires from top one third (1/3) of balls before filling in with planting mixture.
- J. Thoroughly compact planting mixture around roots or balls and water immediately after plant pit is backfilled. Form a shallow basin slightly larger than pit with a ridge of sod or mulch to facilitate and contain watering. Cultivate soil in shrub beds, rake smooth and neatly outline after planting. Provide 12" (min.) of loam between all shrubs and 6" (min.) between all ground covers.
- K. Distribute controlled release fertilizer packets equidistant within the planting pit adjacent to the root ball but not in direct contact with the roots. Placement depth shall be 6 to 8 inches. Packets shall not be cut, ripped or damaged.
- L. Application rates as follows:

Planting Item	Size	No. of Packets
Deciduous Trees:	1-3" cal.	3
	4-6" cal.	4
Shrubs:	2-3'	2
	over 3'	3
Evergreen Trees:	5-10'	4
	over 10'	5
Perennials:	1 -3 gal.	1
Groundcover:	2" plug	none

- M. Stake or guy trees as detailed on the Drawings, only if necessary per site conditions, as directed by the Owner's Representative.
- N. Prune each plant in accordance with ANLA standards to preserve natural character. Remove all dead wood, suckers, broken or badly bruised branches and approximately 1/4 of wood. Prune with clean, sharp tools.
- O. Cover all tree and shrub pits immediately after planting with 3" (min.) layer of specified mulch. Limit of mulch for trees shall be area of pit; for shrubs in beds, entire area of shrub bed. Mulch shall be kept 2" clear of trunk.
- P. Notify Owner's Representative immediately if rock or underground obstructions are encountered in plant pit excavation.

- Q. Contractor shall furnish plans showing locations of underground utilities encountered, as required.

3.03 MAINTENANCE – PLANTING

- A. Maintenance shall begin immediately after each plant is planted and shall continue for a minimum of 90 days following final acceptance of all planting.
- B. Maintenance shall consist of keeping the plants in a healthy growing condition and shall include but is not limited to watering, weeding, cultivating, re-mulching, tightening and repairing of guys, removal of dead material, resetting plants to proper grades or upright position, and maintaining the planting saucer.
- C. Plants shall be inspected for watering needs at least twice each week and watered as necessary to promote plant growth and vitality.
- D. Stakes shall be kept plumb and neat in appearance. Guys, wires, and anchoring cables shall be tightened and repaired weekly.
- E. Planting beds and individual plant pits shall be kept free of weeds, and mulch shall be replaced as required to maintain the specified layer of mulch. Beds and individual pits shall be neat in appearance and maintained to the designed layout.
- F. Plants that die during the maintenance period shall be removed and replaced at once, unless designated otherwise by the Owner's Representative.
- G. Spraying for both insect pests and diseases shall be included during the maintenance period as required and as directed.
- H. During the maintenance period, any decline in the condition of plantings shall require the Contractor to take immediate action to identify potential problems and undertake corrective measures. If requested by the Owner's Representative, the Contractor shall engage professional arborists and/or horticulturalists to inspect plant materials and to identify problems and recommend corrective procedures.

3.04 ACCEPTANCE STANDARDS FOR PLANTING

- A. Following the completion of all planting, the Contractor shall request, from the Owner's Representative in writing, a formal inspection of the completed work. If plant materials and workmanship for the site are acceptable, written notice will be given to the Contractor stating that the work has received acceptance and that the 90 days maintenance and the one year guarantee period has commenced from the date of acceptance.
- B. If a number of plants are sickly or dead at the time of inspection or if, in the Owner's Representative's opinion, workmanship is unacceptable, written notice will be given by the Owner's Representative to the Contractor in the form of a punch list, which itemizes necessary planting replacements and/or other deficiencies to be remedied. The Contractor's responsibility for maintenance of all the plants shall be extended until replacements are made or other deficiencies are corrected. All dead and unsatisfactory plants shall be removed promptly from the project. Replacements shall conform in all respects to the Specifications for new plants and shall be planted in the same manner.

3.05 GUARANTEE FOR PLANT MATERIALS

- A. Plants shall be guaranteed for a period of one year after written notification of acceptance and shall be alive and in satisfactory growth at the end of the guarantee period.

- B. At the end of the guarantee period, a final inspection will be held to determine whether any additional plant material replacements are required. Each plant shall show at least 75% healthy growth and shall have the natural character of its species as determined by the Owner's Representative. Plants found unacceptable shall be removed promptly from the site and be replaced during the normal planting season, until the plants live through one year.
- C. Replacement plants shall have a one year guarantee from time of planting.

END OF SECTION

SECTION 02955

PLANTING SOIL

PART 1 – GENERAL

1.01 GENERAL PROVISIONS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.
- B. Examine all other Sections of the Specifications for requirements that affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with trades affecting, or affected by, work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Provision and installation of planting soil at raised planter beds (ADD ALT. NO. 2).

1.03 SUBMITTALS

- A. Submit manufacturer's product data for the following:
 - 1. Soil analysis results

1.04 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Agricultural Chemist/Soil Scientist: Experienced person or persons employed by public or private soils testing laboratory, qualified and capable of performing tests, making soil recommendations, and issuing reports as specified. The Testing Laboratory shall be as approved by the Battery Park City Parks Conservancy.
- B. References:
 - 1. Association of Official Agricultural Chemists.
 - 2. American Society for Testing and Materials (ASTM) using test criteria as specified or required by other references.
 - 3. Soil Science Society of America, Methods of Soil Analysis.
- C. Pre-Installation Conferences: Person(s) responsible for soil preparation and mixes of this Section shall attend Pre-Installation Conference(s) to coordinate with work of other sections.
- D. Inspections and Testing

1. Soil, leaf mold, mulch and other material testing and soil mix testing required in this Section or additionally required by Battery Park City Parks Conservancy, shall be furnished and paid for by Contractor.
2. BPCA/BPCPC reserves the right to take and analyze at any time such additional samples of materials as deemed necessary for verification of conformance to specification requirements. Contractor shall furnish samples for this purpose upon request and shall perform testing as requested.
3. Testing Agencies: The following firms are acceptable testing agencies for the various components.
 - a. Compost testing: Woods End Research Laboratory, PO Box 297, Mt. Vernon, ME 04352, phone 800-451-0337, fax 207-293-2488.
 - b. Soil physical and chemical analysis, all components and planting soil mixes: physical soil analysis including particle size analysis shall be determined by an A2LA Accredited Lab. Soil chemical analysis can be performed at University of Massachusetts West Experiment Station, Amherst, MA 01003, phone 413-545-2311, fax 413-545-1931.
 - c. Compost/Biological Testing: Soil Foodweb New York, 555 Hallock Avenue, Rte 25A, Suite #7, Port Jefferson Station, NY 11776, tel. 631-474-8848, fax 631-474-8847.

1.05 REGULATORY REQUIREMENTS

- A. Comply with all rules, regulations, laws and ordinances of local, state and federal authorities having jurisdiction. Provide labor, materials, equipment and services necessary to produce soil as per specification. Work shall comply with such requirements without additional cost to Owner.
- B. Procure and pay for permits and licenses required for work of this section.

1.06 PROJECT/SITE CONDITIONS

- A. The Contractor shall be responsible for pedestrian and vehicular safety and control within the work site. He/she shall provide the necessary warning devices and ground personnel needed to give safety, warning and protection to persons and vehicular traffic within the area.
- B. During site preparation, soil installation and protection, the Contractor shall be responsible for all damage to existing features above and below ground (benches, utility lines, irrigation pipes, lampposts, path surfaces, existing vegetation) incurred as a result of work operations. Repairs and/or replacements shall be made to the satisfaction of the BPCA/BPCPC.
- C. Investigate the conditions of public thoroughfares and roads as to availability, clearances, loads, limits, restrictions, and other limitations affecting transportation to, ingress and egress of this work site. Conform to all government regulations in regard to the transportation of materials to, from, and at the job site, and secure in advance such permits as may be necessary.
- D. Should the Contractor, in the course of Work, find any discrepancies between Contract Drawings and physical conditions or any omissions or errors in Drawings, or in layout as

furnished by the Owner, it will be Contractor's duty to inform the BPCA/BPCPC immediately in writing for clarification. Work done after such discover, unless authorized by BPCA/BPCPC, shall be done at the Contractor's risk.

- E. Environmental Requirements for Soils:
 - 1. Perform both off-site mixing and on-site soil work only during suitable weather conditions. Do not work soil when frozen, excessively wet (maximum 18% moisture) or in otherwise unsatisfactory condition.
 - 2. Soil mixes shall not be handled, hauled or placed during rain or wet weather or when near or above the point where maximum compaction will occur (as defined by BPCA/BPCPC).
- F. Environmental Requirements for Soil: Sequencing and Scheduling: Adjust, relate together and otherwise coordinate work of this Section with work or Project and all other Sections of Project Specifications.

1.07 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Packaged Materials: Deliver packaged materials to the location where soils are to be mixed, in unopened bags or containers, each clearly bearing the name, guarantee, and trademark of the producer, material composition, manufacturers' certified analysis, and the weight of the material. Retain packages for BPCA/BPCPC.
- B. Soil or amendment materials stored on site temporarily in stockpiles prior to placement shall be protected from intrusion of contaminants and erosion. All temporary storage means and methods shall be approved by BPCA/BPCPC.
- C. Store and handle packaged materials in strict compliance with manufacturer's instructions and recommendations. Protect all materials from weather, damage, injury and theft.
- D. In addition, the following provision is established: Material should not be handled or hauled, placed or compacted when it is wet as after a heavy rainfall or is frozen. Soil should be handled only when the moisture content is less than the point where maximum compaction will occur (as defined by BPCA/BPCPC).
- E. After mixing, soil materials shall be covered with a tarpaulin until time of actual use and protected from contamination or erosion.

PART 2 – PRODUCTS

2.01 SOIL MIX MATERIALS

- A. General
 - 1. All soil mix material shall fulfill the requirements for new soil mixes as specified.
 - 2. Samples of individual components of soil mixes and also blended soil mixes shall be submitted by the Contractor for testing and analysis to the approved testing laboratory. Include verification testing of on-site sub soils. Comply with specific materials requirements specified.

- a. No base component or soil components for soil mixes shall be used until certified test reports by an approved agricultural chemist have been received and approved by the BPCA/BPCPC.
- b. As necessary, make any and all soil mix amendments and resubmit tests reports indicating amendments until approved.
3. The BPCA/BPCPC may request additional testing by Contractor for confirmation of mix quality and/or soil mix amendments at any time until completion.
4. Base Component Material shall be a sand that meets the requirements outlined below mixed by volume with loam material that meets the requirements outlined below. Base component materials shall not be site salvaged and must be off-site borrow material.
5. Test Base Component Materials, both individual components and mixed materials, for compliance with material specifications. These test criteria and results, when approved, shall establish the standard to which all subsequent Base Component Material tests must conform.
6. Prior to mixing Base Component Material with organic matter (leaf mold or yard waste compost), have one (1) composite sample tested from each 250 c.y. of material intended for use in soil mixes of planting work.
7. Sand for Base Component Material shall meet the following requirements:

- a. Texture:

<u>Sand Fraction</u>	<u>Size (mm)</u>	<u>Sieve Size</u>	<u>% Passing</u>
Gravel	> 2.0	#10	95 – 100%
Very coarse sand	1.0 – 2.0	#18	90 – 100%
Coarse sand	0.5 – 1.0	#35	65 – 75%
Medium sand	0.25 – 0.5	#60	15 – 20%
Fine sand	0.1 – 0.25	#140	0 – 4%
Very fine sand	0.05 – 0.1	#270	0 – 2%

- b. Chemical Analysis:

- 1) Soil reaction (pH) - 5.0 – 6.5 ± 0.5
- 2) Soluble salt content (Conductivity) - < 1.5 dSm-1

- c. Material shall have a saturated hydraulic conductivity rate of no less than 30 inches per hour, per ASTM 1815.

8. Loam for Base Component Material shall meet the following requirements:

- a. Soil Texture per ASTM D422 or ASTM F1632, as determined on material passing a 2 mm screen:

<u>Main Fractions</u>	<u>Size (mm)</u>	<u>Percent</u>
Sand	0.05-2.0	83 - 87
Silt	0.002-0.05	7 - 10
Clay	<0.002	4 – 8

In addition, maximum size shall be ½", the total gravel (> 2 mm) shall be less than 10% of the total material, and the sand passing the 2 mm screen shall have the following particle size distribution:

<u>Sand Fraction</u>	<u>Size (mm)</u>	<u>Sieve Size</u>	<u>% Passing</u>
Very coarse	1.0 – 2.0	#18	87-90
Coarse	0.5 – 1.0	#35	65-71
Medium	0.25 – 0.5	#60	34-42
Fine	0.10 – 0.25	#140	17-23
Very fine	0.05 – 0.10	#270	14-18

b. Chemical Analysis:

- 1) Organic matter content (%) oven dry weight of soil shall be within the range of 4 to 10%.
- 2) Soil reaction (pH) - 6.0 ± 0.5
- 3) Soluble salt content (Conductivity) - < 1.5 dSm-1

9. Before base sand-loam mix (base component) is used for mixing with organic amendments, handle and pile the mix in the following manner:

- a. Mix the base sand with base loam in a ratio of 3 parts sand to 1 part loam. Adjustments to the ratio may have to be made to meet the specifications for the base component. Homogenize to make a uniform mix, free of subsoil lenses and other irregularities.
- b. Aerate the base component to make a friable planting medium.
- c. Screen out all clay lumps, stones, roots, and other debris.

10. Material Requirements, Base Component Mix: The final mix of sand and loam materials shall substantially conform to the following:

- a. Soil Texture per ASTM D422 or ASTM F1632, as determined on material passing a 2 mm screen:

<u>Main Fractions</u>	<u>Size (mm)</u>	<u>Percent</u>
Sand	0.05-2.0	95.0
Silt	0.002-0.05	3.0
Clay	<0.002	2.0

In addition, maximum size shall be ½", the total gravel (> 2 mm) shall be less than 5% of the total material, and the sand passing the 2 mm screen shall have the following particle size distribution:

<u>Sand Fraction</u>	<u>Size (mm)</u>	<u>Sieve Size</u>	<u>% Passing</u>
Very coarse sand	1.00	#18	92-95
Coarse sand	0.50	#35	67-73
Medium sand	0.25	#60	20-26
Fine sand	0.10	#140	5-9
Very fine sand	0.05	#270	5

b. Chemical Analysis:

- 1) Organic matter content (%) oven dry weight of soil: 1- 4%
 - 2) Soil reaction (pH): 6 - 7
 - 3) Soluble salt content (Conductivity) - < 1.5 dSm-1
 - c. Saturated hydraulic conductivity of no less than 15 inches per hour per ASTM 1815.
- B. Organic Matter: Organic matter for amending planting media shall be a stable, material produced from the aerobic decomposition and curing of yard wastes. The compost shall meet the following criteria:
1. Organic matter content of no less than 40% as determined by ASTM 2974
 2. Moisture content of 35 to 70% as determined by ASTM D2974
 3. Carbon to nitrogen ratio of 15:1 to 30:1
 4. Soluble salts not exceeding 4 dSm-1
 5. Solvita Maturity Index 6 to 8
 6. 95 – 100% passing a 3/8" screen
 7. pH 6 to 7.5
 8. Natural nutrient cycling will be a minimum of 200 lbs per acre, available Nitrogen from microbial activity.
 9. Biological Organisms: The compost shall have the following levels of organisms (direct microscopy). Refer to Article 1.04 E.15 for testing and sampling requirements.
 - a. 15 to 25 or more µg active bacteria /g dry weight (dw) compost
 - b. 100 µg (fungal compost) to 300 or more µg (bacterial compost) total bacteria /g dw compost
 - c. 15 to 25 µg or more active fungi /g dw compost
 - d. 100 to 300 µg total fungal biomass /g dw compost
 - e. 10,000 or more flagellates
 - f. 10,000 or more amoebae
 - g. 50 - 100 ciliates.
 - h. 20 – 30 Total nematodes (No root feeding nematodes)
- C. Nutrient Analysis:
1. Ammonium (NH₄) and Nitrate (NO₃): below 100 ppm

2. Phosphorous
3. Potassium
4. Calcium (CA), Magnesium (Mg): ratio of 7 part Ca to 1 part Mg
5. Iron (Fe) 1 to 4 ppm
6. Manganese (Mn) 3 to 20 ppm
7. Zinc (Zn) 0.1 to 70 ppm
8. Copper (Cu) 0.3 to 8 ppm

2.02 PLANTING SOIL MIXES

- A. Adequate quantities of mixed planting soil materials shall be provided to attain, after compaction and natural settlement, all design finish grades.
- B. Uniformly mix ingredients using a mechanical soil blender designed for such purpose as specified for each Mix Type (Base Component Material, compost, and other ingredients deemed to be necessary as a result of testing). Wind rowing/tilling on an approved hard surface area may also be used as an alternative. Organic matter shall be maintained moist, not wet during mixing.
 1. Mixing of Amendments: Add organic amendment in proportions as specified and as confirmed by testing. Other amendments shall not be added unless approved to extent and quantity by Battery Park City Parks Conservancy and additional tests have been conducted to verify type and quantity of amendment is acceptable.
- C. Testing of Plant Mixes:
 1. Perform initial tests to confirm compliance with base material and mix specifications. These test results, when approved, will establish the standard to which all other test results must conform.
 2. Follow-up Testing: Have one (1) composite sample delivery and upon arrival to the site from each 500 c.y. or as required by BPCA/BPCPC for use in each type plant mix to include the following:
 - a. Particle size analysis: Use sieve sizes as specified for Base Component Material.
 - b. Organic matter content as per mix specified.
 - c. Nutrient Analysis:
 - 1) Have nutrient levels (pH, Cation Exchange Capacity, ammonium nitrogen, nitrate nitrogen, nitrite nitrogen, phosphorus, potassium, magnesium, calcium, magnesium, zinc, iron, copper, and manganese) tested. Cation Exchange Capacity should be a minimum of 10 to 15. Soluble salts shall also be tested.
 - 2) Contractor shall not use amendments to correct nutrient deficiencies.

- d. Biological Organisms: The mixes shall have a minimum of the following levels of organisms (direct microscopy). Refer to Article 1.04 E.15 for testing and sampling requirements. Natural nutrient cycling will be a minimum of 150 lbs per acre, available Nitrogen from microbial activity. Mix shall have microbiological populations as listed below. Acceptance or rejection of mixes based on these test values will be determined by Battery Park City Parks Conservancy.

Plant Material	Active Bacterial Biomass (ug/g)	Total Bacterial Biomass (ug/g)	Active Fungal Biomass (ug/g)	Total Fungal Biomass (ug/g)	Hyphal Diameter (ug/g)	Protozoa Numbers/g			Total Beneficial Nematode Numbers (#/g)
						Flagellates	Amoebae	Ciliates	
Trees Ornamentals	15-25	100-300	15-25	100-300	3.0	10,000	10,000	50-100	20-30

- D. Soil Mix Types: Provide the following planting soil mix types at the locations indicated on plan. Percentages of components, unless otherwise noted, will be established upon completion of individual test results for components of the various mixes. The controlling factor will be the percent (%) organic matter as specified for each mix. Note that percent (%) by volume of components will be, in large part, determined by the compost. Specifically the bulk density of the compost will directly impact the organic matter readings that have been specified for each mix.
1. *Soil A (Upper Root Zone): Organic Component shall be mixed with the Base Component (sand-loam) mix at a rate necessary to provide an organic matter content of 4-6% by weight, as determined by ASTM F1647. pH shall be 6.5 to 7.0. Cation Exchange Capacity shall be between 10 and 15. Natural nutrient cycling will be a minimum of 150 lbs per acre, available Nitrogen from microbial activity.
 2. *Soil B (Upper Root Zone): Organic Component shall be mixed with the Base Component (sand-loam) mix at a rate necessary to provide an organic matter content of 6-8% by weight, as determined by ASTM F1647. pH shall be 6.5 to 7.0. Cation Exchange Capacity shall be between 10 and 15. Natural nutrient cycling will be a minimum of 150 lbs per acre, available Nitrogen from microbial activity.
 3. Soil C (Lower Root Zone): Organic Component shall be mixed with the Base Component (sand-loam) mix at a rate necessary to provide an organic matter content of 2-4% by weight, as determined by ASTM F1647. pH shall be 6.5 to 7.0.
 4. *Note: Soil A or Soil B upper root zone will be contingent upon plant material.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Verify prepared soil sub-grade is properly rough graded and ready to receive the work of this Section.
- B. Verify that backfilling has been inspected.

- C. Verify substrate base has been contoured and compacted.

3.02 PREPARATION FOR SOIL PLACEMENT

- A. Prepare sub-soil to eliminate uneven areas and low spots. Maintain lines, levels, profiles and contours. Make changes in grade gradually. Blend slopes in level areas.
- B. Remove foreign materials, debris, weeds, undesirable plants, roots, branches, stones in excess of 1 inch in size from the top 3" of the sub-soil. Remove subsoil contaminated with petroleum products, or other materials that would inhibit healthy plant growth.
- C. Scarify sub-grade to depth of 3 inches where planting soil is scheduled.
- D. Saturate soil with water to test drainage.
- E. Refer to Section 02950 - Planting.

3.03 PLACING PLANTING SOIL

- A. Place planting soil during dry weather. Place to a minimum compacted depth of 12 inches on dry unfrozen sub-grade, except as otherwise indicated on Drawings.
- B. Remove roots, weeds, rocks and foreign material while spreading.
- C. Fine grade planting bed to remove all ridges and depressions, and the surface cleared of all stones one inch or more in diameter and all other debris.

3.04 SITE CLEANING AND REPAIR

- A. Protect planting beds from damage, compaction and contamination from construction operations after placement up until time of Substantial Completion.
- B. Absolutely no debris may be left on the site. Excavated material shall be removed as directed. Repair any damage to site or structures to restore them to their original condition.

END OF SECTION

SECTION 03100
CONCRETE FORMWORK

PART 1: DESCRIPTION

1.01 GENERAL REQUIREMENTS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.
- B. This Section specifies designing, constructing, and removing falsework and centering, for cast-in-place concrete structures and members.

1.02 WORK INCLUDED

- A. Footings for drinking fountain, misting stations, unit pavers, and site improvements associated with ADD ALTERNATE NO. 1.
- B. Footings for raised planters, unit pavers, benches, and site improvements associated with ADD ALTERNATE NO. 2.

1.03 QUALITY CONTROL

- A. Design and construct formwork in accordance with the details indicated and the applicable requirements of ACI 347, except as modified herein.
- B. Formwork
 - 1. Design formwork as required to meet finishing and tolerance requirements for concrete surfaces specified in the CAST-IN-PLACE CONCRETE section.
 - 2. Design forms to have sufficient strength to carry the dead weight of the concrete as a liquid and to produce concrete meeting the specified tolerances. Maximum deflection of form facing materials reflected in concrete surfaces exposed to view: 1/240 of the span between structural members.
 - 3. Where necessary to achieve the specified tolerances, camber the formwork to compensate for anticipated deflections due to the weight and pressure of the fresh concrete and due to construction loads.
- C. Falsework
 - 1. Design falsework to support loads to be encountered and to withstand forces to which it will be subjected during the construction period.
 - 2. Design falsework to carry vertical and lateral loads to ground either independently or in combination with portions of structures which have attained adequate strength.

1.04 SUBMITTALS

- A. Manufacturer's literature. Submit manufacturer's literature describing products.
- B. Working drawings.

1. Show details of form systems: methods of form construction and erection; falsework, location and details of shoring and re-shoring; design computations; and locations of form joints; form ties, and construction joints.
 2. Show details of form systems affecting appearance of architectural concrete surfaces such as joints, tie holes, liners, patterns, and textures. Show such items in relation to entire form system.
- C. Description and Time Schedule. Provide detailed description of forming system, centering, shoring, and re-shoring in relation to scheduled date and rate of placing concrete.

PART 2: MATERIALS

2.01 FORMWORK

- A. Plywood: Exterior type: one surface suitable for specified finish; sealed to prevent absorption of water from the concrete.
- B. Hardboard: Tempered, smooth-one-side, conforming to U.S. Commercial Standard CS 251.
- C. Steel Forms and Fiberglass-Reinforced Plastic Forms: As required to form concrete surfaces to the specified tolerances and finishes, free of irregularities and concrete stain.
- D. Fiber Tubular Forms: Spirally constructed of laminated piles of fiber, with wall thicknesses as recommended by the manufacturer to meet load requirements of the various uses and sizes; wax coated outside surface for moisture resistance, and inside surface coated with bond-breaker compound and fabricated in such manner that finish concrete surfaces will be smooth and free of spiral and seam marking; sealed to prevent absorption of water from concrete.
- E. Form Liners: N/A
- F. Form ties: Accepted from clamps and factory-fabricated, snap off metal type ties of adequate design to minimize form deflection and preclude concrete spalling upon removal; fabricated so that set-back in the concrete is such that the portion of the tie remaining after snap-off and removal of the exterior portions is at least two inches back from the concrete surface. Maximum diameter of spreader cones on tie wires: 7/8 inch.
- G. Bond Breaker: Non-staining, free of mineral oils or other non-drying ingredients, and leaving no bond-inhibiting residues on concrete; compatible with paints systems, water-repellant coatings; or other indicated surface treatments.
- H. Chamfer Strips: Triangular fillets milled from clear, straight-grain wood, surfaced each side; or extruded vinyl type.

PART 3: EXECUTION

3.01 GENERAL

- A. Do not use earth cuts as forms for vertical surfaces.
- B. Construct forms consistent with the required finish, mortar tight, of the required strength, and to result in concrete surfaces conforming to the tolerances specified.
- C. Arrange forms to allow proper erection sequence and to permit form removal without damage to concrete.

- D. Construct forms for outside surfaces with stiff wales at right angles to the studs, and form clamps extending through and fastened to the wales. Anchor and brace forms to produce safety and proper alignment.
- E. Except where otherwise indicated, make form tie spacing and formwork pattern regular and symmetrical, with joints plumb and level.
- F. Chamfer external corners of exposed concrete minimum 3/4 inch unless otherwise indicated, by placing moldings in forms.

3.02 CLEANOUTS AND OPENINGS

- A. When indicated, provide temporary openings at the base and on the interior face of wall forms, and at other points where necessary, to facilitate cleaning of forms and inspection of reinforcement immediately before concrete is deposited.
- B. Frame openings where indicated on architectural, structural, and electrical drawings.
- C. Make provisions in forms for openings, sleeves, chases, pipes, recesses, nailers, anchors, ties, and inserts, before concrete placement.

3.03 SCREED SUPPORTS

- A. Use supports with expandable bases for floor slabs placed over membranes. Where other equivalent means to prevent penetration of membrane appear suitable, submit same for acceptance by the Engineer.

3.04 SLAB FORMS

- A. Set edge forms and screeds to produce the indicated elevations and contours, and secure them as required to prevent displacement during placement and consolidation of the concrete.
- B. Set screeds in single course slabs, and the top course of other slabs, as required for tops and finishes.
- C. Slope forms to drain where indicated.
- D. Depress slabs as indicated to receive special finishes.

3.05 FALSEWORK

- A. Adequately brace and maintain falsework to safely support vertical, lateral and asymmetrical loads until completed structure has attained design strength.
- B. Distribute falsework loads over area where shoring is erected and protect against undermining or settlement.
- C. Provide means for making vertical adjustments to compensate for settlement either before or during placing of concrete.

3.06 REMOVAL

- A. Forms shall be removed in such a manner as to insure the complete safety of the structure. In no case shall supporting forms or shoring be removed until the members have acquired sufficient strength to support safely their weight and the load thereon. At a minimum, forms shall remain in place, undisturbed, for at least 72 hours after concrete is

placed. The removal of forms shall be performed with care to prevent marring or injury to concrete. Any damage to the concrete by premature or careless removal of forms shall be repaired by and at the expense of the Contractor.

END OF SECTION

SECTION 03200

CONCRETE REINFORCING STEEL

PART 1: DESCRIPTION

1.01 GENERAL REQUIREMENTS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.
- B. The work of these items consists of furnishing and placing steel bar, welded wire fabric reinforcing, and epoxy coating, as shown on the Plans, as specified herein and as directed by the Owner's Representative.

1.02 WORK INCLUDED

- A. Concrete reinforcing steel for attachment of turf anchor to existing flush granite curb.
- B. Concrete reinforcing steel for footings at raised planters (ADD ALT. NO. 2).
- C. Concrete reinforcing steel for light pole bases (ADD ALT. NO. 2).

PART 2: MATERIALS

2.01 GENERAL

- A. Welded wire fabric shall conform to ASTM Specification A 185.
- B. Reinforcing steel for all cement concrete masonry, as required, shall be Grade 60, new deformed billet steel reinforcing bars conforming to the requirements of ASTM Specification A 615.
- C. The maximum distance for reinforcing mat supports shall be as shown on the Plans and as directed by the Owner's Representative. The top mat of reinforcing steel shall be supported from the forms or stringers and not from the bottom mat. The bottom mat of reinforcing steel shall be supported on the forms by chairs with plastic tips of suitable size and spaced such that they will support the mat and construction working loads without changing dimension. The type and location of all reinforcing steel supports are subject to approval by the Owner's Representative.
- D. All dowels shall conform to the requirements for steel reinforcing bars as specified above.
- E. All reinforcing (bars and wire fabric) shall be free from imperfections and from dirt, loose scale, paint, oil, and other foreign substances that might prevent or reduce bonding with the concrete. Rust that occurs in scales or that pits the steel will be considered an imperfection. Surface rust will not be considered an imperfection, but the surface shall be brushed to remove loose material.
- F. Epoxy coating material shall be of organic composition as specified in the Annex, "A-I Requirements for organic Coating," contained in the Standard Specification for Epoxy Coated Reinforcing Bars, ASTM Specification A 775.
- G. Welded wire fabric shall be coated in the same manner as specified for reinforcing bars in ASTM A 775. Welded wire fabric shall be fabricated from as-drawn steel wire into flat sheets.

- H. The Contractor shall furnish the Owner's Representative with the manufacturer's certification that the coated reinforcing steel meets the requirements of ASTM Specification A 775.
- I. The Contractor shall supply to the Owner's Representative a representative 8 ounce sample of the coating material from each batch. The sample shall be packaged in an air-tight container with Identification by batch number.
- J. Patching or repair materials shall be supplied by the coating material manufacturer. The patching material shall meet the requirements of Annex AI and shall be compatible with the epoxy coating material, inert in concrete, and shall be suitable for making field repairs.
- K. Coating Application
 - 1. At least seven (7) days prior to beginning reinforcing bar and wire fabric coating, the manufacturer of the epoxy coating material shall furnish the Owner's Representative and applicator with complete details specifying the method of metal surface preparation and coating application procedures.
 - 2. The surface of the steel reinforcing bars and fabric to be coated shall be cleaned by abrasive blast cleaning to near white metal in accordance with the Steel Structures Painting Council - Surface Preparation Specification No. 10 (SSPG-SP10), Near White Blast Cleaning. Any of the following visual standards of comparison may be used to define the final surface conditions: SSPC-VLS 1, SSPC VIS 2, NACE TM-01-70, and NACE TM-01-75.
 - 3. Coating application, thickness, continuity and adhesion shall be as specified in ASTM Specification A 775.
 - 4. For test purposes a production batch is the smallest number of reinforcing bars of the same type, heat and size as determined by the following requirements:
 - a. A batch shall not exceed a single order, or delivered load, whichever is smaller.
 - b. A batch shall consist of the number of bars as defined by the coating applicator except that it shall not exceed the number of reinforcing bars coated within a single working shift.
 - 5. The coating applicator shall be responsible for performing quality control and tests. This will include inspection for compliance with the requirements of thickness, adhesion and continuity of coating.
 - 6. The Owner reserves the right to have its authorized representative observe the preparation, coating and testing of the reinforcing bars. The representative shall have free access to the plant and any work done when access has been denied shall be automatically rejected.

PART 3: EXECUTION

3.01 GENERAL

- A. The Contractor shall submit for approval plans and schedules of the bar reinforcement so that the reinforcement may be properly placed and its weight readily computed. If impracticable to obtain or use bars of the full length required, bars shall be lapped by each other to an extent equal to 40 diameters, or as shown on the Plans.

- B. The steel bars shall be bent in the shop true to templates and shall be placed accurately as shown on the Plans. Reinforcing shall be securely wired (use epoxy coated wire where epoxy coated reinforcing is used) to prevent displacement. Where two layers of bars are used to form a mat.
- C. The two layers of the mat shall be securely tied together at every third intersection within the mat with a figure eight tie in accordance with CRSI. Splicing shall not be at points of maximum stress, and clear distances between spliced bars shall be not less than 1-1/2 times the diameter of bars.
- D. The required distance between reinforcing steel and the forms shall be maintained by means of stays, blocks, ties, hangers, and other approved supports. Blocks for holding reinforcement from contact with the forms shall be precast mortar blocks of approved shape and dimensions. Blocks for spacing bars shall also be precast mortar blocks of approved design and short enough to permit their ends to be adequately covered with concrete. Precast mortar blocks shall have cast into them a copper wire or wire of other non-rusting metal suitably placed so that the block can be firmly wired to the reinforcement. Layers of bars shall be separated by such blocks, which may be reinforced, and which shall have slots to receive the bars and hold them in place, or by other approved means. Any parts of metal supports that are left in place within three inches of an exposed surface of the concrete shall be non-rusting metal or coated with non-rusting metal. Galvanizing of such parts will be acceptable provided the weight of the zinc coating per square foot of actual surface shall average not less than two ounces, and no individual specimen shall show less than 1.8 ounces. The use of pebbles, pieces of broken stone, metal pipe and wooden blocks shall not be permitted. Reinforcement in any member shall be placed and then inspected and approved by the Owner's Representative before the placing of concrete begins. Concrete placed in violation of this provision shall be rejected and removed by the contractor entirely at his expense.
- E. When wire mesh is used as reinforcement, it shall be furnished and placed in accordance with the Plans. Wire mesh shall be ordered in flat sheets only.
- F. Dowels, where required, shall be furnished and placed as indicated on the Plans, and as directed by the Owner's Representative.
- G. Reinforcement that extends beyond joints in the concrete and that will be temporarily exposed or any other reinforcement that might stain the exposed surfaces of the concrete, shall be given a light coat of cement grout on the surfaces of the reinforcement that will be exposed for more than three weeks before being encased in concrete. The contract price for reinforcement shall include full compensation for the grout.
- H. All reinforcing bars in concrete under superstructure shoes and bearings shall clear the metal of the shoes and the anchor bolts by not less than two (2) inches.

END OF SECTION

SECTION 03325

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.

1.02 WORK INCLUDED

- A. Miscellaneous concrete for setting and re-setting utility structures.
- B. Concrete footing for drinking fountain (ADD ALT. NO. 1).
- C. Concrete footings for misting stations (ADD ALT. NO. 1).
- D. Concrete footing for light pole bases (ADD ALT. NO. 2).
- E. Concrete base course for bluestone pavers and granite pavers (ADD ALT. NO. 1 & 2).
- F. Concrete footing for granite curbing at raised planter (ADD ALT. NO. 2).
- G. Concrete for sidewalk (ADD ALT. NO. 2).

1.03 RELATED WORK

- A. Earthwork
- B. Concrete Formwork
- C. Concrete Reinforcing Steel
- D. Cast-in-Place Concrete Turf Anchor

1.04 QUALITY ASSURANCE

- A. Perform cast-in-place concrete work in accordance with ACI 301, unless specified otherwise in this project.
- B. Keep copy of ACI 301 in field office for duration of project.

1.05 TESTING LABORATORY SERVICES

- A. Inspection and testing of concrete mix will be performed in accordance with the QUALITY CONTROL section.
- B. Provide free access to work and cooperation with firm.
- C. Submit proposed concrete mix design to Owner's Representative for review prior to commencement of work.
- D. Three concrete test cylinders will be taken for every 75 or less cubic yards (57 or less cubic meters) of concrete placed.

- E. One additional test cylinder will be taken during cold weather concreting and be cured on job site under same conditions as concrete it represents.
- F. One slump test will be taken for each set of test cylinders taken.

1.06 REFERENCES

- A. ACI 301 - Specifications for Structural Concrete for Buildings.

1.07 SUBMITTALS

- A. Shop drawings, brochures, and samples shall be submitted for all items to be furnished in accordance with the provisions of the General Conditions and as supplemented. Submittals shall include at least the following:
 - 1. Shop drawings of reinforcing steel showing details in accordance with ACI 315.
 - 2. Design mixes shall be submitted for each different contemplated application. The Engineer reserves the right to vary in the field any previously approved design mix as as to compensate for field variables including but not limited to weather conditions, placing conditions, variations in size, gradation or characteristics of aggregate and end use of the concrete.
 - 3. The control and expansion joint layout and design.
 - 4. Literature: manufacturer's complete product data specifications, clearly stating product compatibilities and limitations, for portland cement, each admixture proposed to be used, and other manufactured items including the following:
 - a. Curing compounds,
 - b. Curing mats, papers, and films,
 - c. Concrete hardener,
 - d. Concrete sealer,
 - e. Compressible fillers.

PART 2 - PRODUCTS

2.01 CEMENT

- A. The following table of minimum cement contents for various minimum 28 days compressive strengths (6"x12" cylinder) are based on air entrained and water reduced mixtures. The use of an approved additive other than air entraining and water reducing additives shall not affect the minimum cement content.

The Contractor shall submit to the Owner's Representative, for approval his proposed concrete supplier, source and type of materials, with current ASTM C-33 aggregate data, and concrete mix designs by an approved laboratory complete with trial mix data. Trial mixtures will be designed and tested at the maximum allowable slump and air content for each designated class of concrete.

Minimum 28 day Compressive <u>Strength</u>	Minimum Cement Pounds/Cu. Yd. Max. Size C.A. <u>Inches</u>				In Place Slump <u>Inches</u>
Lbs./Sq.In.	1 ½	¾	⅜		
2000	376	423	470		3-5
2500	423	470	517		3-5
3000	470	517	564		3-5
3500	517	564	611		3-5
4000	564	611	658		3-5
4500	611	658	705		3-5
5000	658	705	752		3-5
Air Content % ± 1	5.0	6.0	7.5		

All concrete for sidewalks shall have a minimum compressive strength of 3000 psi and contain 6% ± 1% entrained air.

B. MATERIALS:

Portland Cement Shall conform to ASTM C150, latest edition.

Portland cement used for concrete shall be the type designed on the plans and/or in the specifications for the particular work. If no type is specified, Type II shall be furnished.

When high early strength is required, it shall be attained by using Type III cement or by adding 15% additional Type II cement.

C. FINE AGGREGATE:

Fine aggregate shall consist of natural sand, manufactured sand or a combination thereof, conforming to the requirements of ASTM C33, Specification for "Concrete Aggregates", latest edition. The Fineness Modulus of the fine aggregate shall be 2.80 + .20 and the percent passing the #200 sieve shall not exceed 2 percent by dry sieving and 3 percent by wet sieving.

D. COARSE AGGREGATE

Coarse aggregate of washed gravel, crushed gravel, crushed stone or a combination thereof conforming to ASTM C33 Specification for "Concrete Aggregates", latest edition. Aggregate for Lightweight Concrete shall conform to ASTM C330 Specification for "Lightweight Aggregates for Structural Concrete".

E. WATER

Water for concrete shall be clear and apparently clean and shall not exhibit any deleterious effects upon the required concrete properties.

F. ADMIXTURES:

Air entraining and water reducing admixtures will be used in all concrete as specified. They shall be used in strict accordance with the manufacturer's recommendations and added at the batch plant. Admixtures shall be a ready-to-use liquid material, and contain no calcium chloride. Superplasticizers may be added at the plant or job site.

G. AIR ENTRAINING ADMIXTURE:

Shall conform to ASTM C260 Specification for "Air Entraining Admixtures for Concrete".

H. WATER REDUCING ADMIXTURE:

Shall conform to ASTM C494 Specification for "Chemical Admixtures for Concrete".

PART 3 - EXECUTION

3.01 GENERAL

A. Install concrete work in accordance with ACI 301 except as amended by this Section.

3.02 FORMWORK (ACI 301 4.2)

A. Obtain Owner's Representative's review for use of earth forms. When using earth forms, hand-trim sides and bottoms, and remove loose dirt prior to placing concrete.

B. No concrete shall be poured until Owner's Representative has inspected formwork.

3.03 TOLERANCES (ACI 301 4.3)

3.04 PREPARATION OF FORM SURFACES (ACI 301 4.4)

A. Apply form release agent on formwork in accordance with manufacturer's recommendations. Apply prior to placing reinforcing steel, anchoring devices and embedded parts. Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings which are affected by agent.

3.05 FINISHING FORMED SURFACES (ACI 301 10)

A. Formed Surface Finishes: ACI 301 10.4 Provide smooth rubbed finish at exposed edges.

3.06 CONNECTIONS TO EXISTING WORK

A. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solidly with non-shrink grout.

B. Prepare previously placed concrete by cleaning with steel brush and apply bonding agent. Apply bonding agent in accordance with manufacturer's recommendations.

3.07 REPAIR OF SURFACE DEFECTS (ACI 201 9)

A. Allow Owner's Representative to inspect concrete surfaces immediately upon removal of forms.

B. Modify or replace concrete not conforming to required lines, detail, and elevations.

C. Repair or replace concrete not properly placed resulting in excessive honeycombing and other defects. Do not patch, repair or replace exposed architectural concrete except upon direction of Owner's Representative.

3.08 PROTECTION

- A. Contractor shall be responsible for security, to guard against graffiti on concrete. Defaced concrete will be rejected, with no exceptions taken. Provide watchman (paid police details) and schedule work (limit paving concrete to A.M. hours only) as required, until concrete has cured sufficiently to prevent defacement.

END OF SECTION

SECTION 04100
MORTAR AND GROUT

PART 1: GENERAL

1.01 GENERAL PROVISIONS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.

1.02 WORK INCLUDED

- A. Mortar and grout for installation of fencing.
- B. Mortar and grout for adjusting utility frames and grates / covers.
- C. Mortar and grout for installation of drinking fountain, pavers, misting stations, and site improvements that are associated with ADD ALT. NO. 1.
- D. Mortar and grout for installation of fencing, raised planters, pavers, lights, and site improvements that are associated with ADD ALT. NO. 2.

1.03 RELATED WORK

- A. Examine contract documents for requirements that affect work of this section. Other specifications sections that directly relate to work of this section include, but are not limited to:

Section 02630 – STORM DRAINAGE

Section 02771 – GRANITE CURBING AND PAVEMENT

Section 02780 – BLUESTONE PAVEMENT

Section 02822 – STAINLESS STEEL FENCE

Section 02870 – SITE FURNISHINGS

Section 16500 – EXTERIOR LIGHTING

1.03 QUALITY CONTROL

- A. Source Limitations for Mortar and Grout Materials: Obtain mortar ingredients of uniform quality for each cementitious component from a single manufacturer and each aggregate from one source or producer.

PART 2: PRODUCTS

2.01 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C150, Type II
- B. Blended Hydraulic Cement: ASTM C595, Type IS or IP

- C. Masonry Cement: ASTM C91
- D. Hydraulic Lime: ASTM C207, Type S
- E. Quicklime for Structural Purposes: ASTM C5
- F. Aggregate for Masonry Mortar: ASTM C144
- G. Aggregate for Masonry Grout: ASTM C404, gradation as follows:
 - 1. Fine aggregate: Size No. 1
 - 2. Coarse aggregate: Size No. 8
- H. Water: Potable and free of contaminants deleterious to the mortar or grout.
- I. Admixtures: Use only as approved by the Engineer.
- J. Pigmentation: For job site pigmented mortar, use mineral pigments and, with the exception of carbon black, limit pigments to 10 percent by weight of cement content. Limit water soluble materials to one percent by weight of cement content, and carbon black to 1.5 percent by weight of cement content. Where masonry cement is used, limit pigmentation to one-half the specified limits.
- K. Do not use waterproofing additives in mortar without the written approval of the Engineer.
- L. Do not use anti-freeze compounds in mortar.

2.02 MORTAR MIXES

- A. Unreinforced Masonry Mortar: ASTM C270 or ASTM C387, type as follows:
 - 1. Exterior, at or below grade, Type S.
 - 2. All other, Type N.
- B. Reinforced Masonry Mortar: ASTM C270, Type M; ASTM C387, Type M; or C476.
- C. High-strength Mortar: ASTM C387.
- D. For masonry which will remain exposed to view in the finished work, and for any masonry to receive paint or other applied coatings, provide factory-packaged, non-staining mixes meeting the requirements specified above and containing no unhydrated lime, nor slag.
- E. The use of calcium chloride in mortar mixes is prohibited.

2.03 GROUT MIXES

- A. General: ASTM C476.
- B. Compressive Strength: 2,000 psi minimum per ASTM C42 at 28 days.

PART 3: EXECUTION

3.01 MIXING MORTAR

- A. Measure materials by methods that will control and maintain the specified proportions during the entire progress of the work. Measure mortar materials by volume or equivalent weight. Do not measure by shovel. Measure sand in a damp loose condition.
- B. Mix mortar for at least three minutes in an approved clean mechanical mixer. Mix mortar with the minimum amount of water consistent with good workability on the board, to provide maximum tensile bond strength within capacity of the mortar.
- C. Use mortar within one hour after initial mixing. Do not re-temper mortar.
- D. For alteration and restoration work, tint or middy the mix to match mortar of existing masonry.

END OF SECTION

SECTION 16050

BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.
- B. Examine all other Sections of the Specifications for requirements that affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with trades affecting, or affected by, work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 SUMMARY OF WORK

- A. The work under this section shall include all materials, tools, labor and equipment incidental to or necessary for resetting (2) lighting poles and hand holes where shown on the contract drawings (ADD ALT. NO. 2). The relocated lighting system shall include conduit, pull boxes, all wire and connections, and any other equipment necessary to complete the installation.
- B. Complying with requirements of codes and regulatory agencies.
- C. Arranging for and paying all fees for permits and inspections.

1.03 REFERENCE STANDARDS

- A. New York State Electrical Code.
- B. Requirements of Underwriters' Laboratories, Incorporated for all items installed for which UL standards have been established.
- C. State Building Code.
- D. Local ordinances and regulations.
- E. Utility company requirements.
- F. The Standard Specifications which are referred to herein shall be the latest revisions of such Specifications.

1.04 QUALITY ASSURANCE

- A. Codes and standards:
 - 1. Comply with New York State Electrical Code requirements for electrical materials and installations.
 - 2. Keep copy of New York State Electrical Code in field office for duration of project.
 - 3. Provide products and components which have been UL listed and labeled, including UL marks indicating special type usage wherever applicable.

4. In each case, codes are minimum requirements.
 5. It shall be understood that all codes and standards mentioned shall be those in force at the time the Contract is signed. If any code is changed during the construction period, these specifications may be changed by mutual agreement between the OWNER and CONTRACTOR.
 6. Work shall be in accordance with regulations and rulings of all authorities having jurisdiction over the work. Any changes required to accomplish the intent of these specifications shall be the CONTRACTOR'S responsibility as to accomplishment and any extra cost for performing work.
- B. Inspection certificates:
1. Deliver to the OWNER two (2) copies of the Electrical Inspector's certificate of approval showing acceptability of work done under this Contract.
 2. Deliver to the OWNER two (2) copies of any other certificates of approval.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Protection: Use all means necessary to protect electrical system materials before, during and after installation and to protect the installed work and materials of all other trades.
- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the acceptance of the OWNER and at no additional cost to the OWNER. If any apparatus has been subject to possible injury by water, it shall be thoroughly dried out and put through such special tests as directed by the OWNER, at the cost and expense of the CONTRACTOR, or shall be replaced by the CONTRACTOR at his own expense.
- C. Protect the work of other trades. Restore any damage caused to other trades to the condition existing prior to damage at no additional cost to the OWNER.

1.06 PROJECT CONDITIONS

- A. Existing conditions:
1. Prior to all work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
 2. Verify that the electrical installation may be made in complete accordance with all pertinent codes and regulations and the original design.
 3. In the event of discrepancy, immediately notify the OWNER.
 4. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.
- B. Coordination:
1. Coordinate the installation of electrical items with the schedules for work of other trades to prevent unnecessary delays in the total work.
 2. Coordinate with all utility company and make all installations for their services in

accordance with all utility company requirements.

3. Any changes shall be done at the CONTRACTOR'S expense.
4. Any work installed contrary to or without approval of the OWNER shall be subject to change as directed by the OWNER, and no extra compensation will be allowed the CONTRACTOR for making these changes.

C. Accuracy of data:

1. The Drawings are diagrammatic and functional only, and are not intended to show exact circuit layouts, number of fittings, or other installation details. Furnish all labor and materials necessary to install and place in satisfactory operation all power, lighting, and other electrical systems shown. Install additional circuits wherever needed to conform to the specific requirements of the equipment.
2. The locations of equipment, fixtures, outlets, and similar devices shown on the Drawings are approximate only. Field measurements shall take precedence over scaled dimensions from Drawings. Exact locations shall be as approved by the OWNER/ENGINEER during construction. Obtain in the field all information relevant to the placing of electrical work and, in case of any interference with other work, proceed as directed by the OWNER/ ENGINEER and furnish all labor and materials necessary to complete the work in an approved manner.

1.07 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. Indicated: The term "indicated" refers to graphic representations, notes, or schedules on the Drawings, or other Paragraphs or Schedules in the Specifications, and similar requirements in the Contract Documents. Where terms such as "shown," "noted," "scheduled" and "specified" are used it is to help the reader locate the reference; no limitation on location is intended.
- C. Directed: Terms such as "directed," "requested," "authorized," "selected," "approved," "required" and "permitted" mean "directed by the OWNER," "requested by the OWNER" and similar phrases.
- D. Approve: The term "approved," when used in conjunction with the OWNER'S action on the CONTRACTOR'S submittals, applications and requests, is limited to the OWNER'S duties and responsibilities as stated in the Conditions of the Contract.
- E. Regulations: The term "Regulations" includes laws, ordinances, statutes and lawful orders issued by authorities having jurisdiction, as well as rules, conventions and agreements within the construction industry that control performance of the Work.
- F. Furnish: The term "furnish" is used to mean "supply and deliver to the Project Site, ready for unloading, unpacking, assembly, installation and similar operations."
- G. Install: The term "install" is used to describe operations at the Project Site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations."
- H. Provide: The term "provide" means "to furnish and install, complete and ready for the intended use."

- I. Installer: An “Installer” is the CONTRACTOR or another entity engaged by the CONTRACTOR, either as an employee, subcontractor, or contractor of lower tier, for performance of a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.
 - 1. The term “experienced,” when used with the term “Installer,” means having a minimum of five previous projects similar in size and scope to this Project, being familiar with the special requirements indicated, and having complied with requirements of the authority having jurisdiction.
 - 2. Trades: Using terms such as “carpentry” is not intended to imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as “carpenter.” It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.
- J. OWNER: The term “OWNER” is used to mean the Hugh L. Carey Battery Park City Authority.
- K. Remove: The term “remove” means to take away, to extract, do away with and eliminate from the Project Site. All removed materials, hardware, equipment, devices, poles and related items shall be disposed of in an approved and legal manner.
- L. Testing Laboratories: A “testing laboratory” is an independent entity engaged to perform specific inspections or tests, either at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

1.08 INDUSTRY STANDARDS

- A. Applicability of Standards: Except where the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with the standards in effect as of the date of the Contract Documents.
- C. Conflicting Requirements: Where compliance with two or more standards is specified and the standards may establish different or conflicting requirements for minimum quantities or quality levels. Refer requirements that are different but apparently equal and uncertainties to the OWNER for a decision before proceeding.
 - 1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. In complying with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of the requirements. Refer uncertainties to the OWNER for a decision before proceeding.
- D. Copies of Standards: Each entity engaged in construction of the Project is required to be familiar with industry standards applicable to that entity’s construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed for performance of a required construction activity, the CONTRACTOR shall obtain copies directly from the publication source.
- E. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Names and addresses can be furnished to the CONTRACTOR if requested.

1.09 WARRANTY

- A. Guarantee all work performed and materials and equipment installed to the full extent required by the Drawings and Specifications to be free from inherent defects of material and workmanship for a period of one (1) year from the date of final acceptance.
- B. Replace any material and equipment prior to the final acceptance which is corroded or otherwise damaged through the mechanical contractor's failure to properly operate and maintain the installation during construction or retesting.
- C. Keep the work in repair and replace any defective materials, equipment or workmanship upon notice from the OWNER or OWNER'S representative for a period of one year from date of acceptance.
- D. Consider defective all material or equipment requiring excessive service during the first year of operation.
- E. The date of acceptance of the project appears on the OWNER'S certificate of substantial completion.

1.10 INSURANCE

- A. The CONTRACTOR shall, during the life of the Contract, maintain in force such insurance as is required of the General Contractor in the General Conditions of the Contract; and shall furnish the General Contractor and the OWNER with certification of such insurance before beginning work on this section of the Contract.

1.11 COOPERATION BETWEEN TRADES

- A. The CONTRACTOR shall provide full information sufficiently in advance of this work so that all necessary work by other trades may be planned and installed without any delays or conflicts. The CONTRACTOR shall furnish and locate all sleeves, supports, and anchors. Failure of the CONTRACTOR to give timely notice of and to locate openings and furnish sleeves for his work shall cause him the extra expense of cutting these openings, all at no additional expense to the OWNER. The CONTRACTOR shall locate all necessary access panels, wall and floor sleeves, and conduit penetrations through roof to complete work in advance without delay to the other trades.
- B. It is not the intention of the Drawings to show every item, piece of equipment, and detail. Provide complete operating systems.
- C. Install work as closely as possible to layouts shown on Drawings. Modify work as necessary to meet job conditions and to clear other equipment. Consult OWNER before making changes which affect the function of systems or appearance.
- D. Dimensions, elevations, and locations are shown approximately. Verify all measurements in the field prior to installation.

- E. OWNER reserves the right to order changes in layout of such items as lighting layouts, and equipment, if such changes do not substantially affect costs and if affected items have not been fabricated or installed.

PART 2: PRODUCTS

2.01 MATERIALS

- A. Materials and equipment shall be listed by Underwriters' Laboratories unless it can be demonstrated that no UL standards exist for a specific item or class of equipment.
- B. All control panels, whether fabricated by CONTRACTOR or furnished as part of a manufactured equipment assembly, shall be constructed to standards of and contain only products and components that have been tested and labeled by UL, ETL, FM, or other OSHA approved independent testing laboratory. All control panels shall be UL listed as a complete assembly or be a UL Field Evaluated Product. The CONTRACTOR shall bear all costs related to the UL field evaluation, panel modifications and follow-up evaluations. Control panels failing to meet UL listing standards shall be removed and replaced by listed panels at no cost to the OWNER.
- C. All other materials, not specifically described but required for a complete and operable electrical installation, shall be new, first quality of their respective kinds, specification grade or better, and as selected by the CONTRACTOR subject to the approval of the OWNER.

2.02 PAINTING AND CLEANING

- A. Metal surfaces (conduit hangers, supports, etc.) exposed to outdoors shall be given two (2) coats of rust inhibiting paint by the installing CONTRACTOR per manufacturer's instructions.
- B. Conduit, steel, bolts, etc. installed in earth or below vapor barrier shall be given two (2) coats of black asphaltum. Material embedded in concrete need not be painted. Conduit protruding through concrete shall be plastic or bitumastic coated at the point of breach.

2.03 ELECTRICAL EQUIPMENT CLEARANCES

- A. General Requirements: Provide clearance spaces between and around mechanical and electrical equipment for operation, maintenance and replacement of equipment. Minimum clearances for each item or piece of equipment shall be as stated in the manufacturer's printed recommendations or as shown on the manufacturer's printed drawings. Coordinate clearance requirements among various pieces of equipment that will be installed in close proximity with one another to eliminate equipment conflicts and interference. Prepare and submit shop drawings showing proposed equipment layouts and clearances.
- B. New York State Electrical Code clearances shall be maintained at all times and shall be considered the minimum clearances allowed.

PART 3: EXECUTION

3.01 INSTALLATION

- A. All underground installations, including any required wiring, must be completed before the finished surface is installed. All excavations required for the installation of conduit,

pullboxes, and sub-bases shall be completed prior to placing and compacting gravel sub-bases.

- B. Install all equipment and fixtures in complete accordance with the manufacturers' recommendations and all pertinent codes and regulations.
- C. Thoroughly inspect all items of equipment and any items dented, scratched or otherwise damaged in any manner shall be replaced or repaired and painted to match original finish.
 - 1. All items so repaired and refinished shall be brought to the attention of the OWNER for inspection and approval.
- D. Upon completion of all installation, lamping, and testing, thoroughly inspect all exposed portions of the electrical

END OF SECTION

SECTION 16500

EXTERIOR LIGHTING

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. The Contract Documents and all other Sections of Division I, General Requirements apply to this section.
- B. Examine all other Sections of the Specifications for requirements that affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with trades affecting, or affected by, work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.01 SUMMARY OF WORK

- A. Reset site lighting poles and handholes (ADD ALT. NO. 2).
- B. Install new concrete bases for site lighting fixtures (ADD ALT. NO. 2).

1.03 RELATED SECTIONS

- A. Section 03325 – Cast-in-Place Concrete

1.04 SUBMITTALS

- A. Submit shop drawings and product data in accordance with Division 1.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Locations of site lighting fixtures are to be determined from Drawings.
- B. Prior to placement of fixture bases, verify site conditions at each pole base location and have locations approved by OWNER/OWNER'S ENGINEER.
- C. All fixtures shall be mounted straight and true. Aiming of fixtures shall be as shown on the Drawings or as directed by OWNER/OWNER'S ENGINEER.
- D. Securely mount fixtures to base. Grout to eliminate any space between concrete base and metal base of fixture.
- E. Install all fixtures per manufacturer's instructions and UL listing requirements.
- F. Install lamps in accordance with manufacturer's instructions.
- G. Clean all diffusers and fixtures prior to final acceptance.

END OF SECTION

EXHIBIT B

CONTRACTOR REQUIREMENTS AND PROCEDURES FOR BUSINESS PARTICIPATION OPPORTUNITIES FOR NEW YORK STATE CERTIFIED MBEs/WBEs AND EQUAL EMPLOYMENT OPPORTUNITIES FOR MINORITY GROUP MEMBERS AND WOMEN

Pursuant to New York State Executive Law Article 15-A and 5 NYCRR §§140-145, BPCA recognizes its obligation under the law to promote opportunities for maximum feasible participation of certified MBEs/WBEs and the employment of minority group members and women in the performance of BPCA contracts.

In 2006, the State of New York commissioned a disparity study to evaluate whether MBEs/WBEs had a full and fair opportunity to participate in state contracting. The findings of the study were published on April 29, 2010, under the title “The State of Minority and Women-Owned Business Enterprises: Evidence from New York” (the “Disparity Study”). The report found evidence of statistically significant disparities between the level of participation of MBEs/WBEs in state procurement contracting versus the number of MBEs/WBEs that were ready, willing and able to participate in state procurements. As a result of these findings, the Disparity Study made recommendations concerning the implementation and operation of the statewide certified MBEs/WBEs program. The recommendations from the Disparity Study culminated in the enactment and the implementation of New York State Executive Law Article 15-A, which requires, among other things, that BPCA establish goals for maximum feasible participation of New York State Certified MBEs/WBEs and the employment of minority groups members and women in the performance of New York State contracts.

Business Participation Opportunities for MBEs/WBEs

For purposes of this solicitation, BPCA hereby establishes an overall goal of 30% for MBE/WBE participation, (based on the current availability of qualified MBEs and WBEs). A contractor (“Contractor”) on the Contract must document good faith efforts to provide meaningful participation by MBEs/WBEs as subcontractors or suppliers in the performance of the Contract and Contractor agrees that BPCA may withhold payment pending receipt of the required MBE/WBE documentation. The directory of New York State Certified MBEs/WBEs can be viewed at: <https://ny.newnycontracts.com/FrontEnd/VendorSearchPublic.asp?TN=ny&XID=7562>. For guidance on how BPCA will determine a Contractor’s “good faith efforts,” refer to 5 NYCRR §142.8.

In accordance with 5 NYCRR §142.13, Contractor acknowledges that if it is found to have willfully and intentionally failed to comply with the MBE/WBE participation goals set forth in the Contract, such finding constitutes a breach of Contract and BPCA may withhold payment from the Contractor as liquidated damages.

Such liquidated damages shall be calculated as an amount equaling the difference between: (1) all sums identified for payment to MBEs/WBEs had Contractor achieved the contractual MBE/WBE goals; and (2) all sums actually paid to MBEs/WBEs for work performed or materials supplied under the Contract.

By submitting a bid or Proposal, a Proposer agrees to demonstrate its good faith efforts to achieve its goals for the utilization of MBEs/WBEs by submitting evidence thereof through the New York State Contract System (the “NYSCS”), which can be viewed at <https://ny.newnycontracts.com>, provided, however, that a Proposer may arrange to provide such evidence via a non-electronic method by contacting BPCA. Please note that the NYSCS is a one stop solution for all of your MBE/WBE and Article 15-A contract requirements. For additional information on the use of the NYSCS to meet the Proposer’s MBE/WBE requirements please see the attached MBE/WBE guidance from the New York State Division of Minority and Women’s Business Development, “Your MWBE Utilization and Reporting Responsibilities Under Article 15-A.”

- A. Additionally, a Proposer agrees to submit a Utilization Plan with their bid or Proposal as evidence of compliance with the foregoing. Any modifications or changes to the Utilization Plan after the Contract award and during the term of the Contract must be reported on a revised Utilization Plan and submitted to BPCA.

- B. BPCA will review the submitted Utilization Plan and advise the Proposer of BPCA's acceptance or issue a notice of deficiency within 30 days of receipt.
- C. If a notice of deficiency is issued, Proposer agrees that it shall respond to the notice of deficiency within seven (7) business days of receipt by submitting to BPCA, at the address specified in this RFP, or by facsimile at 212-417-2279 a written remedy in response to the notice of deficiency. If the written remedy that is submitted is not timely or is found by BPCA to be inadequate, BPCA shall notify the Proposer and direct the Proposer to submit, within five (5) business days, a request for a partial or total waiver of MBE/WBE participation goals. Failure to file the waiver form in a timely manner may be grounds for disqualification of the bid or Proposal.
- D. BPCA may disqualify a Proposer as being non-responsive under the following circumstances:
 - 1) If a Proposer fails to submit a Utilization Plan;
 - 2) If a Proposer fails to submit a written remedy to a notice of deficiency;
 - 3) If a Proposer fails to submit a request for waiver; or
 - 4) If BPCA determines that the Proposer has failed to document good faith efforts.

Contractors shall attempt to utilize, in good faith, any MBE/WBE identified within its Utilization Plan, during the performance of the Contract. Requests for a partial or total waiver of established goal requirements made subsequent to the Contract award may be made at any time during the term of the Contract to BPCA, but must be made no later than prior to the submission of a request for final payment on the Contract.

Contractors are required to submit a Contractor's MBE/WBE Contractor Compliance & Payment Report to BPCA on a monthly basis over the term of the Contract documenting the progress made toward achievement of the MBE/WBE goals of the Contract.

Equal Employment Opportunity Requirements

By submission of a bid or Proposal in response to this RFP, the Proposer/Contractor agrees with all of the terms and conditions of the attached M/WBE – Equal Employment Opportunity Policy Statement. The Contractor is required to ensure that it shall and any subcontractors awarded a subcontract over \$25,000 for the construction, demolition, replacement, major repair, renovation, planning or design of real property and improvements thereon, except where such work is for the beneficial use of the Contractor, undertake or continue programs to ensure that minority group members and women are afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status. For these purposes, equal opportunity shall apply in the areas of recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff, termination, and rates of pay or other forms of compensation. This requirement does not apply to: (i) work, goods, or services unrelated to the Contract or (ii) employment outside New York State.

The Proposer further agrees to submit a MBE/WBE and Equal Employment Opportunity Policy Statement, Form # 4, to BPCA with their Proposal.

To ensure compliance with Article 15-A, Proposer further agrees, where applicable, to submit with the Proposal, a staffing plan identifying the anticipated work force to be utilized on the Contract and if awarded a Contract, will, upon request, submit to BPCA a workforce utilization report identifying the workforce actually utilized on the Contract, if known, through the NYSCS; provided, however, that a Proposer may arrange to provide such report via a non-electronic method by contacting BPCA.

Further, pursuant to Article 15 of the Executive Law (the "Human Rights Law"), all other New York State and Federal statutory and constitutional non-discrimination provisions, the Contractor and sub-contractors will not discriminate

against any employee or applicant for employment because of race, creed (religion), color, sex, national origin, sexual orientation, military status, age, disability, predisposing genetic characteristic, marital status or domestic violence victim status, and shall also follow the requirements of the Human Rights Law with regard to non-discrimination on the basis of prior criminal conviction and prior arrest.

Please Note: Failure to comply with the foregoing requirements may result in a finding of non-responsiveness, non-responsibility and/or a breach of the Contract, leading to the withholding of funds, suspension or termination of the Contract or such other actions or enforcement proceedings as are allowed by the Contract.

For questions on MBE/WBE participation, joint ventures and sub-contracting goals ONLY, please contact Mr. Anthony Peterson at 212.417.2337.



Your MBE/WBE Utilization and Reporting Responsibilities Under Article 15-A

The New York State Contract System (“NYSCS”) is your one stop tool compliance with New York State’s MBE/WBE Program. It is also the platform New York State uses to monitor state contracts and MBE/WBE participation.

GETTING STARTED

To access the system, please login or create a user name and password at <https://ny.newnycontracts.com/FrontEnd/VendorSearchPublic.asp?TN=ny&XID=7562>. If you are uncertain whether you already have an account set up or still need to register, please send an email to the customer service contact listed on the Contact Us & Support page, or reach out to your contract’s project manager. For verification, in the email, include your business name and contact information.

VENDOR RESPONSIBILITIES

As a vendor conducting business with New York State, you have a responsibility to utilize minority- and/or women-owned businesses in the execution of your contracts, per the MBE/WBE percentage goals stated in your solicitation, incentive proposal or contract documents. NYSCS is the tool that New York State uses to monitor MBE/WBE participation in state contracting. Through the NYSCS you will submit utilization plans, request subcontractors, record payments to subcontractors, and communicate with your project manager throughout the life of your awarded contracts.

There are several reference materials available to assist you in this process, but to access them, you need to first be registered within the NYSCS. Once you log onto the website, click on the **Help & Support** >> link on the lower left hand corner of the Menu Bar to find recorded trainings and manuals on all features of the NYSCS. You may also click on the **Help & Tools** icon at the top right of your screen to find videos tailored to primes and subcontractors. There are also opportunities available to join live trainings, read up on the “Knowledge Base” through the Forum link, and submit feedback to help improve future enhancements to the system. Technical assistance is always available through the **Contact Us & Support** link on the NYSCS website (<https://ny.newnycontracts.com/FrontEnd/VendorSearchPublic.asp?TN=ny&XID=7562>).

For more information, contact your project manager.

MINORITY AND WOMEN-OWNED BUSINESS ENTERPRISES – EQUAL EMPLOYMENT OPPORTUNITY POLICY STATEMENT

MBE/WBE AND EEO POLICY STATEMENT

I, _____ (the “Contractor”), agree to adopt the following policies with respect to the project being developed at, or services rendered to, the Battery Park City Authority (“BPCA”).

MBE/WBE

This organization will and will cause its contractors and subcontractors to take good faith actions to achieve the MBE/WBE contract participations goals set by the State for that area in which the State-funded project is located, by taking the following steps:

- (1) Actively and affirmatively soliciting bids for contracts and subcontracts from qualified State certified MBEs or WBEs, including solicitations to MBE/WBE contractor associations.
- (2) Requesting a list of State-certified MBEs/WBEs from BPCA and soliciting bids from these MBEs/WBEs directly.
- (3) Ensuring that plans, specifications, request for proposals and other documents used to secure bids will be made available in sufficient time for review by prospective MBEs/WBEs.
- (4) Where feasible, dividing the work into smaller portions to enhance participations by MBEs/WBEs and encourage the formation of joint venture and other partnerships among MBE/WBE contractors to enhance their participation.
- (5) Documenting and maintaining records of bid solicitation, including those to MBEs/WBEs and the results thereof. The Contractor will also maintain records of actions that its subcontractors have taken toward meeting MBE/WBE contract participation goals.
- (6) Ensuring that progress payments to MBEs/WBEs are made on a timely basis so that undue financial hardship is avoided, and that bonding and other credit requirements are waived or appropriate alternatives are developed to encourage MBE/WBE participation.

EEO

(a) This organization will not discriminate against any employee or applicant for employment because of race, creed, color, national origin, sex, age, disability or marital status, will undertake or continue existing diversity programs to ensure that minority group members are afforded equal employment opportunities without discrimination, and shall make and document its conscientious and active efforts to employ and utilize minority group members and women in its work force on State contracts.

(b) This organization shall state in all solicitation or advertisements for employees that in the performance of the State contract all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex disability or marital status.

(c) At the request of BPCA, this organization shall request that each employment agency, labor union, or authorized representative will not discriminate on the basis of race, creed, color, national origin, sex, age, disability or marital status and that such union or representative will affirmatively cooperate in the implementation of this organization’s obligations herein.

(d) The Contractor shall comply with the provisions of the Human Rights Law, all other State and Federal statutory and constitutional non-discrimination provisions. The Contractor and subcontractors shall not discriminate against any employee or applicant for employment because of race, creed (religion), color, sex, national origin, sexual orientation, military status, age, disability, predisposing genetic characteristic, marital status or domestic violence victim status, and shall also follow the requirements of the Human Rights Law with regard to non-discrimination on the basis of prior criminal conviction and prior arrest.

(e) This organization will include the provisions of sections (a) through (d) of this agreement in every subcontract in such a manner that the requirements of the subdivisions will be binding upon each subcontractor as to work in connection with the State contract.

Agreed to this _____ day of _____, 2015

By _____

Print: _____ Title: _____

_____ is designated as the Contractor's Minority Business Enterprise Liaison responsible for administering the Minority and Women-Owned Business Enterprises - Equal Employment Opportunity (MBE/WBE - EEO) program.

MBE/WBE Contract Goals

30% Minority and Women's Business Enterprise Participation

____% Minority Business Enterprise Participation

____% Women's Business Enterprise Participation

EEO Contract Goals (if applicable)

____% Minority Labor Force Participation

____% Female Labor Force Participation

(Authorized Representative)

Title: _____

Date: _____

EXHIBIT C

BPCA's standard form of contract

(attached)

CONSTRUCTION AGREEMENT

between

BATTERY PARK CITY AUTHORITY,
d/b/a HUGH L. CAREY BATTERY PARK CITY AUTHORITY

and

[CONTRACTOR COMPANY NAME]

Dated as of _____
Contract No. [xx-xxxx]

[PROJECT NAME]

TABLE OF CONTENTS

Contents

ARTICLE 1 - DEFINITIONS	7
ARTICLE 2 - SCOPE OF WORK, MATERIALS AND LABOR	8
2.1 Definition of Work.....	8
2.2 Contract Documents.....	9
2.3 Intent of Contract Documents	9
2.4 Completion of Drawings and Specifications	10
2.5 Title to Materials	10
2.6 Contractor's Obligations	10
2.7 "Or Equal" Clause.....	11
2.8 Quality and Labeling.....	12
ARTICLE 3 - COMMENCEMENT AND COMPLETION OF THE WORK	12
3.1 Commencement, Completion and Progress Schedule	12
3.2 Coordination with Other Contractors.....	14
3.3 Notice of Delay	15
3.4 Extension of Time.....	15
ARTICLE 4 - CONTRACT PRICE	15
ARTICLE 5 - METHOD, SCHEDULE AND TERMS OF PAYMENTS.....	16
5.1 Partial Payment	16
5.2 Requisitions.....	16
5.3 Trade Payment Breakdown.....	16
5.4 Payment for Stored Materials	16
5.5 Receipts and Releases of Liens	17
5.6 Time of Payment.....	17
5.7 Reduction of Retainage.....	17
5.8 Final Payment	17
5.9 Release and Consent of Surety.....	18
5.10 BPCA's Right to Audit and Inspect Records.....	18
5.11 Withholding of Payments	18
ARTICLE 6 – CONTRACTOR.....	19
6.1 Superintendence by Contractor, Discipline and Employee Skills	19
6.2 Representations and Warranties.....	19
6.3 Verifying Dimensions and Site Conditions	19
6.4 Copies of Contract Documents for Contractor	19
6.5 Meetings.....	20
6.6 Related Work	20
6.7 Surveys and Layout.....	20
6.8 Reports and Access	20
6.9 Financial Information.....	20
ARTICLE 7 - CONTRACT ADMINISTRATION	20
7.1 Architect's Responsibilities and Functions.....	20
7.2 Construction Manager's Responsibilities and Functions.....	20

7.3	Scope of Responsibility of Architect and Construction Manager.....	21
ARTICLE 8 - INSPECTION AND ACCEPTANCE		21
8.1	Access to the Work	21
8.2	Notice of Required Inspections and Tests.....	21
8.3	Additional Inspections and Tests	21
8.4	Uncovering of Work	21
8.5	Correction of Work	22
8.6	Certificate of Substantial Completion.....	22
8.7	Completion of Work and Acceptance	22
ARTICLE 9 - CHANGES IN THE WORK		22
9.1	Change Orders	22
9.2	Change in Contract Price and Time	23
9.3	Field Orders	24
9.4	Changed Conditions	24
ARTICLE 10 - SUBCONTRACTS AND PURCHASE ORDERS		24
10.1	Selection of Subcontractors and Materialmen and Approval of Subcontracts and Purchase Orders	24
10.2	Access by BPCA and Others	25
10.3	Retainage.....	25
10.4	Miscellaneous	25
ARTICLE 11 - ASSIGNMENT.....		26
11.1	No Assignment of Duties	26
11.2	No Assignment of Monies	26
11.3	Assignment by BPCA.....	27
ARTICLE 12 - MECHANICS' LIENS AND CLAIMS		27
ARTICLE 13 – INSURANCE AND CONTRACT SECURITY		27
13.1	Insurance	27
13.2	Effect of Procurement of Insurance	30
13.3	Contract Security	30
13.4	Additional or Substitute Bond	30
ARTICLE 14 - CLAIMS FOR EXTRA WORK.....		30
ARTICLE 15 - TERMINATION.....		31
15.1	Termination for Cause	31
15.2	Termination for Convenience of BPCA	33
15.3	Suspension of Work.....	33
ARTICLE 16 - COMPOSITE DRAWINGS AND COOPERATION		34
ARTICLE 17 - PROTECTION OF RIGHTS, PERSONS AND PROPERTY		34
17.1	Accident Prevention.....	34
17.2	Safety Programs	34
17.3	Protection of Work and Property	34
17.4	Adjoining Property.....	35
17.5	Risks Assumed by Contractor.....	35
ARTICLE 18 - USE PRIOR TO ACCEPTANCE BY BPCA		36
ARTICLE 19 - EXEMPTION FROM SALES AND COMPENSATING USE TAXES		36

19.1	BPCA Exempt.....	36
19.2	Certificates	36
ARTICLE 20 - WARRANTIES AND GUARANTIES		36
20.1	In General.....	36
20.2	Additional Guaranties	37
20.3	Repair by Another	37
ARTICLE 21 - INDEMNITY.....		37
21.1	Delay or Failure	37
21.2	Inventions.....	37
21.3	Liability	38
ARTICLE 22 - PATENTS AND ROYALTIES		38
ARTICLE 23 - AS-BUILT DRAWINGS.....		39
ARTICLE 24 - SHOP DRAWINGS AND SAMPLES		39
24.1	Contractor Submittal	39
24.2	Contractor’s Responsibility	39
ARTICLE 25 – NOTICES		39
ARTICLE 26 - EMPLOYMENT AND DIVERSITY		40
26.1	Definitions.....	40
26.2	Equal Employment Opportunities for Minority Group Members and Women	41
26.3	Workforce Participation	43
26.4	Minority Business Enterprise (MBE) Participation and Women’s Business Enterprise Participation.....	44
ARTICLE 27 - STANDARD PROVISIONS		45
27.1	Provision Required by Law Deemed Inserted	45
27.2	Compliance with Laws, Rules and Regulations	46
27.3	Applicable Law, Forum and Jurisdiction.....	46
27.4	No Third Party Rights	46
27.5	Exculpation; Limitation of Liability	46
27.6	Protection of Lives and Health	46
27.7	Waiver of Immunity Clause.....	47
27.8	Prohibited Interests	47
27.9	Labor Provisions	47
27.10	Disputes Resolution Procedure	49
27.11	Additional Provisions Relating to the Prosecution of Claims for Money Damages.....	50
27.12	Limitation on Actions	50
27.13	Waiver of Remedies.....	51
27.14	Modification of Agreement.....	51
27.15	Signs and Parking	51
27.16	Entire Agreement	51
27.17	Rights and Remedies.....	51
27.18	Participation in International Boycott Prohibited	51
27.19	Compliance with “Buy-American” Statutes	52
27.20	Permitted Successors	52

27.21 MacBride Fair Employment Principles.....52

27.22 Iran Divestment Act..... 52

27.23 Termination for Failure to Disclose Under State Finance Law §139k52

27.24 Labor Peace.....52

27.25 Comptroller’s Approval52

27.26 Key Person/Personnel53

27.27 Form of Agreement Not an Offer53

27.28 General Responsibility.....53

EXHIBITS

CONSTRUCTION AGREEMENT

AGREEMENT made as of the _____ day of _____, 2014, between BATTERY PARK CITY AUTHORITY, d/b/a HUGH L. CAREY BATTERY PARK CITY AUTHORITY, a body corporate and politic, constituting a public benefit corporation and having a place of business at One World Financial Center, 24th Floor, New York, New York 10281 (“Authority,” “BPCA” or “Owner”) and CONTRACTOR COMPANY NAME, a corporation incorporated under the laws of STATE, having an office at Street Address, City, Zip, Phone, ("Contractor").

W I T N E S S E T H:

WHEREAS, BPCA has fee title to certain real property located in the City, County and State of New York, generally consisting of approximately 92 acres of land located on the west side of lower Manhattan, bounded by Pier A to the South, the westerly extension of Reade Street to the North, the United States Bulkhead Line to the East and the United States Pierhead Line to the West (collectively, “Battery Park City”); and

WHEREAS, BPCA has caused the staged development of Battery Park City, in individual parcels, creating a richly diversified mixed use community providing residential and commercial space, with related amenities such as parks, plazas, recreational areas and a waterfront esplanade; and

WHEREAS, BPCA intends to hire a contractor to perform [type of services], consisting of the Work, as hereinafter defined, for the [structure] upon which work will be performed (the “Project”), located in and adjacent to [location], in Battery Park City, in the Borough of Manhattan, County, City and State of New York (the “Site”); and

WHEREAS, Contractor has been selected to perform the Work, as hereinafter defined, upon the terms and conditions hereinafter provided; and

NOW, THEREFORE, in consideration of the mutual covenants hereinafter set forth, Contractor and BPCA hereby agree as follows:

ARTICLE 1 - DEFINITIONS

The following terms, wherever used in the Contract Documents, as defined herein, shall have the meanings set forth below or in the Section enumerated below next to each term:

- (a) Agreement - as defined in Section 2.2(a).
- (b) Agreement Termination Date - as defined in Section 3.1(a)
- (c) Architect - Name, address, etc. or n/a.
- (d) Artist - n/a.
- (e) Authority - as defined in the introductory clause of this Agreement.
- (f) BPCA - as defined in the introductory clause of this Agreement. BPCA hereby designates BPCA Person and Title, Project Manager, as the representative of BPCA for the purpose of acting on behalf of BPCA whenever action is required to be taken hereunder by BPCA. Such designation may be revoked in writing at any time after notice given by BPCA to Contractor. In addition, such representative of BPCA shall have full power and authority to delegate in writing any or all of her responsibilities hereunder to any one or more persons after notice to Contractor.
- (g) Certificate of Substantial Completion - as defined in Section 8.6.
- (h) Change Order - as defined in Section 9.1(b).
- (i) Construction Manager - [name and address]
- (j) Contract Documents - as defined in Section 2.2.
- (k) Contract Price - as defined in Article 4.
- (l) Contract Time - the duration of time during which Construction Manager schedules and coordinates the Work of Contractor pursuant to Section 7.2 hereof.
- (m) Contractor - as defined in the introductory clause of this Agreement.
- (n) Drawings - Project drawings comprising part of Exhibit [x].
- (o) Engineer - [name and address]
- (p) Extra Work - Any work in addition to the Work to be performed by Contractor pursuant to the Contract Documents.
- (q) Field Order - as defined in Section 9.3.
- (r) Final Acceptance - as defined in Section 8.7.
- (s) Final Requisition - as defined in Section 5.2.
- (t) Guarantor - as defined in Section 27.3.
- (u) Joint Venture - an entity created pursuant to a written agreement among two or more contractors pursuant to which each shares in the direction and performance of the Work and shares in a stated percentage of profits or losses.
- (v) Key Person/Personnel - as defined in Section 27.25.
- (w) Intentionally Omitted.

- (x) Materialman - Supplier of Materials.
- (y) Materials - All products, materials, fixtures, tools, equipment, apparatus, and furnishings intended to form a part of the Work.
- (z) Minority Business Enterprise or Minority Owned Business Enterprise or MBE - as defined in Article 26.
- (aa) Minority or Minority Group Member - as defined in Article 26.
- (bb) Notice to Proceed – A written directive from BPCA to Contractor signed by a duly authorized BPCA representative directing Contractor to begin performance of the Work set forth in this Agreement on a particular date.
- (cc) Payment Bond - as defined in Section 13.3.
- (dd) Performance Bond - as defined in Section 13.3.
- (ee) Preceding Covered Date - as defined in Section 5.5.
- (ff) Product Data - Illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by Contractor to illustrate a Material, product or system for some portion of the Work.
- (gg) Progress Schedule - as defined in Section 3.1(a).
- (hh) Project - as defined in the third Recital of this Agreement.
- (ii) Purchase Order - as defined in Section 10.1(e).
- (jj) Requisitions - as defined in Section 5.2.
- (kk) Samples - Physical examples which illustrate Materials or workmanship and establish standards by which the Work will be judged.
- (ll) Site - as defined in the third whereas clause of this Agreement.
- (mm) Specifications - the specifications comprising part of Exhibit [x].
- (nn) Subcontract - An Agreement between the Contractor and a Subcontractor (as defined in subsection (nn), below) for work on the Site.
- (oo) Subcontractor - A person, firm, partnership or corporation under contract with Contractor.
- (pp) Term - as defined in Section 3.1(i).
- (qq) Trade Payment Breakdown - as defined in Section 5.3.
- (rr) Women's Business Enterprise or Women Owned Business Enterprise or WBE - as defined in Article 26.
- (ss) Work - as defined in Section 2.1.
- (tt) Work Completion Date - as defined in Section 3.1(a).

ARTICLE 2 - SCOPE OF WORK, MATERIALS AND LABOR

2.1 Definition of Work

Contractor shall perform and complete (and shall cause all Subcontractors to perform and complete) for BPCA the work more particularly described in Exhibit [x] - Scope of Work

annexed hereto and made a part hereof, required by and in conformity with the Contract Documents in connection with the construction of the Project on the Site. All materials to be furnished and labor and work to be performed and completed by Contractor and/or Subcontractors as required in the Contract Documents and in conformity with all requirements applicable with respect thereto are herein collectively referred to as the “Work.”

2.2 Contract Documents

The “Contract Documents” shall consist of the following:

(a) This instrument (the “Agreement”), which includes, in addition to the text comprising Articles 1 through 27, the following:

(1) Exhibit A:

(2) Exhibit B:

Etc...

(b) The Payment and Performance Bonds (as defined in Section 13.3).

(c) Change Orders adopted pursuant to Article 9.

The Contract Documents form the contract between BPCA and Contractor. References in the Contract Documents to “the Contract”, “this Contract” or “the Construction Contract” shall be deemed to include all of the Contract Documents. References to “this Agreement” or “the Agreement” shall refer to this instrument (including the Exhibits attached hereto), which is one of the Contract Documents.

2.3 Intent of Contract Documents

(a) The intent of the Contract Documents is to include in the Work all labor and materials, insurance, tools, equipment, permits, licenses, taxes, approvals, transportation, surveys, testing, field Engineering and other professional services (other than the services of BPCA’s Architect, Construction Manager, Engineers and attorneys, and the inspection, survey and testing services of BPCA) and any other items required to execute and complete the Work satisfactorily and in accordance with the Contract Documents. Contractor shall perform and complete the Work in accordance with the true intent and meaning of the Contract Documents and shall perform all Work incident thereto or as is usually performed in connection therewith or as is reasonably inferable therefrom, it being the intention that all work usually performed by the trade covered by this Agreement and necessary to produce the intended result be performed by Contractor whether or not specifically covered by the Contract Documents.

(b) The Contract Documents are complementary and what is called for by one shall be as binding as if called for by all.

(c) If any conflicts or ambiguities are found in or between the Drawings and Specifications, or among any of the Contract Documents, they shall be brought to the attention of Construction Manager immediately for resolution. Architect and Construction Manager will interpret the Contract Documents so as to secure in all cases the most substantial and complete performance of the Work as is most consistent with the needs and requirements of the Work. In the event that Architect and Construction Manager shall disagree as to the interpretation of the Contract Documents, such dispute shall be presented to BPCA, which shall have sole authority to resolve the dispute.

(d) Addenda to parts of the Contract Documents are for the purpose of varying, modifying, rescinding or adding to the affected portion of the Contract Documents. All addenda should be read together with the portions of the Contract Documents to which they pertain. Where an addendum modifies a portion of a paragraph or a Section, the remainder of the paragraph or Section shall remain in force unless otherwise stated in the addendum.

(e) Captions, headings, cover pages, tables of contents and footnote instructions

contained in the Contract Documents are inserted only to facilitate reference and for convenience and in no way define, limit or describe the scope, intent or meaning of any provision of the Agreement.

(f) Words and abbreviations which have well-known technical or trade meanings are used in the Contract Documents in accordance with such recognized meanings.

(g) Drawings and Specifications are complementary. Anything shown in the Drawings and not mentioned in the Specifications, or mentioned in the Specifications and not shown in the Drawings, shall have the same effect as if shown or mentioned in both.

(h) A typical or representative detail indicated on the Drawings shall constitute the standard for workmanship and Materials throughout corresponding parts of the Work. Where necessary, and where reasonably inferable from the Drawings or Specifications, Contractor shall adapt such representative detail for application to such corresponding parts of the Work. The details of such adaptation shall be subject to prior approval by Architect. Repetitive features shown in outline on the Drawings shall be in exact accordance with corresponding features completely shown.

(i) The layout of mechanical and electrical systems, equipment, fixtures, piping, ductwork, conduit, specialty items, and accessories indicated on the Drawings is diagrammatic, and all variations in alignment, elevation, and detail required to avoid interferences and satisfy Architectural and structural limitations are not necessarily shown. Actual layout of the Work shall be carried out without affecting the Architectural and structural integrity and limitations of the Work and shall be performed in such sequence and manner as to avoid conflicts, provide clear access to all control points, including valves, strainers, control devices, and specialty items of every nature related to such systems and equipment, obtain maximum headroom, and provide adequate clearances as required for operation and maintenance.

2.4 Completion of Drawings and Specifications

Contractor acknowledges that there are items of work which are not drawn or specified with complete detail in the Drawings and Specifications but which are required for the completion of the Work. Any such item, when identified as part of the reasonable development of the Work, shall be drawn or specified by Architect in consultation with Contractor, in a manner consistent with contemplated kind and quality and customary standards. When such drawing or specification is approved by BPCA, the drawing or specification so approved shall thereupon be part of the Contract Documents and the item of work shall be performed by Contractor as part of the Work without further action or order of Construction Manager or BPCA and without any increase in the Contract Price (as hereinafter defined) as if such drawing and specification were originally included in the Contract Documents.

2.5 Title to Materials

Title to all Materials shall immediately vest in BPCA upon payment in respect of such Materials, whether or not then incorporated or installed into the Project. The Materials shall then become the sole property of BPCA subject to the right of BPCA, Construction Manager or Architect to reject same for failure to conform to the standards of any or all of the Contract Documents. Title to all Work and Materials shall be in BPCA, free and clear of all liens, claims, security interests or encumbrances. Contractor warrants that no Work or Materials shall be fabricated or delivered to the Site by Contractor or any Subcontractor or Materialman subject to any security interest, lien or similar encumbrance.

2.6 Contractor's Obligations

(a) Contractor shall in a good and workmanlike manner perform all the Work required by this Agreement in accordance with the best practice of Contractor's trade within the time specified herein. Contractor shall supervise and direct the Work using its best skill and attention. Contractor shall be solely responsible for all construction means, methods, techniques, sequences and procedures within the scope of Contractor's Work.

(b) Contractor shall furnish, erect, maintain, and remove such construction plant and such temporary Work as may be required for the performance of the Work. Contractor shall be responsible for the safety, efficiency and adequacy of Contractor's plant, appliances and methods, and for damage which may result from failure or improper construction, maintenance or operation of such plant, appliances and methods. Contractor shall comply with all terms of the Contract Documents, and shall do, carry on and complete the entire Work under the direction of and to the satisfaction of BPCA.

(c) Contractor shall provide all equipment, tools and materials and whatever else may be required for proper performance of the Work unless stated otherwise in the Contract Documents.

(d) Contractor shall deliver all Materials at such times and in such quantities as will insure the speedy and uninterrupted progress of the Work. All Materials shall be delivered to the Site in proper order and quantity and shall be stored at the Site, if storage space is available in Construction Manager's opinion, in such places as Construction Manager shall direct; provided, that no delivery of Materials shall be made to the Site without prior approval by Construction Manager. Contractor has been advised and is aware that the Project is located in a congested metropolitan area, and there may not be sufficient space to store Materials on Site. If storage space is unavailable on Site, Contractor shall make arrangements to store materials off Site at Contractor's own cost. Contractor shall not be entitled to additional compensation for moving Materials from one storage area to another, whether such storage areas are on or off Site. No Materials shall be removed from the Site without the consent of Construction Manager. Contractor shall handle and take care of all Materials used in performance of the Work whether furnished by Contractor or BPCA, as the same are delivered to the Site or to any applicable offsite storage location and shall be solely responsible for the security and condition of the same. After final completion and acceptance of the Work, or sooner if requested by Construction Manager, Contractor shall remove all surplus Materials and scaffolding furnished by it which have not been incorporated in the Work.

(e) Contractor shall follow and perform the Work in accordance with the Contract Documents as interpreted by Architect, Construction Manager, and BPCA.

(f) Unless otherwise provided in the Contract Documents, Contractor shall secure and pay for all permits and governmental fees, licenses and inspections necessary for the proper execution and completion of the Work. Contractor shall give all notices and comply with all laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the performance of the Work. If Contractor observes that any of the Contract Documents are at variance with any applicable laws in any respect, Contractor shall promptly notify Architect and Construction Manager in writing, and any necessary changes shall be accomplished by appropriate modification. If Contractor performs any Work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to Architect and Construction Manager, Contractor shall assume full responsibility therefor and shall bear all costs attributable thereto.

(g) Contractor shall be responsible for collecting all paper, cartons and other debris caused by its Work or personnel, placing the same in a location designated by Construction Manager and keeping the portion of the Site upon which Contractor is performing the Work free from all debris.

(h) Contractor shall attend meetings as directed by BPCA or Construction Manager.

2.7 "Or Equal" Clause

(a) The Materials of manufacturers referred to in the Specifications and on the Drawings are intended to establish the standard of quality and design required by Architect; however, Materials of manufacturers, other than those specified, may be used if equivalent and approved by Architect, Construction Manager and BPCA.

(b) It is deemed that the term "or approved equal" is included after all Materials referred to in the Specifications or on the Drawings.

(c) Architect will initially judge the equivalency of proposed substitute Materials. Architect will make written recommendation of acceptance or rejection to Construction Manager and/or BPCA. Construction Manager and/or BPCA will then authorize Architect to issue to Contractor written approval or rejection of the substitution.

(d) If Contractor desires to use a substitute item, Contractor shall make application to Architect in writing in sufficient time (with regard to the progress of the Work, the period of delivery of the goods concerned and adequate time for Architect's review) stating and fully identifying the proposed substitute, cost changes (if any), and submitting substantiating data, samples, brochures of the item proposed. It is Contractor's responsibility to provide at its sole expense sufficient evidence by tests or other means to support any request for approval of substitutions.

(e) Prior to proposing any substitute item, Contractor shall satisfy itself that the item Contractor proposes is, in fact, equal to that specified and had been used satisfactorily in similar applications to the application proposed for the Work, for at least three years, that it will fit into the space allocated and within the load allocated for the same, that it affords comparable ease of operations, maintenance and service, that its appearance, longevity and suitability for the climate and use are comparable to that specified, and that the substitution requires no change in dimension or design of any other Work of Contractor, of any other contractor or in the time required for the performance thereof.

(f) The burden of proof that a proposed substitution is equal to a specified item shall be upon Contractor, who shall support its request with sufficient test data and other means to permit Architect to make a fair and equitable decision on the merits of the proposal. Any item by the manufacturer other than those cited in the Contract Documents, or of brand name or model number or of generic species other than those cited in the Contract Documents, will be considered a substitution.

(g) Acceptance of substitutions shall not relieve Contractor from responsibility for compliance with all the requirements of the Contract Documents. If, notwithstanding the provisions of subsection (e) above, changes in other parts of the Work or the work of other contractors are required by its substitutions, Contractor shall be responsible for the costs of any such changes including the cost of all design and redesign services related thereto incurred by the Architect and his consultants.

(h) The Contract Time shall not be extended by any circumstances resulting from a proposed substitution, nor shall Contractor be entitled to any compensation for any delay caused thereby or related thereto.

2.8 Quality and Labeling

All Materials furnished shall be new and the quality thereof shall be in accordance with the Contract Documents. When Materials are specified to conform to a given standard, the Materials delivered to the Site shall bear manufacturer's labels stating that the Materials meet such standard. The above requirements shall not restrict or affect BPCA's right to test Materials as provided in this Agreement.

ARTICLE 3 - COMMENCEMENT AND COMPLETION OF THE WORK

3.1 Commencement, Completion and Progress Schedule

(a) Contractor shall prepare and submit a progress schedule for the Work ("Progress Schedule for the Work") and agrees to be bound by and comply with the Work Completion Date and the Progress Schedule for the Project (as the Progress Schedule for the Project shall be updated pursuant to subsection (b)) and waives any right to charge or claim damages or any increased cost, charges or expenses against BPCA, Construction Manager, or Architect, for delays or disruptions from any cause whatsoever. Contractor's sole remedy as against BPCA, Construction Manager, or Architect for any delays or disruptions shall be as provided in Section 3.4 hereof. Notwithstanding the foregoing, the Work shall be completed by no later than [date] (the "Work Completion Date") with time being of the essence in respect of said Work

Completion Date, as more fully set forth in subsection (h) below; this Agreement shall terminate by [date] (the “Agreement Termination Date”).

(b) The Progress Schedule for the Work shall be formatted in a detailed precedence-style critical path method, or such other format satisfactory to BPCA and Construction Manager and shall also (a) provide a graphic representation of all activities and events including float values that will affect the critical path of the Work, (b) incorporate and coordinate all pertinent information involving each phase of Work, and (c) identify dates that are critical to ensuring the timely and orderly completion of the work in accordance with the requirements of the Contract Documents, including the dates for Substantial Completion of each respective phase of the Work. The Progress Schedule for the Work shall be updated weekly, or at any other time at the request of Construction Manager or BPCA, and submitted to Construction Manager and BPCA for review and approval. Failure to submit any requested update shall constitute a material breach of this Agreement. The Contractor shall promptly give written notice of any actual or potential delays to BPCA and Construction Manager. After submission of the Progress Schedule for the Work, Construction Manager shall coordinate the Progress Schedule for the Work with the Progress Schedule for the Project. The Progress Schedule for the Work may be revised by Construction Manager from time to time.

(c) Contractor shall commence the Work upon receipt of a written Notice to Proceed signed by BPCA, and shall prosecute the Work diligently and in accordance with the time and place requirements of the Project as determined and directed by Construction Manager, by using such means and methods of construction as will assure that the Work will be performed hereunder in accordance with the Contract Documents and Progress Schedule for the Work, and to the satisfaction of BPCA, Architect, and Construction Manager.

(d) If, in the opinion of Construction Manager, Contractor falls behind the Progress Schedule for the Project then in effect, Contractor shall take whatever steps may be necessary to improve its progress and shall, if requested by Construction Manager, submit operational plans to demonstrate the manner in which the lost time may be regained. It is the responsibility of Contractor to maintain its schedule so as not to delay the progress of the Project or the schedules of other contractors. If Contractor delays the progress of its Work or the work of other contractors, it shall be the responsibility of Contractor to increase the number of workers, the number of shifts, the days of Work and/or, to the extent permitted by law, to institute or increase overtime operations, all without additional cost to BPCA, in order to regain any time lost and maintain the Progress Schedule for the Project then in effect as established by Construction Manager.

(e) If Contractor shall fail to complete the Work by the Work Completion Date, or within the time to which such completion may have been extended, BPCA may, at its option, withhold from any sums otherwise due and owing to Contractor hereunder, so much of the balance thereof as BPCA shall deem necessary to secure it against any costs, expenses, or damages which may be incurred by BPCA as a result of said failure, but any such withholding shall not be deemed to be a waiver of any rights hereunder, and Contractor shall be liable to and shall indemnify and hold BPCA harmless from any and all cost, expense or damage incurred by BPCA by reason of such failure.

(f) If Contractor shall neglect, fail or refuse to complete the Work on or before the Work Completion Date or any changes thereto in accordance with, or upon the expiration of, any proper extension granted by BPCA, Contractor agrees to pay to BPCA \$_____, not as a penalty, **but as liquidated** damages for loss of beneficial use of the Project, for each and every calendar day that the Contractor is in default. Default shall include abandonment of the Work by Contractor.

(g) Said amount of liquidated damages is agreed upon by and between Contractor and BPCA because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages which BPCA would sustain for loss of beneficial use of the Project in the event of delay in completion, and said amount is agreed to be the amount of damages sustained by BPCA and said amount may be retained from time to time by BPCA. The foregoing liquidated damages are intended to compensate BPCA only for the loss of beneficial use of the Project. In addition, Contractor shall be liable to BPCA, to the fullest extent permitted by law, for whatever actual damages (other than actual loss of beneficial use) BPCA may incur as a result of any actions or

inactions of Contractor or its Subcontractors including, without limitation, interest expense and carrying costs, liabilities to other Contractors working on the Project or other third parties, job extension costs, and other losses incurred by BPCA. The provisions of this paragraph are exclusive to BPCA, and shall not accrue to other contractors or third parties.

(h) It is further agreed that time is of the essence for each and every portion of the Work. In any instance in which additional time is allowed for the completion of any Work, the new time of completion established by said extension shall be of the essence. Contractor shall not be charged with liquidated damages or any excess cost if BPCA determines that Contractor is without fault and that the delay in completion of the Work is due:

(1) to any preference, priority or allocation order duly issued by the Government of the United States or the State of New York;

(2) to an unanticipated cause beyond the control and without the fault of, or negligence of Contractor, and approved by BPCA, including, but not limited to, acts of God or of public enemy, fires, epidemics, quarantine, strikes, freight embargoes and unusually severe weather; and

(3) to any delays of Subcontractors or Materialmen occasioned by any of the causes specified in Subsections 1 and 2 of this paragraph.

(i) Notwithstanding the foregoing, and whether or not, at any given time, a Progress Schedule, or update thereto (as appropriate) has been submitted, the Work shall be completed by the Work Completion Date (with the period between commencement of the Work and the Work Completion Date being referred to herein as the "Term").

(j) Notwithstanding anything to the contrary, a schedule submitted by Contractor showing a time of completion earlier than that specified in the Contract shall not entitle Contractor to any additional compensation in the event the earlier time of completion is not realized.

3.2 Coordination with Other Contractors

Contractor shall coordinate the Work to be performed hereunder with the work of other contractors performing work for the Project in such manner as Construction Manager shall direct. Contractor shall indemnify and hold BPCA, Construction Manager and Architect harmless from any and all claims or judgments for damages, costs and expenses to which BPCA, Construction Manager or Architect may be subjected or which they may suffer or incur by reason of Contractor's failure to promptly comply with Construction Manager's directions. If Contractor notifies Construction Manager in writing that another contractor is failing to coordinate its work with the Work to be performed hereunder, Construction Manager shall promptly investigate the charge. If Construction Manager finds that charge to be true, it shall promptly issue such direction to the other contractor with respect thereto as the situation may require. BPCA, Construction Manager and Architect shall not, however, be liable for any damages suffered by Contractor by reason of the other contractor's failure to promptly comply with the directions so issued by Construction Manager or by reason of another contractor's default in performance. Should Contractor sustain any damage through any act or omission of any other contractor, Contractor shall have no claim against BPCA, Construction Manager or Architect for such damage but shall have a right to recover such damage from the other contractor, under a provision similar to a provision contained in the following sentence which is part of this Agreement and which has been or will be inserted in the contracts with the other contractors engaged in the Project.

Should any other contractor having or who shall hereafter have a contract with BPCA for the performance of work upon the Project sustain any damage through any act or omission of Contractor hereunder, Contractor agrees to reimburse such other contractor for all such damages and to indemnify and hold BPCA, Construction Manager and Architect harmless from all such claims. Any claim against a performance bond surety made by any contractor shall be subordinated to any claim of BPCA then existing or that may arise in the future against such other contractor or its performance bond surety.

3.3 Notice of Delay

Should Contractor be or anticipate being delayed or disrupted in performing the Work hereunder for any reason, including, without limitation, its financial condition or Contractor's general nonpayment of its debts as such debts become due, it shall promptly and in no event more than three (3) days after the commencement of any condition which is causing or is threatening to cause such delay or disruption notify Construction Manager in writing of the effect of such condition upon BPCA's Progress Schedule for the Project, stating why and in what respects the condition is causing or is threatening to cause delay, provided, however, that notwithstanding the above, if such delay or disruption, or anticipated delay or disruption, should be the result of any change or anticipated change in Contractor's financial condition, Contractor shall notify Construction Manager forthwith of such cause or anticipated cause. Failure to strictly comply with this notice requirement shall be sufficient cause to deny Contractor a change in schedule and to require it to conform to the Progress Schedule for the Project then in effect established by Construction Manager.

3.4 Extension of Time

(a) An extension of time under the Progress Schedule for the Project then in effect may be granted by BPCA subject to the provisions hereof upon written application therefor by Contractor. An application for an extension of time under the Progress Schedule for the Project then in effect must set forth in detail the nature of each cause of delay in the performance of the Work, the date or dates upon which each cause of delay began and ended and the number of days delay attributable to each such cause. After the application is submitted, Contractor shall supply any other data that Construction Manager may request.

(b) Contractor shall be entitled to an extension of time under the Progress Schedule for the Project then in effect for delays in the performance of the Work, if caused:

- (1) solely by unanticipated acts or omissions of BPCA, Construction Manager or Architect; or
- (2) by the unanticipated acts or omissions of other contractors or unanticipated causes beyond the control and without the fault or negligence of Contractor including, but not limited to, acts of God, acts of public enemy, acts of any Government body, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, unusually severe weather, or delays of Subcontractors or Materialmen arising from unforeseeable causes beyond the control and without the fault or negligence of both Contractor and such Subcontractors or Materialmen; provided, that Contractor shall have used its best efforts and diligently sought to have minimized any such period of delay, by taking whatever measures are necessary, including without limitation, if applicable, seeking alternate sources of Materials, other Subcontractors or other facilities in which to perform the required construction operations; and provided, further, that an application is made pursuant to the requirements of the immediately preceding paragraph.

ARTICLE 4 - CONTRACT PRICE

For the performance and completion of the Work, BPCA shall pay Contractor a lump sum amount of \$_____, (such sum is herein sometimes referred to as the "Contract Price"), which amount shall include any monies earned by or paid to Contractor prior to the execution of this Agreement, provided, that if the Contract Price shall be expressly revised by a Change Order in accordance with Article 9 hereof, the Contract Price shall thereafter mean the Contract Price as so revised. Contractor will submit appropriate Time Sheets in the form of Exhibit [x].

ARTICLE 5 - METHOD, SCHEDULE AND TERMS OF PAYMENTS

5.1 Partial Payment

(a) In accordance with Requisitions (as defined in Section 5.2) submitted and approved as provided below for Work performed in accordance with this Agreement, Contractor shall be entitled to partial payment on account of the Contract Price in an amount equal to the value, as determined in accordance with the Trade Payment Breakdown (as defined in Section 5.3), of the portions of the Work completed and acceptable to BPCA and Construction Manager for purposes of such payment, less a retainage equal to ten percent (10%) of the total amount of all prior partial payments. Partial payments shall constitute advances against the Contract Price until final payment is made and accepted. No partial payment made, nor approval of a portion of the Work given for purposes of making a partial payment, shall constitute an acceptance of any Work not in accordance with the Contract Documents.

(b) Upon completion of fifty percent of the Work, Contractor may make written application to BPCA requesting reduction of the retainage set forth in Section 5.1(a) hereof. Approval of such reduction of retainage and the percentage to which the retainage shall be reduced is in the sole discretion of BPCA. If BPCA approves a reduction of retainage as herein described, BPCA shall so notify Contractor in writing. Any reduction of retainage pursuant to this paragraph (b) shall not be deemed to be a waiver of retainage requirements for future partial payments.

5.2 Requisitions

Applications for partial payments ("Requisitions") and application for final payment ("Final Requisition") shall be in the form previously supplied by BPCA and shall be submitted by Contractor to Construction Manager or its designee in five original copies in the manner hereinafter provided for the approval of BPCA and Construction Manager. Each Requisition shall be supported by such data substantiating Contractor's right to payment as BPCA and Construction Manager may require.

5.3 Trade Payment Breakdown

Prior to the submission of the first Requisition, Contractor shall present to Construction Manager for approval a trade payment breakdown (the "Trade Payment Breakdown") of the various portions of the Work, aggregating the Contract Price, prepared in such form as specified by BPCA and supported by such data to substantiate its correctness as Construction Manager may require. After approval by BPCA and Construction Manager, the Trade Payment Breakdown shall not be changed or revised in any way without the written consent of Construction Manager. The Trade Payment Breakdown, when approved by Construction Manager, shall be used only as a basis for Requisitions and shall not be considered as a basis for reducing or increasing the Contract Price.

5.4 Payment for Stored Materials

If approved in advance of delivery by BPCA and Construction Manager, payments will be made on account of 80% of the value of Materials not incorporated in the Work, but delivered and suitably stored at the Site or at some other offsite location agreed upon in writing by BPCA and Construction Manager. Such payments shall be conditioned upon submission by Contractor of bills of sale or other supporting documentation satisfactory to BPCA and Construction Manager to establish BPCA's title to such Materials including applicable insurance and transportation to the Site for those Materials stored offsite. In the event that Contractor, with approval of BPCA, stores any Materials offsite, the conditions for payment of Material stored off-site shall include but not be limited to the following: (a) the Material shall be properly stored in a secured location approved by the BPCA and/or Construction Manager; (b) the Material will be covered under the BPCA's builder's risk policy subject to policy limits and restrictions; and (c) the Material may be inspected by the BPCA and /or Construction Manager to assure compliance with Contract Documents.

5.5 Receipts and Releases of Liens

With each Requisition, Contractor shall furnish its affidavit of payment and waiver of lien for Work done and Materials furnished through the date covered by the last preceding partial payment (the "Preceding Covered Date") and shall furnish its affidavit certifying that all Subcontractors and Materialmen have been paid for Work performed and Materials furnished through the Preceding Covered Date except for any permitted retainage. BPCA may also require Contractor to attach to each Requisition (i) affidavits of payment and waivers of lien from all Subcontractors and Materialmen dealing directly or indirectly with Contractor for Work performed and Materials furnished through the Preceding Covered Date and/or (ii) the consent of the surety issuing the Payment Bond to such payment. BPCA may require Contractor to execute a waiver of lien at the time payment is made for a Requisition for all Work performed through the date of the Requisition in respect of which payment is being made.

In addition to the documents required to be furnished by the preceding paragraph, with the Final Requisition, Contractor shall furnish (y) its affidavit that there are no liens, claims or demands by, and that there is no indebtedness to, Subcontractors, Materialmen, laborers, other employees or third persons for which BPCA, Construction Manager, or Architect might in any way be responsible and (z) releases from all Subcontractors and Materialmen dealing directly or indirectly with Contractor. Should any such Subcontractor or Materialman fail or refuse to furnish such release, Contractor may be required to furnish a bond satisfactory to BPCA to indemnify it against any such lien, claim or demand. If any such lien, claim or demand remains unsatisfied after all payments are made to Contractor, Contractor shall refund to BPCA all monies that BPCA may be compelled to pay in discharging such lien, claim or demand including all costs, expenses and attorneys' fees which BPCA may incur in connection therewith.

5.6 Time of Payment

Requisitions shall be submitted by Contractor to BPCA and Construction Manager by the seventh day of each calendar month for Work completed up to the last calendar day of the previous month or other day approved by BPCA, and payment shall be made on or about twenty days after BPCA receives the Requisition together with the documents required pursuant to Sections 5.2 and 5.5 hereof. Contractor shall be entitled to payment only in the amount approved by BPCA, and Construction Manager with respect to such Requisitions, each of which must be signed by BPCA, and Construction Manager before payment is made. The value of any Work included in a Requisition for partial payment which is found unacceptable by BPCA, or Construction Manager may be deducted from that or any subsequent Requisition.

5.7 Reduction of Retainage

Upon the issuance of a Certificate of Substantial Completion, as defined in Section 8.6, Contractor shall submit a Requisition in an amount equal to the Contract Price less five percent (5%) of the total contract amount (including all approved change orders and pending change order proposals), and less the total amount of all prior payments. Upon approval of the same by BPCA, BPCA shall pay to Contractor the amount approved less any amount which BPCA is entitled to withhold hereunder.

5.8 Final Payment

(a) The final balance due Contractor under this Agreement shall be payable to Contractor by BPCA, as final payment hereunder, within thirty days after all of the following have taken place:

- (1) Contractor's Final Requisition has been submitted by Contractor and approved by BPCA, and Construction Manager;
- (2) the affidavit provided for in Section 5.5 hereof has been submitted by Contractor, and any other documents or actions expressly specified in the Contract Documents as preconditions to final payment have been submitted or completed; and

- (3) any inspections or approvals with respect to any of the Work that BPCA deems legally required or appropriate by governmental authorities or by the applicable Board of Fire Underwriters have been performed or obtained.

(b) The acceptance of final payment shall constitute a waiver of all claims by Contractor.

5.9 Release and Consent of Surety

Notwithstanding any other provision of this Agreement, before final payment pursuant to Section 5.8 shall become due pursuant hereto or before reduction of retainage, Contractor shall submit to BPCA a consent of surety to final payment or reduction of retainage in a form and substance acceptable to BPCA.

5.10 BPCA's Right to Audit and Inspect Records

Contractor shall maintain and shall keep for a period of at least six years after the date of Final Acceptance of the Work, pursuant to Section 8.7, all records and other data relating to the Work. BPCA or its designee shall have the right to inspect and audit all records and other data of Contractor relating to the Work at any time and from time to time until the end of such six year period. Contractor shall promptly respond to any inquiries of BPCA or any representative of BPCA arising out of any such inspection or audit.

5.11 Withholding of Payments

(a) BPCA may withhold payment or, because of subsequently discovered evidence, may nullify the whole or any part of any previously approved Requisition to such extent as may, in the judgment of BPCA, be necessary:

- (1) to assure payment of just claims or liens of any persons supplying labor or Materials for the Work;
- (2) to protect BPCA from loss due to defective Work or to reimburse BPCA, Construction Manager and Architect for fines on account of non-compliance with applicable laws, rules and regulations, including rules promulgated by the Office of Safety & Health Administration;
- (3) to protect BPCA from loss due to death or injury to persons or damage to the Work or property of BPCA, other contractors or others caused by the act or neglect of the Contractor;
- (4) in the event that there is reasonable evidence that the Work will not be completed for the unpaid balance of the Contract Price;
- (5) in the event that there is reasonable evidence that the Work will not be completed within the time provided; or
- (6) in the event that Contractor persistently fails to perform the Work in accordance with the Contract Documents.

In any of such events, BPCA shall have the right to apply any such amounts so withheld in such manner as BPCA may deem proper to satisfy such claims, to secure such protection, to complete the Work or to compensate BPCA for any loss suffered by reason of Contractor's delay. Such application shall be deemed payment for the account of Contractor. In the event that BPCA gives Contractor notice that it intends to make such application, Contractor shall be estopped from disputing liability or the amount of liability unless, within three days after receipt of such notice, it indicates to BPCA in writing that it is not liable or that the amount of its liability is different from that set forth in the notice.

(b) The provisions of this Section 5.11 are solely for the benefit of BPCA, and any action or non-action by BPCA shall not give rise to any liability on the part of BPCA. Failure to

so act shall not be deemed a waiver of any present or future claims of BPCA.

ARTICLE 6 – CONTRACTOR

6.1 Superintendence by Contractor, Discipline and Employee Skills

Contractor shall provide a competent construction superintendent to be in charge of the Work. The construction superintendent shall devote full time to the Work, shall be present at the Site during the time the Work is required to be performed and shall have full authority to accept instructions, make decisions and act for Contractor at all times. If at any time the construction superintendent is not satisfactory to BPCA or Construction Manager, Contractor shall, if requested by BPCA, replace such superintendent with another satisfactory to BPCA. Contractor shall enforce strict discipline and good order at all times among Contractor's employees and all Subcontractors. Contractor shall not engage any employee not skilled in the task assigned.

6.2 Representations and Warranties

Contractor represents and warrants that:

(a) Contractor is financially solvent and is experienced in, and competent to perform the Work and has the staff, manpower, equipment, Subcontractor, and suppliers available to complete the Work within the time specified in the Agreement for the Contract Price;

(b) Contractor is familiar with all Federal, State or other laws, ordinances, orders, rules and regulations, which may in any way affect the Work;

(c) any temporary and permanent Work required by this Agreement can be satisfactorily constructed, and such construction will not injure any person or damage any property; and

(d) Contractor has carefully examined the Contract Documents and the Site and, from Contractor's own investigations, is satisfied as to the nature and location of the Work, the character, quality and quantity of surface and subsurface materials likely to be encountered, the character of equipment and other facilities needed for the performance of the Work, the general and local conditions, and all other conditions or items which may affect the Work. Prior to submitting its bid for performance of the Work, Contractor notified BPCA or Construction Manager in writing of any discrepancies or errors in the Contract Documents.

6.3 Verifying Dimensions and Site Conditions

Before proceeding with the Work, Contractor will check all previous and surrounding work and determine the correctness of the same; failure on its part to detect or report discrepancies will relieve BPCA of liability from any and all claims to recover cost, expense, loss or damage resulting therefrom. Contractor shall take, determine, investigate and verify all field measurements, dimensions, field construction criteria and Site conditions for the performance of the Work and shall check and coordinate the information contained in the Contract Documents and the boring logs which shall be available for inspection with the requirements of the Work. Contractor shall be responsible for determining the exact location of and to verify the spatial relationships of all Work. If any conflicts or discrepancies are found in the Contract Documents or if Contractor has any questions concerning the foregoing, it shall immediately notify Construction Manager and shall thereafter perform the Work in accordance with the directions of Construction Manager.

6.4 Copies of Contract Documents for Contractor

BPCA shall furnish to Contractor, without charge, two sets of the Contract Documents. Any sets in excess of the number mentioned above may be furnished to Contractor at the cost of reproduction and mailing.

6.5 Meetings

Contractor shall attend all meetings as directed by BPCA or Construction Manager, including meetings set forth in Section 26.3, and shall be represented at such meetings by a person having knowledge of the Work and authorized to act for Contractor at all times. If at any time such person is not satisfactory to BPCA or Construction Manager, Contractor shall, if requested by BPCA, be represented by another person satisfactory to BPCA, having knowledge of the Work and authorized to act for Contractor at all times.

6.6 Related Work

Contractor shall examine the Contract Documents for related work to ascertain the relationship of such work to the Work under the Contract Documents.

6.7 Surveys and Layout

Unless otherwise expressly provided in this Agreement, Owner shall furnish Contractor survey points necessary for the Work, but Contractor shall lay out the Work.

6.8 Reports and Access

Contractor shall furnish BPCA and Construction Manager with daily and monthly manpower reports on forms provided by BPCA or Construction Manager and such other reports as may be required by BPCA or Construction Manager. BPCA, Construction Manager and Architect shall have full and free access to the shops, plants and factories of Contractor, any Materialmen and Subcontractors to inform themselves as to the progress of the Work.

6.9 Financial Information

Until completion of the Work, Contractor agrees to notify BPCA forthwith in writing of any event which has caused or is reasonably anticipated to cause a material adverse change in Contractor's business or financial condition from that shown in the then most recent financial statements furnished by Contractor to BPCA. Contractor has furnished to BPCA financial statements regarding the period from [date] to [date]. Contractor agrees to furnish to BPCA, at BPCA's request from time to time hereafter, quarterly, or annual financial statements (which shall be audited, if such is the practice of Contractor for financial statements covering the applicable period) and such additional information as BPCA shall deem necessary or desirable to satisfy itself of Contractor's continuing ability to complete the Work.

ARTICLE 7 - CONTRACT ADMINISTRATION

7.1 Architect's Responsibilities and Functions

Contractor acknowledges that the role of Architect with respect to the Work shall be as specified in this Agreement. Contractor will comply with the instructions of Architect pursuant hereto.

Architect's duties and services shall in no way supersede or dilute Contractor's obligation to perform and complete the Work in conformity with the Contract Documents.

7.2 Construction Manager's Responsibilities and Functions

(a) Construction Manager shall coordinate and schedule construction to insure that the completion of the Project is on schedule and that the Project is well constructed in accordance with the Contract Documents. Contractor acknowledges that the role of Construction

Manager with respect to the Work shall be as specified in this Agreement. Contractor hereby agrees to comply with the directions and instructions of Construction Manager.

(b) Construction Manager shall call for meetings of Contractor, other contractors, Subcontractors and Materialmen as necessary for the proper coordination of the Work. Such meetings shall be held at the Site on regular working days, during regular working hours, unless otherwise directed by BPCA. Attendance shall be mandatory for all parties notified to attend.

7.3 Scope of Responsibility of Architect and Construction Manager

In no event shall any act or omission on the part of the Construction Manager or Architect relieve Contractor of its obligation to perform the Work in full compliance with the Contract Documents. Neither Architect nor Construction Manager will be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, and neither will be responsible for Contractor's failure to carry out the Work in accordance with the Contract Documents or the failure to fulfill any of the requirements of this Agreement.

ARTICLE 8 - INSPECTION AND ACCEPTANCE

8.1 Access to the Work

BPCA, Construction Manager, Architect or their authorized representatives shall at all times have access to and the right to observe the Work and all facilities where the Work or any part thereof is being fabricated or stored, and Contractor shall provide proper facilities for such access and observation.

8.2 Notice of Required Inspections and Tests

If the Contract Documents, or any laws, rules, ordinances or regulations, require that any Work be inspected or tested, Contractor shall give BPCA, Construction Manager and Architect at least five days prior written notice of readiness of the Work for inspection or testing and the date fixed for such inspection or testing.

8.3 Additional Inspections and Tests

(a) Whenever, in the opinion of BPCA, Construction Manager or Architect, it is desirable to require inspection or testing of the Work or its individual components in addition to any such testing which may be originally included in the Work, they shall have authority to do so whether or not such Work be then fabricated, installed, covered or completed. If such inspection or testing reveals a failure of the Work to comply (1) with the requirements of the Contract Documents, or (2) with respect to the performance of the Work, with laws, ordinances, rules, regulations or orders of any public authority having jurisdiction, Contractor shall bear all costs thereof, including Architect's and Construction Manager's additional services made necessary by such failure; otherwise BPCA shall bear such costs, and an appropriate Change Order shall be issued.

(b) In the event that any item of the Work fails inspection or testing, BPCA, Architect or Construction Manager may require inspection or testing of any or all of the other items of the Work at Contractor's cost and expense.

8.4 Uncovering of Work

(a) If any Work shall be covered or concealed contrary to the request of BPCA, Architect or Construction Manager, such Work shall, if required by BPCA, Architect or Construction Manager, be uncovered by examination, inspection or testing. Any examination, testing or inspection shall not relieve Contractor of the responsibility to maintain quality control over the Work. If any test results are below specified minimums, BPCA may order additional testing. The cost of such additional examination, inspection or testing, any additional professional services required, and any other expenses incurred by BPCA as a result of such

examination, inspection or testing shall be borne by Contractor.

(b) In the event that a typical detail fails inspection or testing, BPCA, Architect or Construction Manager may require inspection or testing of any or all of other such typical details at Contractor's cost and expense.

8.5 Correction of Work

Any Work not approved by BPCA, Architect and Construction Manager shall immediately be reconstructed, made good, replaced or corrected by Contractor including all Work of other contractors destroyed or damaged by such removal or replacement. Rejected material shall be removed immediately from the Site. Acceptance of Materials and workmanship by BPCA shall not relieve Contractor from Contractor's obligation to replace all Work which is not in full compliance with the Contract Documents.

8.6 Certificate of Substantial Completion

Upon their receipt of written notice from Contractor stating that in Contractor's estimation the Work has been substantially performed in conformity with the Contract Documents, Architect and/or Construction Manager shall perform an inspection for the purposes of determining whether the Work has been so performed, commencing such inspection within ten (10) days of receipt of such notice and completing it with all due diligence. When Architect and/or Construction Manager find upon inspection that, to the best of their knowledge and belief, the Work is so performed, they shall prepare and deliver to BPCA for delivery to Contractor a certificate specifying the date of substantial completion of the Work for purposes of this Agreement ("Certificate of Substantial Completion") and a punch list of items of Work remaining to be completed prior to the completion of the Work.

The delivery of a Certificate of Substantial Completion shall not terminate or alter Contractor's obligation under this Agreement to complete the Work in conformity with the Contract Documents and to fulfill all terms and conditions of this Agreement.

8.7 Completion of Work and Acceptance

Upon their receipt of written notice from Contractor stating its belief that the Work has been fully performed in conformity with the Contract Documents, and confirming that Contractor has completed any items of Work previously noted to it by Architect and Construction Manager as not having been acceptably completed in any punch list or otherwise, Architect and Construction Manager shall perform an inspection for purposes of determining whether the Work has been so performed. Architect and Construction Manager shall commence such inspection within ten (10) days of receipt of such notice and shall pursue and complete it with all due diligence. When BPCA and Construction Manager find upon inspection that, to the best of their knowledge and belief, the Work has been so performed, they shall prepare a certificate of final completion, and, upon delivery by BPCA to Contractor of said certificate, the Work shall be deemed to be finally accepted by BPCA (such delivery of the certificate of final completion to Contractor is hereinafter referred to as "Final Acceptance").

Final Acceptance shall not terminate or alter Contractor's obligation under this Agreement to complete the Work in conformity with the Contract Documents and to fulfill all terms and conditions of this Agreement.

ARTICLE 9 - CHANGES IN THE WORK

9.1 Change Orders

(a) BPCA may, at any time, in any quantity or amount, without notice to the sureties and without invalidating or abandoning the contract, order Extra Work. Notwithstanding the terms of subsection 3.1(a) hereof, BPCA may, but shall be under no obligation to, change the manner, sequence or method of performance of the Work or direct acceleration of the Work and Contractor shall, therefor, be entitled to a Change Order (as defined in Section 9.1(b)) provided that such change or acceleration was not ordered to maintain the Progress Schedule for the

Project, the Progress Schedule for the Work or to coordinate the Work with the work of other contractors. Contractor shall be obligated to perform changed Work promptly in conformity with any Change Order or Field Order issued in accordance herewith and may not suspend or otherwise refuse to perform the Work contained therein or any other aspect of the Work required under this Agreement because a Change Order has yet to be fully executed.

(b) “Change Order” shall mean a written order issued by the Authority to Contractor after execution of this Agreement, authorizing or requiring:

- (i) Extra Work,
- (ii) items which were erroneously deleted or omitted from the Work,
- (iii) items which were included in the Work but were subsequently deleted,
- (iv) an extension or decrease of time to complete Work,
- (v) an increase or reduction in the payment to Contractor, or
- (vi) any other change in the Contract Documents or in the sequence of performing or phasing of the Work.

(c) All Change Orders shall be prepared, signed and issued by Construction Manager at the instruction of BPCA, and to be valid, must be countersigned by BPCA and Contractor.

9.2 Change in Contract Price and Time

(a) The Contract Price will not be revised due to any change of the Work except as and to the extent expressly provided in the Change Orders. The amount by which the Contract Price is to be increased or decreased by any Change Order shall be determined by BPCA and Construction Manager by one or more of the following methods:

- (1) by accepting an amount agreed upon by BPCA and Contractor;
- (2) by applying the applicable unit prices and alternates where the Work involved is covered by unit prices in this Agreement;
- (3) by receiving from Contractor a detailed breakdown satisfactory to BPCA and Construction Manager, including actual time slips and invoices, itemizing the direct cost of labor and Materials to perform the changed Work and adding thereto fifteen percent (15%) to cover profit and all indirect and overhead costs, except that where the changed Work is performed by a Subcontractor or Materialman, the direct cost of labor and Materials to perform the changed Work plus fifteen percent (15%) for profit and all indirect and overhead costs to Subcontractor or Materialman and an additional sum for profit and all indirect and overhead costs of Contractor equal to ten percent (10%) of the first \$100,000, five percent (5%) of the second \$100,000 and three percent (3%) of any cost in excess of \$200,000 to Contractor. No allowance shall be paid on the premium portion of overtime pay. Where the changed Work involves both an increase and a reduction in any contract Work, the above percentage override shall be applied only on the amount, if any, by which the cost of the increase exceeds the cost of the reduction.
- (4) by receiving from Contractor a true copy of its bid work sheets to determine the contract price for the elimination of any contract Work. The amount of reduction shall not include the overhead or profit of Contractor for the eliminated Work. Should Contractor fail to furnish BPCA with such bid work sheets, then Construction Manager shall determine the amount of the reduction. The determination of Construction Manager shall be final and binding unless erroneously or fraudulently arrived at, or arbitrary and capricious;

- (5) by adding to the Contract Price only the amount of the premium portion of overtime pay resulting from an acceleration of the Work; or
- (6) by adding to the Contract Price, the actual incremental labor and equipment costs incurred by the Contractor resulting from a change in the manner, sequence or method of performing the Work.

(b) The compensation specified in a Change Order shall constitute a release and full payment for the Extra Work covered thereby and for any delay and disruption cost or expense occasioned by reason of said change in the Work.

(c) No time extension shall be granted Contractor by reason of the issuance of any Change Order unless it is expressly stated therein.

9.3 Field Orders

Construction Manager shall have the authority to order minor changes in the Work by the issuance of written field orders ("Field Orders"), which may be issued without prior approval by BPCA. Field Orders must be countersigned by Contractor. Minor changes in the Work for purposes of this Section shall mean only changes which do not necessitate or warrant any revision in the Contract Price in excess of \$5,000 or affect the time of performance of Contractor's Work, any change in the basic character or design of the Project, or deviation from design standards established for the Project. Except as otherwise provided in the preceding sentence relating to an increase in the Contract Price, no claim for an increase in the Contract Price may be based upon any Field Order. If Contractor, on receipt of a Field Order, claims that the change of Work involved necessitates a Change Order, it shall proceed in accordance with the Field Order under protest and notify BPCA immediately of its claim for additional compensation for Extra Work pursuant to Article 14.

9.4 Changed Conditions

(a) BPCA assumes no responsibility for the correctness of any boring or other subsurface information and makes no representation of any kind regarding subsurface conditions and test borings, reports, rock cores, foundation investigation and topographical maps which may be made available to Contractor.

(b) Contractor shall promptly, and before such conditions are disturbed, notify Construction Manager of: (1) subsurface or latent physical conditions differing materially from those indicated in the Contract Documents, or (2) unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in this Agreement. Construction Manager shall promptly investigate the conditions, and if it finds that such conditions do materially so differ and cause an increase or decrease in Contractor's cost of, or the time required for, performance of any part of the Work under this Agreement, Contractor shall be paid in the manner provided for payment with respect to any Change Order and receive, if warranted, a time extension.

(b) No claim of Contractor under this clause shall be allowed unless Contractor has given the notice required in subsection (a) above.

ARTICLE 10 - SUBCONTRACTS AND PURCHASE ORDERS

10.1 Selection of Subcontractors and Materialmen and Approval of Subcontracts and Purchase Orders

(a) Contractor shall submit to Construction Manager, within 21 calendar days of Notice to Proceed, the names of all persons with whom it has contracted or intends to contract or hereafter contracts with respect to the Work.

(b) Except as specifically provided herein, Contractor shall not enter into any Subcontracts or issue any Purchase Orders (as hereinafter defined) to any Materialmen in

connection with the performance of Contractor's obligations hereunder without the prior written consent of BPCA to the use of each such Subcontractor or Materialman, and to the agreement to be entered into between Contractor and any such Subcontractor or Materialman. Contractor shall inform BPCA in writing of any interest it may have in a proposed Subcontractor or Materialman. No such consent by BPCA, or employment, contract, or use by Contractor, shall relieve Contractor of any of its obligations hereunder nor may BPCA be held responsible in any way for the performance of a Subcontractor or Materialman to whom BPCA gave its consent.

(c) Contractor shall be responsible for the performance of the Work of any Subcontractors or Materialmen engaged, including the maintenance of schedules, coordination of their Work and resolutions of all differences between or among Contractor and any Subcontractors. It is expressly understood and agreed that any and all Subcontractors or Materialmen engaged by Contractor hereunder shall at all times be deemed engaged by Contractor and not by BPCA.

(d) Upon the request of BPCA, Contractor shall cause any Subcontractor or Materialman employed by the Contractor in connection with this Agreement to execute a copy of the Agreement wherein such Subcontractor or Materialman shall acknowledge that it has read and is fully familiar with the terms and provisions hereof and agrees to be bound thereby as such terms and provisions are or may be applicable to such Subcontractors or Materialmen.

(e) Contractor shall submit to BPCA promptly following execution, three copies of every revision, amendment, modification or cancellation executed or issued by Contractor with respect to any Subcontractor or Materialman. BPCA is not obligated to make payment on account of Work performed or Materials furnished by a Subcontractor or a Materialman under a Subcontract or contract for construction supplies or Materials (hereinafter "Purchase Order(s)") unless there shall have been filed with BPCA prior to the submission of a Requisition for each payment, three copies of such Subcontract or Purchase Order containing the provisions required by this Agreement to be contained therein, except as may otherwise be specified by BPCA with respect to Purchase Orders for minor purchases.

10.2 Access by BPCA and Others

Contractor shall include a provision in all Subcontracts and Purchase Orders stating that, to permit verification of Contractor's costs, BPCA shall have the right to have its representatives inspect and audit the books of account and records of the Subcontractor and Materialmen, including the right to make excerpts from such books and records. All payments by Contractor to a Subcontractor or Materialman shall be by check specifically indicating that payment is attributable to this Agreement and identifying the invoice(s) for which payment is being made. Contractor shall include a provision in all Subcontracts and Purchase Orders that will enable representatives of the State of New York, Construction Manager and BPCA, as the case may be, to obtain access during working hours to the appropriate books of account and records of the Subcontractors or Materialmen relating to the Work to determine if there is compliance with the requirements of law or this Agreement.

10.3 Retainage

Contractor may provide for a retainage under any of its Subcontracts or Purchase Orders provided that where a Subcontract or Purchase Order provides for a retainage, the retainage shall be no greater in percentage than that provided for under Sections 5.1 or 5.7 hereof with respect to Contractor itself, unless otherwise approved in writing by BPCA. Contractor shall submit with each Requisition a statement setting forth the amounts of all retainage, if any, under its Subcontracts and Purchase Orders.

10.4 Miscellaneous

(a) Contractor shall be fully responsible for the work, acts and omissions of Subcontractors and Materialmen, and of persons either directly or indirectly employed by Subcontractors and Materialmen.

(b) Contractor's use of Subcontractors and Materialmen shall not diminish Contractor's obligation to complete the Work in accordance with the Contract Documents.

Contractor shall control and coordinate the work of Subcontractors and Materialmen.

(c) Nothing contained in this Agreement shall create any contractual relationship between Subcontractors or Materialmen and BPCA, Construction Manager or Architect. Nothing in this Section shall obligate BPCA to pay or to see to the payment of any sums to any Subcontractor or Materialmen.

(d) Contractor shall include a provision in all Subcontracts and Purchase Orders exceeding \$50,000, requiring the Subcontractor or Materialman, if requested by BPCA, until the Subcontractor or Materialman finishes its portion of the Work, to deliver to Contractor unaudited and, if available, audited financial statements of the Subcontractor or Materialman similar to the obligation of Contractor under Section 6.8 and promptly upon receipt thereof Contractor shall deliver copies thereof to BPCA.

ARTICLE 11 - ASSIGNMENT

11.1 No Assignment of Duties

Contractor shall not assign this Agreement or the performance of any obligations of Contractor under this Agreement, nor enter into any Subcontract in respect of the Work or any part thereof except in compliance with Article 10 hereof and with the prior written consent of BPCA, and each and every such assignment, Purchase Order and Subcontract without such compliance and consent shall be void and shall revoke and annul this Agreement.

11.2 No Assignment of Monies

Contractor shall not assign any monies payable hereunder nor execute and deliver any order for payment unless Contractor and the assignee shall have complied with the following terms and conditions:

(a) the assignee shall be a commercial bank or finance company regularly engaged in the business of provided financing to construction contractors and shall be providing such financing to Contractor;

(b) the assignee shall, simultaneously with the assignment, execute and deliver to BPCA an undertaking, in favor of BPCA, in form and substance satisfactory to BPCA, providing that:

(1) assignee will cause Contractor to apply for trust purposes, as defined in New York Lien Law Article 3-A (the "Lien Law"), all funds advanced by assignee to Contractor;

(2) assignee will file a copy of the assignment, containing the covenant required by the Lien Law, with the County Clerk of New York County and the head of the agency having charge of the underlying project;

(c) the assignee shall agree with BPCA in writing that BPCA and Contractor may modify any of the terms of this Agreement, including any of the terms of payment, without the consent of assignee;

(d) the assignee shall agree with BPCA in writing that after the effective date of the assignment, BPCA may make payment directly to any Subcontractor or Materialman without any liability to the assignee;

(e) the assignee shall agree with BPCA in writing that the assignee shall require and cause Contractor to keep his books and records in the form and manner described in New York Consolidated Laws Service Lien Law Article 3-A Section 75; and

(f) the assignee shall agree with BPCA in writing that the assignee will indemnify and hold BPCA harmless from and against any loss, claim or expense incurred as a result of any

failure of performance in accordance with the terms of such undertaking.

11.3 Assignment by BPCA

This Agreement or any rights of BPCA under this Agreement, including any guaranties or warranties of workmanship or material, may at any time be assigned by BPCA to the State of New York or any political subdivision, public corporation or agency of the State.

ARTICLE 12 - MECHANICS' LIENS AND CLAIMS

If any mechanic's lien or other claim shall be filed for or on account of the Work, Contractor shall discharge such lien or claim within thirty days of receiving written notice of such lien or other claim.

ARTICLE 13 – INSURANCE AND CONTRACT SECURITY

13.1 Insurance

(a) Contractor shall procure and maintain all of the insurance required under this Article 13 until Final Acceptance of the Work, except with respect to Completed Operations Coverage, as described in 13.1(f)(3) below.

(b) Contractor shall not commence physical performance of the Work at the Site until Contractor has obtained, and required each Subcontractor to obtain, all the insurance required under this Article and until it has furnished to BPCA the certificate or certificates of insurance required by Section 13.1(c) hereof.

(c) Contractor shall furnish to BPCA, before or upon execution of this Agreement, attention: [name], a certificate or certificates of the insurance required under this Article and, upon BPCA's request, certified copies of the original policies of insurance, within the time period required by BPCA and before commencing physical performance of the Work at the Site. Such certificate or certificates shall be in form satisfactory to BPCA, shall list the various coverages and shall contain, in addition to any other provisions required hereby, a provision that the policy shall not be changed, canceled or reduced and that it shall be automatically renewed upon expiration and continued in force until two years after Final Acceptance unless BPCA is given 90 days' written notice to the contrary. Such policies and certificates should name as additional insureds BPCA, Battery Park City Parks Conservancy Corporation (the "Conservancy"), the State of New York, Construction Manager, and Architect.

(d) All insurance required to be procured and maintained must be procured from insurance companies which have a financial rating by A.M. Best Company as published in the most current key rating guide of "A-X" or better and which are authorized to do business in the State of New York.

(e) If at any time any of the required insurance policies should be canceled, terminated or modified so that insurance is not in effect as required, then, if BPCA shall so direct, Contractor shall suspend performance of the Work. If the Work is not suspended then BPCA may, at BPCA's option, obtain insurance affording coverage equal to that required, the cost of such insurance to be payable by Contractor to BPCA.

(f) Contractor and each Subcontractor shall secure in a form satisfactory to BPCA:

- (1) Worker's Compensation and Employer's Liability Insurance, including United States Longshoreman & Harbor Workers ("USL & H") and Jones Act Coverages, during the Term for the benefit of such employees as are required to be insured by the applicable provisions of law and voluntary compensation for employees excluded from statutory benefits. Employer's Liability Insurance and benefits resulting from disease shall

not be less than an annual aggregate amount of \$_____ for each consecutive 12-month period.

- (2) Disability Benefit Insurance during the life of this Agreement for the benefit of such employees as are required to be insured by the applicable provisions of law.

- (3) Commercial General Liability Insurance as follows:

Standard commercial general liability insurance policy with contractual, products and completed operations and explosion, blasting, collapse, excavation and underground damage liability coverages, under the occurrence policy format, issued to and covering the liability of Contractor for all the Work and operations relating thereto and all obligations assumed by Contractor under this Agreement including, but not limited to indemnity obligations in an amount which shall not be less than the following limits:

Combined Single Limits, Bodily Injury
and Property Damage Liability

\$_____ per each occurrence and \$_____ in the aggregate.

The completed operations coverage shall continue in force until three years after Final Acceptance of the Work and shall contain, in addition to any other provisions required hereby, a provision that the policy shall not be changed, canceled or reduced. As a condition precedent to the making of Final Payment, Contractor shall furnish BPCA with a certified copy of the completed operations policy.

- (4) Automobile Liability Insurance as follows:

A policy covering the use in connection with the Work of all owned, non-owned and hired vehicles bearing license plates, or under the circumstances that such vehicles are being used they are required by the Motor Vehicle Laws of the State of New York to bear license plates. The coverage under such policy shall not be less than the following limits:

Combined Single Limits,
Bodily Injury and Property Damage Liability

\$_____ per each occurrence.

- (5) Marine Protection and Indemnity ("P&I") insurance of not less than [amount] per occurrence, if Contractor or any of its Subcontractors utilizes floating equipment, barges or floats, or performs marine-related construction, covering any and all claims for personal injury, death and property damage arising out of or in connection with this Agreement.

- (6) Pollution Liability Insurance, on an occurrence basis, providing coverage for bodily injury liability, property damage or environmental damage caused by pollution conditions with a limit of liability of not less than [amount] per occurrence and in the aggregate. The policy shall include coverage for environmental clean-up on land, in air and on water. The policy shall include coverage for completed operations for two (2) years after the completion of the performance of the Work, gradual and sudden and accidental pollution coverage, with a time element of no less than seven (7) days' notice and thirty (30) days' reporting. The policy shall not contain a sunset provision, or any other provision, which would prohibit the reporting of a claim and the subsequent defense and indemnity that would normally be provided by the policy. The policy shall provide

transportation coverage for the hauling of hazardous materials from the Project Site to the final disposition location.

- (7) Vessel Pollution Liability Insurance, on an occurrence basis, providing coverage for bodily injury liability, property damage or environmental damage caused by pollution conditions, emanating from any floating equipment, barges or floats, utilized by Contractor or Subcontractors in the performance of Marine related construction, with a limit of liability of not less than [amount] per occurrence and in the aggregate. The policy shall include coverage for environmental clean-up on land, in air and on water.
- (8) Umbrella Liability Insurance, excess of general liability, automobile liability, Protection and Indemnity ("Marine Liability"), vessel pollution and Employer's Liability, in an amount of not less than [amount].

(g) The insurance required under subsections 13.1(f)3, 4 and 5 shall be of a type which shall protect Contractor and Subcontractors, respectively, against damage claims which may arise from operations under this Agreement, whether such operations be by the insured or by anyone directly or indirectly employed by the insured. Each of the aforesaid policies shall provide that the insurance company or an attorney approved and retained by the insurance company shall defend any suit or proceeding against BPCA or any officers, agents or employees of BPCA whether or not such suit is groundless, false or fraudulent. Notwithstanding the foregoing, BPCA shall have the right to engage its own attorneys for the purpose of defending any suit or proceeding against it or its respective officers, agents or employees, and, in such event, Contractor shall, indemnify BPCA for all attorneys' fees and disbursements and other costs incurred by it arising out of, or incurred in connection with, any such defense. The said insurance shall name BPCA, the Conservancy, the State of New York, Construction Manager and Architect as additional insureds as respects this location and shall, where applicable, be written on an occurrence basis and shall contain a provision that it is primary and that any similar insurance which BPCA, the Conservancy, the State of New York, Construction Manager, Architect, Contractor or Subcontractor elect to carry for their own benefit is secondary or excess and not contributing insurance.

(h) BPCA, at BPCA's cost and expense, may, at its sole option, procure and maintain such insurance as shall in the opinion of BPCA, protect BPCA from contingent liability of BPCA to others for damages arising from bodily injury, including death and property damages which may arise from operations under this Agreement. The procurement and maintenance of such insurance by BPCA shall not in any way be construed or be deemed to relieve Contractor from, or to be a limitation on the nature or extent of, such obligations and risk.

(i) BPCA shall, at all times during the period of construction and until completion and Final Acceptance of the Work procure and maintain at the cost and expense of BPCA "Builders Risk" insurance, or its functional equivalent, against direct physical loss or damage to the Work and on all Materials to be made a part of the Work in the names of BPCA, Construction Manager, Contractor and Subcontractors, said amount of insurance to be procured and maintained on a one hundred percentage (100%) completed value basis on the insurable portion of the Work, which insurance shall contain a deductible provision for all losses except flood and earthquake in the amount of \$10,000 and a deductible provision for flood and earthquake in the amount of \$10,000. BPCA recognizes that the deductible applicable to flood and earthquake may be greater than \$10,000 due to insurance market conditions and shall notify Contractor if such deductible is greater than \$10,000. Losses up to and including the amounts of such deductible provisions shall be borne by Contractor. The insurance specified above may, in certain instances, include other parties as named insureds, as the interests of such parties may appear. Loss, if any, is to be made adjustable with and payable to BPCA on behalf and for the named insureds as the interests of such insureds may appear. BPCA shall, in BPCA's sole discretion, have power to adjust and to settle with the insureds any loss or claim under such insurance. The above is not intended to be a complete, full or accurate description of the coverage provided by the policies of insurance, copies of which are on file with BPCA. This subsection (i) is not intended to create or give any rights to Contractor or Subcontractors other than those which may be made available to such Contractors or Subcontractors under the terms of such policies. BPCA assumes no obligation to obtain insurance other than that evidenced by said policies. Contractor and Subcontractors shall not violate or permit to be violated any term or

condition of such policies and shall at all times satisfy the safety requirements of BPCA and of the insurance companies issuing the aforementioned policies. The Contractor shall, upon notification by BPCA, obtain such insurance at BPCA's expense on a date determined by BPCA, which date shall not be less than thirty (30) days after notice to Contractor of such determination by the BPCA.

13.2 Effect of Procurement of Insurance

Neither the procurement nor the maintenance of any type of insurance by BPCA or Contractor shall in any way be construed or be deemed to limit, discharge, waive or release Contractor from any of the obligations and risks impressed upon Contractor by this Agreement or to be a limitation on the nature or extent of such obligations and risks.

13.3 Contract Security

Contractor shall, if it already has not done so, furnish to BPCA, with the execution of this Agreement, to BPCA, a bond in the form annexed hereto as Exhibit [x] in an amount at least equal to one hundred percent (100%) of the Contract Price for performance of the Work (the "Performance Bond"), and a labor and material payment bond in the form annexed hereto as Exhibit [y] in an amount at least equal to one hundred percent (100%) of the Contract Price for the payment of all persons performing labor or providing Materials in connection with the Work (the "Payment Bond"). The surety on said bond shall be a surety company authorized to do business in the State of New York and shall be rated at last B+ by A.M. Best and Company, or meet such other requirements as are acceptable to BPCA.

13.4 Additional or Substitute Bond

If at any time BPCA shall be or shall become dissatisfied with any surety or sureties then obligated upon the Performance Bond or the Payment Bond, or if for any other reason such bonds shall cease to be adequate security to BPCA, Contractor shall within five (5) days after notice from BPCA to do so, substitute an acceptable bond or bonds in such form and sum and signed by such other surety or sureties as may be satisfactory to BPCA, except that the penal sum of said bond shall not exceed the Contract Price as adjusted by Change Orders. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished such an acceptable bond or bonds to BPCA.

ARTICLE 14 - CLAIMS FOR EXTRA WORK

(a) If Contractor is of the opinion that (i) any work which it has been ordered to perform is Extra Work and not Work as set forth in the Contract Documents, (ii) any action or omission of BPCA, Construction Manager or Architect is contrary to the terms and provisions of the Contract Documents and will require the performance of Extra Work or will cause additional expense to Contractor or (iii) any determination, order or directive of BPCA, Construction Manager or Architect is contrary to the terms of the Contract Documents and will require the performance of Extra Work or will cause additional expense to Contractor, Contractor shall:

- (1) not suspend Work but promptly comply with each determination, order or directive and proceed diligently with the performance of the Work in accordance with BPCA's instructions,
- (2) notify BPCA, Construction Manager and Architect in writing within 72 hours of such determination, order, act or omission that Contractor believes such will require it to perform Extra Work or incur additional expense and the basis for Contractor's conclusion and request a final determination thereon by BPCA, and
- (3) present to the Construction Manager for signature daily time and Material tickets to confirm quantities of Material and hours of labor in cases where Contractor is performing the Work which it considers to be Extra Work.

If BPCA determines that (x) work is Work required to be performed hereunder and not Extra Work, (y) action or omission is proper, or (z) a determination, order or directive is proper, Contractor, in order to reserve its right to claim compensation for or damages resulting from the performance of such work or the compliance with such determination, order or directive, must notify BPCA in writing within three (3) working days after receiving notice of BPCA's determination that it is performing such work or complying with such determination, order or directive under protest.

In addition to the foregoing, Contractor must submit to BPCA, Construction Manager and Architect within thirty (30) days after it has performed such work or complied with such determination, order or directive, a detailed statement of the extra expense claimed to have been incurred and of any claimed damages resulting from the performance of such work or the compliance with such determination, order or directive.

(b) No claim for Extra Work shall be allowed unless the same was done pursuant to written order approved in writing by BPCA. Contractor's failure to comply with any provision of this Article:

- (1) shall constitute a conclusive and binding determination on the part of Contractor that such action, omission, determination, order or directive does not involve Extra Work, has not caused extra expense or damages to Contractor, and is not contrary to the terms and provisions of the Contract Documents; and
- (2) shall constitute an irrevocable waiver by Contractor of any claim for compensation for or damages resulting from the performance of such work or the compliance with such determination, order or directive.

(c) The value of claims for Extra Work, if allowed, shall be determined by the methods described in Section 9.2.

ARTICLE 15 - TERMINATION

15.1 Termination for Cause

(a) If any of the following events shall occur (an "Event of Default") then BPCA or Construction Manager may serve written notice upon Contractor and upon Contractor's surety, if any, terminating this Agreement at a specified date. The notice shall contain the reasons for termination but shall not be effective to terminate this Agreement if Contractor cures all Events of Default stated in the notice prior to the date specified in the notice of termination.

- (1) Contractor shall violate any substantial provision of this Agreement, including, without limitation, by failing to maintain the Progress Schedule for the Project or Progress Schedule for the Work then in effect in accordance with, or failing to discharge any of its responsibilities under, Section 3.1(d) hereof, or by failing to indemnify and hold harmless BPCA (as required by Sections 3.1(e), 3.2, 17.5, 21.1, 21.2., 22(c) or any other provision of this Agreement) from and against any and all claims, liabilities, losses, costs or damages arising out of Contractor's performance of, or failure to perform, its obligations under this Agreement in accordance with its terms, or if the Contractor fails to maintain the insurance required by the provisions of Section 13; or
- (2) any material adverse change shall take place in the financial condition of the Contractor;
- (3) Contractor takes any action which would result in it becoming the subject of any insolvency proceeding. The term "insolvency proceeding" as used herein shall include the filing of a petition for relief under Title 11 of the United States Code by Contractor or the consent, acquiescence or taking

of any action by Contractor, or the filing by or against Contractor of petition or action, looking to or seeking any reorganization, arrangement, composition, readjustment, liquidation, dissolution, or similar relief under any other regulation; or the appointment, with or without the consent of Contractor, of any trustee, custodian, receiver or liquidator of Contractor or of any property or assets of Contractor; or Contractor's making of an assignment for the benefit of creditors or its inability to pay its debts as they become due.

- (4) Contractor misrepresented or omitted information in its submission of the Statement of Qualifications of Contractor submitted by Contractor to BPCA in connection with this Agreement; or
- (5) Any partner, principal, director, officer or shareholder owning in excess of five percent (5%) of the stock of Contractor shall have been convicted of a felony.

(b) Upon the occurrence of an Event of Default, at BPCA's option exercised by written notice to Contractor, title to any or all of Contractor's Materials, equipment, work product, work in process and dies and tools, whether on the Site or off site, which are necessary or useful in completing the Work shall vest in BPCA and BPCA may take possession of and utilize the same for completion of the Work; provided that title to such items shall revert to Contractor upon effectuation of a cure of the Event of Default prior to the termination of this Agreement. If no cure has been effected, this Agreement has been terminated and BPCA has taken possession of the same, then after BPCA has taken possession and the Work shall have been completed by or on behalf of BPCA, BPCA shall pay to Contractor, in respect to the items for which title has vested in BPCA, an amount equal to the sum of:

- (1) the direct costs of Contractor for such Materials and Work in progress, and
- (2) the depreciated book value of such tools and dies less, if BPCA elects to return the tools and dies to Contractor, the salvage value thereof. BPCA shall have the right to set off against such payment due to Contractor any amounts then due and payable by Contractor to BPCA which may accrue as damages owing by Contractor to BPCA under the terms of this Agreement. Contractor shall execute any further documents (including Form UCC-1 Financing Statements to give public notice of the potential ownership interest of Owner as set forth herein) required by BPCA to confirm the terms of this subsection 15.1(b).

(c) Upon termination of this Agreement, BPCA shall have the right, in addition to all other rights and remedies, to complete or have the Work completed by such means and in such manner, by contract or otherwise, with or without public letting as permitted by law, as BPCA deems advisable. BPCA may deduct any loss it incurs thereby from any payment then or thereafter due to Contractor without prejudice to any other remedy BPCA may have.

(d) Immediately upon termination in accordance with the provisions of this Section, each and every Subcontract and Purchase Order entered into by Contractor shall, at BPCA's option, be automatically assigned to BPCA, and Contractor shall insert a provision to this effect in all Subcontracts and Purchase Orders. In the event that it shall be determined that a termination under this paragraph was wrongful or not justified, such termination shall be conclusively deemed to be a termination for convenience of BPCA under Section 15.2 hereof and the sole right, remedy and recourse of Contractor against BPCA shall be governed and determined by Section 15.2 hereof.

(e) Contractor shall, upon the date when such termination shall take effect, promptly notify the union or unions, if any, having jurisdiction over the work by its employees that it releases the Project and consents that the Work be performed by others and Contractor expressly authorizes BPCA to notify the union or unions of such release in the name of Contractor. The failure, neglect or refusal of Contractor to issue such release or the disclaimer by it of the effectiveness of the release issued by BPCA shall subject Contractor to all damages sustained by BPCA.

(f) If this Agreement shall have been terminated by BPCA pursuant to this Section 15.1 and it shall be finally determined by BPCA or a court of competent jurisdiction that adequate grounds for such termination did not exist, then such termination shall be deemed a termination for convenience of BPCA under Section 15.2 hereof and the sole right, remedy and recourse of Contractor against BPCA shall be governed and determined by Section 15.2 hereof.

15.2 Termination for Convenience of BPCA

(a) BPCA, at any time, may terminate this Agreement for its own convenience. Any such termination shall be effected by delivering to Contractor a notice of termination specifying the extent to which performance of Contractor's Work under the Contract is terminated and the date upon which such termination becomes effective. Upon receipt of the notice of termination, Contractor shall:

- (1) stop work under this Agreement on the date specified in the notice of termination;
- (2) place no further Purchase Orders or Subcontracts for Materials, services or facilities;
- (3) unless directed otherwise by BPCA, terminate all Purchase Orders and Subcontracts;
- (4) assign to BPCA, in the manner, at the times, and to the extent directed by Construction Manager, all of the right, title and interest of Contractor under the Purchase Orders and Subcontracts so terminated, in which case BPCA shall have the right, in its sole discretion, to settle or pay any or all claims arising out of the termination of such Purchase Orders and Subcontracts;
- (5) to the extent required by Construction Manager, settle all outstanding liabilities and all claims arising out of such termination of Purchase Orders and Subcontracts, with the approval or ratification of Construction Manager, which approval or ratification shall be final for all the purposes of this Section 15.2;
- (6) transfer title to BPCA and deliver in the manner, at the time, and to the extent, if any, directed by the Construction Manager (i) the fabricated or unfabricated parts, Work in process, completed Work, supplies, and other Material produced as a part of, or acquired in connection with the performance of, the Work terminated by the notice of termination, and (ii) the completed or partially completed plans, drawings, work product, information and other property, which if this Agreement had been completed, would have been required to be furnished to BPCA;
- (7) take such action as may be necessary, or as the Construction Manager may direct, for the protection and preservation of the property related to this Agreement which is in the possession of Contractor and in which BPCA has or may acquire an interest.

(b) In the event of a termination of this Agreement pursuant to this Section 15.2, Contractor shall be paid by BPCA only the apportioned Contract Price for Work installed, the fair and reasonable value of Materials stored on the Site and under order for which Contractor is responsible for payment, less any sums properly deductible by BPCA, except that in no event shall Contractor be entitled to compensation in excess of the total Contract Price.

15.3 Suspension of Work

(a) BPCA may at any time and for any reason direct Contractor to suspend, stop, or interrupt the Work or any part thereof for a period of time. Such direction shall be in writing and

shall specify the period during which the Work is to be stopped. Upon receipt of a direction of suspension, Contractor shall, as soon as practicable, cease performance of the Work as ordered and take immediate affirmative measures to protect the Work from loss or damage. Contractor shall resume the Work upon the date specified in such direction or upon such other date as BPCA may thereafter specify in writing.

(b) The period during which the Work shall have been suspended, stopped or interrupted may, if warranted, be added to the time fixed for performance. A suspension, stoppage or interruption of the Work pursuant to this provision shall not give rise to any claim against BPCA for additional compensation.

ARTICLE 16 - COMPOSITE DRAWINGS AND COOPERATION

Where Contractor shall perform Work in close proximity to work of other contractors or subcontractors, or where there is evidence that Contractor's Work may interfere with work of other contractors, or subcontractors, Contractor shall assist in arranging space conditions to make satisfactory adjustment for the performance of such work and the Work. Contractor shall prepare composite scale working drawings and Sections as directed by Construction Manager, clearly showing how Contractor's Work is to be performed in relation to work of other contractors or Subcontractors. Such direction may include the following: the scale of the drawings, where the drawings are to be drafted, the number of prints or reproduces, and the requirement of attendance at meetings. The determination as to who shall provide the composite drawings and the contents of the same shall rest exclusively with Construction Manager. Upon request by Construction Manager, Contractor shall sign and be bound by such composite drawings. Such signature shall indicate Contractor's acknowledgment that such drawing is acceptable as related to its Work covered or included in such drawing. If Contractor performs work in a manner which causes interference with the work of other contractors, or Subcontractors, Contractor shall make the changes necessary to correct the condition as directed by Construction Manager.

ARTICLE 17 - PROTECTION OF RIGHTS, PERSONS AND PROPERTY

17.1 Accident Prevention

Contractor shall at all times take every precaution against injuries to persons or damage to property and for the safety of persons engaged in the performance of the Work.

17.2 Safety Programs

Contractor shall be responsible for the initiation, maintenance and supervision of safety precautions and programs as prescribed by Construction Manager in connection with the Work.

17.3 Protection of Work and Property

(a) Contractor shall at all times guard BPCA's property from injury or loss in connection with the Work. Contractor shall at all times guard and protect the Site, the Work and adjacent property. Contractor shall replace or make good any such loss or injury unless such loss or injury is caused directly by BPCA.

(b) Contractor shall have full responsibility to install, protect and maintain all Materials in proper condition and forthwith repair, replace and make good any damage thereto until Final Acceptance of the Work.

(c) No provision is included for stresses or loads imposed by construction operations. If Contractor desires to place such loads in excess of the design load (as shown on the Drawings or Specifications), Contractor shall submit to Architect drawings and calculations prepared by, and bearing the seal of a professional engineer, showing the proposed method for supporting

such loads, for Architect's review and approval. No loading of any kind in excess of design loads shall be placed on any part of the Project prior to Architect's approval of such submitted drawings and calculations. The costs of the Architect's review shall be reimbursed to BPCA by Contractor.

(d) Contractor shall be responsible for all cutting, fitting or patching that may be required to complete the Work, to make its several parts fit together properly and to make the Work fit together properly with previous and surrounding work. The requirement to cut, fit or patch shall be determined by Construction Manager; provided, that structural elements of the Project shall not be cut, patched, or otherwise altered or repaired without prior authorization by BPCA. Authorization to proceed with remedial operation on any damaged or defective element or portion of the Project shall not constitute a limitation or a waiver of BPCA's, Construction Manager's or Architect's right to require the removal and replacement of any Work which fails to fulfill the requirements of the Contract Documents.

17.4 Adjoining Property

Contractor shall protect all adjoining property and shall repair or replace any such property damaged or destroyed during the progress of the Work.

17.5 Risks Assumed by Contractor

(a) Contractor solely assumes the following risk whether such risk arises from acts or omissions (whether negligent or not and whether supervisory or otherwise) of BPCA, Construction Manager, of Architect or Contractor, of any Subcontractor, of any Materialman, of third persons or from any other cause, including unforeseen obstacles and difficulties which may be encountered in the prosecution of the Work, whether such risk is within or beyond the control of Contractor and whether such risk involves any legal duty, primary or otherwise, imposed upon BPCA:

the risk of loss or damage, direct or indirect, of whatever nature, to the Work or to any Materials furnished, used, installed or received by BPCA, Contractor or any Subcontractor, Materialmen or workmen performing services or furnishing Materials for the Work, whether such Work or Materials are stored at the Site or at an offsite location in accordance with Section 5.4 hereof. Contractor shall bear such risk of loss or damage until Final Acceptance of the Work by BPCA or until completion of such Materials or removal of such Materials from the Site following a determination that they will no longer be needed for the Project and delivery to the location at which they are to be subsequently stored or disposed of, whichever event occurs last. A portion of the risk of such loss or damage may be insured against under the terms of a "builder's risk" insurance policy maintained in the name of Contractor, among others, as described in Section 13.1(i). Notwithstanding the status of any actual or potential recovery or claim under the said "builder's risk" insurance policy, in the event of any loss or damage, Contractor immediately shall repair, replace or make good any such loss or damage.

(b) Contractor shall not, without obtaining express advance permission of BPCA, raise any defense involving in any way jurisdiction of any court in which BPCA brings an action arising under this Agreement, governmental nature of BPCA or the provisions of any statutes respecting suits against BPCA.

(c) Contractor's obligations under this Article 17 shall not be deemed waived, limited or discharged by the enumeration or procurement of any insurance for liability for damages.

(d) Neither Final Acceptance of the Work nor any payment made hereunder shall release Contractor from Contractor's obligations under this Article 17. The enumeration elsewhere in this Agreement of particular risks assumed by Contractor or of particular claims for which Contractor is responsible shall not be deemed to limit the effect of the provisions of this Article 17 or to imply that Contractor assumes or is responsible for only risks or claims of the

type enumerated; and neither the enumeration in this Article 17 nor the enumeration elsewhere in this Agreement of particular risks assumed by Contractor of particular claims for which Contractor is responsible shall be deemed to limit the risks which Contractor would assume or the claims for which Contractor would be responsible in the absence of such enumerations.

(e) The Contractor is advised that the Work under this Agreement may impose certain obligations and requirements mandated by the U.S. Department of Labor Occupational Safety and Health Administration regulations, Title 29 CFR Part 1926.62 Lead Exposure in Construction, relative to the potential exposure to lead by its employees. The Contractor assumes entire responsibility and liability for complying fully in all respects with these regulations.

(f) Contractor agrees that any unsatisfied claims of the BPCA arising from Contractor's obligations under this Article 17 or Article 13 (Insurance) may be offset or deducted by BPCA from any payments due to Contractor hereunder.

ARTICLE 18 - USE PRIOR TO ACCEPTANCE BY BPCA

(a) If before Final Acceptance of Work, BPCA desires to use the Site or any part thereof which is completed or partly completed, or to place or install therein or thereon equipment, BPCA shall have the right to do so, and Contractor shall in no way interfere with or object to such use by BPCA.

(b) Such use (1) shall not constitute acceptance of space, systems, Materials or elements of the Work, nor shall such use affect the start of any guaranty period and (2) shall not affect the obligations of Contractor for work which is not in accordance with the requirements of this Agreement or other obligations of Contractor under the Contract Documents.

(c) Contractor shall continue the performance of the Work in a manner which shall not unreasonably interfere with such use by BPCA.

ARTICLE 19 - EXEMPTION FROM SALES AND COMPENSATING USE TAXES

19.1 BPCA Exempt

BPCA is exempt from payment of sales and compensating use taxes of the State of New York and of cities and counties thereof on all Materials which will become an integral component of the completed Project pursuant to this Agreement.

19.2 Certificates

Contractor, Subcontractors and Materialmen shall obtain any and all necessary certificates or other documentation from the appropriate governmental agency or agencies, and use such certificates or other documentation as required by law, rule or regulations to obtain said tax exemption.

ARTICLE 20 - WARRANTIES AND GUARANTIES

20.1 In General

(a) Contractor guarantees that all Work performed and all Materials furnished will conform to the Contract Documents as to kind, quality, functions, design and characteristics of material and workmanship. Contractor shall remove, replace and repair, at its sole cost and expense, all defects in workmanship, Materials, ratings, capacities, or design characteristics occurring in or to the Work including, without limitation, any portion of the Work furnished or performed by any Subcontractor or Materialman, within one year from the date of Final

Acceptance. Contractor guarantees that all Work performed and all Materials furnished will conform to the Contract Documents as to kind, quality, functions, design and characteristics of material and workmanship. Contractor hereby acknowledges that BPCA may be required to incur substantial expense if correction of the Work is required particularly if such correction involves the uncovering, removal or replacement of concrete, wiring and piping installed at the Site. If Contractor shall fail to reimburse BPCA for any such expense which may become payable as provided in this paragraph, BPCA shall be entitled to deduct such expense from any payments required to be made by BPCA to Contractor pursuant to this Agreement. Contractor, upon demand, shall pay for all damage to all other Work resulting from such defects and all expenses necessary to remove, replace and repair such other Work which may be damaged in removing, replacing or repairing such defects.

(b) The benefits of this Article 20 shall inure to the benefit of BPCA and its respective successors and assigns. In addition, any bond or guaranty which may be required of Contractor or any Subcontractor or Materialman under the Contract Documents shall inure to the benefit of BPCA and its respective successors and assigns.

(c) The rights and remedies afforded BPCA under this Section are in addition to and not in lieu of and do not in any way affect, change, alter, modify, vary or prejudice any right, remedy or recourse which BPCA may have under other provisions of this Agreement or pursuant to law.

20.2 Additional Guaranties

In addition to the general guaranty set forth in Section 20.1, any other guaranties set forth in the Contract Documents shall be applicable.

20.3 Repair by Another

If BPCA has requested Contractor to correct any Work and Contractor shall not have completed any correction of the Work as shall be required pursuant to this Article 20 within ten (10) working days after receipt of written notice from BPCA specifying the defect or damage required to be removed, replaced or repaired, or if such defect or damage is of such a nature that it cannot be completely removed, repaired and replaced within such ten (10) day period and Contractor shall not have diligently commenced removing, repairing and replacing such defect and damage within such ten (10) day period or shall not thereafter with reasonable diligence and in good faith proceed to do such work, BPCA may employ such other person, firm or corporation as it may choose, to perform such removal, replacement and repair, and Contractor shall, upon demand, pay to BPCA all amounts which BPCA expends for such removal, replacement and repair.

ARTICLE 21 - INDEMNITY

21.1 Delay or Failure

Contractor and its sureties shall be responsible for and pay to BPCA, all loss, damage and additional cost incurred by reasons or on account of (i) the unexcused delays of Contractor (determined as set forth in Section 3.1 hereof) or (ii) Contractor's failure to fully and completely carry out the terms of this Agreement.

21.2 Inventions

In addition to the indemnity set forth in Section 17.5(a), Contractor shall indemnify and hold BPCA harmless from all claims, demands or liabilities of any kind or nature, including costs and expenses, for or on account of any patented or unpatented plan, design, invention, article, arrangement, appliance, Material, or preparation, manufactured, used or followed in the performance of or incident to the Work hereunder, and shall defend any and all actions arising out of the same. In the event of any injunction or legal action by reason thereof, which shall operate to stop or retard the Work, BPCA shall have the right to substitute such other articles of like kind as will enable it to complete the Project, and all costs and expenses occasioned thereby shall be borne by Contractor.

21.3 Liability

Contractor shall hold BPCA, the Conservancy, the State of New York, Construction Manager and Architect and their servants, agents and employees harmless from and shall indemnify them against any and all liability, loss, cost, damage or expense, including attorneys' fees, by reason of claims of Contractors employees or employees of its Subcontractors or Materialmen for injuries or death or by reason of claims of any other person or persons, including BPCA, the Conservancy, the State of New York, Construction Manager, and Architect and their servants, agents or employees, for injuries to person or property or for death occasioned in whole or in part by any act or omission of Contractor, its Subcontractors and Materialmen and their servants, agents and employees whether or not it is contended that BPCA contributed thereto or was responsible therefor by reason of nondelegable duty. If, however, this indemnification is limited by applicable law, then the said indemnification hereby shall be similarly limited to conform with such law, it being the intention that this indemnification shall be as permitted by applicable law. BPCA may retain any monies due or to become due hereunder sufficient to indemnify BPCA, the Conservancy, the State of New York, Construction Manager, and Architect and their servants, agents and employees against such injuries, claims, suits, actions, costs or damages should any such claim arise. Contractor shall, at the sole option of BPCA and upon written demand of BPCA, assume the defense in behalf of BPCA, the Conservancy, the State of New York, Construction Manager, and Architect or their servants, agents or employees of any action or proceeding commenced against them whether or not Contractor is named as a party therein as part of Contractor's aforementioned obligation to indemnify and hold them harmless.

ARTICLE 22 - PATENTS AND ROYALTIES

(a) In the prosecution of the Work, Contractor will not use or furnish any patented appliance, article, device or method of construction unless it has authorization for such use. Contractor shall pay all royalty and license fees.

(b) Any approval of Materials by Architect shall be construed merely as an approval of their adequacy for the Work.

(c) Contractor will be responsible for all claims against BPCA for the infringement of any patents. Contractor shall defend all suits and claims for infringement of any patent rights and shall indemnify and hold BPCA harmless from loss on account thereof. Any expenses incurred by Contractor in connection with suits and claims will not offset the Contract Price.

(d) Contractor hereby and presently grants to BPCA an irrevocable and non-exclusive license to utilize all of the Contractor's rights in and to:

- (1) all United States patents and patents registered in any other foreign country;
- (2) all proprietary knowledge, data and trade secrets; and
- (3) all Engineering data and information necessary in connection with and solely in connection with, all work performed by BPCA or other contractors hired by BPCA to complete the work after termination of this Agreement pursuant to Section 15.1.

Each Purchase Order and Subcontract shall contain a similar clause with respect to the rights of Subcontractor and Materialman in and to the foregoing, in form and substance acceptable to BPCA, granting BPCA the aforesaid license. BPCA shall not be obligated to pay any royalties, license fees or any other consideration to Contractor or any Subcontractor or Materialman for this license. Contractor and each Subcontractor and Materialman shall execute a separate license agreement, in form and substance satisfactory to BPCA, concurrently with the execution of this Agreement, or any Subcontract or Purchase Order, or within ten (10) days thereafter, embodying the terms of this Section. On request, Contractor and each Subcontractor and Materialman shall furnish BPCA with copies of all related Engineering and technical data required to complete the work.

ARTICLE 23 - AS-BUILT DRAWINGS

(a) Contractor shall be furnished by BPCA, at BPCA's expense, with one physical set and two electronic copies (on disk) of 48" x 36" Drawings, on which Contractor, where applicable, shall record the installation of underground utilities, concealed piping, concealed valves and control equipment and record changes in the Work. Such recording shall be kept current and include final and actual sizes as well as the location and elevation of the above figures and offset distances in feet and inches to permanent surface improvements such as buildings, retaining walls or curbs. During the progress of the Work, at the request of Construction Manager and prior to the approval of any Requisition of Contractor, Contractor shall provide a 48" x 36" PDF to BPCA of the up to-date Drawings showing the Work as installed. At completion of the Work, Contractor shall complete, sign and date the 48" x 36" physical set of Drawings and deliver it to Architect.

(b) After review by Architect and return to Contractor for any required changes, Contractor shall furnish to BPCA, at Contractor's expense, at least one physical set and two electronic copies (on disk) of 48" x 36" final Drawings.

ARTICLE 24 - SHOP DRAWINGS AND SAMPLES

24.1 Contractor Submittal

Contractor shall submit to Construction Manager the shop drawings, Product Data and Samples required by the Contract Documents and shall adhere to all submittal and scheduling requirements with respect thereto. After review of such shop drawings, Product Data and Samples by Construction Manager and their approval by Architect, each of such items shall be returned in accordance with the procedures established therefor.

24.2 Contractor's Responsibility

Architect's approval of shop drawings, Product Data and Samples shall not relieve Contractor of responsibility for and deviation from the requirements of the Contract Documents. Contractor shall be responsible for the accuracy of the shop drawings, Product Data and Samples and for the conformity of Documents unless Contractor has notified Architect of the deviation in writing at the time of submission and has received from Architect written approval by separate letter of the specified deviations. Architect's approval shall not relieve Contractor of responsibility for errors or omissions in the shop drawings, Product Data or Samples.

ARTICLE 25 – NOTICES

Whenever it is provided herein that notice, demand, request, consent, approval or other communication shall or may be given to, or served upon, either of the parties by the other, or whenever either of the parties desires to give or serve upon the other any notice, demand, request, consent, approval or other communication with respect hereto, each such notice, demand, request, consent, approval or other communication shall be in writing and shall be effective for any purpose only if given or served by hand with proof of delivery, by delivery by an overnight courier service which obtains receipts, or by mailing the same by express or certified mail, postage prepaid, return receipt requested, addressed to:

(a) If to BPCA:

[Name & Title of BPCA Person], Battery Park City Authority, One World
Financial Center, 24th floor, New York, NY 10281

with a copy to: General Counsel, at the same address

or to such other address as BPCA may from time to time designate in the manner
set forth above.

(b) If to Contractor:

[Name, Company and Address]

or to such other addresses as Contractor may from time to time designate in the manner set forth above.

(c) if to Construction Manager

[Name, Company and Address]

or to such other addresses as the Construction Manager may from time to time designate in the manner set forth above.

(d) if to Architect/Engineer/etc.

[Name, Company and Address]

or to such other addresses as Architect or Engineer may from time to time designate in the manner set forth above.

(e) Every notice, demand, request, consent, approval or other communication hereunder shall be deemed to have been given or served (i) in the case of express or certified mail, on the date the receipt is dated by the Post Office or express mail carrier, as the case may be, and (ii) in the case of notice by hand or by overnight courier service, upon delivery, as evidenced by a signed receipt.

ARTICLE 26 - EMPLOYMENT AND DIVERSITY

26.1 Definitions

The following terms shall have the meanings set forth below for the purposes of this Article 26:

(a) “Certified Business.” A business verified as a minority or women-owned business enterprise by the Division or such other New York State agency authorized to make such certification.

(b) “Diversity Program.” The program by which Owner shall monitor Contractor’s compliance with the requirements set forth in (i) the MBE/WBE Required Participation Plan and (ii) the Utilization Plan.

(c) “Division.” The Division of Minority and Women’s Business Development of the New York State Department of Economic Development.

(d) “Director.” The Director or the Executive Director of the Division.

(e) “Directory.” The directory of certified businesses prepared by the Director for use by Owner and contractor in complying with the provisions of the Executive Law of the State of New York, Article 15-A.

(f) “MBE/WBE Required Participation Plan.” The plan previously submitted by Contractor to Owner listing the certified MBEs and/or WBEs which the Contractor intends to use in the performance of this agreement in order to ensure that MBEs and WBEs are awarded a fair share of the total dollar value that is to be paid for the Work.

(g) “Minority” or “Minority Group Member.” A United States citizen or permanent resident alien who is and can demonstrate membership in one of the following groups:

- (1) Black persons having origins in any of the Black African racial groups;
- (2) Hispanic persons of Mexican, Puerto Rican, Dominican, Cuban, Central or South American descent of either Indian or Hispanic origin, regardless of race;
- (3) Native American or Alaskan native persons having origins in any of the original peoples of North America; or
- (4) Asian and Pacific Islander persons having origins in any of the Far East countries, South East Asia, the Indian subcontinent or the Pacific Islands.

(h) “Minority-owned Business Enterprise” (“MBE”). A business enterprise, including a sole proprietorship, partnership or corporation that is:

- (1) at least 51 percent owned by one or more Minority Group Members;
- (2) an enterprise in which such Minority ownership is real, substantial and continuing;
- (3) an enterprise in which such Minority ownership has and exercises the authority to control and operate, independently, the day-to-day business decisions of the enterprise; and
- (4) an enterprise authorized to do business in the State of New of New York and is independently owned and operated.

(i) “Subcontract.” An agreement providing for a total expenditure in excess of \$25,000 for the construction, demolition, replacement, major repair, renovation, planning or design of real property and improvements thereon between a contractor or consultant and any individual or business enterprise, including a sole proprietorship, partnership, corporation, or not-for-profit corporation, in which a portion of a contractor’s obligation is undertaken or assumed, but shall not include any construction, demolition, replacement, major repair, renovation, planning or design or real property or improvements thereon for the beneficial use of the contractor.

(j) “Utilization Plan.” A plan previously submitted by Contractor to Owner which sets forth the proposed percentages of employees who are either Minority Group Members or women and who will be used by Contractor to perform the Work.

(k) “Women-owned Business Enterprise” (“WBE”). A business enterprise, including a sole proprietorship, partnership or corporation that is:

- (1) at least 51 percent owned by one or more United States citizens or permanent resident aliens who are women;
- (2) an enterprise in which the ownership interest of such women is real, substantial and continuing;
- (3) an enterprise in which such women ownership has and exercises the authority to control and operate, independently, the day-to-day business decisions of the enterprise; and
- (4) an enterprise authorized to do business in the State of New York and which is independently owned and operated.

26.2 Equal Employment Opportunities for Minority Group Members and Women

(a) During the performance of the Work, Contractor agrees as follows:

- (1) Contractor shall not discriminate against any employee or applicant for employment because of race, creed, color, national origin, sex, age,

disability or marital status; shall undertake or continue existing programs to ensure that Minority Group Members and women are afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status; and shall make and document its good faith effort to achieve prompt and full utilization of Minority Group Members and women at all levels and in all segments of its work force where deficiencies exist.

- (2) At the request of Owner, Contractor shall request each employment agency, labor union, or authorized representative of workers with which it has a collective bargaining or other agreement or understanding, to furnish a written statement that such employment agency, labor union, or representative will not discriminate on the basis of race, creed, color, national origin, sex, age, disability or marital status and that such union or representative will affirmatively cooperate in the implementation of Contractor's obligations herein.
- (3) Contractor shall state in all solicitations or advertisements for employees that in the performance of the Work, all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status.
- (4) Contractor and any Subcontractor shall be required to submit compliance reports in accordance with this Section 26 relating to their operations and the implementation of the Diversity Program in effect as of the date of execution of this Agreement.
- (5) Contractor shall submit an EEO policy statement to Owner within seventy-two hours of notice from Owner of the awarding of this contract to Contractor. If Contractor does not have an existing EEO policy statement, Owner may provide to Contractor a model statement.

(b) Contractor shall include the provisions of Section 26.2(a) in every Subcontract in such a manner that the provisions will be binding upon each Subcontractor as to the Work in connection with this contract's execution.

(c) Contractor shall comply with the provisions of the Human Rights Law, all other State and Federal statutory and constitutional non-discrimination provisions. Contractor and subcontractors shall not discriminate against any employee or applicant for employment because of race, creed (religion), color, sex, national origin, sexual orientation, military status, age, disability, predisposing genetic characteristic, marital status or domestic violence victim status, and shall also follow the requirements of the Human Rights Law with regard to non-discrimination on the basis of prior criminal conviction and prior arrest

(d) Miscellaneous

- (1) The provisions of this Section shall not be binding upon Contractor or its Subcontractors in the performance of Work or the providing of services, or any other activities that are unrelated, separate or distinct from this Agreement as expressed by its terms.
- (2) The requirements of this Section shall not apply to any employment outside New York State, or application for employment outside such state, or solicitations, or advertisements therefore, or any existing programs of diversity regarding employment outside New York State and the effect of contract provisions required by this section shall be so limited.

(e) Enforcement

The parties agree to be bound by provisions of Article 15-A of the Executive Law of the State of New York and by the regulations adopted thereunder.

26.3 Workforce Participation

(a) Contractor is required to make and document good faith efforts to achieve the participation of _____ % Minority Group Members and _____ % women in the workforce for each trade or services utilized by Contractor in the Work as set forth in the Utilization Plan.

(b) To ensure compliance with this Section, Contractor shall submit a staffing plan to document the composition of the proposed workforce to be utilized in the performance of this contract by the specified categories listed, including ethnic background, gender, and Federal occupational categories. Contractors shall complete the staffing plan form and submit it as part of their bid or proposal or within a reasonable time, but no later than the time of award of the contract.

(c) The participation for Minority Group Members and women employees must be substantially uniform throughout the work.

(d) Contractor shall not participate in the transfer of Minority Group Member employees or women employees from employer to employer or from project to project for the sole purpose of satisfying the participation goals above set forth.

(e) In achieving such participation, Contractor is required to make good faith efforts to find and employ qualified Minority Group Members and women supervisory personnel and journeymen.

(f) Contractor shall meet with Owner, and such other persons as Owner may invite, on a periodic basis as required by Owner to discuss issues relating to Minority Group Members and women workforce participation. At such meetings, Contractor shall report on the names of its Subcontractors then engaged in construction on the project to which the Work relates or which within 60 days are scheduled to be engaged in construction of such project, on the nature of the work and anticipated construction schedule of Contractor and Subcontractors, on the anticipated hiring needs of Contractors and Subcontractors, on the names of the responsible foremen directly employed by Contractor, and such information requested by Owner that will then promote the employment of Minority Group Members and women. Contractor shall use its best efforts to obtain the above information and shall, upon Owner's request, cause its Subcontractors to attend said meetings and provide the above information.

(g) Compliance reports with respect to the Utilization Plan ("Utilization Compliance Reports") which shall be submitted to Owner's Diversity officer on a monthly basis and shall be in accordance with the following:

- (1) Owner may require that Contractor submit Utilization Compliance Reports for the duration of this contract to Owner regarding Contractor's operation and implementation of the Utilization Plan portion of the Diversity Program in effect as of the date of execution of this Agreement.
- (2) The Utilization Compliance Reports shall include information on any Subcontractor involved in the performance of the contract with regard to the Subcontractor's compliance with the Diversity Program.
- (3) The Utilization Compliance Reports shall include, but are not limited to the following:
 - (i) a breakdown of the Subcontractors by ethnic background, gender or such other categories as may be required by Owner;
 - (ii) the actions the Contractor and Subcontractors have taken to meet the components of the Diversity Program;
 - (iii) how Contractor and Subcontractors intend to utilize participation of Minority Group Members and women in their workforce in connection with the performance of the Work and timetables therefor

during the remainder of their performance of the Work.

(h) Any failure by Consultant to submit a required Utilization Compliance Report, including information on any of its Subcontractor's compliance, may be deemed a breach of contract with respect to this agreement.

(i) Contractor shall include the provisions in Section 26.3 in every Subcontract, and such provisions shall be binding upon each Subcontractor.

26.4 Minority Business Enterprise (MBE) Participation and Women's Business Enterprise Participation

(a) Contractor shall make good faith efforts to attain the participation of _____ % MBE and _____ % WBE in the total dollar value of the Work.

(b) The total dollar value of the Work for purposes of determining compliance with the MBE/WBE Required Participation Plan shall be calculated as follows:

- (1) if an MBE and WBE is not the Contractor -- the dollar value of the Work subcontracted to MBEs and WBEs; provided, however, that where materials are purchased from an MBE and WBE which acts merely as a conduit for goods manufactured or produced by a non-MBE and non-WBE, only that portion of the price paid for such materials which will accrue as profit to the MBE or WBE and/or the Fee received by the MBE and WBE shall be included;
- (2) if Contractor is a joint venture including one or more MBEs and WBEs as joint venturers -- the Fee multiplied by the percentage of the joint venture's profits (or losses) which are to accrue to the MBE and WBE joint venturer(s) under the joint venture agreement; and
- (3) if an MBE and WBE is Contractor or where Contractor is a joint venture consisting entirely of MBEs and WBEs -- the Fee.

(c) Compliance reports with respect to the MBE/WBE Required Participation Plan ("MBE/WBE Compliance Reports") shall be required as follows:

- (1) MBE/WBE Compliance Reports shall be submitted to Owner on a monthly basis and shall include information with respect to:
 - (i) dividing the Work to be subcontracted into smaller portions, where economically and technically feasible;
 - (ii) actively and affirmatively making a good faith effort to solicit bids for subcontracts from qualified MBEs and WBEs identified in the directory of certified businesses available at the office of the Owner's Diversity Officer, including the circulation of solicitations to Minority contractor associations. Contractor shall maintain records detailing the efforts made to provide for meaningful MBE and WBE participation in the Work, including the names and addresses of all MBEs and WBEs contacted and, if any such MBE or WBE is not selected as a joint venture or subcontractor, the reasons for such decision;
 - (iii) making plans and specifications for prospective work available to MBEs and WBEs in sufficient time for review;
 - (iv) utilizing the services and cooperating with those organizations providing technical assistance to Owner in connection with the participation of MBEs and WBEs in the project to which the Work relates;
 - (v) encouraging the formation of joint ventures, partnerships or

other similar arrangements among subcontractors where appropriate;

(vi) ensuring that provision is made to provide progress payments to MBEs and WBEs on a timely basis; and

(vii) not requiring bonds from and/or providing bonds and insurance for MBEs and WBEs where appropriate, and/or assisting in obtaining bonds and insurance for MBEs and WBEs where feasible.

(2) MBE/WBE Compliance Reports which shall be submitted to the Diversity Department on a monthly basis.

(3) MBE/WBE Compliance Reports shall also include, but not be limited to, the following information:

(i) the name, address and telephone number of each certified MBE and WBE which Contractor is using or intends to use to comply with the MBE/WBE Required Participation Plan.

(ii) a brief description of the contract scope of work to be performed for the Contractor by each certified MBE and WBE and the scheduled dates for performance;

(iii) a statement of whether the Contractor has a written agreement with each certified MBE and WBE which Contractor is using or intends to use, and if requested, copies of such agreements;

(iv) the actual total cost of the contract scope of work to be performed by each certified MBE and WBE for this Agreement; and

(v) The actual amounts of any payments made by Contractor to each certified MBE and WBE as of the date the MBE/WBE Compliance Report was submitted.

(d) Contractor shall provide Owner with Monthly MBE/WBE and Workforce Utilization Reports, by the last calendar day of each month, **in the form of Exhibit [x]** hereto. Failure to provide such reports shall be an event of default of Contractor's obligations pursuant to Article 15.1 (a) (1) hereof.

(e) Contractor shall provide proof of payment to all subcontractors and materialmen in the form of a waiver of lien or cancelled check, with each request for payment. Failure to provide such proof of payment shall be an event of default of Contractor's obligations pursuant to Article 15.1 (a) (1) hereof.

26.5 Failure to Comply

(a) In accordance with 5 NYCRR §142.13, Contractor acknowledges that if it is found to have willfully and intentionally failed to comply with the M/WBE participation goals set forth herein or any other requirements set forth in this Article 26, such finding constitutes a breach of contract and Owner may withhold payment from the Contractor as liquidated damages.

(b) Such liquidated damages shall be calculated based on the actual cost incurred by Owner related to Owner's expenses for personnel, supplies and overhead related to establishing, monitoring, and reviewing certified MBE/WBE programmatic goals and Diversity and Equal Opportunity compliance.

ARTICLE 27 - STANDARD PROVISIONS

27.1 Provision Required by Law Deemed Inserted

Each and every provision of law and governmental regulation required by law to

be inserted in the Contract Documents shall be deemed to be inserted therein and this Agreement shall read and shall be enforced as though so included therein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party, this Agreement shall be deemed to be amended to make such insertion or correction. If this Agreement contains any unlawful provision, the same shall be deemed of no effect and shall, upon the application of either party, be deemed stricken from this Agreement without affecting the binding force of the remainder.

27.2 Compliance with Laws, Rules and Regulations

Contractor and each Subcontractor and Materialman shall comply fully with all applicable laws, rules and regulations pertaining to the Project and the Work.

27.3 Applicable Law, Forum and Jurisdiction

This Agreement shall be governed by the laws of the State of New York. All actions or proceedings relating, directly or indirectly, to this Agreement shall be litigated only in courts located within the County of New York. Contractor, any guarantor of the performance of its obligations hereunder (including sureties for Payment and Performance Bonds) ("Guarantor") and their successors and assigns hereby subject themselves to the jurisdiction of any state or federal court located within such county, waive the personal service of any process upon them in any action or proceeding therein and consent that such process be served by certified or registered mail, return receipt requested, directed to the Contractor and any successor at Contractor's address hereinabove set forth, to Guarantor and any successor at the address set forth in the instrument of guaranty and to any assignee at the address set forth in the instrument of assignment. Such service shall be deemed made as of the date of the return receipt.

27.4 No Third Party Rights

Nothing in this Agreement shall create or shall give to third parties any claim or right of action against BPCA, Construction Manager, or Architect beyond such as may legally exist irrespective of this Agreement.

27.5 Exculpation; Limitation of Liability

In no event shall any claim be asserted under this Agreement by Contractor or any Subcontractor or Materialman against any member, officer, employee, lessee, consultant or agent of BPCA, Construction Manager, or Architect. By execution of this Agreement, Contractor agrees to look solely to BPCA with respect to any claim which may arise. It is hereby understood by and between the parties hereto that BPCA shall only be liable to the extent of monies available to BPCA.

27.6 Protection of Lives and Health

(a) Contractor's, Subcontractor's and Materialman's attention is specifically called to the rules and regulations, codes and bulletins of the New York State Department of Labor. Attention is also directed to the standards imposed under the Federal Occupational Safety and Health Act of 1970, as amended.

(b) Contractor shall maintain an accurate record of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under this Agreement, and shall immediately notify BPCA in writing of any injury which results in hospitalization or death.

(c) Contractor alone shall be responsible for the safety, efficiency and adequacy of contractor's work, plant, appliances and methods, and for any damage which may result from the failure, or the improper construction, maintenance, or operation of such work, plant, appliances and methods.

27.7 Waiver of Immunity Clause

Contractor hereby agrees to the provisions of New York Public Authorities Law Section 2875 which require that upon the refusal of a person, when called before a grand jury, head of a State department, temporary State commission, or other State agency, the Organized Crime Task Force in the State Department of Law, head of a department or other City agency, which is empowered to compel the attendance of witnesses and examine them under oath, to testify in an investigation concerning any transaction or contract had with the State, any political subdivision thereof, or with any public department, agency or official of the State, a public authority or with any public department, agency or official of the State or of any political subdivision thereof or of a public authority, that person must sign a waiver of immunity against subsequent criminal prosecution or to answer any relevant questions concerning such transaction or contract:

(a) such person, and any firm, partnership or corporation of which such person is a member, partner, director or officer shall be disqualified from thereafter selling to or submitting bids to or receiving awards from or entering into any contracts with any public authority or official thereof, for goods, work or services, for a period of five (5) years after such refusal; and

(b) any and all contracts made with any public authority or official thereof, by such person, and by any firm, partnership or corporation of which such person is a member, partner, director or officer may be canceled or terminated by the public authority without incurring any penalty or damages on account of such cancellation or termination, but any monies owing by the public authority for goods delivered or work done prior to the cancellation or termination shall be paid.

27.8 Prohibited Interests

No official of BPCA who is authorized in such capacity and on behalf of BPCA to negotiate, make, accept, or approve, or take part in negotiating, making, accepting, or approving any Architectural, Engineering, inspection, Purchase Order or any Subcontract in connection with the work, shall become directly or indirectly interested personally in the Agreement. Contractor is advised that no official or employee of BPCA is permitted to indirectly solicit, accept, or receive gifts whether in the form of money, service, loan, travel, entertainment, hospitality, thing or promise, or in any other form. No officer, employee, architect, attorney, engineer, inspector or consultant of or for BPCA who is authorized in such capacity and on behalf of BPCA to exercise any legislative, executive, supervisory or other similar functions in connection with the Work, shall become directly or indirectly interested personally in the Agreement, any Purchase Order, Subcontract, insurance contract, or any other contract pertaining to the Work.

27.9 Labor Provisions

(a) It is hereby agreed that all applicable provision of the Labor Law of the State of New York shall be carried out in the performance of the Work.

(b) Contractor specifically agrees, as required by New York Labor Law Sections 220 and 220-d as amended, that:

- (1) no laborer, workman or mechanic, in the employ of Contractor, Subcontractor, Materialman or other person doing or contracting to do the whole or any part of the Work contemplated by the Contract Documents shall be permitted or required to work more than eight (8) hours in any one calendar day or more than five (5) days in any one week, except in the emergencies set forth in the Labor Law.
- (2) the wages paid for a legal day's work shall be not less than the prevailing rate of wages as defined by law;
- (3) the minimum hourly rate of wage to be paid shall be not less than that stated in the Contract Documents and as shall be designated by the Industrial Commissioner of the State of New York; and

- (4) Contractor shall post at appropriate conspicuous points at the Site, a schedule showing all determined minimum wage rates for the various classes of laborers and mechanics to be engaged in the Work and all deductions, if any, required by law to be made from unpaid wages actually earned by the laborers and mechanics so engaged.

(c) The minimum wage rates, if any, herein specified for apprentices shall apply only to persons working with the tools of the trade which such persons are learning under the direct supervision of journeymen mechanics. Except as otherwise required by law, the number of apprentices in each trade or occupation employed by Contractor or any Subcontractor or Materialman shall not exceed the number permitted by the applicable standards of the New York State Department of Labor, or, in the absence of such standards, the number permitted under the usual practice prevailing between the unions and the employers' association of the respective trades or occupations.

(d) All employees of Contractor and each Subcontractor and Materialman shall be paid in accordance with the provisions of the Labor Law.

(e) Contractor agrees that, in case of underpayment of wages to any worker engaged in the Work by Contractor or any Subcontractor or Materialman, BPCA shall withhold from Contractor out of payments due an amount sufficient to pay such worker the difference between the wages actually paid such worker for the total number of hours worked, and that BPCA may disburse such amount so withheld by BPCA for and on account of Contractor to the employee to whom such amount is due. Contractor further agrees that the amount to be withheld pursuant to this paragraph may be in addition to the percentages to be retained by BPCA pursuant to other provisions of the Contract Documents.

(f) The Labor Law provides that this Agreement may be terminated for cause and no sum paid for any Work done thereunder upon a second conviction for willfully paying less than:

- (1) the stipulated wage scale as set forth in New York Labor Law Section 220, subdivision 3, as amended, or
- (2) less than the stipulated minimum hourly wage scale as specified in Labor Law, Section 220-d, as amended.

(g) Contractor specifically agrees, as required by the New York Labor Law Section 220-e, as amended, that:

- (1) in the hiring of employees for the performance of Work under this Agreement or any Subcontract or Purchase Order hereunder, or for the manufacture, sale or distribution of Materials, equipment or supplies hereunder, but limited to operations performed within the territorial limits of the State of New York, no Contractor, Subcontractor, Materialman or any person acting on behalf of such Contractor or Subcontractor, or Materialman, shall by reason of race, creed, color, sex or national origin discriminate against any citizen of the State of New York who is qualified and available to perform the work to which the employment relates;
- (2) no Contractor, Subcontractor, Materialman, or any person on behalf of such Contractor, Subcontractor or Materialman shall, in any manner, discriminate against or intimidate any employee hired for the performance of work under this Agreement on account of race, creed, color, sex or national origin;
- (3) there may be deducted from the amount payable to Contractor, by BPCA under this Agreement, a penalty of \$50.00 for each person for each calendar day during which such person was discriminated against or intimidated in violation of the terms of this Agreement; and
- (4) this Agreement may be canceled or terminated for cause by BPCA and all

monies due or to become due hereunder may be forfeited for a second or any subsequent violation of the terms or conditions of this Section of this Agreement.

(h) Where applicable, Contractor agrees to settle labor disputes in accordance with the provisions of The New York Plan For The Settlement of Jurisdictional Disputes Between The Building And Construction Trades Council Of Greater New York And The Building Trades Employers' Association Of The City of New York.

27.10 Disputes Resolution Procedure

(a) The provisions of this Article shall constitute Contractor's sole means for challenging any determination, order or other act or omission of BPCA or otherwise asserting against BPCA any claim of whatever nature arising under, or in any way relating to, this Agreement (any such challenge or assertion by Contractor being herein referred to as a "Dispute(s)"). Exhaustion of these dispute resolution procedures, including the judicial review set forth below, shall be the parties' sole remedy in connection with any Dispute.

(b) The parties to this Agreement hereby authorize and agree to the resolution of all Disputes arising out of, under or in connection with, this Agreement in accordance with the following and pursuant to the procedures set forth in paragraph (c) of this Section 27.10. With respect to any Dispute which relates in whole or primary part to technical issue(s) under this Agreement including, without limitation, determinations as to the acceptability or fitness of any Work, the meaning or interpretation of the Contract Documents, the question of whether any Work falls within the scope of the Specifications set forth in the Contract Documents, the acceptability of any proposed substitutions, modifications or other submissions under this Agreement, the disapproval of proposed Subcontractors or Materialmen (to the extent such disapproval is related to technical issues), the extension of time to the extent related to a technical matter, the question of whether substantial completion or final completion has been achieved, the parties hereby authorize the General Counsel of BPCA, or his/her designee, (hereinafter referred to as the "Arbiter"), acting personally, to render a final and binding decision.

(c) All Disputes shall be initiated through a written submission by either party (such submission to be hereinafter referred to as the "Dispute Notice") to the Arbiter within ten (10) days of the determination, order or other act or omission which is the subject of the Dispute. Within ten (10) days after the submission of such Dispute Notice, the party initiating the Dispute shall provide the Arbiter with all evidence and other pertinent information in support of the party's position and/or claim. Within thirty (30) days from the date of the Dispute Notice, the party against whom the Dispute Notice was filed shall submit any and all materials which it deems pertinent to the Arbiter. Upon submission of a Dispute Notice to the Arbiter, the Arbiter shall render its decision in writing and deliver a copy of same to the parties within a reasonable time not to exceed sixty (60) days after the receipt of all materials. In rendering such decision, the Arbiter may seek such technical or other expertise as it shall deem necessary or appropriate (notifying both parties to the Dispute when he/she so seeks such other information or expertise) and seek any such additional oral and/or written argument or materials from either or both parties to the Dispute as he/she deems fit. The Arbiter shall have the discretion to extend the time for submittals required hereunder. The Arbiter's ability to render and the effect of a decision hereunder shall not be impaired or waived by any negotiations or settlement offers in connection with the matter presented, whether or not the Arbiter participated therein, or by any prior decision of others, or by any termination or cancellation of this Agreement. The decision of the Arbiter shall be final and binding on both parties to this Agreement.

(d) It is expressly understood and agreed that the pendency of a Dispute hereunder shall at no time and in no respect constitute a basis for any modification, limitation or suspension of Contractor's obligation to fully perform in accordance with this Agreement and that Contractor shall remain fully obligated to perform the Work notwithstanding the existence of any such Dispute.

27.11 Additional Provisions Relating to the Prosecution of Claims for Money Damages

(a) Except as otherwise provided in this Agreement, if Contractor claims or intends to claim compensation or money damages for any damage or loss sustained by reason of any determination, order or other act or omission of BPCA, Contractor shall furnish a written notice to the Arbiter setting forth the nature of the claim and the extent of the damage sustained within ten (10) days of the occurrence of such loss or damages. This written notice shall constitute Contractor's submission to the Arbiter for the purposes of requesting the Arbiter's determination in accordance with Section 27.10 above. Any such claim shall state as fully as then possible all information relating thereto and shall be supported by any then available documentation, including daily records showing all costs incurred. Such information shall be supplemented with any and all further information, including information relating to the quantum of losses or damages sustained, as soon as practicable after the information becomes or reasonably should become known to the Contractor.

(b) Any claim for compensation or monetary damages, the successful prosecution of which necessarily depends upon a technical determination favorable to Contractor, may not proceed unless and until Contractor first obtains such a favorable determination with respect to the technical issue and must be made within ten (10) days of such determination; moreover, Contractor must submit to the Arbiter any documentation or proof in support of the monetary claim within fifteen (15) days of such determination in order to proceed with such a claim. This written notice shall constitute Contractor's submission to the Arbiter for the purposes of requesting the Arbiter's determination in accordance with Section 27.10 above.

(c) Compliance with the provisions hereof shall constitute a condition precedent to the Contractor's submission of a Dispute pursuant to Section 27.10 with respect to any claim for compensation or monetary damages and the Contractor shall be deemed to have waived any claim not submitted in accordance herewith.

(d) Any final determination of the Arbiter with respect to a Dispute initiated pursuant to this Article 27 shall be subject to review solely in the form of a challenge following the decision by the Arbiter in a Court of competent jurisdiction of the State of New York, County of New York, under Article 78 of the New York Civil Practice Law and Rules or a United States Court located in New York City under the procedures and laws applicable in that court, it being understood the review of such Court shall be limited to the question of whether or not the Arbiter's determination is arbitrary, capricious or lacks a rational basis. No evidence or information shall be introduced or relied upon in such proceeding which has not been duly presented to the Arbiter in accordance with this Article 27.

27.12 Limitation on Actions

(a) Subject to the provisions of Section 27.11, no action or proceeding shall lie or shall be maintained by Contractor against BPCA, Construction Manager, or Architect unless (i) such action or proceeding shall be commenced within six (6) months of the date of the issuance of the Certificate of Substantial Completion to Contractor; or (ii) in the case of an action or proceeding for monies due pursuant to Section 5.7 hereof, or arising exclusively from or pertaining exclusively to work performed after the date of issuance of the Certificate of Substantial Completion, unless such action or proceeding is commenced no later than six (6) months after the issuance of the certificate of final completion to Contractor; or (iii) if this Agreement is terminated by BPCA prior to the issuance of the Certificate of Substantial Completion, unless such action or proceeding is commenced within six (6) months after the date of such termination.

(b) Nothing in this Section 27.12 shall be construed to modify or lengthen a shorter limitations period provided by applicable law.

(c) No action or proceeding shall be commenced by Contractor against BPCA, Construction Manager, or Architect except in the Supreme Court of the State of New York, County of New York.

(d) Nothing in this Section 27.12 shall be construed to suggest that Contractor, under any circumstances, may bring an action or proceeding against Construction Manager, or Architect.

27.13 Waiver of Remedies

Contractor acknowledges that it can be compensated adequately by money damages for any breach of this Agreement which may be committed by BPCA, Construction Manager, or Architect. Contractor agrees that no default, act or omission of BPCA, Construction Manager, or Architect shall constitute a material breach of contract entitling Contractor to cancel or rescind this Agreement or to suspend or abandon performance thereof, other than the failure of BPCA to make a payment of the Contract Price in accordance with the terms hereof solely because sufficient funds to pay the Contract Price have not been appropriated or will otherwise not be made available to BPCA. Contractor hereby waives any and all rights and remedies to which Contractor might otherwise be or become entitled to because of any wrongful act or omission of BPCA, Construction Manager, or Architect except as provided in this Section 27.13 and Contractor's right to money damages.

27.14 Modification of Agreement

No change in or modification, termination or discharge of this Agreement in any form whatsoever shall be valid or enforceable unless it is in writing and signed by the party to be charged therewith or its duly authorized representative, provided, however, that any change in or modification, termination or discharge of this Agreement expressly provided for in this Agreement shall be effective as so provided.

27.15 Signs and Parking

Contractor agrees that it shall not display on or about the Site any sign, trademark or other advertisement without the approval of BPCA and Construction Manager. Contractor shall not and shall not permit any of its Subcontractors or Materialmen to park any vehicles on the Site.

27.16 Entire Agreement

The Contract Documents constitute the entire Agreement between the parties and incorporate all prior understandings in connection with the subject matter hereof.

27.17 Rights and Remedies

The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law. No action or failure to act by BPCA, Construction Manager, or Architect or Contractor including, but not limited to, the making of any payment or permitting Contractor to continue with the performance of the Work shall constitute a waiver of any right or duty afforded any of them under this Agreement, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.

27.18 Participation in International Boycott Prohibited

Contractor agrees, as a material condition of this Agreement, that neither Contractor nor any substantially owned or affiliated person, firm, partnership or corporation has participated or is participating or shall participate in an international boycott in violation of the provisions of the United States Export Administration Act of 1969, as amended, or the United States Export Administration Act of 1979, as amended, or the Regulations of the United States Department of Commerce promulgated thereunder. This Agreement shall be rendered forfeit and void by the Comptroller of the State of New York if, subsequent to execution, such person, firm, partnership or corporation has been convicted of a violation of the provisions of either of such federal acts or such Regulations or has been found upon the final determination of the United States Commerce Department or any other appropriate agency of the United States to have violated the provisions of either of such federal acts or such Regulations.

27.19 Compliance with “Buy-American” Statutes

Contractor and any substantially owned or affiliated person, firm, partnership or corporation agrees to comply with the New York Public Authorities Law, Section 2603-A as amended (affects steel or steel products).

27.20 Permitted Successors

References to parties and entities herein shall be deemed to include their permitted successors.

27.21 MacBride Fair Employment Principles

If the amount payable to Contractor under this agreement is greater than \$15,000, Contractor hereby certifies that it and/or any individual or legal entity in which it holds a 10% or greater ownership interest, and any individual or legal entity that holds a 10% or greater ownership in it, either have no business operations in Northern Ireland; or shall take lawful steps in good faith to conduct any business operations they have in Northern Ireland in accordance with the MacBride Fair Employment Principles relating to nondiscrimination in employment and freedom of workplace opportunity regarding such operations in Northern Ireland, as set forth in New York State Finance Law Article XI Section 165(5), and shall permit independent monitoring of their compliance with such Principles.

27.22 Iran Divestment Act

By signing this contract, each person and each person signing on behalf of any other party certifies, and in the case of a joint bid or partnership each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each person is not on the list created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the State Finance Law.

27.23 Termination for Failure to Disclose Under State Finance Law §139k

BPCA reserves the right to terminate this contract in the event it is found that the certification filed by Contractor pursuant to New York State Finance Law §139-k was intentionally false or intentionally incomplete. Upon such finding, BPCA may exercise its termination right by providing written notification to the Contractor in accordance with the written notification terms of this contract. If a contract is terminated in accordance with State Finance Law §139k(5), BPCA, its subsidiaries and affiliates, will include a statement in BPCA's procurement record describing the basis for any action taken under the termination provision.

27.24 Labor Peace

The Contractor and its Subcontractors and Materialmen shall not employ on the Work any labor, materials or means whose employment, or utilization during the course of this Agreement, may tend to or in any way cause or result in strikes, Work stoppages, delays, suspension of Work or similar troubles by workers employed by the Contractor or its Subcontractors, Materialmen, or by any of the trades working in or about the buildings and premises where Work is being performed under this Agreement, or by other contractors or their subcontractors pursuant to other agreements, or on any other building or premises owned or operated by BPCA, its contractors or affiliates. Any violation by the Contractor of this requirement may be considered as proper and sufficient cause for declaring the Contractor to be in default, and for BPCA to take action against Contractor as set forth in Article 15 of this Agreement, or such other Section of this Agreement as BPCA may deem proper.

27.25 Comptroller's Approval

If this Agreement is considered an “eligible contract,” as defined by New York Code, Rules and Regulations Title 2 Part 206.2, it is subject to the New York State Comptroller's approval, and therefore shall not be valid and enforceable until that approval has been obtained. A contract is considered an “eligible contract,” as defined by Title 2 of NYCRR Part 206.2, if it is not a specifically exempt contract, is executed by a state authority on or after March 1, 2010

where the aggregate consideration under the contract may reasonably be valued in excess of one million dollars (including all reasonably anticipated renewals and amendments), AND the contract (A) was or shall be awarded on a single-source basis, sole-source basis or pursuant to any other method of procurement that is not a competitive procurement OR (B) shall be paid in whole or in part with monies appropriated by the State, either directly to a state authority or to a state agency which pays the money to a state authority.

27.26 Key Person/Personnel

The parties understand that in entering into this Agreement, BPCA has relied upon Contractor's representation that [name(s) and title(s)] (hereinafter the "Key Personnel") will be directly and consistently involved in supervising the Work and actively engaged in the day-to-day management of the Work, which shall include attending mandatory Project meetings. If the Key Personnel is/are not available as described herein, or if the Key Personnel depart from the firm or severs his/her/their relationship with the Contractor, or for whatever other reason is/are not available to work on the Project, then BPCA shall have the right to terminate this Agreement. The parties also agree that at any time during the course of the Work, BPCA may designate additional or substitute key personnel to perform the Work. Contractor agrees to make the additional or substituted key personnel available under the same conditions set forth herein.

27.27 Form of Agreement Not an Offer

Notwithstanding anything herein to the contrary, the submission of this form of Agreement by BPCA to Contractor shall not constitute an offer, and execution hereof by Contractor shall not be considered acceptance of an offer. A binding contract between the parties shall exist only if and at such time as both parties have executed this document.

27.28 General Responsibility

(a) The Contractor shall at all times during the Agreement term remain responsible. The Contractor agrees, if requested by BPCA or its designee, to present evidence of Contractor's continuing legal authority to do business in New York State, integrity, experience, ability, prior performance, and organizational and financial capacity.

(b) BPCA or its designee, in its sole discretion, reserves the right to suspend any or all activities under this Agreement, at any time, when BPCA discovers information that calls into question the responsibility of Contractor. In the event of such suspension, Contractor will be given written notice outlining the particulars of such suspension. Upon issuance of such notice, Contractor must comply with the terms of the suspension order. Activity under the Agreement may resume at such time as BPCA or its designee issues a written notice authorizing a resumption of performance under the Agreement.

(c) Upon written notice to the Contractor, and a reasonable opportunity to be heard with appropriate BPCA officials or staff, the Agreement may be terminated by BPCA or its designee at Contractor's expense where Contractor is determined by BPCA or its designee to be nonresponsible. In such event, BPCA or its designee may complete the contractual requirements in any manner BPCA may deem advisable and pursue available legal or equitable remedies for breach.

SIGNATURE PAGE FOLLOWS

IN WITNESS WHEREOF, the parties hereto have executed this Agreement, as of the date first above written.

BATTERY PARK CITY AUTHORITY, d/b/a
HUGH L. CAREY BATTERY PARK CITY AUTHORITY

By: _____

Name: _____

Title: _____

CONTRACTOR NAME

By: _____

Name: _____

Title: _____

FEIN # _____

EXHIBIT D

Project Bid Form

(attached)

SECTION 00300

BID FORM

From: (Insert name of Bidder) _____

To the Owner:

- A. The undersigned proposes to furnish all labor and materials required for the construction of WEST THAMES PARK – SYNTHETIC TURF LAWN in accordance with the accompanying Contract Documents prepared by Stantec Consulting Services Inc. for the contract price specified below, subject to additions and deductions according to the terms of the specifications.
- B. This bid includes addenda numbered _____
- C. The proposed contract price broken down by phase is: (Bidder: insert words and numbers. In cases of conflict between words and numbers, the words shall control.)

CONTRACT PRICE:

_____ dollars (\$) _____).

Broken down by as follows, including overhead and profit:

Contract Forms and Requirements

Miscellaneous General Conditions	_____	dollars (\$	_____).
Performance Bond	_____	dollars (\$	_____).
Payment Bond	_____	dollars (\$	_____).
Insurance	_____	dollars (\$	_____).

Division 1: General Conditions and Requirements

Section 01300	Submittals	_____	dollars (\$	_____).
Section 01500	Temporary Facilities	_____	dollars (\$	_____).
Section 01720	Record Drawings	_____	dollars (\$	_____).

Division 2: Site Work

Section 02000	Site Requirements	_____	dollars (\$	_____).
Section 02100	Site Preparation	_____	dollars (\$	_____).
Section 02110	Selective Site Demolition	_____	dollars (\$	_____).
Section 02200	Earthwork	_____	dollars (\$	_____).
Section 02370	Erosion and Sediment Control	_____	dollars (\$	_____).
Section 02772	Cast-in-place Concrete Turf Anchor	_____	dollars (\$	_____).
Section 02792	Infilled Synthetic Turf System	_____	dollars (\$	_____).
Section 02810	Irrigation System	_____	dollars (\$	_____).
Section 02822	Stainless Steel Fence	_____	dollars (\$	_____).

Division 3: Concrete

Section 03100	Concrete Formwork	_____	dollars (\$	_____).
Section 03200	Concrete Reinforcing Steel	_____	dollars (\$	_____).
Section 03325	Cast-In-Place Concrete	_____	dollars (\$	_____).

Division 4: Masonry

Section 04100 Mortar and Grout _____ dollars (\$)).

ADD ALTERNATE NO. 1:

(Includes Site Water Distribution, Drinking Fountain, Unit Pavers, Misting Stations, Concrete Sidewalk and Associated Site Improvements)

_____ dollars (\$)).

Broken down by as follows, including overhead and profit:

Contract Forms and Requirements

Miscellaneous General Conditions	_____	dollars (\$).
Performance Bond	_____	dollars (\$).
Payment Bond	_____	dollars (\$).
Insurance	_____	dollars (\$).

Division 2: Site Work

Section 02110	Selective Site Demolition	_____	dollars (\$).
Section 02200	Earthwork	_____	dollars (\$).
Section 02512	Site Water Distribution	_____	dollars (\$).
Section 02771	Granite Pavers	_____	dollars (\$).
Section 02870	Site Furnishings	_____	dollars (\$).

Division 3: Concrete

Section 03100	Concrete Formwork	_____	dollars (\$).
Section 03200	Concrete Reinforcing Steel	_____	dollars (\$).
Section 03325	Cast-In-Place Concrete	_____	dollars (\$).

Division 4: Masonry

Section 04100 Mortar and Grout _____ dollars (\$)).

ADD ALTERNATE NO. 2:

(Includes Granite Curbing for Raised Planter Beds, 3'-6" Ht. Fencing, Benches, Irrigation, Unit Pavers, Planting, Planting Soil, and Associated Site Improvements)

_____ dollars (\$)).

Broken down by as follows, including overhead and profit:

Contract Forms and Requirements

Miscellaneous General Conditions	_____	dollars (\$).
Performance Bond	_____	dollars (\$).
Payment Bond	_____	dollars (\$).
Insurance	_____	dollars (\$).

Division 2: Site Work

Section 02110	Selective Site Demolition	_____	dollars (\$).
Section 02200	Earthwork	_____	dollars (\$).
Section 02630	Storm Drainage	_____	dollars (\$).
Section 02771	Granite Curbing and Pavers	_____	dollars (\$).

Section 02780	Bluestone Pavers	_____	dollars (\$	_____)
Section 02810	Irrigation System	_____	dollars (\$	_____)
Section 02822	Stainless Steel Fence	_____	dollars (\$	_____)
Section 02870	Site Furnishings	_____	dollars (\$	_____)
Section 02950	Planting	_____	dollars (\$	_____)
Section 02955	Planting Soil	_____	dollars (\$	_____)

Division 3: Concrete

Section 03100	Concrete Formwork	_____	dollars (\$	_____)
Section 03200	Concrete Reinforcing Steel	_____	dollars (\$	_____)
Section 03325	Cast-In-Place Concrete	_____	dollars (\$	_____)

Division 4: Masonry

Section 04100	Mortar and Grout	_____	dollars (\$	_____)
---------------	------------------	-------	-------------	--------

Division 16: Electrical

Section 16500	Exterior Lighting	_____	dollars (\$	_____)
---------------	-------------------	-------	-------------	--------

- D. Unit prices may be used for Change Orders as specified in the Instructions to Bidders and Section 01035. The difference in Unit Prices between add and deduct shall not exceed 15%. Prices shall include materials, labor, overhead and profit.

	<u>Description of Work</u>	<u>Unit</u>	<u>Amount to add</u>	<u>Amount to deduct</u>
1.	Unsuitable Material Excavation (including export)	Cu. Yd.	\$ _____	\$ _____
2.	Free Draining Trench Stone	Cu. Yd.	\$ _____	\$ _____
3.	4" Perforated Underdrain	L.F.	\$ _____	\$ _____
4.	Cleanout (including frame and cover)	EA.	\$ _____	\$ _____
5.	Non-woven (Type 1) Geotextile Fabric	S.F.	\$ _____	\$ _____
6.	Woven (Type 2) Geotextile Fabric	S.F.	\$ _____	\$ _____

- E. The Undersigned agrees that, if he selected as general contractor, he will within five days, Saturdays, Sundays, and legal holidays excluded, after presentation thereof by the Owner, execute a contract in accordance with the terms of this bid and furnish a performance bond and also a labor and materials or payment bond, each of a surety company qualified to do business under the laws of New York State and satisfactory to the Owner and each in the sum of the contract price, the premiums for which are to be paid by the general contractor and are included in the contract price.

The Undersigned further certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.

Date: _____

Name of General Bidder

By _____

Name and Title of Person Signing Bid

Business Address

City and State

Note: This proposal shall bear the written signature of the bidder.

1. If the bidder is an individual, provide residential address if different from business address.
2. If the bidder is a partnership, the proposal must be signed by a partner and provide full names and residential addresses of all partners.
3. If the bidder is a corporation, the proposal must be signed by a duly authorized officer or agent of the corporation, the state of incorporation must be provided, and the corporate seal must be affixed. Provide the state of incorporation and the names of all corporate officers.

If an individual:

Name: _____

Residence: _____

If an individual doing business under a firm name:

Name of Firm: _____

Name of Individual: _____

Business Address: _____

Residence: _____

If a partnership:

Name of Partner: _____

Residence: _____

Name of Partner: _____

Residence: _____

Name of Partner: _____

Residence: _____

If a corporation:

Incorporated in
what State: _____

President: _____

Treasurer: _____

Secretary: _____

END OF SECTION

EXHIBIT E

LIST OF BPCA BOARD MEMBERS AND EMPLOYEES

BPCA BOARD MEMBERS

Dennis Mehiel
Frank J Branchini
Donald Capoccia
Martha J Gallo
Lester Petracca
Hector Batista

BPCA EMPLOYEES

Elsa Alvarez
Kathleen Bailey
Marie Baptiste
Freddy Belliard
Nidia Blake-Reeder
Marc Brotman
Lauren Brugess
Anthony Buquicchio
Deshay Crabb
Gwen Dawson
Maria Ellison
Robin Forst
Joseph Ganci
Julissa Garcia
Luis Garcia
Abigail Goldenberg
Neresa Gordon
Sonia Henry
Shari Hyman
Benjamin Jones
Susie Kim
Karl Koenig
Leandro Lafuente
Michael LaMancusa
Della Lee
Evelin Maisonet
Kevin McCabe
Brenda McIntyre
Shinay McNeill
Bertha Narcisse
Robert Nesmith
Siu May NG
Nazmije Pila
Dahlia Pena
Anthony Peterson

Alix Pustilnik
Robert Quon
Jason Rachnowitz
Anthony Robinson
Andrea Rodriguez
Robert Serpico
Rekha Sewraj-Kumar
Seema Singh
Linda Soriero
John Tam
Alexis Torres
Ryan Torres
Sharon Wade
Angela Whitehead
Kenneth Windman
Bingxin Zheng

BPCPC EMPLOYEES

Dana Anders
Anthony Andriano
Stephen Arciold
Scott Birdseye
Nancy Buivid
Monica Centeno
Betty Chin
Adam Choper
Carlton Chotalal
Gilbert DePadua
Paul Diaz-Larui
Michael Edwards
Abigail Ehrlich
Richard Faraino
Eric T. Fleisher
Lenron Goode
Patrick Greene
Ned Greenberg
Evelyn Gregg
Kelly Grogan
Robert Hansen
Nicole Heater
Sankar Heerah
Craig Hudon
Tessa Huxley
Amy Jogie
Kadia Kane
Roland Kemp
Kurtis King
Betzayda Laboy
Tony Lee

Marianna Lerner
Triny Lima
Luis Lopez
Robert Maggi
Evonne Marche
Philip Mason
Ellen McCarthy
Princess McNeill
Vanessa Mesine
Ronnie Mohammed
Yoshihiro Nishida
Kevin O'Toole
Hector Oyola
Willem Paillant
Gladys Pearlman
Churaman Persaud
Bruno Pomponio
Sandra Power
Madelin Ramirez
Manuel Rivera
Nelson Rogers
Jose Rosado
Holly Ross
Sebastian Rozalski
Carlos Santiago
Jean Schwartz
Lindsey Senn
Sean Simon
Kemnarine Singh
Timothy Skipper
Kareem Starks
Jerome Sturiano
Douglas VanHorn
Noe Velasquez
Evangelio Villalobos
Peter Wheelwright
Eric White
Al Wright
Jouli Yohan