Brooklyn Navy Yard
Development Corporation
BrooklynNavyYard.org

Building 77
141 Flushing Ave, Suite 801
Brooklyn, NY 11205

INVITATION FOR BIDS

INSTALLATION OF BACKFLOW PREVENTION DEVICES AT UTILITY VAULT H

Date of Issue:
September 2, 2025

Contact Information:
David Magdich
Project Manager
dmagdich@bnydc.org
718-907-5980

Overview of Sections:

A. Project Information
B. Conditions Precedent for BNYDC to Consider a Bid Including Pertinent Dates
C. Contract Particulars
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Exhibit J	Excavation Work Plan
Exhibit K	Site Management Plan
Exhibit L	Project Drawings and Specifications
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Exhibit N	M/WBE Utilization Plan

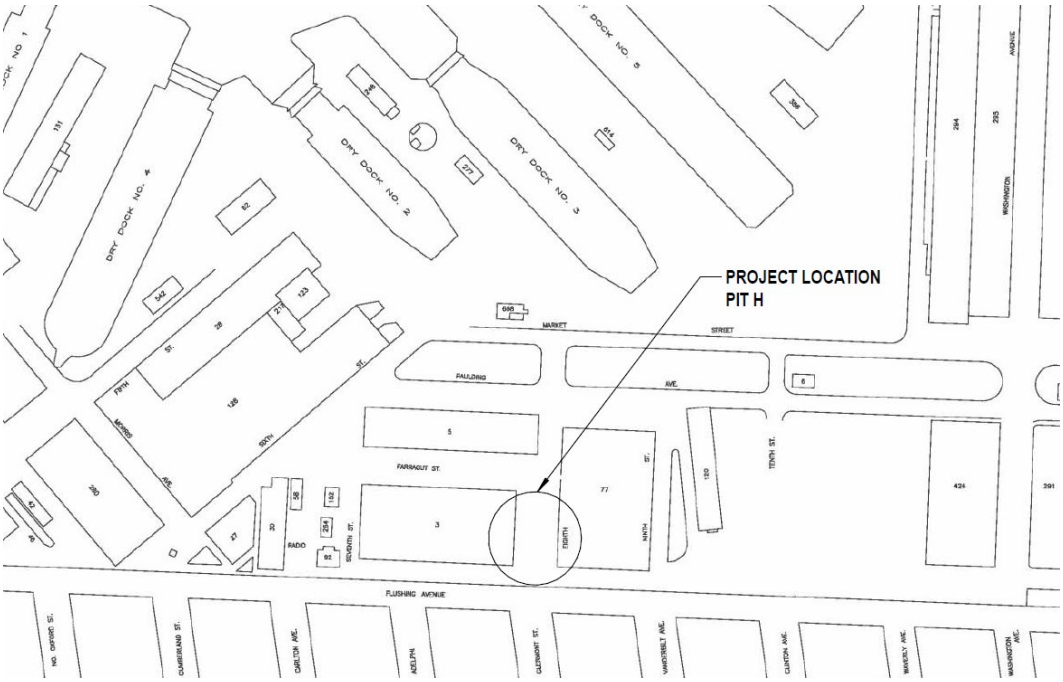
A. PROJECT INFORMATION

The Brooklyn Navy Yard Development Corporation ("BNYDC") is issuing this Invitation for Bids ("IFB") to seek bids ("Bids" and each, a "Bid") from entities ("Bidders" and each, a "Bidder") interested in performing [include brief description of the Project] (the "Project").

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1. PROJECT SITE(S): Brooklyn Navy Yard, Water Meter Vault H, Brooklyn, New York 11205



2. DESCRIPTION OF PROJECT:
The Brooklyn Navy Yard Development Corporation is proceeding with the installation of a new backflow prevention (BFP) device at Vault H. This project involves building a new below-ground utility vault that will house the BFP device. As part of the installation, new valves, C.L.D.I. pipe, and a water meter will also be added. These upgrades are required to comply with the New York City Department of Environmental Protection's cross-connection control regulations.

3. PROJECT SPECIFICATION DOCUMENTS AVAILABLE: See Exhibit L

4. M/WBE Participation Goal: 10%

B. PERTINENT DATES AND CONDITIONS PRECEDENT FOR BNYDC TO CONSIDER A BID

1. MANDATORY PRE-BID MEETING. A **mandatory** pre-bid submission conference will be held at **10:00am on September 11, 2025,** at BNYDC's offices, 141 Flushing Avenue, Building 77, Suite 801, Brooklyn, NY 11205. All Bidders who plan to attend should contact David Magdich via email at dmagdich@bnydc.org to provide names of attendees and email addresses so that attendees can receive a visitor barcode for entry into the Brooklyn Navy Yard.
2. INQUIRIES. Any explanation desired by Bidders regarding the meaning or interpretation of this IFB must be emailed and received by BNYDC no later than **4:00pm on September 30, 2025**. BNYDC will evaluate the need to respond to inquiries received. No verbal responses will be provided, and any information given to a prospective Bidder will be furnished to all prospective Bidders as an addendum to this IFB (an "Addendum"). Except as provided below,

all questions must be directed only to contact David Magdich, Brooklyn Navy Yard Development Corporation, dmagdich@bnydc.org.

3. BID SUBMISSION DEADLINE. One (1) Written sealed Bid must be received at BNYDC's office on or no later than **4:00pm on October 7, 2025**. Bids should be addressed to:

   Brooklyn Navy Yard Development Corporation
   Building 77, Suite 801
   141 Flushing Avenue
   Brooklyn, New York 11205
   Attn: David Magdich

   If Bidder is submitting a request for a full or partial waiver of the M/WBE Participation Goal set forth in Section D hereof, they shall submit such waiver request no later than September 30, 2025, seven (7) calendar days prior to the Bid Submission Deadline.

4. BID SECURITY. Bidder must submit with the Bid either a bid deposit by certified check or a bid bond in the form attached hereto as Exhibit B in an amount of ten percent (10%) of the Bid. Note that Bid Security is not required for any Bid submitted for an amount under Two Hundred Fifty-Thousand Dollars ($250,000).

5. PASSPORT COMPLIANCE. Bidders are required to be registered and up-to-date in PASSPort prior to submitting a Bid to this IFB. Each Bidder must include its PASSPort identification number on the Confirmation of PASSPort Compliance form attached hereto as Exhibit E.

6. PROJECT SCHEDULE. Below are the following pertinent dates:
   a. Anticipated selection of Bid by and notification from BNYDC to winning Bidder on or about December 2025;
   b. Upon selection, the selected Bidder must execute a Contract substantially in the form attached hereto as Exhibit H. Please note that, if any Bidder desires any change(s) to the Contract form attached as Exhibit H, it must include any such proposed change(s) as part of its Bid. BNYDC does not agree to necessarily accept any such proposed Contract changes, but BNYDC will not consider any Contract changes that are not provided as part of a Bid. The contents of the selected Bid, together with this IFB and any formal questions and answers provided during the bid process may be incorporated into any final Contract at BNYDC's discretion;
   c. At least sixty (60) days prior to the commencement of any excavation work relating to the Project, the selected Bidder must complete and submit to BNYDC a signed Environmental Certification in the form attached as Exhibit I hereto certifying that it has reviewed the Site Management Plan documents and will perform all work in accordance with the requirements set forth therein. A copy of the Excavation Work Plan is attached hereto as Exhibit J and a link to the Site Management Plan is included in Exhibit K attached hereto. The selected Bidder may be required to submit such

Environmental Certification prior to Contract execution in the event it is necessary to adhere to the Project schedule.

d. Commence work on Project immediately following Contract execution;
e. Substantial completion of the Project (as defined in the Contract attached as Exhibit H hereto) no later than April 24, 2026; and
f. Complete all inspections and sign-offs no later than June 30, 2026 (the "Final Completion Date").

* Please note dates above are estimates and are subject to change.

C. CONTRACT PARTICULARS

1. TIME OF COMPLETION. Final completion will occur after 135 consecutive calendar days.
2. RETAINAGE. As provided in the Contract attached hereto as Exhibit H.
3. LIQUIDATED DAMAGES. The Contractor shall be charged $1,000.00 per calendar day for each day that Substantial Completion is delayed beyond the Substantial Completion Date. Failure to comply with the M/WBE requirements described in this IFB may also result in liquidated damages, as described further in Exhibit N.

D. MINORITY AND WOMEN-OWNED BUSINESS ENTERPRISE PARTICIPATION

The specific requirements of minority-owned business enterprises ("MBEs") and women-owned business enterprises ("WBEs") participation for this Contract are detailed below. Additional provisions regarding this IFB's requirements relating to M/WBEs can be found in Exhibit M (Additional M/WBE Provisions) attached hereto.

Bidders must comply with all applicable MBE and WBE requirements for this Contract.

1. M/WBE PROGRAM. Section 6-129 of the Administrative Code of the City of New York ("Section 6-129") establishes the program for participation in City procurement ("M/WBE Program") by "MBEs and WBEs, certified in accordance with Section 1304 of the New York City Charter. As stated in Section 6-129, the intent of the program is to address the impact of discrimination on the City's procurement process, and to promote the public interest in avoiding fraud and favoritism in the procurement process, increasing competition for City business, and lowering contract costs. BNYDC endorses these goals and has adopted an M/WBE Program to further participation by MBEs and WBEs for its projects. All Bidders shall comply with all requirements of BNYDC's M/WBE Program applicable to this IFB.

2. M/WBE PARTICIPATION GOAL:
   a. The percentage goal for M/WBE participation (the "Participation Goal") for the Contract is **ten percent (10%)** of the total dollar value of the Contract. The Participation Goal represents a percentage of the total dollar value of the Contract that may be achieved by awarding subcontracts to firms certified with DSBS or DMWBD (each as defined below) as MBEs or WBEs, and/or by crediting the participation of prime contractors and/or qualified joint ventures as provided in

Section D.2.d and Section D.2.e below, unless the goals have been waived or modified by BNYDC in accordance with Exhibit M, Section A.

b. M/WBE firms must be certified by either (i) the NYC Department of Small Business Services ("DSBS"), or (ii) Empire State Development's Division of Minority and Women's Business Development ("DMWBD") to credit such firms' participation toward attainment of the Participation Goal. Such certification must occur prior to the firms' commencement of work. A list of M/WBE firms may be obtained (i) from the DSBS website at www.nyc.gov/buycertified, by emailing DSBS at buyer@sbs.nyc.gov, by calling (212) 513-6356, or by visiting or writing DSBS at 110 William Street, New York, New York, 10038, 7th Floor, and (ii) from the ESD website at www.ny.newnycontracts.com. Eligible firms that have not yet been certified may contact DSBS or DMWBD for additional information on how to get certified. No credit shall be given for participation by a graduate M/WBE, as defined in Section 6-129(c)(20).

c. The Participation Goal is a material term of the Contract and the selected Bidder shall be subject to the BNYDC approved Participation Goal, unless the goals have been waived or modified by BNYDC in accordance with Exhibit M, Section A.

d. An M/WBE Bidder shall be permitted to count its own participation toward fulfillment of the Participation Goal. The value of an M/WBE Bidder's participation shall be determined by subtracting from the total value of the Contract any amounts that the Bidder will pay to direct Subcontractors. A Bidder that is certified as both an MBE and a WBE may count its own participation either toward the goal for MBEs or the goal for WBEs, but not both. If a Bidder is not an M/WBE, it must meet the Participation Goal through the awarding of subcontracts to firms certified with DSBS or DMWBD as MBEs or WBEs.

e. A Bidder that is a Qualified Joint Venture (as defined in Section 6-129, and as discussed further in Section 5) shall be permitted to count a percentage of its own M/WBE participation toward fulfillment of the Participation Goal. The value of Bidder's participation shall be determined by subtracting from the total value of the Contract any amounts that Bidder pays to direct Subcontractors, and then multiplying the remainder by the percentage to be applied to total profit to determine the amount to which an MBE or WBE is entitled pursuant to the joint venture agreement, provided that where a participant in a joint venture is certified as both an MBE and a WBE, such amount shall be counted either toward the goal for MBEs or the goal for WBEs, but not both.

3. M/WBE PROPOSAL SUBMISSION FORMS.

a. Bidders shall be required to submit with its bid a completed M/WBE Utilization Plan in the form attached as Exhibit N indicating:

i. whether the Bidder is an MBE or WBE, or Qualified Joint Venture;

ii. the percentage of work it intends to award to direct Subcontractors;

iii. in cases where the Bidder intends to award direct subcontracts, a description of the type and dollar value of work designated for participation by MBEs and/or WBEs, and the time frames in which such work is scheduled to begin and end; as well as the name, addresses, and telephone numbers of the M/WBE subcontractors if required by the solicitation; and copies of DSBS or DMWBD certifications for each proposed MBE or WBE subcontractor listed in its M/WBE Utilization;

iv. the Bidder's required certification and affirmations, as attached as Exhibit N to this IFB. In the event that this M/WBE Utilization Plan indicates that the bidder does not intend to meet the Participation Goal, the bid shall be deemed non-responsive, unless the goals have been waived or modified by BNYDC in accordance with Exhibit M, Section A.

b. **THE BIDDER MUST COMPLETE AN M/WBE UTILIZATION PLAN IN THE FORM ATTACHED HERETO AS EXHIBIT N. AN M/WBE UTILIZATION PLAN SUBMITTED BY THE BIDDER WHICH DOES NOT INCLUDE THE VENDOR CERTIFICATION AND REQUIRED AFFIRMATIONS WILL BE DEEMED TO BE NON-RESPONSIVE, UNLESS A FULL WAIVER OF THE PARTICIPATION GOAL IS GRANTED IN ACCORDANCE WITH EXHIBIT M, SECTION A. IN THE EVENT THAT BNYDC DETERMINES THAT THE BIDDER HAS SUBMITTED AN M/WBE UTILIZATION PLAN WHERE THE VENDOR CERTIFICATION AND REQUIRED AFFIRMATIONS ARE COMPLETED BUT OTHER ASPECTS OF THE M/WBE UTILIZATION PLAN ARE NOT COMPLETE, OR CONTAIN A COPY OR COMPUTATION ERROR THAT IS AT ODDS WITH THE VENDOR CERTIFICATION AND AFFIRMATIONS, THE BIDDER WILL BE NOTIFIED BY BNYDC AND WILL BE GIVEN FOUR (4) CALENDAR DAYS FROM RECEIPT OF NOTIFICATION TO CURE THE SPECIFIED DEFICIENCIES AND RETURN A COMPLETED M/WBE UTILIZATION PLAN TO BNYDC. FAILURE TO DO SO WILL RESULT IN A DETERMINATION THAT THE BID IS NON- RESPONSIVE. RECEIPT OF NOTIFICATION IS DEFINED AS THE DATE NOTICE IS E-MAILED (IF THE BIDDER HAS PROVIDED AN E-MAIL ADDRESS), OR NO LATER THAN FIVE (5) CALENDAR DAYS FROM THE DATE OF MAILING OR UPON DELIVERY, IF DELIVERED.**

c. The successful Bidder (each Bidder who is awarded a Contract, a "Contractor") shall, within 30 days of contract singing, send a list of proposed persons or entities to which it intends to award subcontracts within the subsequent 12 months. In the case of multi-year contracts, such list shall also be submitted every year thereafter. BNYDC may also require the Contractor to report periodically about the contracts awarded by its direct Subcontractors to indirect subcontractors (as defined in Section 6-129(c)(22)). In the event that the Contractor's selection of a Subcontractor is disapproved, the Contractor shall have a reasonable time to propose alternate subcontractors.

4. STATEMENTS SUBMITTED WITH REQUESTS FOR PAYMENT.

a. The Contractor shall, with each voucher for payment, and/or periodically as BNYDC may require, submit statements, certified under penalty of perjury, which shall include, but not be limited, to:
    i. the total amount the Contractor paid to its direct subcontractors, and, where applicable pursuant to Section 6-129(j), the total amount direct subcontractors paid to indirect subcontractors;
    ii. the names, addresses and contact numbers of each MBE or WBE hired as a subcontractor by the Contractor, and, where applicable, hired by any of the Contractor's direct subcontractors; and
    iii. the dates and amounts paid to each MBE or WBE.
b. The Contractor shall also submit, along with its voucher for final payment:
    i. the total amount it paid to subcontractors, and, where applicable pursuant to Section 6- 129(j), the total amount its direct subcontractors paid directly to their indirect subcontractors; and
    ii. a final list, certified under penalty of perjury, which shall include the name, address and contact information of each subcontractor that is an MBE or WBE, the work performed by, and the dates and amounts paid to each.
c. If payments made to, or work performed by, MBEs or WBEs are less than the amount specified in the Contractor's M/WBE Utilization Form, BNYDC shall take appropriate action, in accordance with the enforcement provisions described in the Contract and in Exhibit M, Section G, unless the goals have been waived or modified by BNYDC in accordance with Exhibit M, Section A.

5. MODIFICATIONS BASED ON CHANGE ORDERS. Where an M/WBE Utilization Plan has been submitted, and the Bidder requests a change order the value of which exceeds the greater of 10 percent of the Contract, as applicable, or $500,000, BNYDC shall review the scope of work for the Contract or Task Order, as applicable, and the scale and types of work involved in the change order, and determine whether the Participation Goals should be modified.

6. OTHER M/WBE REQUIREMENTS. The Contract and Exhibit M contain additional provisions related to the M/WBE requirements applicable to this IFB regarding, without limitation, waivers, modifications, substitutions, indefinite quantity contracts, progress reviews, evaluations and assessments, and enforcement. **PLEASE BE SURE THAT YOU REVIEW AND UNDERSTAND ALL OF THE REQUIREMENTS APPLICABLE TO THIS IFB AND THE CONTRACT PRIOR TO SUBMITTING YOUR PROPOSAL.**

E. SPECIAL REQUIREMENTS

1. MISCELLANEOUS CONDITIONS
    a. NON-BINDING ACCEPTANCE OF QUALIFICATIONS. This IFB does not commit BNYDC to award a contract for any work or services described herein.

b. MODIFICATIONS. Bidders may be asked to make such revisions, additions or deletions to their Bids as may be required by BNYDC.

c. RESERVED RIGHTS. All Bid material submitted becomes the property of BNYDC and BNYDC reserves the right at its sole discretion to:

i. Reject any and all Bids received in response to this IFB at any time prior to signing of a contract with respect to the Project;
ii. Award a contract to other than the lowest Bidder;
iii. Waive, modify or correct any irregularities in Bids received, after notification to the Bidder;
iv. Change the structure of the proposed Bid, if such is in the interest of BNYDC;
v. Negotiate the final scope, staff participation, and Bid before entering into contract with successful Bidder;
vi. Revise the Bid as BNYDC may require subsequent to receipt of a competitively bid proposal for the Project;
vii. Extend the time for submission of all Bids after notification to all prospective Bidders;
viii. Terminate negotiations with a selected Bidder and select the next most responsive Bidder, or take such other action as deemed appropriate if negotiations fail to result in a signed contract within a reasonable amount of time from the commencement of negotiations;
ix. Terminate or modify the IFB process at any time and reissue the IFB;
x. Approve or reject any sub-contractor proposed by the Bidder; and
xi. Request a change of any sub-contractor at any time in the contract process.

2. CONTRACT REQUIREMENTS.

a. Any Bidder awarded a contract as a result of this IFB process will be required to sign a contract substantially in the form as attached hereto as Exhibit H (the "Contract") and an environmental certification in the form attached here to as Exhibit I, if there is excavation work included in the Project scope. If a Bidder desires any material or substantive change(s) to the Contract, it must include any such proposed change(s) in its response to this IFB. The contents of the selected Bid, together with this IFB and any formal questions and answers provided during the Bid processes, may be incorporated into any final Contract at BNYDC's discretion. The anticipated Contract length is half a year.

b. Any information which may have been released verbally or in writing prior to the issuance of the IFB shall be deemed preliminary in nature and bind neither BNYDC nor the Bidder.

c. Any Bidder awarded a contract as a result of this IFB will be required to obtain clearance through the City's Procurement and Sourcing Solutions Portal ("PASSPort"). PASSPort moves the VENDEX process online, eliminating paper submissions. Since PASSPort clearance is a pre-requisite to BNYDC's award of a contract, Bidders are required to be registered and up-to-date in PASSPort prior to submitting their response to this IFB and to include their PASSPort identification number with

submission of their Bid. Non-compliance with these submission requirements shall result in the disqualification of the Bid and/or the Bidder and/or the cancellation of any contract after its award.

d. Notice to Bidders: Pursuant to Local Law 34 of 2007, amending the City's Campaign Finance Law, the City is required to establish a computerized database containing the names of any "person" that has "business dealings with the city" as such terms are defined in the Local Law. In order for the City to obtain necessary information to establish the required database, vendors responding to this solicitation are required to complete the Doing Business Data Form attached as Exhibit F hereto and return it with the Bid. (If the responding vendor is a proposed joint venture, the entities that comprise the proposed joint venture must each complete a Data Form.) If the City determines that a vendor has failed to submit a Data Form or has submitted a Data Form that is not complete, the vendor will be notified by the agency and will be given four (4) calendar days from receipt of notification to cure the specified deficiencies and return a complete Data Form to the agency. Failure to do so will result in a determination that the Bid is non-responsive. Receipt of notification is defined as the day notice is e-mailed or faxed (if the vendor has provided an e-mail address or fax number), or no later than five (5) days from the date of mailing or upon delivery, if delivered.

F. BID SUBMISSION DOCUMENTS ("BSDs")

BNYDC requires that all BSDs listed below be completed and submitted as instructed in this IFB. Failure to submit the below forms, or submitting them improperly, may result in BNYDC's rejection of the Bid.

1. Bid Form: Properly executed and sealed in the form attached as Exhibit A.
2. Bid Security: If required per the IFB, completed form attached as Exhibit B.
3. Experience Questionnaire: Completed form attached as Exhibit C.
4. Declaration of Understanding: Completed and executed declaration attached as Exhibit D.
5. Confirmation of PASSPort Compliance: Completed confirmation attached as Exhibit E.
6. Doing Business Data Form: Completed form attached as Exhibit F.
7. M/WBE Information Form: Completed form attached as Exhibit G.
8. M/WBE Utilization Plan: Completed form attached as Exhibit N.
9. Addenda: Acknowledged receipt of any Addendum to this IFB by attaching a signed copy of the Addendum to Bidder's Bid.
10. Contract Revisions: If a Bidder desires any material or substantive change(s) to the Contract, Bidder must include any such proposed change(s) in its response to this IFB.
11. Environmental Certification Form: Completed form attached as Exhibit I certifying that they have reviewed the Site Management Plan.

BNYDC appreciates your interest in this IFB and looks forward to receiving your Bid.

EXHIBIT A
BID FORM
BROOKLYN NAVY YARD DEVELOPMENT CORPORATION
BID FOR FURNISHING ALL LABOR AND MATERIAL FOR:

PROJECT: INSTALLATION OF BACKFLOW PREVENTION DEVICES AT UTILITY VAULT H

CONTRACT #: _____

Name of Bidder: _____

Bidder is a(n): Individual ☐ Partnership ☐ Corporation ☐ LLC ☐
(Check one, whichever applies)

Business Address:_____

_____

Business Telephone Number:_____

Federal Tax Identification Number:_____

Home Address (If Individual):_____

<u>If Bidder is a Partnership or an LLC, fill in the following blanks:</u>

Name of Partners/Member	Home Address of Partner/Member
1. _____	_____
	_____
2. _____	_____
	_____
3. _____	_____

<u>If Bidder is a Corporation, fill in the following blanks:</u>

Organized under the laws of the State of:_____

Admitted to do business in New York on:_____

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Name and Home Address of President: _____

_____

Name and Home Address of Secretary: _____

_____

Name and Home Address of Treasurer: _____

_____

Other Interested Parties, Persons, or Companies (State None if None.)

Name: _____

Address: _____

Name: _____

Address: _____

Bidder certifies, under penalty of perjury (New York State Penal Law §210.45), that:

a) Bidder, if an individual or a partner in a partnership, is of lawful age and the only one interested in this bid; and no other person, firm partnership LLC or corporation other Bidder has any interest in this bid, or in the Contract if awarded; and

b) The prices in this Bid have been arrived at independently without collusion, consultation, communication or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor; and

c) Unless otherwise required by law, the prices quoted in this bid have not been disclosed by the bidder and will not be disclosed by the bidder prior to bid opening, directly or indirectly, to any other bidder or to any competitor; and

d) No attempt has been made or will be made by the Bidder to induce any other person, partnership, LLC or corporation to submit or not to submit a bid for the purpose of restricting competition; and

e) No councilman or other officer, director or employee or person whose salary is payable in whole or in part from the Treasury of the City of New York or BNYDC is directly or indirectly interested in this bid, or in the supplies, materials, equipment, work or labor to which it relates, or in any of the profits thereof; and

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f) Bidder is not in arrears to the City of New York or BNYDC upon debt or contract or taxes, and is not a defaulter, as surety or otherwise, upon any obligation of the City of New York or BNYDC and has not been declared not responsible, or disqualified, by BNYDC or any agency of the City of New York or State of New York, nor is there any proceeding pending relating to the responsibility of qualification of the bidder to receive public contracts except _____ _____; and

g) Bidder has paid all applicable City income, excise and other taxes for all years it has conducted business activities in New York City; and

h) Bidder has complied with since its effective date and will continue to comply with the provisions of §6-108 of the Administrative Code of the City of New York; and

i) Bidder has complied with since its effective date and will continue to comply with the provisions of §220, §220a and §230 of the New York State Labor Law; and

j) Bidder has complied with since its effective date and will continue to comply with §6-109 of the Administrative Code of the City of New York; and

k) Bidder has complied with since its effective date and will continue to comply with § 24-216 of the Administrative Code of the City of New York; and

l) Bidder agrees to post notices setting forth the requirements of the aforesaid laws (items h, i, j and k above) in prominent and conspicuous places in each and every plant, factory, building and structure where employees engaged in the performance of the Contract can readily view it and will continue to keep such notices posted until the supplies, materials and equipment, or work labor and services required to be furnished or rendered by the Bidder have been finally accepted by BNYDC; and

m) Bidder has complied with since its effective date and will continue to comply with Executive Order No. 50, dated, April 25, 1980, on Equal Employment Compliance of the Contract. The required Employment Report must be submitted as part of the bid.

n) Bidder by submitting this bid certifies that it now has and will continue to have the financial capability to fully perform the Project required for the Contract. The award of the Contract will be made in reliance upon such certification. Therefore, upon request by BNYDC, Bidder will submit proof of financial capability, as BNYDC requires.

Bidder understands that any breach or violation of the foregoing may subject Bidder to damages, liquidated or otherwise, cancellation of the Contract, if awarded, and suspension of Bidder for a period of three years.

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BID PRICE

BID PRICE FOR ITEMS 1 TO 12

ITEM 1 – VAULT H DEMOLITION WORK

For all demolition work at Vault H specified and described in the Contract Documents for the installation of the new precast concrete backflow prevention device/ meter vault as shown on the Contract Documents and as detailed in the specifications to the satisfaction of the Project Engineer, for the lump sum price of:

LUMP SUM _____ ($)

DOLLARS

ITEM 2 – VAULT H ASBESTOS ABATEMENT

For all asbestos abatement work at Vault H specified and described in the Contract Documents for the abatement of 1,800 SF of asbestos pavers and removal of the setting bed, as shown on the contract plans and as detailed in the specifications to the satisfaction of the Project Engineer, for the lump sum price of:

LUMP SUM _____ ($)

DOLLARS

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ITEM 3 – VAULT H MECHANICAL WORK

For all mechanical construction work at Vault H specified and described in the Contract Documents for the installation of the new backflow prevention device including but not limited to furnishing and installing new large piping, new site distribution piping, new valves and new water meter, and connecting to existing mains as shown on the contract plans and as detailed in the specifications to the satisfaction of the Project Engineer, for the lump sum price of:

LUMP SUM _____ ($)

DOLLARS

ITEM 4 – VAULT H GENERAL CONSTRUCTION WORK

For all general construction work at Vault H specified and described in the Contract Documents for the installation of the new precast concrete backflow prevention device/ meter vault including but not limited to dewatering, furnishing and installing new precast concrete vault, castings and hatches, and restoration of pavement, concrete sidewalk and curbs, and grass areas disturbed during construction as shown on the contract plans and as detailed in the specifications to the satisfaction of the Project Engineer, which are also in conformance with the specifications outlined in the Site Management Plan (SMP), for the lump sum price of:

LUMP SUM _____ ($)

DOLLARS

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ITEM 5 – VAULT H SHORING DESIGN AND APPROVALS

For all shoring design and approvals work at Vault H specified and described in the Contract Documents for the installation of the new precast concrete backflow prevention device/ meter vault as shown on the contract plans and as detailed in the specifications to the satisfaction of the Project Engineer, for the lump sum price of:

LUMP SUM _____ ($)

DOLLARS

ITEM 6 –VAULT H EXCAVATION AND SHORING INSTALLATION

For all excavation and shoring installation work at Vault H specified and described in the Contract Documents as well as the SMP for the installation of the new precast concrete backflow prevention device/ meter vault as shown on the contract plans and as detailed in the specifications to the satisfaction of the Project Engineer, for the lump sum price of:

LUMP SUM _____ ($)

DOLLARS

ITEM 7 –TESTING ALLOWANCE

For all costs associated with independent laboratory testing as specified in Section 012100 – Allowances.

NOT-TO-EXCEED Twenty-Five Thousand _____ ($25,000.00)

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ITEM 8 –ASBESTOS INSULATION ABATEMENT ALLOWANCE

Allowance for asbestos abatement work associated with removal of thermal insulation at steam piping which may be found to contain asbestos, as specified in Section 012100 – Allowances.

COST PER LF: _____ ($)
DOLLARS

LUMP SUM COST
FOR 30 LF: _____ ($)
DOLLARS

ITEM 9 – ASBESTOS PAVER ABATEMENT ALLOWANCE

Allowance for asbestos abatement work associated with the removal of additional asbestos containing pavers and setting bed beyond the base bid quantity of 1,800 SF provided in Item 2, as specified in Section 012100 – Allowances.

COST PER SF: _____ ($)
DOLLARS

LUMP SUM COST
PER MOBILIZATION: _____ ($)
DOLLARS

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ITEM 10 – ALLOWANCE FOR DISPOSAL OF RCRA HAZARDOUS SOIL

Allowance for disposal of excavated soil that is determined to be RCRA hazardous waste as defined by applicable federal, state, or local regulations. This allowance shall cover all labor, transportation, disposal fees, manifesting, and coordination required for compliant off-site disposal.

COST PER TON: _____ ($)

DOLLARS

LUMP SUM COST
FOR 40 TONS: _____ ($)

DOLLARS

ITEM 11 – ALLOWANCE FOR DISPOSAL OF PCB CONTAMINATED SOIL

Allowance for disposal of excavated soil containing polychlorinated biphenyls (PCBs) at concentrations requiring off-site disposal in accordance with 40 CFR 761 and applicable state regulations. This allowance shall include handling, loading, transportation, and disposal at an approved facility.

COST PER TON: _____ ($)

DOLLARS

LUMP SUM COST
FOR 40 TONS: _____ ($)

DOLLARS

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ITEM 12 – CONTINGENCY ALLOWANCE FOR ADDITIONAL WORK
For all cash allowances specified in Section 012100 – Allowances for contingencies and additional work.

NOT-TO-EXCEED One-Hundred Thousand ($100,000.00)
DOLLARS

TOTAL BID PRICE (SUM OF ALL ITEMS 1-12):

_____

_____

_____($
)
DOLLARS

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IN WITNESS WHEREOF, Bidder states that they have visited and examined the site of the Project. Bidder affirms that they have carefully examined the Contract form provided. Bidder agrees that it will execute the Contract unchanged in form and faithfully perform the Project required thereunder for the price set forth above, and have executed this Bid Form on the _____ day of _____ 20__

Bidder's Name: _____

By: _____
(Signature of Individual, Partner, Member or Corporate Officer)

Title: _____

Address: _____

_____

_____ (Corporate or LLC Seal)

Attest: Secretary of Corporate or LLC Bidder

ACKNOWLEDGMENT, IF AN INDIVIDUAL

STATE OF NEW YORK)
ss.:
COUNTY OF _____)

On this _____ day of _____, 20___, before me personally came _____ to me known, who, being by me duly sworn, did depose and say that he/ she resides at _____ and that he/she is the Individual described in and who executed the foregoing instrument and that the several matters therein stated are in all respects true.

_____
Notary Public

ACKNOWLEDGMENT, IF A PARTNERSHIP

STATE OF NEW YORK)
ss.:
COUNTY OF _____)

Brooklyn Navy Yard
Development Corporation
BrooklynNavyYard.org

Building 77
141 Flushing Ave, Suite 801
Brooklyn, NY 11205

On this _____ day of _____, 20___, before me personally came _____ to me known, who, being by me duly sworn, did depose and say that he/ she resides at _____ and that he/she is a member of, the firm described in and which executed the foregoing instrument and that the several matters therein stated are in all respects true.

_____
Notary Public

ACKNOWLEDGMENT, IF A LIMITED LIABILITY COMPANY

STATE OF NEW YORK)
: ss.:
COUNTY OF _____)

On the ____ day of _____ in the year 20__, before me personally came _____, to me known, who, being by me duly sworn, did depose and say that that he/she is a member of _____ the limited liability company described in and which executed the foregoing instrument; and that he/she signed his/her name thereto by authority of the members of said limited liability company and that the several matters therein stated are in all respects true.

_____
Notary Public

ACKNOWLEDGMENT, IF A CORPORATION

STATE OF NEW YORK)
: ss.:
COUNTY OF _____)

On the ____ day of _____ in the year 20__, before me personally came _____, to me known, who, being by me duly sworn, did depose and say that that he/she is the _____ of _____ the business described in and which executed the foregoing instrument; and that he/she signed his /her name thereto by authority of the Board of Directors of said corporation and that the several matters therein stated are in all respects true.

_____
Notary Public

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BrooklynNavyYard.org

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EXHIBIT B
FORM OF BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, _____ as Principal, (hereinafter called " Principal) " and _____a corporation duly organized under the laws of the State of _____ as Surety, (hereinafter called " Surety ") are hereby held and firmly bound unto the Brooklyn Navy Yard Development Corporation, the City of New York, and the City of New York Department of Small Business Services or their successors and assigns collectively, as Obligee (hereinafter called ("Obligee") in the full and just sum of _____ Dollars ($_____) (hereinafter called “Penal Sum”), to the payment of which, well and truly to be made, the Principal and Surety hereby bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents:

Signed and sealed with our seals and dated this _____ day of _____, 20__.

WHEREAS, the Principal has submitted a bid to Obligee based on:

1. Obligee’s Request for Bids; and
2. Obligee’s Information for Bidders; and
3. Obligee’s Bid submission Documents; and
4. The Project Specification Documents issued by Obligee; and
5. Any addenda issued by Obligee in connection with the above documents.

6. Documents 1 through 5 above are incorporated herein by reference

For_____
_____
_____(Project) Project number _____ (BID)

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WHEREAS, the Condition of the above obligation is such that the Principal has submitted to Obligee the id which requires Principal to enter into a written contract for the performance of the Project.

NOW, THEREFORE,

A. If the BID is rejected, or
B. If the BID is accepted and the Principal and Obligee have executed and delivered the required contract in the form set forth in the Information for Bidders, in accordance with the accepted BID (Contract); and
C. If the Principal furnishes Obligee with the required bond for Principal's faithful performance the Contract; and
D. If the Principal furnishes Obligee with the required bond for the payment of all persons performing labor or furnishing materials in connection with the Contract; and
E. If the Principal shall in all other respects perform the agreements created by Obligee's acceptance of the Bid
F. If the Principal shall pay to the Obligee an amount equaling the difference, not to exceed the Penal Sum hereof, between the amount specified in said BID and such larger amount for which the Obligee may in good faith contract with another party to undertake the Project covered by said Bid.

Then this obligation shall be null and void, otherwise to remain in full force and effect.

It is understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event exceed the Penal Sum as shown herein.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety under this Bond shall be in no way impaired or affected by any extension of the time within which the Obligee may accept the Bid; and said Surety does hereby waive notice of any such extension.

_____
(Principal) {SEAL}

By: _____
Title:
Address _____
_____

_____
(Surety) {SEAL}

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By: _____
(Attorney-In-Fact)
Address _____
_____

IMPORTANT

A. Surety companies executing this bond must be certified and appear on the United States Treasury Department's most recent Circular 570 as amended.
B. Surety companies can execute this bond only in the amount certified on the United States Treasury Department's most recent Circular 570 as amended.
Sureties executing this bond must be licensed as a surety by the State of New York.

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EXHIBIT C
EXPERIENCE QUESTIONNAIRE

As used in the questions below the words "YOU" or "YOUR" means, the bidding individual or bidding entity and each and every one of such bidding entity's officers, directors, partners, members or principals (any shareholder owning l0% or more of the company stock is deemed a principal).

Date: _____

Bidder's Name: _____

Bidder's Office Address: _____

Bidder's Telephone Number: _____

Bidder's Federal Taxpayer Identification Number: _____

Bidder is a(n): Individual ☐ Partnership ☐ Corporation ☐ LLC ☐
(Check one, whichever applies)

A. What type of construction work are YOU primarily engaged in? _____

_____

_____

B. You have been engaged in such construction work for a) as a Prime Contractor? ___years and/or b) as a Subcontractor ___ years

C. Have YOU or any organization YOU have been affiliated with in any capacity ever failed to complete a Contract awarded to YOU? Yes ☐ No ☐

If Yes, for whom, where, when and why? _____

_____

_____

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D. Have YOU or any organization YOU have been affiliated with in any capacity ever been declared in default by any City, State or Federal Agency or on any Contract?
Yes ☐ No ☐

If Yes where, when, by whom and why? _____

_____

_____

E. Have YOU or any organization YOU have been affiliated with in any capacity ever been investigated by any City, State or Federal Agency? Yes ☐ No ☐

If Yes where, when, by whom and why? _____

_____

_____

F. Have YOU or any organization YOU have been affiliated with in any capacity ever when called before a GRAND JURY to testify, refused to sign a WAIVER OF IMMUNITY or answer any relevant questions or have been indicted for any reason whatsoever? Yes ☐ No ☐

If Yes where, when and why? _____

_____

_____

G. List the names of all organization YOU have been affiliated with in any capacity that are <u>not</u> listed in paragraphs D. E. or F. above.

_____

_____

_____

_____

_____

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H. Have YOU ever appeared before the Board of Responsibility of the City of New York? Yes ☐ No ☐

If Yes when and why _____

_____

_____

I. In what other businesses do YOU have a financial interest? _____

_____

_____

_____

REFERENCES

List all corporations and individuals for whom YOU have performed significant work for and an official from whom BNYDC can obtain a reference. YOU must include a current address and telephone number for each reference.

_____

_____

_____

_____

_____

List all cities for which YOU have performed significant work for and an official from whom BNYDC can obtain a reference. YOU must include a current address and telephone number for each reference.

_____

_____

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_____

_____

_____

List all counties for whom YOU have performed significant work for and an official from which BNYDC can obtain a reference. YOU must include a current address and telephone number for each reference.

_____

_____

_____

_____

_____

List all States have YOU performed work and an official from whom BNYDC can obtain a reference. YOU must include a current address and telephone number for each reference.

_____

_____

_____

_____

_____

List all Federal construction projects YOU have performed work on and an official from whom BNYDC can obtain a reference. YOU must include a current address and telephone number for each reference.

_____

_____

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_____

_____

_____

Have YOU filed Performance Record reports with the Bureau of Contract Information, Inc., Washington, D.C.? Yes ☐ No ☐ if Yes list Date(s) _____

PROJECT EXPERIENCE FORMS AND RESUMES

Individual Construction Experience

For each key individual in your organization please attach a resume providing at a minimum the following information:
Name
Education
Professional designations
Professional affiliations
Awards
Relevant experience including size of previous projects, cost of such project, location of such projects, a description of such projects and the key individuals position for each project

Special Experience Requirements: for each Special Requirement set forth in the Information For Bidders:

A. If bidder intends to perform the specific areas of work with its own forces, Bidder must provide Resumes for Key personnel and Project Experience Forms that demonstrates Bidders ability to fulfill the Special Requirements.
B. If bidder intends to subcontract the specific areas of work, the proposed subcontractor(s) must provide Resumes for Key personnel and Project Experience Forms that demonstrates subcontractor(s) ability to fulfill the Special Requirements.

I (We) have read and understood all the questions in the foregoing Experience Questionnaire and that I (We) have supplied true, full and complete information and answers I (We) understand that BNYDC will rely on the information contained herein.

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Bidder

Name: _____

By: _____
(Signature of Individual, Partner, Member or Corporate Officer)

Title: _____

Address: _____

_____

_____ (Corporate or LLC Seal)
Attest: Secretary of Corporate or LLC Bidder

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ACKNOWLEDGMENT, IF AN INDIVIDUAL

STATE OF NEW YORK)
ss.:
COUNTY OF _____)

On this _____ day of _____, 20___, before me personally came _____ to me known, who, being by me duly sworn, did depose and say that he/ she resides at _____ and that he/she is the Individual described in and who executed the foregoing instrument and that the several matters therein stated are in all respects true.

_____
Notary Public

ACKNOWLEDGMENT, IF A PARTNERSHIP

STATE OF NEW YORK)
ss.:
COUNTY OF _____)

On this _____ day of _____, 20___, before me personally came _____ to me known, who, being by me duly sworn, did depose and say that he/ she resides at _____ and that he/she is a member of, the firm described in and which executed the foregoing instrument and that the several matters therein stated are in all respects true.

_____
Notary Public

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BrooklynNavyYard.org

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Brooklyn, NY 11205

ACKNOWLEDGMENT, IF A LIMITED LIABILITY COMPANY

STATE OF NEW YORK)
: ss.:
COUNTY OF _____)

On the ____ day of _____ in the year 20__, before me personally came _____, to me known, who, being by me duly sworn, did depose and say that that he/she is a member of _____ the limited liability company described in and which executed the foregoing instrument; and that he/she signed his/her name thereto by authority of the members of said limited liability company and that the several matters therein stated are in all respects true.

_____
Notary Public

ACKNOWLEDGMENT, IF A CORPORATION

STATE OF NEW YORK)
: ss.:
COUNTY OF _____)

On the ____ day of _____ in the year 20__, before me personally came _____, to me known, who, being by me duly sworn, did depose and say that that he/she is the _____ of _____ the business described in and which executed the foregoing instrument; and that he/she signed his /her name thereto by authority of the Board of Directors of said corporation and that the several matters therein stated are in all respects true.

_____
Notary Public

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PROJECT EXPERIENCE FORM (To be completed for each of three projects)

Name of Project: _____

Location of Project: _____

Owner or Owner's representative familiar with the work performed:

Name: _____

Title: _____

Phone number: _____

Brief description of work completed: _____

_____

_____

Was the work was performed as a prime subcontractor, or joint venture: _____

_____

Dollar amount of Contract or subcontract: $_____

Date Started: _____

Original Scheduled Completion Date: _____

Actual Completion Date: _____

If Not Completed By Original Scheduled Date, Give Reasons Therefore:

_____

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PROJECT EXPERIENCE FORM (To be completed for each of three projects)

Name of Project: _____

Location of Project: _____

Owner or Owner's representative familiar with the work performed:

Name: _____

Title: _____

Phone number: _____

Brief description of work completed: _____

_____

_____

Was the work was performed as a prime subcontractor, or joint venture: _____

_____

Dollar amount of Contract or subcontract: $_____

Date Started: _____

Original Scheduled Completion Date: _____

Actual Completion Date: _____

If Not Completed By Original Scheduled Date, Give Reasons Therefore:

_____

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PROJECT EXPERIENCE FORM (To be completed for each of three projects)

Name of Project: _____

Location of Project: _____

Owner or Owner's representative familiar with the work performed:

Name: _____

Title: _____

Phone number: _____

Brief description of work completed: _____

_____

_____

Was the work was performed as a prime subcontractor, or joint venture: _____

_____

Dollar amount of Contract or subcontract: $_____

Date Started: _____

Original Scheduled Completion Date: _____

Actual Completion Date: _____

If Not Completed By Original Scheduled Date, Give Reasons Therefore: _____

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BrooklynNavyYard.org

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Brooklyn, NY 11205

EXHIBIT D
DECLARATION OF UNDERSTANDING

DECLARATION OF UNDERSTANDING

By signing in the space provided below, the undersigned certifies that the Bidder (i) has read and understands the scope and requirements of this Project, as described in the IFB and all attachments; (ii) has the capacity to execute this Project, (iii) agrees to accept payment in accordance with the requirements of this IFB and the standard Contract, attached hereto as Exhibit H, and (iv) will, if its Bid is accepted, enter into the attached Contract with the Brooklyn Navy Yard Development Corporation.

The undersigned further stipulates that the information in his/her Bid is, to the best of his/her knowledge, true and accurate.

_____ _____

Authorized Signature, Title Date

_____

Consultant Firm

_____

Business Address

_____

City State Zip

_____

Telephone Number Fax Number

_____

Federal Tax Identification Number

[ ] Corporation [ ] Partnership
[ ] Individual [ ] Other (State)

_____

(Seal, if a Corporation)

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Development Corporation
BrooklynNavyYard.org

Building 77
141 Flushing Ave, Suite 801
Brooklyn, NY 11205

EXHIBIT E
CONFIRMATION OF PASSPORT COMPLIANCE

CONFIRMATION OF PASSPORT COMPLIANCE

The Bidder shall submit this Confirmation of PASSPort Compliance, which replaces VENDEX and shall include its PASSPort identification number. All VENDEX processes are now completed in the PASSPort Portal, this replaces the paper forms. Please register and complete new questionnaires as soon as possible. PASSPort will not be importing any information from VENDEX. The main purpose of PASSPort is to be a completely paperless interactive system.

Please access to the NYC.gov PASSPort website thru the link below:
https://www.nyc.gov/site/mocs/passport/about-passport.page

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Development Corporation
BrooklynNavyYard.org

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Brooklyn, NY 11205

CONFIRMATION OF PASSPORT COMPLIANCE

The Proposer shall submit this Confirmation of PASSPort Compliance

Name of Proposer: _____

Proposer's Federal Tax ID: _____

Proposer's Address: _____

Proposer's Telephone Number: _____

Proposer's Fax Number: _____

Date of Proposal Submission: _____

Project ID: _____

PASSPort Compliance: To demonstrate compliance with PASSPort requirements, the Proposer shall complete either Section (1) or Section (2) below, whichever applies.

Submission of Questionnaires: By signing in the space provided below, the Proposer certifies that as of the date specified below, the Proposer has submitted PASSPort Questionnaires to the PASSPort website thru the link below: https://www.nyc.gov/site/mocs/passport/about-passport.page

Date of Submission: _____

By:_____

(Signature of Partner or corporate officer)

Print Name: _____

(1) **Submission of Certification of No Change:** By signing in the space provided below, the Proposer certifies that they have read and follow the instructions on the PASSPort website.

By:_____

(Signature of Partner or corporate officer)

Print Name: _____

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Development Corporation
BrooklynNavyYard.org

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Brooklyn, NY 11205

EXHIBIT F
DOING BUSINESS DATA FORM

[to attach]

The City of New York
Mayor's Office of Contract Services
Doing Business Accountability Project

Doing Business Data Form

To be completed by the City agency prior to distribution

Agency: _____ **Transaction ID:** _____

Check One:	Transaction Type (check one):		
☐ Proposal	☐ Concession	☐ Contract	☐ Economic Development Agreement
☐ Award	☐ Franchise	☐ Grant	☐ Pension Investment Contract

Any entity receiving, applying for or proposing on an award or agreement must complete a Doing Business Data Form (see Q&A sheet for more information). Please either type responses directly into this fillable form or print answers by hand in black ink, and be sure to fill out the certification box on the last page. **Submission of a complete and accurate form is required for a proposal to be considered responsive or for any entity to receive an award or enter into an agreement.**

This Data Form requires information to be provided on principal officers, owners and senior managers. The name, employer and title of each person identified on the Data Form will be included in a public database of people who do business with the City of New York; no other information reported on this form will be disclosed to the public. **This Data Form is not related to the City's VENDEX requirements.**

Please return the completed Data Form to the City office that supplied it. Please contact the Doing Business Accountability Project at DoingBusiness@cityhall.nyc.gov or 212-788-8104 with any questions regarding this Data Form. Thank you for your cooperation.

Section 1: Entity Information

Entity Name: _____

Entity EIN/TIN: _____

Entity Filing Status (select one):

☐ Entity has never completed a Doing Business Data Form. *Fill out the entire form.*

☐ Change from previous Data Form dated _____. *Fill out only those sections that have changed, and indicate the name of the persons who no longer hold positions with the entity.*

☐ No Change from previous Data Form dated _____. *Skip to the bottom of the last page.*

Entity is a Non-Profit: ☐ Yes ☐ No

Entity Type: ☐ Corporation (any type) ☐ Joint Venture ☐ LLC ☐ Partnership (any type)
☐ Sole Proprietor ☐ Other (specify): _____

Address: _____

City: _____ State: _____ Zip: _____

Phone : _____ Fax : _____

E-mail: _____

Provide your e-mail address and/or fax number in order to receive notices regarding this form by e-mail or fax.

Section 2: Principal Officers

Please fill in the required identification information for each officer listed below. If the entity has no such officer or its equivalent, please check "This position does not exist." If the entity is filing a Change Form and the person listed is replacing someone who was previously disclosed, please check "This person replaced..." and fill in the name of the person being replaced so his/her name can be removed from the *Doing Business Database*, and indicate the date that the change became effective.

Chief Executive Officer (CEO) or equivalent officer

☐ This position does not exist

The highest ranking officer or manager, such as the President, Executive Director, Sole Proprietor or Chairperson of the Board.

First Name: _____ MI: _____ Last: _____

Office Title: _____

Employer (if not employed by entity): _____

Birth Date (mm/dd/yy): _____ Home Phone #: _____

Home Address: _____

☐ This person replaced former CEO: _____ on date: _____

Chief Financial Officer (CFO) or equivalent officer

☐ This position does not exist

The highest ranking financial officer, such as the Treasurer, Comptroller, Financial Director or VP for Finance.

First Name: _____ MI: _____ Last: _____

Office Title: _____

Employer (if not employed by entity): _____

Birth Date (mm/dd/yy): _____ Home Phone #: _____

Home Address: _____

☐ This person replaced former CFO: _____ on date: _____

Chief Operating Officer (COO) or equivalent officer

☐ This position does not exist

The highest ranking operational officer, such as the Chief Planning Officer, Director of Operations or VP for Operations.

First Name: _____ MI: _____ Last: _____

Office Title: _____

Employer (if not employed by entity): _____

Birth Date (mm/dd/yy): _____ Home Phone #: _____

Home Address: _____

☐ This person replaced former COO: _____ on date: _____

Section 3: Principal Owners

Please fill in the required identification information for all individuals who, through stock shares, partnership agreements or other means, **own or control 10% or more of the entity**. If no individual owners exist, please check the appropriate box to indicate why and skip to the next page. If the entity is owned by other companies, those companies do **not** need to be listed. If an owner was identified on the previous page, fill in his/her name and write "See above." If the entity is filing a Change Form, list any individuals who are no longer owners at the bottom of this page. If more space is needed, attach additional pages labeled "Additional Owners."

There are no owners listed because (select one):

☐ The entity is not-for-profit ☐ There are no individual owners ☐ No individual owner holds 10% or more shares in the entity

☐ Other (explain): _____

Principal Owners (who own or control 10% or more of the entity):

First Name: _____ MI: _____ Last: _____

Office Title: _____

Employer (if not employed by entity): _____

Birth Date (mm/dd/yy): _____ Home Phone #: _____

Home Address: _____

First Name: _____ MI: _____ Last: _____

Office Title: _____

Employer (if not employed by entity): _____

Birth Date (mm/dd/yy): _____ Home Phone #: _____

Home Address: _____

First Name: _____ MI: _____ Last: _____

Office Title: _____

Employer (if not employed by entity): _____

Birth Date (mm/dd/yy): _____ Home Phone #: _____

Home Address: _____

Remove the following previously-reported Principal Owners:

Name: _____ Removal Date: _____

Name: _____ Removal Date: _____

Name: _____ Removal Date: _____

Section 4: Senior Managers

Please fill in the required identification information for all senior managers who oversee any of the entity's relevant transactions with the City (e.g., contract managers if this form is for a contract award/proposal, grant managers if for a grant, etc.). Senior managers include anyone who, either by title or duties, has substantial discretion and high-level oversight regarding the solicitation, letting or administration of any transaction with the City. **At least one senior manager must be listed, or the Data Form will be considered incomplete.** If a senior manager has been identified on a previous page, fill in his/her name and write "See above." If the entity is filing a Change Form, list individuals who are no longer senior managers at the bottom of this section. If more space is needed, attach additional pages labeled "Additional Senior Managers."

Senior Managers:

First Name: _____ MI: _____ Last: _____

Office Title: _____

Employer (if not employed by entity): _____

Birth Date (mm/dd/yy): _____ Home Phone #: _____

Home Address: _____

First Name: _____ MI: _____ Last: _____

Office Title: _____

Employer (if not employed by entity): _____

Birth Date (mm/dd/yy): _____ Home Phone #: _____

Home Address: _____

First Name: _____ MI: _____ Last: _____

Office Title: _____

Employer (if not employed by entity): _____

Birth Date (mm/dd/yy): _____ Home Phone #: _____

Home Address: _____

Remove the following previously-reported Senior Managers:

Name: _____ Removal Date: _____

Name: _____ Removal Date: _____

Certification

I certify that the information submitted on these four pages and _____ additional pages is accurate and complete. I understand that willful or fraudulent submission of a materially false statement may result in the entity being found non-responsible and therefore denied future City awards.

Name: _____

Signature: _____ Date: _____

Entity Name: _____

Title: _____ Work Phone #: _____

Please return this form to the City agency that supplied it to you, not to the Doing Business Accountability Project.

For information or assistance, call the Doing Business Accountability Project at 212-788-8104.

Printed on paper containing 30% post-consumer material

Brooklyn Navy Yard
Development Corporation
BrooklynNavyYard.org

Building 77
141 Flushing Ave, Suite 801
Brooklyn, NY 11205

EXHIBIT G
M/WBE INFORMATION FORM

[to attach]

Brooklyn Navy Yard
Development Corporation
BrooklynNavyYard.org

Building 77
141 Flushing Avenue, Suite 801
Brooklyn, NY 11205

Dear Vendor:

The Brooklyn Navy Yard Development Corporation is compiling statistical data on companies that provide construction, professional services, standard services, and goods to our company so that we can comply with the New York City Local Law (LL 129). Please complete the attached information sheet and return it alongside your vendor information forms.

If you are a minority or woman-owned business enterprise (M/WBE) but are not yet certified by the City of New York we strongly urge you to do so. The city has an aggressive program to help certified M/WBEs and it is in your best interest to get certified. For more information on getting certified, we suggest that you call the New York City Department of Small Business Services' Certification Hotline at (212) 513-6311. Addition information can also be obtained through the City's website at: www.nyc.gov/getcertified.

We sincerely appreciate your cooperation.

Sincerely,



Brian Linett

Sr. Vice President & Controller

Brooklyn Navy Yard
Development Corporation
BrooklynNavyYard.org

Building 77
141 Flushing Avenue, Suite 801
Brooklyn, NY 11205

Vendor Information Form

Name: Company Title:

Company Name:

Company Address:

Federal Tax ID / SSN:

Email: Telephone:

Business type: Select One

- ☐ Individual/Sole Proprietor
- ☐ Corporation
- ☐ Partnership
- ☐ Other

Business category: Select One

- ☐ Construction
- ☐ Professional Services
- ☐ Standard Services
- ☐ Other
- ☐ Construction Subcontract
- ☐ Professional Services Subcontract
- ☐ Goods

Business Demographics

A minority- and women- owned business enterprise (M/WBE) is a business owned (51% or greater) by an owner that identifies as Asian-Indian, Asian-Pacific, Black, Hispanic, Native American, and/or female.

Majority owner M/WBE? ☐ Yes ☐ No

Majority owner female? ☐ Yes ☐ No

Designated MBE Group (select one - if N/A, please leave blank):

- ☐ Asian - Indian
- ☐ Asian - Pacific
- ☐ Black
- ☐ Hispanic
- ☐ Native American

City or state certification (select all that apply):

- ☐ Minority and Women-owned Business Enterprise (M/WBE)
- ☐ Locally Based Enterprise (LBE)
- ☐ Emerging Business Enterprise (EBE)
- ☐ Service-Disabled Veteran-Owned Small Business (SDVOB)

Certification Number:

Brooklyn Navy Yard
Development Corporation
BrooklynNavyYard.org

Building 77
141 Flushing Ave, Suite 801
Brooklyn, NY 11205

EXHIBIT H
FORM OF CONTRACT

[to attach]

BNYDC CONSTRUCTION CONTRACT

CONSTRUCTION CONTRACT NUMBER _____**(**hereinafter referred to as the "Contract") dated as of _____, between **BROOKLYN NAVY YARD DEVELOPMENT CORPORATION**, having an office at Building 77, 141 Flushing Avenue, Suite 801, Brooklyn, New York 11205 (hereinafter referred to as "BNYDC"); and_____ _____, having its principal place of business at _____ (hereinafter referred to as the "Contractor") for _____ (hereinafter referred to as "Project") at_____ (hereinafter referred to as "Project Site(s)") which Project Site(s) is located within the Brooklyn Navy Yard (the "Premises"). The Work as defined in Section 1.2 hereof shall commence on _____ for a term of _____ consecutive calendar days therefrom unless extended (hereinafter referred to as the "Term"). Substantial Completion of the Work, as defined in Section 8.2 of this Contract, shall be completed by _____ (the "Substantial Completion Deadline") and Final Completion of the Work, as defined in Section 8.4 of this Contract, shall be completed by _____ (the "Final Completion Deadline"). Such Work shall be performed for the total amount of _____ Dollars ($_____) (hereinafter referred to as the "Contract Price").

In consideration of the IFB, the BSD the RFB, Contract Price, and the mutual covenants contained herein and other valuable consideration, the parties agree as follows:

ARTICLE 1

GENERAL PROVISIONS AND DEFINITIONS

Section 1.1 Contract This Contract is composed of the following items:

A. Articles 1-17 of this Contract and all Exhibits annexed hereto;

B. All Change Orders as defined in Section 1.2.5 hereof and, all amendments and addenda to this Contract;

C. The Information For Bidders (hereinafter referred to as the "IFB"), Bid Submission Documents, (hereinafter referred to as the "BSD") and Request For Bids (hereinafter referred to as the "RFB") issued by BNYDC, together with all addenda to the IFB, BSD, or RFB.

D. All provisions of laws, rules, regulations and Executive Orders of the United States Government, the State of New York, the City of New York, or any agency or subdivision thereof, which are required to be a part of or apply to this Contract, whether or not any specific reference is made to the same in this Contract.

E. All required bid, payment and performance bonds.

Section 1.2 Definitions The following words shall, whenever they appear in this Contract, have the meanings set for them in this section, unless a different meaning is clear from the context:

A. "Architect/Engineer" shall mean the entity or entities retained by BNYDC to perform design services for the Project.

B. "BSD" shall mean the Bid Submission Documents as promulgated by BNYDC upon which Contractor presented its bid in response to the RFB and upon which the Contract Price is based.

C. "BNYDC's Contractors" shall mean other Contractors or construction managers engaged by BNYDC to perform work on the Project or at the Project Site(s).

D. "Change Orders" shall mean changed, deleted and/or additional Work to be performed by the Contractor pursuant to Article 6 hereof.

E. The "City" shall mean the City of New York.

F. The "City Contract" shall mean the management contract between the City of New York and the Brooklyn Navy Yard Development Corp.

G. "Construction Documents" shall mean the drawings identified on **Exhibit "C"** and the specifications annexed as **Exhibit "D"**.

H. "Contract Price" shall mean the total compensation for the Work as set forth on page 1 hereof.

I. "DSBS" shall mean the City of New York Department of Small Business Services.

J. "Extra Work" shall mean Work by Contactor performed at the request of BNYDC or Work performed by Contactor with BNYDC's. knowledge and approval for which there is no extra charge

K. "Federal" shall mean the Government of the United States of America.

L. "IFB" shall mean the Information For Bidders contained in the RFB promulgated by BNYDC upon which Contractor based its bid and upon which the Bid Submission Documents are based.

M. "Liquidated Damages" shall mean the liquidated damages rate set forth in the RFB multiplied by the number of calendar days that Substantial Completion (as defined in Section 8.2) of the Work is delayed from the Substantial Completion Deadline set forth in the Recitals to this Contract.

N. "Premises" shall mean the Brooklyn Navy Yard.

O. "President" shall mean the President of BNYDC, or the President's designee.

P. "Project" shall mean the services to be performed under this Contract, as defined on page 1 of this Agreement.

Q. "Protest Work" shall mean Work the Contractor believes is Change Order Work for which no Change Order has been issued.

R. "Project Site(s)" shall mean the location within the Brooklyn Navy Yard where the Work is to be performed as defined on page 1 hereof.

S. "RFB" shall mean the Request For Bids which contained the IFB promulgated by BNYDC upon which Contractor presented its bid on the BSD and upon which the Contract and the Contract Price are based.

T. "Project Engineer" shall mean a BNYDC's representative whose authority is set forth in Article 8.5 hereof.

U. "State" shall mean the State of New York.

V. "Subcontractor(s)" shall mean any entity the Contractor enters into a subcontract or material purchase order (hereinafter referred to as "Subcontract(s)") for purpose of performing the Work. All Subcontractor(s) and Subcontract(s) must be approved by BNYDC.

W. "Tenant", "Subtenant", "Licensee", "Invitee" "Person" or "Visitor" shall mean any person or entity that is on the Premises with or without the permission of BNYDC.

X. "Work" shall mean all labor, equipment, services, permits, approvals, inspections and material necessary for the complete and satisfactory completion of the Project as set forth in this Contract.

Section 1.3 Funding Funds for the payment of Contractor under this Contract may be provided by or through the City, pursuant to the City Contract (hereinafter referred to as City Contract Funded). Therefore if the Project is City Contract Funded, Contractor shall take no action which constitutes a breach of the City Contract. Contractor acknowledges that it has carefully reviewed and completely understands the terms and conditions of the City Contract which was available for review during the bidding period. Contractor further understands and agrees that if the City Contract is terminated this Contract may be assigned by BNYDC to the City.

Section 1.4 Applicable Laws, Rules and Regulations The Work shall be performed in strict compliance with all applicable federal, state and local laws, rules, regulations, codes and orders. Failure by the Contractor to comply with any such law, rule, regulation code or order shall be a material default under this Contract. Without limiting the generality of the foregoing, the Contractor agrees that it shall specifically comply with the following:

A. Equal Employment The requirements are set forth in **Exhibit "A"**, which is attached hereto and made a part hereof.

B. Federal Job Training Partnership Act (hereinafter referred to as the "FJTPA") The FJTPA, which specifies that when hiring for the Work, the Contractor shall give consideration to employing City residents who are economically disadvantaged or are eligible under FJTPA, and who have qualifications and

skills commensurate with the requirements for the positions available. To the greatest extent feasible, the Contractor shall give opportunities for training and employment to lower income persons in the area of the Premises.

C. Minimum Wages; Payroll Reports The provisions of Sections 220 and 230 of the New York State Labor Law shall apply to all Work under this Contract. If no prevailing wage is applicable, then Contractor will pay workers the minimum hourly rate required by law, unless a higher amount is required pursuant to any other provision of this Contract. The Contractor shall furnish on demand by BNYDC or DSBS or such other agency or office as the President may direct, a verified copy of its payroll, and also any other information required by BNYDC to satisfy BNYDC that the provisions of this Section are being observed.

D. MacBride Principles The requirements are set forth in **Exhibit "B"**, which is attached hereto and made a part hereof.

E. Noise Control. The provisions for noise control for the Work at the Project Site(s) and on the Premises are set forth in Section 24-216 of the City's Administrative Code as it may be amended from time to time.

F. ADA Requirements Title II of the Americans with Disabilities Act, the rules and regulations promulgated thereunder, and any state and local laws establishing construction requirements with respect to access for disabled persons.

G. Tropical Hardwoods The provisions for the use of Tropical Hardwoods used for the Work at the Project Site(s) and on the Premises are set forth in Section 167-b of the New York State Finance Law, which prohibits the use of tropical hardwoods, except as expressly permitted.

H. Local Based Enterprise The requirements are set forth in **Exhibit "E"**, which is attached hereto and made a part hereof.

I. Whistleblower Protection The requirements are set forth in **"Exhibit K"**, which is attached hereto and made a part hereof.

J. Paid Sick Leave The requirements are set forth in **"Exhibit L"**, which is attached hereto and made a part hereof.

K. OSHA The Contractor shall ensure that the Work is performed in a location and manner free from recognized hazards and shall comply with Occupational Safety and Health Administration ("OSHA") standards, rules and regulations. The Contractor shall regularly examine workplace conditions and use safe and well-maintained tools, equipment and Personal Protective Equipment to ensure conformance with applicable OSHA standards.

L. Site Management Plan The Contractor shall perform all Work in compliance of the terms and provisions of that certain Site Management Plan ("SMP") referenced in the Environmental Easement (the "Environmental Easement") between the City, BNYDC and the People of the State of New York dated as of June 26, 2018 and recorded on July 3, 2018, C.R.F.N. 2018000219215. Contractor specifically acknowledges and agrees that any ground disturbance activities at the Project Site (including all digging for construction, utility installations, or otherwise) must be performed in strict accordance with the notice and other provisions the SMP, including but not limited to the Excavation Work Plan and the Health and Safety Plan attached as **Exhibit "O"** to this Contract, which Plans are attached as appendices to the SMP; (ii) Contractor's failure to strictly comply with the Environmental Easement and the SMP shall be a material default under this Contract and (iii) in addition to all of BNYDC's remedies under this Contract, Contractor shall be responsible for payment of any fines or other consequences related to Contractor's failure to strictly comply with the Environmental Easement and the SMP.

Contractor agrees to incorporate, each of the provisions contained in Article 1.4 and each of the exhibits referenced therein into each Subcontract so as to bind each Subcontractor to the provision of Article 1.4.

Section 1.5 Intent of Contract The intent of this contract is to complete the Project; therefore matters not expressly included in this Contract but which are reasonably inferable therefrom as being necessary to produce the intended results shall be deemed included as a part of the Work. The Contract parts are complementary and cumulative and what is called for by one part shall be as binding as if called for by all.

Section 1.6 The Construction Documents The drawings identified in **Exhibit "C"** which is attached hereto and made a part hereof and the Specifications identified

in **Exhibit "D"** are complementary. Anything shown in any of the drawings and not mentioned in the specifications, or mentioned in any of the specifications and not shown in the drawings, shall have the same effect as if shown or mentioned in both. In the event of a conflict between the drawings and the specifications, Contractor shall do the more complete installation, unless directed, in BNYDC's sole discretion, otherwise in writing.

Section 1.7 Contract Modifications The Contract is to be construed as one coherent overall document. If part of the Contract is Modified for the purpose of varying, modifying, rescinding or adding to the Contract then such modified portions of the Contract must be read together with the unmodified portions of the Contract to which they relate so as to give effect to the provisions of the Contract Documents that remain in full force and effect. Not withstanding the above, and to the extent BNYDC or Contractor becomes aware of any conflict within any of the Contract, then BNYDC and Contractor shall promptly inform each other of such conflict and BNYDC shall resolve the conflict. BNYDC's decision is final and binding upon Contractor. Contractor shall proceed with the Work in accordance with BNYDC's determination. If Contractor performs Work before the conflict is resolved such Work is be done at Contractor's sole risk, cost and expense.

ARTICLE 2

THE PROJECT SITE (S) AND CONTRACTOR'S RESPONSIBILITIES

Section 2.1 Project Site(s) The Premises are the former New York Naval Shipyard, which has been in continuous use for over 200 years. As such, there are buried foundations of demolished buildings, railroad and crane tracks set in massive concrete foundations and concrete decks set on various types of piles; therefore, BNYDC makes no representations whatsoever as to any subsurface condition of the Project Site(s). The Contractor assumes all responsibility and liability for all subsurface conditions at the Project Site(s) that could have been discovered by subsurface examination. The Contract Price contemplates whatever subsurface conditions exist. No Change Order will be issued for subsurface conditions at the Project Site(s) materially differing from any assumptions made by Contractor unless the Contractor having notice of the history of the Premises could not have anticipated such subsurface conditions.

If access to the Project Site(s) or Premises shall be denied to the Contractor at any time by BNYDC or any person(s) not associated with BNYDC or by court action, and such access denial reasonably interferes with Contractor's ability to perform

the Work, then the Term set forth on page 1 hereof shall be extended for a period equal to any such period of access denial. Notwithstanding the foregoing, the Contractor shall not be entitled to an extension of time for any access denial attributable to the actions of the Contractor. In no event shall any denial of access to the Project Site(s) be a breach of this Contract and no damages or increased costs shall be recoverable on account of such denial of access.

Section 2.2 Contractor's Responsibilities

A. Adherence to Contract Documents The Contractor shall perform the Work in strict accordance with the Contract.

B. Supervision The Contractor shall use its best skills to properly administer, coordinate, supervise and superintend the Work. The Contractor shall furnish a competent on-site representative to receive notices, orders and instructions. The Contractor shall at BNYDC's request, report at a meeting between BNYDC and the Contractor on the general progress of the Work at the Project Site(s). The Contractor shall attend in person or have a competent and responsible representative attend such progress meetings.

C. Labor The Contractor shall furnish and maintain an adequate staff and work force of skilled, competent, experienced, reliable and honest workers at the Project Site(s) to carry out the Work in an efficient and timely manner until completion of the Work and shall enforce discipline and order among Contractor's and Subcontractor's employees and shall not employ on the Work any unfit person or anyone not properly skilled or trained in the task to which they are assigned.

D. Labor Disputes The Work may not be interrupted by labor disputes. The Contractor shall use such materials, have deliveries made to the Project Site(s), and employ only such Labor as will perform their services in harmony with all other trades performing Work at the Project Site(s), all other BNYDC's Contactors on the Premises, or otherwise.
If a labor dispute does occur then the Contractor is responsible for taking all necessary actions to settle such labor dispute. If questions of union jurisdiction do arise, then the Contractor shall immediately take all necessary action to settle such jurisdictional disputes and shall use such labor as will settle such dispute at no additional cost to BNYDC. The Contractor shall be responsible for any time lost due to such dispute.

If Contractor cannot settle the Labor disputes expeditiously, BNYDC shall after three (3) days written notice to Contractor have the right to terminate the Contractor pursuant to Article 9.2 of this Contract. BNYDC shall then have the right to enter upon the Project Site(s) and take possession thereof for the purpose of completing the Work.

E. Layout of Work All layout shall be performed by the Contractor, who shall be solely responsible for establishing and maintaining the layout, line and grade tolerances required for its the Work. The Contractor shall verify all established baselines prior to use and shall notify BNYDC of any discrepancies.

F. Cleaning and Rubbish Removal Contractor shall clear all debris and rubbish created by its operations on a daily basis. The debris and rubbish shall be collected and deposited in containers provided by Contractor. If the Contractor fails to clear and collect the debris and rubbish then, BNYDC may do so for the account of the Contractor. Such debris and rubbish removal costs shall be deducted from the Contract Price unless sooner paid by Contractor to BNYDC.

Section 2.3 Safety The Contractor shall be solely responsible for:

A. Construction means, methods and techniques; and
B. Employing methods of construction, materials, scaffolding, tools, structures and equipment which meet or exceed federal, state and local safety and health related rules and regulations, laws and codes; and
C. Complying with the requirements of all insurance carriers providing insurance coverage for the work.

The Contractor shall coordinate with BNYDC and all BNYDC's Contactors on the Project Site(s) to ensure that the Project Site(s) complies with all safety regulations promulgated by any governmental agency having jurisdiction over the Project Site(s) or the Work. The Contractor shall cooperate fully with BNYDC and other persons, to prevent loss and accidents with respect to the Work on or at the Project Site(s).

ARTICLE 3

TIME OF PERFORMANCE

Section 3.1 Commencement and Coordination of Work Contractor shall commence the Work at the Project Site(s) on the date specified on page 1 of this Contract. Contractor is completely responsible for the coordination of the Work. BNYDC Contractors or third-party Contractors may from time to time work at, on or about the Project Site(s). Contractor agrees to coordinate the Work scheduling to accommodate the needs of such BNYDC Contractors or third-party Contractors.

Section 3.2 BNYDC's Contractors

A. BNYDC reserves the right to have BNYDC's Contractors or third-party Contractors perform work on the Project or at the Project Site(s). Such BNYDC's Contractors or third-party Contractors may provide additional work beyond the Work covered by this Contract including, but not limited to, tenant improvements. Contractor shall, without further compensation, coordinate the Work with the work of BNYDC's Contractors or third-party Contractors. Contractor shall provide BNYDC's Contractors or third-party Contractors access to the Project Site(s) as often and for as long as BNYDC's Contractors or third-party Contractors may request. Contractor shall furnish to BNYDC Contractors or third-party Contractors any services that Contractor utilizes or furnishes to its Subcontractors including, but not limited to, use of hoisting facilities and temporary utilities.

B. Contractor shall integrate the schedule of BNYDC's Contractors or third-party Contractors into the Progress Schedule, as defined in Article 3.3.

C. Contractor shall permit BNYDC, BNYDC Contractors and third-party Contractors to install equipment of furnishings in the Project, provided that such installation shall not materially interfere with Contractor's performance of its obligations hereunder.

D. If Contractor causes damage to the property of BNYDC, BNYDC's Contractors or third-party Contractors or to any other work or property on the Project Site(s) or Premises, then Contractor shall promptly pay for such damage. Such payment for damages shall be deducted from the Contract Price unless sooner paid by Contractor to BNYDC.

E. BNYDC's Contractors and third-party Contractors may be required to do work before, or simultaneously with the Work. Contractor agrees that, when requested by BNYDC's Contractor shall stop or suspend the Work to allow BNYDC's Contractors and third-party Contractors to complete their work.

When BNYDC makes a request for Contractor to stop, interrupt or suspend Work to the extent that there are delays in the performance of the Work, the period of time during which the Work shall have ceased shall be recognized as a Contemplated Delay.

Section 3.3 Schedules Ten days after the issuance of the Contract Award Letter, Contractor shall submit to BNYDC in writing, on a form provided by or otherwise acceptable to BNYDC, a schedule of all items of Work to be performed showing the relative dollar value of each item, the date when each item of Work is to be commenced, the duration of each item of Work and the date when each item of Work is to be completed (hereinafter referred to as "Progress Schedule"). As required by section 3.2 b) above, the Progress Schedule shall show the interrelationship of each construction activity of the Contractor under this Contract and all other contracts affecting the Work. BNYDC must approve the Progress Schedule before Work commences. BNYDC will promptly review the submitted Progress Schedule and notify the Contractor to change those items that BNYDC deems incomplete, inaccurate or untimely. Upon receipt of such notification by BNYDC Contractor will incorporate the required changes and submit a revised Progress Schedule. Upon final approval by BNYDC of the Progress Schedule, Contractor shall strictly adhere to the approved Progress Schedule.
It is a condition precedent that an approved Progress Schedule is on file with BNYDC before payment of any kind will be made to the Contractor.

Section 3.4 Time for Completion Time is of the essence in this Contract. All Work must be completed within the number of calendar days set forth on page 1 hereof, from the date specified on page 1 hereof, subject to the provisions of Article 3.7 below.

Section 3.5 Contemplated Delays BNYDC and Contractor acknowledge that they are aware that delays are common to construction projects (hereinafter referred to as "Contemplated Delays").
The Following circumstances shall be deemed Contemplated Delays:

A. Errors in the Construction Documents, or discrepancies in the Construction Documents, or Changes to the Construction Documents, or incomplete Construction Documents that necessitate the issuance of corrective Change Orders.

B. Slow processing of shop drawings.

C. Interference from BNYDC Contractors or third-party Contractors or visitors to the Project Site(s) as contemplated by this Article 3.

D. Adverse weather conditions

E. Delays, disruptions, hindrances, interferences, or acceleration caused by:

i. Acts, failures to act, errors or omissions of BNYDC, the Architect/Engineer or other BNYDC consultants (hereinafter referred to as "Consultants") in the performance of their respective obligations on the Project, or their failure to give approvals and/or consents within the time periods set forth in the Progress Schedule that result in delays.
ii. Economic, industry-wide strikes; fire; acts of God.
iii. Acts of the public enemy.
iv. Unavailability of, or inability to obtain, labor or materials by reason of the acts of any governmental body which affect the supply or availability of labor or materials.
v. Floods.
vi. Rebellions, riots, insurrections or sabotage.
vii. Suspension, resequencing, stoppage or interruption of the Work ordered by BNYDC under this Agreement.
viii. Interruption or failure of utilities, including without limitation, electric, gas, heat, steam and water.

Section 3.6 Assumption of the Risk for Delays

Notwithstanding any other provisions of this Contract, and for the benefit of BNYDC, Architect/Engineer and the Consultants, Contractor agrees to make no claim against BNYDC, the Architect/Engineer, or the Consultants due to any Contemplated Delays or other delays even if Contractor complies with the provisions of Article 3.7, and Contractor is granted an extension of the Term. Contractor agrees to assume the risk of any and all loss and expense for such other delays in the performance of the Work or any other obligation of Contractor under this Contract.

The intent of this Article 3.6 is to avoid protracted costly litigation as to whether delays, should they occur, were anticipated or unanticipated, foreseeable or

unforeseeable, reasonable or unreasonable or as to whether or not they were the fault of BNYDC, Architect/Engineer, Consultants or their representatives. Contractor agrees that for all delays, regardless of duration, the Contractor assumes any and all loss and expense for such delays in the performance of the Work or any other obligation of Contractor under this Contract.

Contractor certifies that it has considered, as an experienced Contractor, the risk of encountering such delays and its assumption of any and all loss and expense for such delays in the performance of the Work in reaching the Contract Price contained in this Contract.

Section 3.7 Extension of Time for Performance. If performance by the Contractor is a Contemplated Delay, Contractor may be allowed a reasonable extension of the Term to complete the Work. Only the President, upon written application by the Contractor, may grant an extension of time.

Section 3.8 Grounds for Extension If the Contractor has otherwise strictly complied with all of the requirements of this Contract and if Contractor applies, in accordance with Section 3.9 hereof, for an extension of time to complete the Work due to a Contemplated Delay, then Contractor shall be entitled to an extension of the Term to complete the Work. The President shall determine how many days of extension time to grant, but in no event more than the number of days missed due to the contemplated delay.

The Contractor shall not receive separate extensions of time for each of several causes of delay operating concurrently. If one of several causes of delay operating concurrently results from any act, fault or omission of the Contractor or of its Subcontractors or material suppliers, and would of itself (irrespective of the concurrent causes) have delayed the Work, no extension of time will be allowed for the period of delay resulting from such act, fault or omission.

Section 3.9 Applications for Extension of Time to Complete Work. Contractor must within five (5) days after commencement of the Contemplated Delay, submit a written application to the President containing the following:

A. Contract identification

B. The nature of each alleged cause of delay in completing the Work

C. The number of days attributable to each such cause

D. The date that each such alleged cause of delay began

E. The anticipated end date of each alleged cause of delay

F. Original bid amount contained in the BSD

G. Contract start date

H. Original completion date

I. All previous time extensions granted

J. The extension of time currently requested.

As part of the application for Extension of Time, Contractor must include the following statement: "Contractor understands and agrees that if a time extension is granted it is only for purposes of permitting continuation of Work and that, unless otherwise agreed by BNDYC in its sole discretion, Liquidated Damages will continue to accrue for each day Substantial Completion is delayed past the Substantial Completion Deadline."

Section 3.10 Analyses and Approval of Time Extensions The President shall analyze Contractor's application for extension of time to complete Work and issue a written acceptance or rejection of said application. If the President accepts the application to extend the time for the performance of the Contract then the Term shall be extended the number of days the President specifies.

Section 3.11 Waiver of Claims The Contractor waives all claims for damages, including all costs and increased costs for labor and material, incurred on account of any delay, hindrance or cause whatsoever, and the Contractor agrees that its sole right and remedy for any delay, hindrance or cause shall be that the Contractor shall be entitled to such extension of the Term as the President may grant. Contractor further agrees that such extension of the Term is full and adequate consideration for all delays, hindrances, or causes.

Section 3.12 Liquidated Damages If the Contractor fails to complete the Work by the Substantial Completion Deadline set forth in the Recitals to this Contract, Contractor shall immediately become liable to BNYDC for the specified

Liquidated Damages. The Liquidated Damages shall be deducted from the Contract Price unless sooner paid by Contractor to BNYDC.
BNYDC and Contractor agreed to the assessment of liquidated damages because each recognizes and acknowledges that the actual damages suffered by BNYDC by reason of any delay in the completion of the Work will be of such a nature that they will be unreasonably difficult to determine.
BNYDC reserves the right, in accordance with Article 9 hereof, to terminate this Contract and have the Work completed by others at the expense of the Contractor and in addition, to collect Liquidated Damages.

ARTICLE 4

WORK HOURS

The Contractor shall perform Work only between the hours of 7:30 a.m. and 4:30 p.m., Monday through Friday, except as otherwise specified in the RFB. In an emergency or if the Contractor is required to complete the Work in accordance with the Progress Schedule, Work, with the approval of BNYDC, may be performed at other hours. No extra compensation for any overtime charges or additional expenses resulting from such work shall be paid to Contractor.

ARTICLE 5

PAYMENT; METHOD OF PAYMENT; PAYMENT RECORDS

Section 5.1 Payment BNYDC agrees, upon Final Completion of the Work, to pay the Contractor in full satisfaction for the performance of the Work, and the Contractor agrees to accept, the Contract Price.

Section 5.2 Partial Payment From time to time as the Work progresses, and provided that the Contractor is not in default of this Contract, but not more than once a month, the Contractor shall submit to BNYDC the following required documents (hereinafter referred to as "Required Documents"):

A. Fully executed and notarized Contractor's Requisition for Progress Payment in the form annexed hereto as **Exhibit "F"**; and

B. Contractor shall submit for all Work for which Contractor is requesting payment a fully executed and notarized

partial release and partial lien waiver, in the form annexed hereto as **Exhibit "I"**; and

C. Contractor shall submit for each Subcontractor that did Work for which Contractor is requesting payment a fully executed and notarized partial release and partial lien waiver, in the form annexed hereto as **Exhibit "I"**.

BNYDC will review the Required Documents and when satisfied that the documents are accurate and complete, promptly pay the Contractor the amount requested, less retainage as follows: until the Work is substantially complete, 5% of the amount requested.

If BNYDC is not satisfied with the accuracy or completeness of the Required Documents, BNYDC will return the Required Documents to Contractor together with a statement setting forth the items of inaccuracy or incompleteness.
The statement from BNYDC shall be conclusive and binding upon the Contractor as to all the items included therein.
No further progress payments shall be paid to Contractor until Contractor submits and BNYDC accepts the Required Documents.

Section 5.3 Final Requisition On the day thatf Final Completion of the Work is achieved, Contractor shall submit to BNYDC the following documents (hereinafter referred to as "Final Documents"):

A. Fully executed and notarized Contractor's Final Requisition for Payment in the form annexed hereto as **Exhibit "F"**; and

B. Contractor shall submit for all Work for which Contractor is requesting final payment a fully executed and notarized final release and final lien waiver, in the form annexed hereto as **Exhibit "J"**; and

C. Contractor shall submit for each Subcontractor that did Work on the Project a fully executed and notarized final release and final lien waiver, in the form annexed hereto as **Exhibit "J"**.

BNYDC will review the Final Documents and when satisfied that the Final Documents are accurate and complete, promptly pay the Contractor the final payment less 1% of the final Contract Price as retainage for guaranty or warranty

to be held by BNYDC for one (1) year, and return to Contractor excess retainage, if any.
If BNYDC is not satisfied with the accuracy or completeness of the Final Documents, BNYDC will return the Final Documents to Contractor together with a statement setting forth the items of inaccuracy or incompleteness.
The statement from BNYDC shall be conclusive and binding upon the Contractor as to all the items included therein.
Final payment shall not be made to Contractor until Contractor submits and BNYDC accepts the Final Documents.

Section 5.4 Withholding of Payment

Anything contained in this Agreement to the contrary notwithstanding, BNYDC, reserves the right to withhold from any payment due Contractor any amount that BNYDC deems sufficient to reimburse BNYDC for its actual expenditures made for the account of Contractor.
The right to withhold money from Contractor includes without limitation, all amount payable hereunder. If in BNYDC's opinion there is an actual or potential breach of this Contract, or an actual or potential default under this Contract by Contractor and the remaining balance payable to Contractor under this Contract would be insufficient to complete the Work. In connection therewith, BNYDC may nullify, in whole or in part, any previously approved but unpaid Partial Payments.

Section 5.5 Stored Materials BNYDC will allow materials or equipment that are not incorporated in the Work but will be installed in the Project and are delivered (hereinafter referred to as "Material") and suitably stored at the Project Site(s) to be included as an item in the Contractor's Requisition for Progress Payment. If approved in advance by BNYDC, BNYDC will allow eighty percent (80%) of the cost of the Material suitably stored at a location other than at the Project Site(s) to be included as an item in the Contractor's Requisition for Progress Payment so long as Contractor submits paid invoices, bills of sale or such other document satisfactory to BNYDC that establish BNYDC's title to such materials or equipment. Contractor must also protect BNYDC's interest in the Material by providing BNYDC acceptable proof that BNYDC's interest in the material is properly insured. Since off site storage of Material is for the convenience of Contractor transportation to the Project Site(s) of the Material shall not be included as an item in the Contractor's Requisition for Progress Payment.

Section 5.6 Miscellaneous Payment Provisions Nothing contained in this Article 5 shall relieve the Contractor of its obligation to give notice of claims pursuant to any other provision of this Contract. The acceptance of the final payment by the Contractor is a specific waiver and release of any claim the Contractor may have against BNYDC on account of or arising out of the Work. The making of the final payment by BNYDC shall not act as an estoppel against BNYDC or prevent BNYDC from enforcing any right under this Contract or any rights that may accrue or have already accrued at law or in equity.

Section 5.7 Joint Payment All payments by BNYDC shall be in the form of one or more separate checks which together total the amount due, made payable, at the option of BNYDC, either: (1) to the Contractor, (2) to the Contractor and one or more of its suppliers or Subcontractors, or (3) directly to its suppliers or Subcontractors. This provision is strictly for the benefit of BNYDC in order that satisfactory morale and relations with Subcontractors or suppliers is maintained and shall not under any circumstances confer any right upon a third party. In the event BNYDC makes a joint payment to the Contractor and one or more of its suppliers or Subcontractors or pays Contractor's suppliers or Subcontractors directly, then the Contractor shall be notified of such payment and such payment shall be reflected in Contractor's next Requisition and applied to the Contract Price.

Section 5.8 Payment Records Contractor agrees that its records pertaining to this Contract, the Project Site(s), the Project, all payments made hereunder, all purchases, and expenses charged hereunder or otherwise expended (hereinafter referred to as "Records") shall be subject to examination, audit and post audit at any time by BNYDC, the Comptroller of the City, the Director of Administrative Services of the City, DSBS, or such other designated official, and/or agent of the City, the State of New York, or the United States Government (hereinafter referred to as "Audit"). The Contractor shall maintain the Records at its business premises for a period of at least six years from the date of final payment. The Contractor shall maintain all Records and additional documents and records required by BNYDC (hereinafter referred to as "Additional Records"). Contract agrees that the maintenance of the Records and Additional Records are a material part of this Contract. Contractor agrees to promptly prepare and furnish to BNYDC such statements, Records, Additional Records, reports, data or information as requested by BNYDC. The Contractor acknowledges that its Subcontractors are subject to the provisions of this Section and will include such terms in all Subcontracts. Contractor undertakes to provide BNYDC such

statements, Records, Additional Records, reports, data or information from Subcontractors as requested by BNYDC

If an Audit discloses any discrepancy, then BNYDC and the Contractor and shall immediately address and clear such discrepancies. If determined by said audit that BNYDC has overpaid Contractor then Contractor shall immediately return such overpayment to BNYDC. Said return of funds shall be in addition to any claim for damages BNYDC may have as against Contractor. If determined by said audit that Contractor has been underpaid by BNYDC then upon a receipt and approval of a fully executed and notarized requisition for payment, BNYDC will pay Contractor the requested amount.

ARTICLE 6

CHANGE ORDERS; PROTEST WORK

Section 6.1 Extra Work BNYDC reserves the right to interpret the Construction Documents and/or to order minor changes in the Work, if those changes do not involve any adjustment in the Contract Price. The Contractor will promptly comply with any such interpretation or order.

Section 6.2 Field Orders In order to resolve conflicts in the Construction Documents, to order minor changes to avoid conflicts between different trades, or for Extra Work Architect/Engineer and BNYDC's Project Engineer shall have the authority to issue written field orders (hereinafter referred to as "Field Orders"). A Field Order is not a Change Order, only the President under Section 6.3 below has the authority to issue a Change Order.

Section 6.3 Change Orders. BNYDC reserves the right to, from time to time during the course of the Work, change, delete or add Work to the Contract, Such deleted or additional work shall hereinafter be referred to as a "Change Order". The President and the Contractor must sign all Change Orders. An oral directive or a writing not signed by the President and the Contractor shall be void ab initio and of no effect. Contractor upon receipt of a valid Change Order shall promptly perform required Work thereunder. The price for the Work required by the Change Order shall be determined as follows:

A. If Contractor and BNYDC agree upon a lump sum amount that the Contract Price will be amended by such lump sum amount; and/or

B. If this Contract the RFB, IFB, or the BSD contains unit prices (hereinafter referred to as "Unit Prices"), which are applicable to the type of work involved in the Change Order, then said Unit Prices will be used to set the amount that the Contract Price will be amended.

C. If BNYDC and the Contractor cannot agree upon a Change Order price prior to the performance of the Change Order, and if Unit Prices are not applicable to the Change Order, then the Contractor shall be paid for such Change Order Work an amount equal to either

1. With respect to Change Order Work performed by the Contractor the sum of:

a. Contractor's actual, documented to BNYDC's satisfaction, incurred costs defined as:

i) Base wages paid to laborers, including all insurance, welfare and other fringe benefits, and payments to labor organizations; and
ii) Cost of materials purchased, plus transportation costs, less all Contractor's discounts; and
iii) The actual cost of additional insurance necessitated by the Change Order Work; and
iv) The cost of installation, maintenance, operation and rental (or rental value of Contractor owned plant and equipment, but not tools) necessitated by the Change Order; and
v) The cost of necessary installation and dismantling of such plant and equipment (including transportation to and from the Project Site)
(hereinafter referred to as "Actual Costs"); plus

b. 10% of such Actual Costs as compensation for all other costs, including overhead and small tools (hereinafter referred to as "Additional Costs"); plus

c. An additional 10% of such Actual Costs as compensation for profit (hereinafter referred to as "Profit"); or

2. With respect to Change Order Work performed by a Subcontractor, the sum of:

a. The Subcontractor's Actual Costs; and

b. 10% of Actual Costs as compensation for Subcontractor's Additional Costs,

c. Not more than 5% of Actual Costs for Subcontractor's profit; and

d. Not more than 5% of Subcontractor's Actual Costs for the Contractor's Additional Costs and profit;

e. The total of the markups described in (2) (b), (2) (c) and (2) (d) above shall not exceed 20% of the Subcontractor's Actual Costs.

D. If the Change Order deletes Work, then the Contract Price shall be reduced by an amount equal to the sum of (a) the Actual Costs, plus (6) all unearned Profit and Additional Costs.

E. If BNYDC and the Contractor cannot agree on a price for the Change Order Work under paragraphs a), b) or c) above, then the Contractor agrees that Contractor shall nevertheless immediately perform or delete the Change Order Work. The price to be paid or the credit to be taken for said Change Order Work shall be determined by BNYDC based upon the current market value for said work (hereinafter referred to as "Actual Market Value"), but in no event shall such Actual Market Value exceed the Actual Costs of performing said Change Order Work. The determination of Actual Market Value shall be made by the President and shall be binding upon the Contractor.

Section 6.4 Payment for Change Orders Request for payment of a Change Orders may be included with the Contractor's next Partial Requisition. Such request shall constitute Contractor's agreement that the Change Order relieves BNYDC from any liability for Contractor's loss due to delay, disruption, cost, or expense occasioned by reason of such Change Order and further Contractor releases BNYDC from any further liability therefore.

Section 6.5 Protest Work Contractor must, at least 7 days prior to commencing Protest Work, give BNYDC a formal written notice of the Protest Work together with a detailed explanation of why the contested work is not already covered by the Contract and an itemization of the cost to perform such disputed work. Notwithstanding any such claim of Protest Work, the Contractor shall proceed to diligently perform the Work in question, unless BNYDC shall by written notice direct that such work shall not be performed.

Section 6.6 Protest Work Records Contractor shall, while performing Protest Work, furnish BNYDC daily a written report showing:

A. The name and social security number of each worker performing Protest Work (hereinafter referred to as a "Protest Worker"); and

B. The number of hours worked by each Protest Worker; and

C. The type of work each Protest Worker performed; and

D. The cost, nature and quantity of all materials accompanied by paid receipts from the vendor from whom such materials were purchased showing date purchased and cost; and

E. The cost, nature and quantity of all equipment furnished or used in connection with the Protest Work accompanied by certified records showing daily usage costs, paid receipts from the vendor from whom such equipment was purchased or rented showing date purchased or rented and cost.

Failure to comply with the requirements of this Section 6.6 shall be deemed a waiver of any claim for payment on account of Protest Work.

ARTICLE 7

SUBCONTRACTS

Section 7.1 Subcontracts The Contractor is not an agent of BNYDC, the City or DSBS. All Subcontracts are between Contractor and Subcontractor. BNYDC, the City and DSBS have no responsibility for and assume no liability under any Subcontract.

Contractor shall include in each Subcontract a representation and warranty that Subcontractor presently has no interest, and Subcontractor shall not acquire any interest, which would directly or indirectly conflict, in any manner or degree, with the performance of Work on the Project and that no person with any such conflicting interest shall be employed in the performance of the Subcontract; any such interest on the part of the Subcontractor, its employees, agents or assigns must be fully disclosed to BNYDC.

The Contractor shall include and enforce all applicable terms and conditions set forth in this Contract in every Subcontract.

Section 7.2 Investigation Forms for Subcontractors. The Contractor shall cause each Subcontractor to submit to the City, Mayor's Office of Contract Services (hereinafter referred to as MOCS), a Procurement and Sourcing Solutions Portal (hereinafter referred to as "PASSport") profile. The Subcontractor shall not commence Work until BNYDC receives clearance from the MOCS.

Section 7.3 Indemnification of Subcontractor's Lien. To the fullest extent permitted by law, Contractor indemnifies and holds BNYDC, the City, DSBS and the directors, officers, agents and employees of each harmless against any and all Subcontractors' liens which may be filed. If the Contractor fails to promptly discharge all Subcontractors' liens, BNYDC shall make no further payment to the Contractor under this Contract. BNYDC, the City and DSBS shall have the right to discharge any liens which may be filed by any Subcontractor of any tier, and may recover the costs of securing such discharge from the Contractor by withholding such amount from the next payment due or otherwise.

ARTICLE 8

INSPECTION AND COMPLETION OF THE WORK

Section 8.1 Inspection All Work, materials and methods of construction shall at all times be subject to the inspection by BNYDC or its designee, or any City, New York State or Federal agency or department with jurisdiction over the Premises. If any Work, material or method of construction does not meet the approval of BNYDC or its designee, or any City, New York State or Federal agency or department with jurisdiction over the Premises such Work, material or method of construction shall be immediately changed, corrected, replaced and made good, at the Contractor's expense. BNYDC shall be the final judge of the quality and suitability of the Work, materials, and the methods of construction. Acceptance of any Work, material or method of construction shall not relieve the Contractor from any of its obligations under this Contract. BNYDC and its agents shall have no liability or obligation as a result of the inspection and the Contractor shall not be relieved of any Contract obligations by the making of an inspection or any acceptance resulting therefrom.

Section 8.2 Substantial Completion of the Work. When Contractor believes that the Work is complete Contractor shall request in writing that BNYDC inspect the Project. The Project shall be deemed substantially completed (hereinafter

referred to as "Substantial Completion") on the date when all of the following shall have occurred:

A. BNYDC may use and occupy the Project; and

B. Only minor incomplete or unsatisfactory Work (hereinafter referred to as "Punch Lists"), if any, remains incomplete provided it does not interfere with BNYDC's use and occupancy; and

C. A Temporary Certificate of Completion or Certificate of Occupancy and/or such other required approval (i.e., a Notice of Completion or a New York City agency sign-off, as may be applicable) shall have been issued by the appropriate local governmental authority for all or a portion of the Project.

Section 8.3 Punch List When BNYDC or its designee prepares a Punch List Contractor shall promptly complete and/or correct said work on the Punch List. The Contractor shall remain fully responsible to perform all Work whether or not there is a Punch List. BNYDC shall be entitled to withhold from any payment, in addition to any other sums properly withheld hereunder, the sum of two times the value of the Punch List, but in no event less than $1,000.

Section 8.4 Final Completion of the Work. The Project shall be deemed finally completed (hereinafter referred to as "Final Completion") on the date when the Work shall have been finally completed and BNYDC shall have received:

A. Evidence that all Work including Punch List items, have been fully and satisfactorily completed in a good and workmanlike manner, in conformance with this Contract; and

B. The Project has received, in full compliance with all applicable laws, rules, requirements and regulations of all government Authorities having jurisdiction over the Project the required signoffs and Certificates of Completion and/or Occupancy; and

C. Contractor has delivered all final certificates of approval relating to the Work and the contemplated uses of the Project, including, without limitation, all necessary certificates of the Board of Fire Underwriters or any successor thereof, Inspection and approval by the Bureau of Electrical Control, the City Fire

Department, the City Department of Environmental Protection, all warranties and all guarantees for the Work and the Certificate of Completion and/or Occupancy, shall have been delivered to BNYDC; and

D. All required receipts, releases, releases of liens, affidavits, waivers, as-built drawings and any other documents required under this Contract shall have been delivered to BNYDC.

Section 8.5 Project Engineer BNYDC may employ a Project Engineer as BNYDC's representative at the Project Site(s). The Project Engineer shall, subject to review by BNYDC, have the authority, in the first instance, to inspect, supervise and control the performance of the Work.

NOTE – The Project Engineer, or any other person, does not have the power to issue a Change Order. Only the President, in compliance with section 6.3, has the power to issue a Change Order.

Section 8.6 Occupation or Use Prior to Completion BNYDC shall have the right before the Final Completion, to take over, occupy, operate or otherwise use any part of the Project. Contractor shall not interfere with or object to such take over, occupancy, operation or use any part of the Project. BNYDC shall notify Contractor in writing of such take over, occupancy, operation or use part of the Project specifying the date of such take over, occupancy, operation or use of part of the Project. Contractor's guarantee on the part of the Project taken over, occupied, operated or used by BNYDC shall begin on the date of such take over, occupancy, operation or use by BNYDC. If BNYDC shall take over, occupy, operate or use any part of the Project, BNYDC shall first inspect the parts of the Project to be so taken over, occupied, operated or used by BNYDC. Contractor will then be furnished in writing with a statement of Substantial Completion, and a Punch List for such part so taken over, occupied, operated or used by BNYDC.

ARTICLE 9

SUSPENSION OF WORK; TERMINATION

Section 9.1 Suspension BNYDC may, at any time, with or without cause, suspend the Work or any portion thereof for a period of not more than 90 days by giving Contractor written notice of such suspension (hereinafter referred to as

"Suspension Notice"). Contractor shall immediately stop the Work covered by BNYDC's Suspension Notice and cause all Subcontractors to stop the Work covered by BNYDC's Suspension Notice. Contractor and Subcontractors shall resume the Work on the date set by BNYDC. Contractor and Subcontractors shall not be entitled to any additional compensation for costs attributable to any suspension, but the time for completion of the Work shall be extended by the period of suspension. The Contractor shall secure and make safe the Project Site(s) to BNYDC's satisfaction during any suspension.

Section 9.2 Defaults and Terminations for Cause In addition to any other rights that BNYDC may have, BNYDC shall have the right to declare the Contractor in default and terminate, for cause, this Contract, in whole or in part, if any of the following occur:

A. The Contractor shall become insolvent; or

B. The Contractor shall fail to perform the Work in the method and manner required by BNYDC; or

C. The Contractor shall fail to complete the Work within the Term; or

D. The Contractor shall fail to assign workers, order materials or enter into Subcontracts in a manner deemed sufficient by BNYDC to permit completion of the Work in accordance with the approved work schedule; or

E. The Contractor's interest in this Contract or its right to receive funds shall be assigned, transferred, conveyed or otherwise disposed of voluntarily or by operation of law without the prior written consent of BNYDC; or

F. The Contractor shall not comply with or violate any provision of this Contract; or

G. The Contractor shall fail to comply with any of the applicable laws, rules, regulations or orders that may be applicable to this Contract, or the Contractor shall be defaulted or debarred by the City, the State of New York or the United States Government; or

H. Any statement or representation of the Contractor in the Contract or in any document submitted by the Contractor with respect to the Work, the Project, or the Contract (or for purposes of securing the Contract) was untrue or incorrect when made.

Section 9.3 Termination for Convenience BNYDC reserves the right to terminate Contract at any time for its own convenience, without fault, and for such reasons as BNYDC deems appropriate (hereinafter referred to as "Convenience Termination"). A Convenience Termination shall take effect immediately upon Contractor receipt of BNYDC's written Convenience Termination notice. Contractor shall be entitled to full payment of sums due hereunder for Work performed prior to such Convenience Termination. Contractor shall not be entitled to profit or overhead on the unperformed portion of the Work.

Section 9.4 Effects of a Default or a Termination Upon termination of this Contract, Contractor and all Subcontractors will immediately cease work and take all necessary steps to remove all hazards so as to make the Project Site(s) safe. After securing the Project Site(s), Contractor shall promptly present BNYDC a statement of costs actually incurred to the date of termination. The Contractor shall not recover as part of its costs any unearned or anticipated overhead or profit for itself or for its Subcontractors as a result of any termination.

Section 9.5 Payment Due when Termination not for Cause BNYDC will promptly review the statement of costs submitted by the Contractor by verifying and auditing all canceled checks, Subcontracts, paid receipts, bills from Subcontractors and any other document deemed necessary. BNYDC will notify the Contractor in writing when BNYDC is satisfied that the statement of costs is accurate (hereinafter referred to as "Approved Statement of Costs"). Contractor may then submit a Final Requisition for the balance of the Approved Statement of Costs, Contractors Final Release and Final Lien Waivers, all Subcontractors Final Release and Final Lien Waivers. Receipt of payment from BNYDC of the amount of the Final Requisition shall be full and final payment to the Contractor.

Section 9.6 Payment Due when Termination is for Cause In addition to any other rights BNYDC may have in law, in equity, or under this Contract if termination is for cause, BNYDC may, at its sole discretion, have the Work completed by another Contractor of its choice, or elect not to complete the Work.

BNYDC shall deduct from all monies then due Contractor the sum of:

A. All expenses incurred in completing the Work; or
B. The value of the Work not completed (as determined by BNYDC, in its sole discretion; and
C. all incidental expenses incurred as a result of the termination for cause, including all actual legal fees and accounting fees.

If, after making the above computation, there remains a balance due Contractor BNYDC shall pay such amount to the Contractor upon Contractor submitting a Final Requisition for such balance, Contractors Final Release and Final Lien Waivers, all Subcontractors Final Release and Final Lien Waivers. Receipt of payment from BNYDC of the amount of the Final Requisition shall be full and final payment to the Contractor.

If there is a balance due from the Contractor to BNYDC, then the Contractor shall immediately pay that amount to BNYDC.

No monies shall be due or payable to Contractor, if Contract is terminated for cause, until the Project is completed or BNYDC abandons the Project.

BNYDC need not wait until the completion of the Project to seek the enforcement of its rights hereunder.

ARTICLE 10

PROTECTION OF PERSONSAND PROPERTY; INDEMNIFICATION

Section 10.1 Protection of Persons and Property The Contractor is responsible for providing safety and protection for all persons at the Project Site(s). The Contractor is responsible for all property damage, loss, injury, theft or vandalism at the Project Site(s) resulting from the Contractor's acts or omissions or those acts or omissions of any Subcontractors or any act or omission by anyone for whose acts Contractor may be liable.

Section 10.2 Indemnification To the fullest extent permitted by law, Contractor agrees to indemnify, keep indemnified, and hold harmless BNYDC and the City and their respective affiliates, officers, directors, members, partners, trustees, beneficiaries, agents and employees (hereinafter referred to as “Indemnities”) from and against any and all liability, civil money penalties, fines, claims, losses, suits, damages, demands, judgments, actions, causes of action, settlements, expenses including but not limited to attorney's fees and disbursements, costs

and charges of every nature and kind, both legal and otherwise, whether direct or indirect, arising out of (i) the acts or omissions of the Contractor, its Subcontractors, agents, employees or material suppliers, and any and all Persons on the Project Site(s) or in connected to the Work or (ii) any negligence, fault or default of the Contractor, its Subcontractors, agents, employees or material suppliers.

Contractor specifically agrees and acknowledges that there shall be no personal liability on the part of any officer, director, employee or agent of the Indemnities in connection with this Contract or otherwise.

This section 10.2 shall survive any termination of this Contract and remain in full force and effect.

Section 10.3 BNYDC, the City and DSBS not liable BNYDC, the City and DSBS shall not be liable for any damage, injury or liability that may be sustained by Contractor, Subcontractor or any other person whatsoever, or to their goods and chattels from any cause whatsoever arising from or out of the Work at the Project Site(s). Contractor hereby releases and discharges BNYDC, the City and DSBS from any and all demands, claims, actions and causes of action arising from the aforesaid.
Contractor shall look solely and exclusively to the funding for this Project for the satisfaction of any claim or cause of action Contractor may have against BNYDC, the City or DSBS in connection with this Contract or the failure of BNYDC to perform any of its obligations hereunder

Section 10.4 Contractor Not an Agent of BNYDC, the City, or DSBS Contractor, Contractor's employees, Subcontractors or Subcontractor's employees are not agents, servants or employees of the Indemnities by virtue of this Contract or by virtue of any approval, permit, license, grant, right or authorization given by BNYDC, the City, DSBS or any of their officers, directors, employees or agents. Contractor, Contractor's employees, Subcontractors, or Subcontractor's employees shall not in any way directly or indirectly represent that they are agents, servants or employees of the Indemnities. The Contractor is solely responsible for the work, direction, compensation and personal conduct of its officers, employees, agents, Subcontractors, Subcontractor's officers, employees, and agents

ARTICLE 11

INSURANCE AND BONDS

Section 11.1 Insurance, Performance Bond and Payment Bond Contractor and each Subcontractor shall provide:

A. Proof of Insurance as set forth in **Exhibit "G"** which is attached hereto and made a part hereof; and
B. A Performance Bond in the exact form set forth in **Exhibit "H"** which is attached hereto and made a part hereof in the Penal Sum set forth in Attachment 1 of the IFB; and
C. A Payment Bond in the exact form set forth in **Exhibit "H"** which is attached hereto and made a part hereof in the Penal Sum set forth in Attachment 1 of the IFB.

Section 11.2 Bid Security The bid bond or bid deposit as required by the RFB, the IFB and the BSD shall be retained by BNYDC as security for the Contractor entering into this Contract and commencing Work on the Project. A bid bond will be only be returned to the Contractor in compliance with its own terms. A bid deposit will only be returned to Contractor after the BNYDC receives this Contract duly executed by Contractor, the required Performance Bond and the required Payment Bond.

ARTICLE 12

LABOR AND MATERIALS; GUARANTEES

Section 12.1Materials and Equipment All materials and equipment permanently installed in or on the Project shall be new, except as approved by BNYDC or as specified in the Construction Documents. Notwithstanding the foregoing, BNYDC encourages the use of recycled products where practicable. The Contractor shall notify BNYDC if it intends to use recycled products with respect to any materials to be permanently installed on the Project.
All labor performed on the Project shall be performed by skilled workers in their respective trades and shall be of first class quality in accordance with the standards of the construction industry and the particular trade. The Contractor shall obtain in the name of BNYDC all manufacturers' warranties and guarantees on all equipment and materials required by this Contract and installed in or on the Project and shall deliver such warranties and guarantees to BNYDC.

Section 12.2 Guarantee of Work Unless otherwise specifically set forth in the Construction Documents or elsewhere in this Contract, Contractor fully warrants and guarantees the materials, equipment, and Work against any and all defects whether latent or patent for a period of one year from the date Final Completion is achieved (hereinafter referred to as the "Warranty Period"). During the warranty period Contractor shall promptly repair, replace, rebuild or restore (as BNYDC may direct) all defective Work and materials and shall pay all costs for labor and materials necessary to correct such defective Work. Should Contractor fail to promptly repair, replace, rebuild or restore such defective Work, BNYDC shall repair, replace, rebuild or restore such defective Work and Contractor shall promptly pay to BNYDC all costs incurred by BNYDC in connection therewith. BNYDC's certificate setting forth the costs incurred in repairing, replacing, rebuilding or restoring any damaged or defective Work shall be binding and conclusive as to the amount thereof upon the Contractor.

Section 12.3 Security for Materials and Guarantees As security for the Contractor's faithful performance of its obligations under this Article 12, BNYDC will deduct from the Final Completion payment an amount equal to one percent (1%) of the Contract Price or such greater amount fixed in the RFB, the IFB and the BSD (hereinafter referred to as "Retainage"). In BNYDC's sole discretion, BNYDC may require Contractor to post in addition to the Retainage security in such amount, as BNYDC deems necessary to guarantee Contractors performance under this Article 12.
If Contractor faithfully performs all its obligations hereunder, BNYDC will as soon as practicable after the expiration of the Warranty Period return to Contractor the Retainage and additional security, if any, without interest. Notice by BNYDC to repair, replace, rebuild and/or restore any defective or damaged Work shall be timely if given up to 10 days after the expiration of the Warranty Period.

Section 12.4 Rights not Exclusive BNYDC's rights under this Article 12 are in addition to all other rights BNYDC may have under this Contract, at law or in equity.

ARTICLE 13

TITLE TO THE WORK, MATERIALS AND EQUIPMENT

Section 13.1 Tax Exempt Status Pursuant to Section 1115(a)(15) and (16) of the New York State Tax Law, purchases of tangible personal property by the

Contractor or its Subcontractors arising out of this Contract are exempt from the sales and use tax imposed by Article 28 of the New York State Tax Law, to the extent that such property is used to alter, maintain or improve, and becomes an integral component part of City-owned or leased real property which is improved under this Contract. This exemption does not apply to tools, machinery, equipment or other property purchased or leased by the Contractor or its Subcontractors, or to supplies, materials or other property which are consumed in the course of construction or for any other reason not incorporated into the real property which is improved under this Contract.

Section 13.2 Exclusion of Tax From Contract Price Contractor represents and warrants that to the extent applicable state and local sales taxes have been excluded from the Contract Price. Contractor and its Subcontractors shall be responsible for and shall pay any and all applicable taxes, including sales and use taxes imposed upon purchased or leased tools, machinery, equipment, and upon all such unincorporated supplies and materials and other property as provided by law. The Contract Price shall be deemed to include full payment and consideration for the sale of all supplies and materials necessary for the performance of the Contract.

Section 13.3 Evidence of Title At the request of BNYDC, Contractor shall furnish BNYDC such paid bills, bills of sale and/or other instrument properly executed, acknowledged and delivered as BNYDC may require, proving title for all supplies, materials and equipment permanently installed in or on the Project has passed to the City, free of liens or encumbrances. Contractor shall clearly mark or otherwise identify all such materials as the property of the City.

Section 13.4 Title to Materials Title to all materials used on the Project immediately vests in BNYDC upon the earlier of (1) delivery of such materials to the Premises or (2) payment by BNYDC for such materials.
Notwithstanding such transfer of title to the materials until such time as such materials are installed in accordance with the provisions of this Contract and up to Final Completion of the Work, Contractor shall:

A. Protect the materials against loss or damage, and maintain the materials in proper condition and repair; and

B. Replace or make good any loss, theft, disappearance, or damage to the materials, and furnish additional materials in place of any that

may be lost, stolen or rendered unusable all without cost to BNYDC.

Such transfer of title shall in no way affect any of the Contractor's obligations hereunder.
BNYDC reserves the right, in its sole discretion, to reject any defective or otherwise unsatisfactory materials. Title to any rejected, defective or otherwise unsatisfactory materials shall be deemed to revert to Contractor.

Section 13.5 Subcontracts to Separate Materials from Labor All Subcontracts shall be in a form similar to this Contract with respect to the separation of the sale of materials from the work and labor, services, consumable supplies and any other items to be provided. The Subcontracts shall provide separate prices for (1) materials and (2) all other services and items. Such separation shall actually be followed in practice, including the separation of payments for materials from the payments for other work and labor and other things to be provided.

Section 13.6 Tax Exempt Certificates Contractor and Subcontractors shall obtain, Contractor Exempt Purchase Certificates (Form ST-120.1) and shall furnish to all persons, firms or corporations from which they purchase materials for the performance of the Work such Contractor Exempt Purchase Certificates.

ARTICLE 14

REPRESENTATIONS AND WARRANTIES

Contractor represents and warrants the following:

Section 14.1 Illegal Consideration
Contractor has not been asked to pay, and has neither offered to pay, nor paid, any illegal consideration, whether monetary or otherwise, in connection with the procurement of this Contract.

Section 14.2 Solicitation Contractor has not employed any person to solicit or procure this Contract, and has not made and shall not make, except to full time employees of the Contractor, any payment or any agreement for the payment of any commission, percentage, brokerage, contingent fee or any other compensation in connection with the procurement of this Contract.

Section 14.3 Conflict of Interest Contractor has not acquired nor will it acquire any interest of any nature, direct or indirect (including without limitation, any interest in land in an area related to the Work or any interest in any corporation, partnership, etc. with any such interest), which would conflict in any manner or degree with the performance of the Work and no person having any such conflicting interest shall be employed by the Contractor in the performance of this Contract.

Section 14.4 Investigation Forms All questionnaires and disclosure forms delivered by the Contractor to BNYDC to date are, to the best of the Contractor's knowledge, true and correct in all material respects; no material change has occurred in the circumstances of the Contractor, its principals, or affiliated persons or entities since the respective dates upon which such disclosure forms were executed which would otherwise require disclosure on such forms; and no material disclosed in such disclosure forms contains, to the best of the Contractor's knowledge, any untrue statement of a material fact or omits to state a material fact necessary in order to make any statement contained in such form not misleading.

Section 14.5 Anti-Boycott Provisions Contractor shall comply in all respects with the provisions of §6-114 of the Administrative Code of the City and the rules and regulations issued by the Comptroller of the City thereunder.
Contractor certifies it is not now participating in, nor shall it participate in, during the term of this Contract, an international boycott in violation of the provisions of the Export Administration Act of 1979, as amended, or the regulations promulgated thereunder.
Upon the final determination by the United States Department of Commerce or any other agency of the Government of the United States that Contractor has participated in an international boycott in violation of the provisions of the Export Administration Act of 1979, as amended, or the regulations promulgated thereunder, BNYDC may, at its sole option, render this Contract forfeit and void.

ARTICLE 15

WOMEN OWNED AND MINORITY OWNED BUSINESSES PARTICIPATION

The Contractor is encouraged to have Women Owned and Minority Owned Business Enterprises (W/MBEs) participate in the Work. If the Contractor submitted a W/MBE Plan, pursuant to and as defined in the IFB, the

Contractor represents and warrants that, pursuant to the W/MBE Plan, the Contractor shall provide for the participation of W/MBEs, as defined in and certified pursuant to the requirements of the IFB, in the Work at a level equal to or greater than the total aggregate W/MBE Participation Dollar Value and the total aggregate W/MBE Bid Percentage, as each is defined in the IFB and set forth in the W/MBE Plan. The Contractor may substitute other certified W/MBEs for those identified in the W/MBE Plan, but all W/MBEs must be approved by BNYDC before being employed, either as subcontractors or as materials suppliers, in respect of the Work. If the successful (Bid Proposal) includes a W/MBE Plan, the Contractor may also add additional W/MBEs to the W/MBE Plan provided that neither the W/MBE Participation Dollar Value nor the W/MBE Bid Percentage falls below that identified in the W/MBE Plan. The Contractor, whether or not it submitted a W/MBE Plan, hereby covenants and agrees that it shall provide BNYDC with report(s) as often and with such details as may be reasonably required by BNYDC of any W/MBEs used in the Work.

ARTICLE 16

INVESTIGATION

Section 16.1Cooperation with Investigation The parties to this Contract agree to cooperate fully and faithfully with any investigation, audit or inquiry conducted by BNYDC. The parties to this Contract agree to cooperate fully and faithfully with any investigation, audit or inquiry conducted by a State or City governmental agency or authority that is empowered directly or by designation to compel the attendance of witnesses and to examine witnesses under oath, or the Inspector General of a governmental agency that is a party in interest to the transaction, submitted bid, submitted proposal, contract, lease, permit or license that is the subject of the investigation, audit or inquiry. If any person who has been advised that his/her statement, and any information from such statement, will not be used against him/her in any subsequent criminal proceeding refuses to testify before a grand jury or other governmental agency or authority empowered directly or by designation to compel the attendance of witnesses and to take testimony under oath, or the Inspector General of the governmental agency that is a party in interest, and is seeking testimony, concerning the award of or performance under any transaction, agreement, lease, permit, contract, or license entered into with BNYDC, The City, the State, or any political subdivision or public authority thereof, or the Port Authority of New York and New Jersey, or any local development corporation within the City, or any public benefit corporation organized under the Laws of the State of New York, or, if any person

refuses to testify for a reason other than the assertion of his/her privilege against self incrimination in any such investigation, then BNYDC and/or the Commissioner whose agency is a party in interest to the transaction, submitted bid, submitted proposal, contract, lease, permit, or license shall convene a hearing, upon not less than five days written notice to the parties involved, to determine if any penalties should attach for the failure of a person to testify.

If any non-governmental party to the hearing requests an adjournment, BNYDC or the Commissioner who convened the hearing may, upon granting the adjournment, suspend any contract, lease, permit or license, pending the final determination, without the City or BNYDC incurring any penalty or damages for delay or otherwise.

Section 16.2 Penalties The penalties that may attach after a final determination by BNYDC or the Commissioner may include but shall not exceed:

A. The disqualification, for a period not to exceed five years from the date of an adverse determination for any person or any entity of which such person was a member at the time the testimony was sought, from submitting bids for, or transacting business with, or entering into or obtaining any contract, lease, permit or license with or from BNYDC and/or the City; and/or

B. The cancellation or termination of any and all such existing BNYDC and/or City contracts, leases, permits or licenses that the refusal to testify concerns and that have not been assigned as permitted under this Contract, nor the proceeds of which pledged, to an unaffiliated and unrelated institutional lender for fair value prior to the issuance of the notice scheduling the hearing, without the City or BNYDC incurring any penalty or damages on account of such cancellation or termination; monies lawfully due for goods delivered, work done, rentals or fees accrued prior to the cancellation or termination shall be paid by the BNYDC or the City.

Section 16.3 Factors in Assessing Penalties BNYDC and/or The Commissioner shall consider and address in reaching his/her determination and in assessing an appropriate penalty the factors in subparagraphs (a) and (b) below. BNYDC

and/or The Commissioner may also consider, if relevant and appropriate, the criteria established in subparagraphs (c) and (d) below, in addition to any other information, which may be relevant and appropriate:

A. The party's good faith endeavors or lack thereof to cooperate fully and faithfully with any governmental investigation or audit, including but not limited to the discipline, discharge or disassociation of any person failing to testify, the production of accurate and complete books and records, and the forthcoming testimony of all other members, agents, assignees or fiduciaries whose testimony is sought.

B. The relationship of the person who refused to testify to any entity that is a party to the hearing, including but not limited to, whether the person whose testimony is sought has an ownership interest in the entity and/or the degree of authority and responsibility the person has within the entity.

C. The nexus of the testimony sought to the subject entity and its contracts, leases, permits or licenses with BNYDC and the City.

D. The effect a penalty may have on an unaffiliated and unrelated party or entity that has a significant interest in an entity subject to penalties as described above, provided that the party or entity has given actual notice to BNYDC and/or the Commissioner upon the acquisition of the interest, or at the hearing called for gives notice and proves that such interest was previously acquired. Under either circumstance the party or entity shall present evidence at the hearing demonstrating the potential adverse impact a penalty will have on such person or entity.

1. The term "license" or "permit" as used in this Article 16 shall be defined as a license, permit, franchise or concession not granted as a matter of right.

2. The term "person" as used in this Article 16 shall be defined as any natural person doing business alone or associated with another person or entity as a partner, director, officer, principal or employee.

3. The term "entity" as used in this Article 16 shall be defined as any firm, partnership, corporation, association, joint venture, limited liability company or person that receives monies, benefits, licenses, leases or permits from or through the City or otherwise transacts business with the City.

4. The term "member" as used in this Article 16 shall be defined as any person associated with another person or entity as a partner, member of a limited liability company, director, officer, principal or employee.

Section 16.4 Termination In addition to and notwithstanding any other provision of this Contract, the President and/or the Commissioner may in his/her sole discretion terminate this Contract upon not less than three days written notice in the event the Contractor fails to promptly report in writing to BNYDC and the Commissioner of the Department of Investigations of the City any solicitation of money, goods, requests for future employment or other benefit or thing of value, by or on behalf of any employee of the City or other person, firm, corporation or entity for any purpose which may be related to the procurement or obtaining of this Contract by the Contractor, or affecting the performance of this Contract.

ARTICLE 17

MISCELLANEOUS PROVISIONS

Section 17.1 Notices All notices, demands and requests required or permitted to be given under this Contract shall be in writing and shall not be effective unless personally delivered, sent by United States registered or certified mail, postage paid, return receipt optional, or sent by an overnight courier service of recognized reputation, addressed as hereinafter provided. All such notices, demands and requests mailed to BNYDC shall be addressed to BNYDC as follows:

Brooklyn Navy Yard Development Corporation
Building 77
141 Flushing Avenue, Suite 801
Brooklyn, New York 11205
Attention: Counsel

Or at such other address as BNYDC may from time to time designate by written notice to Contractor. All such notices, demands and requests mailed to Contractor shall be addressed to Contractor at Contractor's address as stated on page 1 hereof.

Or at such other address as Contractor may from time to time designate by written notice to BNYDC.

Notices, demands and requests which shall be served in the manner aforesaid shall be deemed given for all purposes hereunder at the time such notice, demand, or request is deposited in any post office or branch post office or official depository regularly maintained by the United States Postal Service.

Section 17.2 Severability If any provision of this Agreement shall contravene or be invalid under the laws of the United States or the State, it is agreed that such provision shall not invalidate the whole Contract but the Contract shall be construed as if not containing the particular provision or provisions held to be invalid.

Section 17.3 Claims and Actions Against BNYDC Contractor shall look solely to the funds available to and appropriated by BNYDC under the City Contract for this particular project for the satisfaction of any claim or cause of action the Contractor may have against BNYDC in connection with this Contract. No director, officer, employee, agent or other person authorized to act on behalf of BNYDC shall have any personal liability in connection with this Contract or any failure of BNYDC to perform its obligations hereunder. The Contractor agrees that it shall have no claim against BNYDC for damages, or in any action or proceeding at law or in equity, unless the Contractor shall give notice of the existence of such claims to BNYDC within sixty (60) days after the cause of action arose, or the damages first became ascertainable, whichever shall occur first. The notice of claim must strictly comply as to form with all of the provisions required by law regarding claims against the City as provided for in §7-201 of the New York City Administrative Code (except for the time to file such claim which shall be sixty (60) days) with service of the same to be made by personal delivery upon an officer or agent of BNYDC.

Serving the notice of claim in strict accordance with this Article shall be a necessary and non-waivable jurisdictional element of any claim by the Contractor. Any action or proceeding by the Contractor against BNYDC must be commenced within sixty (60) days after the service of said notice of claim, but not before thirty (30) days after the service of the notice of claim.

Contractor acknowledges that it will be adequately compensated by money damages alone for any act or omission of BNYDC and, therefore, specifically waives all rights that it may have for equitable relief, including injunctive relief.

The filing of a Notice of Appeal by BNYDC in any judicial proceeding shall stay the enforcement of any judgment against BNYDC, pending a resolution and final determination of that appeal, without BNYDC posting any security and without any court order being obtained.

In addition to any other contractual statute of limitations set forth herein, the Contractor agrees that no action against BNYDC shall lie or be maintained if BNYDC is barred by any statute or time limitation whatsoever at the time the Contractor institutes its suit or for twenty (20) days thereafter, from maintaining, prosecuting or instituting any claim against the City, the State of New York, the United States Government, any insurance company which may be liable, or any of them, based upon the same facts alleged by the Contractor, either as a third-party plaintiff or in a plenary action.

Section 17.4 Governing Law & Venue. This Contract is deemed executed in the City of New York, State of New York and shall be governed by and construed in accordance with the laws of the State of New York. The parties agree that any and all claims asserted by or against BNYDC, the City or DSBS arising under this Contract or related hereto shall be heard and determined either in the courts of the United States ("Federal Courts") located in New York City or in the courts of the State of New York ("New York State Courts") located in the City and County of New York.

Section 17.5 Service of Process If BNYDC, the City or DSBS initiates any action against the Contractor in Federal Court or in New York State Courts, personal service of process may be made on the Contractor either in person, wherever the Contractor may be found, or by registered mail addressed to the Contractor at its address as set forth on page 1 of this Contract, or to such other address as the Contractor may have provided to BNYDC, the City or DSBS, as the case may be.

Section 17.6 Waiver by the Contractor With respect to any action between BNYDC, the City or DSBS and the Contractor in New York State Court, the Contractor expressly waives and relinquishes any rights it might otherwise have (1) to move to dismiss on grounds of forum non conveniens, (2) to remove to Federal Court, and (3) to move for a change of venue to a New York State Court outside New York County. With respect to any action between BNYDC, the City or DSBS and the Contractor in Federal Court located in New York City, the Contractor expressly waives and relinquishes any rights it might otherwise have to move to transfer the action to a Federal Court outside New York City.

Section 17.7 Change of Venue If the Contractor commences any action against the City or DSBS in a court located other than in the City and State of New York, upon request of BNYDC, the City or DSBS, as the case may be, the Contractor shall either consent to a transfer of the action to a court of competent jurisdiction located in the City and State of New York or, if the court where the action is initially brought will not or cannot transfer the action, the Contractor shall consent to dismiss such action without prejudice and may thereafter reinstitute the action in a court of competent jurisdiction in New York City.

Section 17.8 Assignment Contractor can neither assign this Contract, nor the right to receive the funds to be paid under this Contract, without the express written consent of BNYDC. BNYDC can either assign this Contract or the rights hereunder to the City without the consent of the Contractor.

Section 17.9 Contract Interpretations In the event any interpretation of this Contract is required after execution, or if any actual or apparent conflict between any two or more provisions of the Contract is discovered, then the Contract or such conflict shall be interpreted by the President and that interpretation shall be conclusive and binding on the parties hereto. In the event of any dispute between BNYDC and the Contractor as to whether or not the Work is completed, the inspection report of BNYDC or its agent shall be considered binding, final and conclusive.

Section 17.10 Titles The titles to any article or any subdivision of this Contract are for organizational purposes only.

Section 17.11 Merger This Contract may not be modified orally. This Contract may be supplemented, amended or revised only in writing by the mutual agreement of the BNYDC and Contractor. This Contract supersedes all previous agreements and/or Contracts whether oral or written between the BNYDC and Contractor.

Section 17.12 Non-Waiver Forbearance, neglect or failure by BNYDC to enforce any and all of the provisions of this Contract or to insist upon strict compliance by Contractor shall not be construed as a waiver of any rights or privileges of BNYDC. A waiver by BNYDC of a past act or circumstance shall not constitute or be a course of conduct or waiver of any subsequent act or circumstance.

Section 17.13 Contractor's Performance Evaluation Provisions Contractor's performance of the Work may be evaluated by BNYDC (i) upon the vouchering of 50% of the Contract Price and/or (ii) upon Substantial Completion of the

Work. BNYDC will send a copy of the evaluation to the Contractor after such evaluation and the Contractor may respond in writing to such evaluation. The response will be filed with the evaluation. The evaluation may be filed with the City.

By executing this Contract Contractor verifies that Contractor has carefully and completely reviewed and understands the terms and conditions this Contract.

IN WITNESS WHEREOF, the parties have hereunto set their hands and seal the day and year first above written.

(SEAL)

BROOKLYN NAVY YARD
DEVELOPMENT CORPORATION

By: _____

Name: _____

Title: _____

(SEAL) (if any)

CONTRACTOR

By: _____

Name: _____

Title: _____

ACKNOWLEDGMENT OF BNYDC

STATE OF NEW YORK)
ss:
COUNTY OF KINGS)

On the ____ day of _____ in the year 20__, before me personally came _____, to me known, who, being by me duly sworn, did depose and say that /she is the _____ of BROOKLYN NAVY YARD DEVELOPMENT CORPORATION, the corporation described in and which executed the above instrument; and that s/he signed her/his name thereto by authority of the Board of Directors of said corporation.

_____
Notary Public

ACKNOWLEDGMENT, IF A PARTNERSHIP

STATE OF_____)

ss.:

COUNTY OF _____)

On this day of_____, 20_, before me personally came _____, _____to me known and known to me to be one of the partners of the firm of_____ _____described in and which executed the foregoing instrument and __he acknowledged to me that __he executed the same as and for the act and deed of said firm.

_____

Notary Public

ACKNOWLEDGMENT, IF AN INDIVIDUAL

STATE OF_____)

ss.:

COUNTY OF _____)

On this day of_____, 20_, before me personally came _____, _____, _____to me known to be the individual described in and who executed the foregoing instrument and __he acknowledged to me that __he executed foregoing instrument.

_____

Notary Public

ACKNOWLEDGMENT, IF A CORPORATION

STATE OF _____)

ss:

COUNTY OF _____)

On the ____ day of _____ in the year 20__, before me personally came _____, to me known, who, being by me duly sworn, did depose and say that he is the _____ of _____, the corporation described in and which

executed the above instrument; and that he signed his name thereto by authority of the Board of Directors of said corporation.

_____

Notary Public

EXHIBIT A

E.O. 50 CONSTRUCTION RIDER

A. EQUAL EMPLOYMENT OPPORTUNITY

This contract is subject to the requirements of Executive Order No. 50 (April 25, 1980) as amended ("E.O. 50") and the Rules and Regulations promulgated thereunder. No contract will be awarded unless and until these requirements have been complied with in their entirety. By signing this contract, the Contractor agrees that:

(1) It will not engage in any unlawful discrimination against any employee or applicant for employment because of race, creed, color, national origin, sex, age, disability, marital status or sexual orientation with respect to all employment decisions including, but not limited to, recruitment, hiring, upgrading, demotion, downgrading, transfer, training, rates of pay or other forms of compensation, layoff, termination, and all other terms and conditions of employment;

(2) When it subcontracts it will not engage in any unlawful discrimination in the selection of Subcontractors on the basis of the race, creed, color, national origin, sex, age, disability, marital status or sexual orientation of the owner, manager or any other officer, director, agent or employee of such Subcontractors;

(3) It will state in all solicitations or advertisements for employees placed by or on behalf of the Contractor that all qualified applicants will receive consideration for employment without regard to race, creed, color, national origin, sex, age, disability, marital status or sexual orientation, or that it is an equal employment opportunity employer;

(4) It will send to each labor organization or representative of workers with which it has a collective bargaining agreement or other contract or memorandum of understanding, written notification of its equal employment opportunity commitments under E.O. 50 and the rules and regulations promulgated thereunder; and

(5) It will furnish all information and reports (which are required by E. O. 50, the rules and regulations promulgated thereunder, and orders of the Director of the New York City Department of Small Business Services, Division of Labor

Services ("DLS"), including an Employment Report if the Contract Price is $1,000,000 or more), before the award of the Contract and will permit access to its books, records and accounts by DLS for the purposes of investigation to ascertain compliance with such rules, regulations, and orders.

The Contractor understands that in the event of its noncompliance with the nondiscrimination clauses of this Contract or with any of such rules, regulations, or orders, such noncompliance shall constitute a material breach of this Contract and noncompliance with E.O. 50 and the rules and regulations promulgated thereunder. After a hearing held pursuant to the rules of DLS, the Director of DLS may direct the imposition upon the Contractor found to be in noncompliance of any or all of the following sanctions:

(i) Disapproval of the Contractor;
(ii) Suspension or termination of this Contract;
(iii) Declaring the Contractor in default; or
(iv) In lieu of any of the foregoing sanctions, the Director of DLS may impose an employment program.

The Director of DLS may recommend to BNYDC that a hearing be convened for purposes of declaring a Contractor who has repeatedly failed to comply with E. O. 50 and the rules and regulations promulgated thereunder to be non-responsible.

If the Contract Price is $1,000,000 or more, the Contractor further agrees as follows:

(i) It shall employ trainees for training level jobs and it shall participate in on-the-job training programs, other than apprenticeship programs, that are approved by DLS and, where required by law, the U.S. Department of Labor, Bureau of Apprenticeship Training or the New York State Department of Labor;

(ii) It shall make a good faith effort to achieve the ratio of one "trainee" (which means an economically disadvantaged person who qualifies for and receives training in one of the construction trades pursuant to a program, other than an apprenticeship program, approved by DLS and, where required by law, the New York State Department of Labor and the United States Department of Labor, Bureau of Apprenticeship and Training) to four journey-level employees of each job group on each construction project. The Contractor shall be considered to employ four journey-level employees in a particular job group when he or she employs any number of journey-level employees in that craft

whose aggregate work hours equal the number of hours four full time journey-level employees would have worked in a work week as defined by the prevailing practice in the industry for the particular craft, i.e., 40 hours, 37 hours, 35 hours, etc. For example, in a craft where there is a 40 hour work week, the employment of four journey-level employees results in 160 hours of employment (4 x 40). Hence, any number of journey-level employees which results in 160 hours of work is considered for purposes of the training program to equal four journey-level employees, i.e., three journey-level employees who work 53 hours (3 x 53 = 160). The training requirement shall not apply to any trade in which the employment of four or more journey-level employees and the trainee shall be for less than four weeks; provided, that four weeks shall mean four weeks of full time work as defined by the prevailing practice in the industry for the particular craft, i.e., 160 hours (4 weeks x 40 hours), 150 hours (4 weeks x 37 hours), 140 hours (4 weeks x 35 hours), etc.;

(iii) It shall attempt to provide continuous employment for trainees after the completion of this Contract to enable them to complete their course of training;

(iv) It shall, to the extent it is a party to any collective bargaining agreement, refer, recommend and sponsor for union membership any of its trainees who can perform the duties of a qualified journey-level employee or who have successfully completed the training program. Such former trainees shall be paid full journey-level wages and fringe benefits, whether or not union membership is granted after such referral, recommendation or sponsorship, and the Contractor shall make good faith efforts to continue the employment of such persons; and

(v) If the Contractor fails to provide training to the required number of trainees for the required number of weeks, the Contractor's compensation shall be decreased by an amount (the "Credit") equal to the difference between the wages and fringe benefits paid by the Contractor to the trainees and the wages and fringe benefits which would have been paid to the trainees had the number and duration of the positions been as required unless the Contractor can demonstrate that it made a good faith effort to provide training and was unsuccessful. The wages and fringes deducted will be whatever a first term trainee would receive under the prevailing wage schedule in effect at the time the trainees should have been employed. For purposes hereof, a good faith effort includes but is not limited to:

(a) Documented efforts to secure trainees from approved training programs,

(b) Documented outreach efforts to community and civil rights groups to identify candidates for training positions and sponsorship of those persons by the Contractor for entrance into an approved training program, and

(c) Written notification to DLS that the Contractor has been unable to secure trainees pursuant to subsections (a) and (b) above and requesting DLS's assistance in securing trainees; provided, that neither the provisions of any collective bargaining agreement nor the refusal by a union with which the Contractor has a collective bargaining agreement to recognize the validity of the training program shall excuse the Contractor's obligation to provide training pursuant to E.O. 50 and these regulations.

If the Contract Price is $1,000,000 or more, the Contractor shall include the provisions of the foregoing paragraph in every subcontract in the amount of $750,000 or more to which it becomes a party unless exempted by E.O. 50 and the rules and regulations promulgated thereunder, so that such provisions will be binding upon each subcontractor. If the Contract Price is less than $1,000,000, the Contractor shall include the provisions of this rider (other than the provisions of the immediately preceding paragraph) in every subcontract or purchase order in excess of $50,000 to which it becomes a party unless exempted by E.O. 50 and the rules and regulations promulgated thereunder, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as may be directed by the Director of DLS as a means of enforcing such provisions including sanctions for noncompliance and/or the taking of a Credit.

The Contractor further agrees that it will refrain from entering into any contract or contract modification subject to E.O. 50 and the rules and regulations promulgated thereunder with a subcontractor who is not in compliance with the requirements of E.O. 50 and the rules and regulations promulgated thereunder.

B. CONSTRUCTION EMPLOYMENT REPORT SUBMISSION REQUIREMENTS

Pursuant to Executive Order No. 50 (April 25, 1980) as amended and the implementing rules and regulations, all Contractors with contracts of $1,000,000 or more, and all subcontractors with contracts of $1,000,000 or more, must complete and submit an Employment Report (ER) and EEO-1 report. If you submit an ER you must comply with the training requirements set forth above.

BNYDC CONSTRUCTION CONTRACT

If you are a Contractor with a contract of less than $1,000,000 you must complete the attached certification of less than $1,000,000 contract.

BNYDC CONSTRUCTION CONTRACT

DEPARTMENT OF SMALL BUSINESS SERVICES
DIVISION OF LABOR SERVICES
LESS THAN $1,000,000 CONTRACT CERTIFICATE

CONTRACTOR _____

ADDRESS _____

_____

TELEPHONE # (_____) _____

NAME & TITLE OF SIGNATORY _____

CONTRACTING ENTITY *BROOKLYN NAVY YARD DEVELOPMENT CORPORATION*

CONTRACT AMOUNT _____

PROJECT NUMBER _____

DESCRIPTION AND ADDRESS OF PROPOSED CONTRACT

_____

_____

_____

I, (fill in name of person signing) _____hereby affirm that I am authorized by the above named Contractor to certify that said Contractor's proposed contract with the above named entity or City agency is less than $1,000,000.

_____ _____

DATE SIGNATURE

WILLFUL OR FRAUDULENT FALSIFICATION OF ANY DATA OR INFORMATION SUBMITTED HEREWITH MAY RESULT IN THE TERMINATION OF ANY CONTRACT BETWEEN THE CITY AND THE BIDDER OR CONTRACTOR AND BAR THE BIDDER OR CONTRACTOR FROM PARTICIPATION IN ANY CITY CONTRACT FOR A PERIOD OF UP TO THREE YEARS. FURTHER, SUCH FALSIFICATION MAY RESULT IN CRIMINAL PROSECUTION.

EXHIBIT B

MACBRIDE PRINCIPLES RIDER

For purposes of this rider, the "Contractor" means the Contractor, as defined in the Contract to which this rider is attached, and the "contracting entity" means Brooklyn Navy Yard Development Corporation.

ARTICLE I. MACBRIDE PRINCIPLES

PART A

The Contractor stipulates that such Contractor and any individual or legal entity in which the Contractor holds a ten percent or greater ownership interest and any individual or legal entity that holds a ten percent or greater ownership interest in the Contractor either (a) have no business operations in Northern Ireland, or (b) shall take lawful steps in good faith to conduct any business operations they have in Northern Ireland in accordance with the MacBride Principles, and shall permit independent monitoring of their compliance with such principles.

PART B

For purposes hereof, "MacBride Principles" shall mean those principles relating to nondiscrimination in employment and freedom of work place opportunity which require employers doing business in Northern Ireland to:

(1) Increase the representation of individuals from underrepresented religious groups in the work force, including managerial, supervisory, administrative, clerical and technical jobs;
(2) Take steps to promote adequate security for the protection of employees from underrepresented religious groups both at the workplace and while traveling to and from work;
(3) Ban provocative religious or political emblems from the workplace;
(4) Publicly advertise all job openings and make special recruitment efforts to attract applicants from underrepresented religious groups;
(5) Establish layoff, recall and termination procedures which do not in practice favor a particular religious group;
(6) Abolish all job reservations, apprenticeship restrictions and different employment criteria which discriminate on the basis of religion;
(7) Develop training programs that will prepare substantial numbers of current employees from underrepresented religious groups for skilled

jobs, including the expansion of existing programs and the creation of new programs to train, upgrade and improve the skills of workers from underrepresented religious groups;

(8) Establish procedures to assess, identify and actively recruit employees from underrepresented religious groups with potential for further advancement; and

(9) Appoint a senior management staff member to oversee affirmative action efforts and develop a timetable to ensure their full implementation.

ARTICLE II. ENFORCEMENT OF ARTICLE I

The Contractor agrees that the covenants and representations in Article I above are material conditions to this contract. In the event the contracting entity receives information that the Contractor who made the stipulation required by this rider is in violation thereof, the contracting entity shall review such information and give the Contractor an opportunity to respond. If the contracting entity finds that a violation has occurred, the contracting entity shall have the right to declare the Contractor in default and/or terminate this contract for cause and procure the supplies, services or work from another source in any manner the contracting entity deems proper. In the event of such termination, the Contractor shall pay to the contracting entity, or the contracting entity in its sole discretion may withhold from any amounts otherwise payable to the Contractor, the difference between the contract price for the uncompleted portion of this contract and the cost to the contracting entity of completing performance of this contract either itself or by engaging another Contractor or Contractors. In the case of a requirements contract, the Contractor shall be liable for such difference in price for the entire amount of supplies required by the contracting entity for the uncompleted term of its contract. In the case of a construction contract, the contracting entity shall also have the right to hold the Contractor in partial or total default in accordance with the default provisions of this contract, and/or may seek debarment or suspension of the Contractor. The rights and remedies of the contracting entity hereunder shall be in addition to, and not in lieu of, any rights and remedies the contracting entity has pursuant to this contract or by operation of law.

EXHIBIT C

LIST OF CONTRACT DRAWINGS

[TO BE INSERTED]

EXHIBIT D

SPECIFICATIONS

[TO BE INSERTED]

EXHIBIT E

LOCALLY BASED ENTERPRISE PROGRAM

a) This Contract is subject to the requirements of Administrative Code §6-108.1 and the regulations promulgated thereunder. No contract shall be awarded unless and until these requirements have been complied within their entirety.

b) Unless specifically waived by BNYDC with the approval of the Office of Economic and Financial Opportunity, if any portion of the contract is subcontracted, not less than 10 percent of the total dollar amount of the contract shall be awarded to locally based enterprise ("LBE's"); except that where less than ten percent of the total dollar amount of the contract is subcontracted, such lesser percentage shall be so awarded.

c) The prime Contractor shall not require performance and payment bonds from LBE subcontractors.

d) If the Contractor has indicated prior to award that no work will be subcontracted, no work shall be subcontracted without the prior approval of the BNYDC, which shall be granted only if the Contractor makes a good faith effort beginning at least six weeks before the work is to be performed to obtain LBE subcontractors to perform the work.

e) If the Contractor has not identified sufficient LBE subcontractors prior to award, it shall sign a letter of compliance stating that it complies with Administrative Code §6-108-1, recognizes that achieving the LBE requirement is a condition of its contract, and shall submit documentation demonstrating its good faith efforts to obtain LBE's. After award, the Contractor shall begin to solicit LBE's to perform subcontracted work at least six weeks before the date such work is to be performed and shall demonstrate that a good faith effort has been made to obtain LBEs on each subcontract until it meets the required percentage.

f) Failure of the Contractor to comply with the requirements of Administrative Code §6-108-1 and the regulations promulgated thereunder shall constitute a material breach of contract. Remedy for such breach of contract may include the imposition of any or all of the following sanctions:

1. Reducing a Contractor's compensation by an amount equal to the dollar value of the percentage of the LBE subcontracting requirement not complied with;

2. Declaring the Contractor in default;

3. Where non-compliance is by an LBE, de-certifying and declaring the LBE ineligible to participate in the LBE program for a period of up to three years."

EXHIBIT F

CONTRACTORS REQUISITION FOR PROGRESS PAYMENTS

ESTIMATE FOR PARTIAL PAYMENT NO. _____

a. Value of Work Completed To Date $_____

b. Retainage $_____

c. Net Amount Earned (a - b) $_____

d. Amount Due for Stored Material $_____

e. Total Amount Due This Estimate (c + d) $_____

f. Total Previously Approved $_____

g. Net Amount Due This Payment (e - f) $_____

h. Less Amount Withheld by BNYDC* $_____
*Reason:

_____

_____

i. Payment Due This Estimate (g - h) $_____

j. Total of All Requisitions Approved to Date by BNYDC (f + i) $_____

CONTRACTOR'S CERTIFICATE

I/We certify that:

a. All items, units, quantities and prices for work and material shown on this estimate are true and correct; and
b. All work has been performed and material supplied in full compliance with the terms and conditions of the Contract to which this Certificate applies; and
c. All contract provisions relating to prevailing wages and benefits have been complied with and payroll documentation is attached; and
d. All outstanding claims for labor, materials and equipment for the performance of said contract have been paid in full in accordance with the requirements of the Contract; and
e. The above Payment Due This Estimate is a true and correct as of the last day of the period covered by this **CONTRACTORS REQUISITION FOR PROGRESS PAYMENTS**.
f. All subcontractors have been paid in full.

Signature: _____ Date: _____

Title: _____

BNYDC'S CERTIFICATE

We have verified this **CONTRACTORS REQUISITION FOR PROGRESS PAYMENTS**

Contract Time: _____ Cal. Days

Consumed Contract Time: _____ Cal. Days

% of Contract Completed: _____%

Signature: _____ Date: _____
Title

BNYDC APPROVAL

Payment Approval Amount: $ _____

Signature: _____

Title

EXHIBIT G

The following are the minimum acceptable insurance coverage requirements for Contractor in connection with performing the Work:

I. Insurance Requirements

A. Commercial General Liability Policy issued on an Occurrence form with a combined single limit for Bodily Injury, Personal Injury and Property Damage of at least $1,000,000 per occurrence and $2,000,000 in the aggregate. Coverage shall include endorsements for: Products/Completed Operations; Underground Hazards where applicable; Contractual Liability for tort liability assumed under contract, Personal Injury; Waiver of Subrogation; Policy Aggregate shall apply on per project basis; Mobile Equipment if such equipment not subject to any motor vehicle statutory law.

Additional Insured endorsement as per Insurance Services Organization (a/k/a ISO) form CG 20 10 07 04 Additional Insured Scheduled Organization and form CG 20 37 07 04 Additional Insured – Completed Operations. Such endorsement shall include BNYDC and any other designated party as Additional Insured, as required by written contract to which this Exhibit is attached and part of.

There shall be no coverage restrictions or coverage exclusions on the General Liability Policy pertaining to, but not limited to: gravity related injuries, unsafe workplace, injuries sustained by employee of Contractor or sub-contractor, Third Party over type actions, construction operations, and construction activity.

The insurance procured by the Contractor shall be primary and non-contributory to any other insurance that may be in effect.

B. Statutory Workers Compensation Policy and Employer's Liability Policy of minimum $1,000,000 for work operations in State where project work is performed, including any applicable other states coverage endorsement. Contractor shall provide a Certificate of Insurance evidencing such Workers Compensation Policy in the form attached as Exhibit M.

C. Automobile Liability Insurance Policy for Bodily Injury and Property Damage in the amount of $1,000,000 per occurrence covering all owned, non-owned, hired, borrowed vehicles subject to statutory motor vehicle law.

D. Contractors Pollution Liability policy of at least $1,000,000 for damages arising out of bodily injury, property damages, environmental damages caused by a pollution incident from Contractors work, completed operations, or transportation whether work performed by or on behalf of Contractor.

E. Umbrella/Excess Liability Policy of at least $5,000,000 per occurrence. Umbrella Liability policy is to be provided on at least a follow form basis of the underlying General Liability Insurance policy, Automobile Insurance Policy, and Workers' Compensation Insurance policy. The insurance procured by the Contractor shall be primary and non- contributory to any other insurance that may be in effect.

F. Professional Liability (Errors and Omissions) of at least $1,000,000 each claim for wrongful acts while performing and/or providing professional services. Coverage shall continue for at least three (3) years beyond the final performance of services.

G. The following are to be included as additional insured(s) for coverage required in sections A,C,D and E. Each additional insured listed below shall be issued a separate Certificate of Insurance.

Certificate Holder

Brooklyn Navy Yard Development Corporation
Building 77
141 Flushing Avenue, Suite 801
Brooklyn, New York 11205

And as Additional Insureds
Brooklyn Navy Yard Development Corporation
City of New York

Certificate Holder

City of New York
c/o City of New York Department of Small Business Services
One Liberty Plaza, 165 Broadway
New York, NY 10006

And as Additional Insureds
City of New York
Brooklyn Navy Yard Development Corporation

H. A Certificate of Insurance using the ACCORD 25 form is to be provided to the Additional Insured and the Certificate must specifically include a copy of the stipulated additional insured endorsement as required in Section A. Certificate Holder must be notified of any cancellation, non-renewal or material modification of existing policy. Notice is to be received 30 days prior to any change in status. In addition to ACCORD 25 form, a completed New York Construction Certificate of Liability Insurance Addendum (ACCORD 855 form) shall be provided
.

I. Consultant shall also provide a certification in the form attached hereto as Exhibit N executed by Consultant's insurance broker and duly notarized, with respect to and attaching each of the Certificates of Insurance required pursuant to this Exhibit G.

II. If the Contractor utilizes the services of subcontractor for work performed, the same provisions of this Insurance Requirement Exhibit shall be required of those parties. It is the sole responsibility of the Contractor to maintain compliance of such.

III. Insurance coverage shall be maintained with responsible insurance companies licensed and admitted to do business in the State of New York and such companies shall have an A.M.Best Rating of A- VII. If a Non-Admitted Insurance Company is used, an AM Best rating of A- shall apply.

IV. Any self-insured insurance retentions and, or any deductibles utilized on any of the above required insurance coverage is the sole responsibility of the Contractor, and Contractor agrees to satisfy those retention and or deductible obligations directly with their insurance company.

V. The policies required hereunder shall contain the following provisions:

"A. Notices from the insurer (the "Insurer") to BNYDC ("BNYDC") and the City of New York (the "City"), in connection with this policy, shall be addressed to the General Counsel, BNYDC, at Building 77, 141 Flushing Avenue, Suite 801, Brooklyn, New York 11205 (with a copy to BNYDC's Deputy General Counsel at the same address);

B. The Insurer shall accept notice of accident from BNYDC or the City, within 120 days after receipt by an official of such Additional Insured (as identified above) of notice of such accident as valid and timely notice under this policy;

C. The Insurer shall accept notice of claim from the City within 120 days after such claim has been filed with the Comptroller of the City and notice of claim from BNYDC, within 120 days after receipt by such party as valid and timely notice under this policy;

The Insurer understands and agrees that notice of accident or claim to such Insurer by any one of the following entities shall be deemed notice by all under the policy:
Contractor; or
BNYDC; or
The City; or
Any other Additional Insured.

E. This policy shall not be canceled, terminated or modified by the Insurer or Contractor unless 30 days prior written notice is sent by registered mail to BNYDC or the City, nor shall this policy be canceled, terminated or modified by the Contractor without prior written consent of BNYDC;

F. The presence of engineers, inspectors or other employees or agents of Contractor, BNYDC or the City at the site of the Services performed by Contractor shall not invalidate this policy of insurance;

G. Violation of any of the terms of any other policy issued by the Insurer to Contractor or a subcontractor of Contractor shall not invalidate this policy; and

H. Insurance, if any, carried by BNYDC, the City or the Additional Insureds will not be called upon to contribute to a loss that would otherwise be paid by the Insurer."

EXHIBIT H

PERFORMANCE AND PAYMENT BONDS

Form of Performance Bond

KNOW ALL MEN BY THESE PRESENTS, that_____ (hereinafter called the "Principal") and _____ a corporation organized and existing under the laws of the State of _____(hereinafter called the "Surety"), as Surety, are held and firmly bound unto the Brooklyn Navy Yard Development Corporation the City of New York and The City of New York Department of Small Business Services (hereinafter collectively called the "Obligee") in the sum of _____ Dollars ($_____) for the payment of which sum well and truly to be made, the said Principal and Surety bind themselves, and their respective heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal and Obligee, have entered into Construction Contract Number _____ dated _____ (hereinafter referred to as "Construction Contract".

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the above bounden Principal shall:

A. Well and truly perform all the undertakings, covenants, terms, conditions, and agreements of said Construction Contract within the time provided therein and any extensions thereof that may be granted by the Obligee, and during the life of any guaranty required under said Contract; and

B. Shall also well and truly perform all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said Contract that may hereafter be made; and

C. Shall as required by the Construction Contract indemnify and save harmless Obligee from any and all loss, damage, fines, penalties and/or expense including costs and attorney's fees, which the said Obligee may sustain;

Then this obligation shall be null and void; otherwise it shall remain in full force and effect.

Surety agrees that no change, extension of time, alteration, addition, omission, or other modification of the terms of either the said Construction Contract or in the said Work to be performed thereunder, or in the specifications thereunder, or in the plans thereunder, shall in anyway affect Surety's obligation on this Bond, and Surety does hereby waive notice of any such changes, extensions of time, alterations, additions, omissions, and other modifications.

The Surety, for value received, agrees, if requested to do so by the Obligee, to perform fully and complete the obligations of the Principal mentioned and described in said Construction Contract and any and all modifications thereof pursuant to and in accordance with the undertakings, covenants, terms, conditions and agreements thereof, if the Principal fails, neglects and/or refuses to so perform fully and completely said obligations, and further agrees to commence the performance and completion of said obligations within twenty (20) days after notice from the Obligee of such failure, neglect and/or refusal of the Principal and to perform and complete the same within the time required under said Contract and any and all modifications thereof as extended by the period of time elapsing between the date of such failure, neglect and/or refusal of the Principal and the date of the giving of such notice by the Obligee to the Surety.

Anything contained herein to the contrary notwithstanding, the Surety hereby agrees that a payment or payments made by the Obligee to the Principal which may be at variance with the terms of said contract or any other act of the Obligee which is at variance with, or in violation of, the terms of said contract, shall not serve to release the Surety from its obligations hereunder, in whole or in part, it being the intent of this bond that the Surety's obligations to complete shall be absolute and that any disputes relating to the performance of said contract shall be disposed of at a later date and without interference in, or with the performance of, said Construction Contract.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their several seals this ___ day of _____20__ the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

PRINCIPAL _____(Seal)
(Name)

Attest: _____ _____
Secretary (Business Address)

By: _____
(Signature)
Name:

Title:

SURETY _____(Seal)
(Name)

Attest: _____ _____
Secretary (Business Address)
(Business Address)

By: _____
(Signature)
Name:

Title:

ACKNOWLEDGMENT OF SURETY

STATE OF_____)
ss.:
COUNTY OF_____)

On this _____day of _____ in the year 20_ before me personally came _____ to me known, who being by me duly sworn, did depose and say that _he is the _____of _____, the corporation described in and which executed the above instrument; that he knows the seal of said corporation; that the seal affixed to said instrument is such seal; that it was so affixed by order of the Board of Directors of said corporation and that he signed his name thereto by like order.

_____
Notary Public (SEAL)

ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL

STATE OF_____)

ss.:

COUNTY OF_____)

On this_____ day of _____ in the year 20_ before me personally came _____to me known and to be the person described in and who executed the foregoing instrument and __he duly acknowledged that he executed the same.

_____

Notary Public (SEAL)

ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP

STATE OF_____)

ss.:

COUNTY OF_____)

On this _____ day of _____ in the year 20_ before me personally came _____ to me known and known to me to be a partner of the firm of _____ described in and who executed the foregoing instrument, and he duly acknowledged to me that he executed the same for an in behalf of said firm.

_____

Notary Public (SEAL)

ACKNOWLEDGMENT OF PRINCIPAL IF A CORPORATION

STATE OF_____)

ss.:

COUNTY OF_____)

On this _____day of _____ in the year 20_ before me personally came _____ to me known, who being by me duly sworn, did depose and say that _he is the _____of _____, the corporation described in and which executed the above instrument; that __he knows the seal of said corporation; that the seal affixed to said instrument is such seal; that it was

so affixed by order of the Board of Directors of said corporation and that __he signed his name thereto by like order.

_____
Notary Public (SEAL)

ACKNOWLEDGMENT OF PRINCIPAL IF A LIMITED LIABILITY COMPANY

STATE OF_____)
ss.:
COUNTY OF_____)

On this _____day of _____ in the year 20_ before me personally came _____ to me known, who being by me duly sworn, did depose and say that _he is a member of_____, the limited liability company described in and which executed the above instrument; that __he knows the seal of said limited liability company; that the seal affixed to said instrument is such seal; that it was so affixed by order of the Members of said limited liability company and that __he signed his name thereto by like order.

_____
Notary Public (SEAL)

Form of Payment Bond

KNOW ALL MEN BY THESE PRESENTS, that_____ (hereinafter called the "Principal") and _____ a corporation organized and existing under the laws of the State of _____(hereinafter called the "Surety"), as Surety, are held and firmly bound unto the Brooklyn Navy Yard Development Corporation the City of New York and The City of New York Department of Small Business Services (hereinafter collectively called the "Obligee") in the sum of _____ Dollars ($_____) for the payment of which sum well and truly to be made, the said Principal and Surety bind themselves, and their respective heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal and Obligee, have entered into Construction Contract Number _____ dated _____ (hereinafter referred to as "Construction Contract".

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the above bounden Principal shall promptly pay all persons having just claims for:

A. Labor, materials, services, insurance, supplies, machinery, equipment, rentals, fuels, oils, implements, tools and/or appliances and all other items of whatever nature, furnished for, used or consumed in the prosecution of the Work called for by said Construction Contract and any and all modifications thereof, whether lienable or non-lienable and whether or not permanently incorporated in said work; and
B. Pension, welfare, vacation and/or other supplemental employee benefit contributions payable under collective bargaining agreements with respect to persons employed upon said Work; and
C. All federal, state and local taxes and/or contributions required by law to be withheld and/or paid with respect to the employment of persons upon said work;

then this obligation shall be null and void; otherwise it shall remain in full force and effect.

Surety agrees that no change, extension of time, alteration, addition, omission, or other modification of the terms of either the said Construction Contract or in the said Work to be performed thereunder, or in the specifications thereunder, or in the plans thereunder, shall in anyway affect Surety's obligation on this Bond, and Surety does

hereby waive notice of any such changes, extensions of time, alterations, additions, omissions, and other modifications.

Principal and Surety agree that this Bond inures to the benefit of all persons supplying labor and material in the prosecution of the Work provided for in said Construction Contract, as well as to the Obligee, and that such persons may maintain independent actions upon this Bond in their own names.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their several seals this _____ day of _____ 20_ the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

PRINCIPAL _____(Seal)
(Name)

Attest: _____ _____
Secretary (Business Address)

By: _____
(Signature)
Name:

Title:

SURETY _____(Seal)
(Name)

Attest: _____ _____
Secretary (Business Address)
(Business Address)

By: _____
(Signature)
Name:

Title:

ACKNOWLEDGMENT OF SURETY

STATE OF_____)
ss.:
COUNTY OF_____)

On this _____day of _____ in the year 20__ before me personally came _____ to me known, who being by me duly sworn, did depose and say that _he is the _____of _____, the corporation described in and which executed the above instrument; that he knows the seal of said corporation; that the seal affixed to said instrument is such seal; that it was so affixed by order of the Board of Directors of said corporation and that he signed his name thereto by like order.

_____
Notary Public (SEAL)

ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL

STATE OF_____)
ss.:
COUNTY OF_____)

On this_____ day of _____ in the year 20__ before me personally came _____to me known and to be the person described in and who executed the foregoing instrument and __he duly acknowledged that he executed the same.

_____
Notary Public (SEAL)

ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP

STATE OF_____)
ss.:
COUNTY OF_____)

On this _____ day of _____ in the year 20__ before me personally came _____ to me known and known to me to be a partner of the firm of _____ described in and who executed the foregoing instrument, and he duly acknowledged to me that he executed the same for an in behalf of said firm.

_____
Notary Public (SEAL)

ACKNOWLEDGMENT OF PRINCIPAL IF A CORPORATION

STATE OF_____)
ss.:
COUNTY OF_____)

On this _____day of _____ in the year 20__ before me personally came _____ to me known, who being by me duly sworn, did depose and say that _he is the _____of _____, the corporation described in and which executed the above instrument; that __he knows the seal of said corporation; that the seal affixed to said instrument is such seal; that it was so affixed by order of the Board of Directors of said corporation and that __he signed his name thereto by like order.

_____
Notary Public (SEAL)

ACKNOWLEDGMENT OF PRINCIPAL IF A LIMITED LIABILITY COMPANY

STATE OF_____)
ss.:
COUNTY OF_____)

On this _____day of _____ in the year 20__ before me personally came _____ to me known, who being by me duly sworn, did depose and say that _he is a member of_____, the limited liability company described in and which executed the above instrument;

that __he knows the seal of said limited liability company; that the seal affixed to said instrument is such seal; that it was so affixed by order of the Members of said limited liability company and that __he signed his name thereto by like order.

_____

Notary Public (SEAL)

EXHIBIT I
PARTIAL RELEASE AND PARTIAL LIEN WAIVER

OWNER: BROOKLYN NAVY YARD DEVELOPMENT CORPORATION and THE CITY OF NEW YORK

PROJECT: _____

CONTRACTOR: _____

CONTRACTOR, in consideration of the current payment of $_____, a portion of the current total contract value of $_____, the current payment bringing the total of all payments to date to $_____ , in addition to which retainage of ___% is withheld as Maintenance and Guarantee per the contract terms, the execution of this Partial Release and Partial Lien Waiver, receipt of which is hereby acknowledged, represents that it has been paid to the date hereof in full for all labor, services, equipment, or material furnished to **OWNER** on the **PROJECT** including extra work claims and does hereby forever release **OWNER** from any and all claims that **CONTRACTOR** may have against **OWNER** arising to the date hereof from the **PROJECT.**

OWNER'S NOTICE: THIS DOCUMENT WAIVES CONTRACTOR'S RIGHTS UNCONDITIONALLY AND STATES THAT CONTRACTOR HAS BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST CONTACTOR IF CONTRACTOR SIGNS IT, EVEN IF CONTRACTOR HAS NOT BEEN PAID. IF CONTRACTOR HAS NOT BEEN PAID, USE A CONDITIONAL RELEASE FORM.

CONTRACTOR: Acknowledges that it is not permitted to file any mechanic's lien against land and improvements owned by **OWNER** and Warrants that it will not file a mechanic's lien or other lien against land and improvements owned by **OWNER** and has not and will not assign any claims for payment or right to perfect a lien against such land and improvements.

CONTRACTOR: Warrants and represents that (1) All workmen employed by it or its subcontractor upon this **PROJECT** have been paid applicable prevailing wages and in full to the date hereof; 2) All material men from which the undersigned or its subcontractors have purchased materials used in the **PROJECT** have been paid in full for

materials delivered on or prior to the date hereof; (3) All union fringe benefits, dues or other obligations have been paid in full on or prior to the date hereof; (4) None of such workman and material men has any claim or demand or right of lien against the land and improvements owned by OWNER; and (5) Represents that the signatory hereto is an authorized officer of **CONTRACTOR** with full power to execute this Partial Release and Partial Lien Waiver.

In addition to the rights and obligations provided by the Contract for the **PROJECT** (which is incorporated herein by reference and made a part hereof**),** to the fullest extent permitted by law, the undersigned further agrees to defend, indemnify and hold **OWNER,** its successors and assigns, harmless from all claims, actions, and liens filed by the undersigned's subcontractors, suppliers, material men, and laborers, and those interposed by labor organizations for union fringe benefits and/or other union dues or responsibilities, who performed labor or furnished materials in connection with the work performed to the date hereof at the **PROJECT.**

CONTRACTOR agrees that the **OWNER,** any lender and any title insurer may rely upon this waiver.

In witness whereof, we have here to set our hand and seal this __ day of _____ 20__.

_____

CONTRACTOR

BY: _____

Title: _____

STATE OF NEW YORK)
ss:
COUNTY OF_____)

On the _____day of_____ 20__ before me personally came _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that _he executed the same.

_____
NOTARY PUBLIC

STATE OF NEW YORK)
ss:
COUNTY OF _____)

On the ____ day of _____, 20__ before me personally came _____, to me known, who, being by me duly sworn, did depose and say that he resides at _____; that he is the _____ of _____ the business described in and which executed the above instrument; and that he signed his name thereto by authority of the Board of Directors of said corporation.

_____
NOTARY PUBLIC

EXHIBIT J
FINAL RELEASE AND FINAL LIEN WAIVER

OWNER: BROOKLYN NAVY YARD DEVELOPMENT CORPORATION and THE CITY OF NEW YORK

PROJECT: _____

CONTRACTOR: _____

CONTRACTOR in consideration of the current payment of $_____, being the final payment for a total contract value of $_____, receipt of which is hereby acknowledged, represents that it has been paid in full for all labor, services, equipment, or material furnished to **OWNER** on the **PROJECT** including extra work claims and does hereby forever release **OWNER** from any and all claims that **CONTRACTOR** may have against **OWNER** arising from the **PROJECT.**

OWNER'S NOTICE: THIS DOCUMENT WAIVES CONTRACTOR'S RIGHTS UNCONDITIONALLY AND STATES THAT CONTRACTOR HAS BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST CONTACTOR IF CONTRACTOR SIGNS IT, EVEN IF CONTRACTOR HAS NOT BEEN PAID. IF CONTRACTOR HAS NOT BEEN PAID, USE A CONDITIONAL RELEASE FORM.

CONTRACTOR: Acknowledges that it is not permitted to file any mechanic's lien against land and improvements owned by **OWNER** and Warrants that it will not file a mechanic's lien or other lien against land and improvements owned by **OWNER** and has not and will not assign any claims for payment or right to perfect a lien against such land and improvements.

CONTRACTOR: Warrants and represents that (1) All workmen employed by it or its subcontractor upon this **PROJECT** have been paid applicable prevailing wages and in full to the date hereof; 2) All material men from which the undersigned or its subcontractors have purchased materials used in the PROJECT have been paid in full for materials delivered on or prior to the date hereof; (3) All union fringe benefits, dues or other obligations have been paid in full on or prior to the date hereof; (4) None of such workman and material men has any claim or demand or right of lien against the land and improvements owned by OWNER; and (5) Represents that the signatory hereto is an

authorized officer of **CONTRACTOR** with full power to execute this Final Release and Final Lien Waiver.

In addition to the rights and obligations provided by the Contract for the **PROJECT** (which is incorporated herein by reference and made a part hereof**),** to the fullest extent permitted by law, the undersigned further agrees to defend, indemnify and hold **OWNER,** its successors and assigns, harmless from all claims, actions, and liens filed by the undersigned's subcontractors, suppliers, material men, and laborers, and those interposed by labor organizations for union fringe benefits and/or other union dues or responsibilities, who performed labor or furnished materials in connection with the work performed at the **PROJECT.**

CONTRACTOR agrees that the **OWNER,** any lender and any title insurer may rely upon this waiver.

In witness whereof, we have here to set our hand and seal this __ day of _____ 20__.

_____

CONTRACTOR

BY: _____

Title: _____

STATE OF NEW YORK)

ss:

COUNTY OF_____)

On the _____day of_____ 20__ before me personally came _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that _he executed the same.

_____

NOTARY PUBLIC

STATE OF NEW YORK)

ss:

COUNTY OF _____)

On the ____ day of _____, 20__ before me personally came _____, to me known, who, being by me duly sworn, did depose and say that he resides at _____; that he is the _____ of _____ the business described in and which executed the above instrument; and that he signed his name thereto by authority of the Board of Directors of said corporation.

_____

NOTARY PUBLIC

EXHIBIT K

WHISTLEBLOWER PROTECTION EXPANSION ACT

1. In accordance with Local Law Nos. 30-2012 and 33-2012, codified at sections 6-132 and 12-113 of the New York City Administrative Code, respectively,

(a) Contractor shall not take an adverse personnel action with respect to an officer or employee in retaliation for such officer or employee making a report of information concerning conduct which such officer or employee knows or reasonably believes to involve corruption, criminal activity, conflict of interest, gross mismanagement or abuse of authority by any officer or employee relating to this Contract to (i) the Commissioner of the Department of Investigation, (ii) a member of the New York City Council, the Public Advocate, or the Comptroller, or (iii) the City Chief Procurement Officer, ACCO, Agency head, or Commissioner.

(b) If any of Contractor's officers or employees believes that he or she has been the subject of an adverse personnel action in violation of subparagraph (a) of paragraph 1 of this rider, he or she shall be entitled to bring a cause of action against Contractor to recover all relief necessary to make him or her whole. Such relief may include but is not limited to: (i) an injunction to restrain continued retaliation, (ii) reinstatement to the position such employee would have had but for the retaliation or to an equivalent position, (iii) reinstatement of full fringe benefits and seniority rights, (iv) payment of two times back pay, plus interest, and (v) compensation for any special damages sustained as a result of the retaliation, including litigation costs and reasonable attorney's fees.

(c) Contractor shall post a notice provided by the City in a prominent and accessible place on any site where work pursuant to the Contract is performed that contains information about:

(i) how its employees can report to the New York City Department of Investigation allegations of fraud, false claims, criminality or corruption arising out of or in connection with the Contract; and
(ii) the rights and remedies afforded to its employees under New York City Administrative Code sections 7-805 (the New York City False Claims Act) and 12-113 (the Whistleblower Protection Expansion Act) for lawful acts taken in connection with the reporting of allegations of fraud, false claims, criminality or corruption in connection with the Contract.

(d) For the purposes of this rider, "adverse personnel action" includes dismissal, demotion, suspension, disciplinary action, negative performance evaluation, any action resulting in loss of staff, office space, equipment or other benefit, failure to appoint, failure to promote, or any transfer or assignment or failure to transfer or assign against the wishes of the affected officer or employee.

(e) This rider is applicable to all of Contractor's subcontractors having subcontracts with a value in excess of $100,000; accordingly, Contractor shall include this rider in all subcontracts with a value a value in excess of $100,000.

2. Paragraph 1 is not applicable to this Contract if it is valued at $100,000 or less. Subparagraphs (a), (b), (d), and (e) of paragraph 1 are not applicable to this Contract if it was solicited pursuant to a finding of an emergency. Subparagraph (c) of paragraph 1 is neither applicable to this Contract if it was solicited prior to October 18, 2012 nor if it is a renewal of a contract executed prior to October 18, 2012.

REPORT

CORRUPTION, FRAUD, UNETHICAL CONDUCT

RELATING TO A NYC-FUNDED CONTRACT

OR PROJECT

CALL THE NYC DEPARTMENT OF INVESTIGATION

212-825-5959

DOI CAN ALSO BE REACHED BY MAIL OR IN PERSON AT:

New York City Department of Investigation (DOI)
80 Maiden Lane, 17th floor
New York, New York 10038
Attention: COMPLAINT BUREAU

OR FILE A COMPLAINT ON-LINE AT:
www.nyc.gov/doi

All communications are confidential

THE LAW PROTECTS EMPLOYEES OF CITY CONTRACTORS WHO REPORT CORRUPTION

- Any employee of a City contractor, or subcontractor of the City, or a City contractor with a contract valued at more than $100,000 is protected under the law from retaliation by his or her employer if the employee reports wrongdoing related to the contract to the DOI.
- **To be protected by this law, an employee must report to DOI – or to certain other specified government officials –** information about fraud, false claims, corruption, criminality, conflict of interest, gross mismanagement, or abuse of authority relating to a City contract valued at more than $100,000.
- Any employee who makes such a report and who believes he or she has been dismissed, demoted, suspended, or otherwise subject to an adverse personnel action because of that report is entitled to bring a lawsuit against the contractor and recover damages

← Scan the QR Code at Left to File a Complaint

BNYDC CONSTRUCTION CONTRACT

EXHIBIT L

PAID SICK LEAVE LAW

Introduction and General Provisions

The Earned Sick Time Act, also known as the Paid Sick Leave Law ("PSLL"), requires covered employees who annually perform more than 80 hours of work in New York City to be provided with paid sick time.1 Contractors of the City of New York or of other governmental entities may be required to provide sick time pursuant to the PSLL.

1 Pursuant to the PSLL, if fewer than five employees work for the same employer, as determined pursuant to New York City Administrative Code §20-912(g), such employer has the option of providing such employees uncompensated sick time.

The PSLL became effective on April 1, 2014, and is codified at Title 20, Chapter 8, of the New York City Administrative Code. It is administered by the City's Department of Consumer Affairs ("DCA"); DCA's rules promulgated under the PSLL are codified at Chapter 7 of Title 6 of the Rules of the City of New York ("Rules").

Contractor agrees to comply in all respects with the PSLL and the Rules, and as amended, if applicable, in the performance of this agreement. Contractor further acknowledges that such compliance is a material term of this agreement and that failure to comply with the PSLL in performance of this agreement may result in its termination.

Contractor must notify the Agency Chief Contracting Officer of the City agency or other entity with whom it is contracting in writing within ten (10) days of receipt of a complaint (whether oral or written) regarding the PSLL involving the performance of this agreement. Additionally, Contractor must cooperate with DCA's education efforts and must comply with DCA's subpoenas and other document demands as set forth in the PSLL and Rules.

The PSLL is summarized below for the convenience of Contractor. Contractor is advised to review the PSLL and Rules in their entirety. On the website www.nyc.gov/PaidSickLeave there are links to the PSLL and the associated Rules as well as additional resources for employers, such as Frequently Asked Questions, timekeeping tools and model forms, and an event calendar of upcoming presentations and webinars at which Contractor can get more information about how to comply with the PSLL. Contractor acknowledges that it is responsible for compliance with the PSLL notwithstanding any inconsistent language contained herein.

Pursuant to the PSLL and the Rules:

Applicability, Accrual, and Use

An employee who works within the City of New York for more than eighty hours in any consecutive 12-month period designated by the employer as its "calendar year" pursuant to the PSLL ("Year") must be provided sick time. Employers must provide a minimum of one hour of sick time for every 30 hours worked by an employee and compensation for such sick time must be provided at the greater of the employee's regular hourly rate or the minimum wage. Employers are not required to provide more than forty hours of sick time to an employee in any Year.

An employee has the right to determine how much sick time he or she will use, provided that employers may set a reasonable minimum increment for the use of sick time not to exceed four hours per day. In addition, an employee may carry over up to forty hours of unused sick time to the following Year, provided that no employer is required to allow the use of more than forty hours of sick time in a Year or carry over unused paid sick time if the employee is paid for such unused sick time and the employer provides the employee with at least the legally required amount of paid sick time for such employee for the immediately subsequent Year on the first day of such Year.

An employee entitled to sick time pursuant to the PSLL may use sick time for any of the following:

- such employee's mental illness, physical illness, injury, or health condition or the care of such illness, injury, or condition or such employee's need for medical diagnosis or preventive medical care;
- such employee's care of a family member (an employee's child, spouse, domestic partner, parent, sibling, grandchild or grandparent, or the child or parent of an employee's spouse or domestic partner) who has a mental illness, physical illness, injury or health condition or who has a need for medical diagnosis or preventive medical care;
- closure of such employee's place of business by order of a public official due to a public health emergency; or
- such employee's need to care for a child whose school or childcare provider has been closed due to a public health emergency.

An employer must not require an employee, as a condition of taking sick time, to search for a replacement. However, an employer may require an employee to provide: reasonable notice of the need to use sick time; reasonable documentation that the use of sick time was needed for a

reason above if for an absence of more than three consecutive work days; and/or written confirmation that an employee used sick time pursuant to the PSLL. However, an employer may not require documentation specifying the nature of a medical condition or otherwise require disclosure of the details of a medical condition as a condition of providing sick time and health information obtained solely due to an employee's use of sick time pursuant to the PSLL must be treated by the employer as confidential.

If an employer chooses to impose any permissible discretionary requirement as a condition of using sick time, it must provide to all employees a written policy containing those requirements, using a delivery method that reasonably ensures that employees receive the policy. If such employer has not provided its written policy, it may not deny sick time to an employee because of non-compliance with such a policy.

Sick time to which an employee is entitled must be paid no later than the payday for the next regular payroll period beginning after the sick time was used.

Exemptions and Exceptions

Notwithstanding the above, the PSLL does not apply to any of the following:

- an independent contractor who does not meet the definition of employee under section 190(2) of the New York State Labor Law;
- an employee covered by a valid collective bargaining agreement in effect on April 1, 2014 until the termination of such agreement;
- an employee in the construction or grocery industry covered by a valid collective bargaining agreement if the provisions of the PSLL are expressly waived in such collective bargaining agreement;
- an employee covered by another valid collective bargaining agreement if such provisions are expressly waived in such agreement and such agreement provides a benefit comparable to that provided by the PSLL for such employee;
- an audiologist, occupational therapist, physical therapist, or speech language pathologist who is licensed by the New York State Department of Education and who calls in for work assignments at will, determines his or her own schedule, has the ability to reject or accept any assignment referred to him or her, and is paid an average hourly wage that is at least four times the federal minimum wage;
- an employee in a work study program under Section 2753 of Chapter 42 of the United States Code;

• an employee whose work is compensated by a qualified scholarship program as that term is defined in the Internal Revenue Code, Section 117 of Chapter 20 of the United States Code; or

• a participant in a Work Experience Program (WEP) under section 336-c of the New York State Social Services Law.

Retaliation Prohibited

An employer may not threaten or engage in retaliation against an employee for exercising or attempting in good faith to exercise any right provided by the PSLL. In addition, an employer may not interfere with any investigation, proceeding, or hearing pursuant to the PSLL.

Notice of Rights

An employer must provide its employees with written notice of their rights pursuant to the PSLL. Such notice must be in English and the primary language spoken by an employee, provided that DCA has made available a translation into such language. Downloadable notices are available on DCA's website at http://www.nyc.gov/html/dca/html/law/PaidSickLeave.shtml.

Any person or entity that willfully violates these notice requirements is subject to a civil penalty in an amount not to exceed fifty dollars for each employee who was not given appropriate notice.

Records

An employer must retain records documenting its compliance with the PSLL for a period of at least three years, and must allow DCA to access such records in furtherance of an investigation related to an alleged violation of the PSLL.

Enforcement and Penalties

Upon receiving a complaint alleging a violation of the PSLL, DCA has the right to investigate such complaint and attempt to resolve it through mediation. Within 30 days of written notification of a complaint by DCA, or sooner in certain circumstances, the employer must provide DCA with a written response and such other information as DCA may request. If DCA believes that a violation of the PSLL has occurred, it has the right to issue a notice of violation to the employer.

DCA has the power to grant an employee or former employee all appropriate relief as set forth in New York City Administrative Code 20-924(d). Such relief may include, among other remedies, treble damages for the wages that should have been paid, damages for unlawful retaliation, and damages and reinstatement for unlawful discharge. In addition, DCA may impose on an employer found to have violated the PSLL civil penalties not to exceed $500 for a first violation,

$750 for a second violation within two years of the first violation, and $1,000 for each succeeding violation within two years of the previous violation.

More Generous Polices and Other Legal Requirements

Nothing in the PSLL is intended to discourage, prohibit, diminish, or impair the adoption or retention of a more generous sick time policy, or the obligation of an employer to comply with any contract, collective bargaining agreement, employment benefit plan or other agreement providing more generous sick time. The PSLL provides minimum requirements pertaining to sick time and does not preempt, limit or otherwise affect the applicability of any other law, regulation, rule, requirement, policy or standard that provides for greater accrual or use by employees of sick leave or time, whether paid or unpaid, or that extends other protections to employees. The PSLL may not be construed as creating or imposing any requirement in conflict with any federal or state law, rule or regulation.

EXHIBIT M
WORKER'S COMPENSATION INSURANCE
FORM CERTIFICATE OF INSURANCE

EXHIBIT N

BROKER'S CERTIFICATION

EXHIBIT O

EXCAVATION WORK PLAN

HEALTH AND SAFETY PLAN

Brooklyn Navy Yard
Development Corporation
BrooklynNavyYard.org

Building 77
141 Flushing Ave, Suite 801
Brooklyn, NY 11205

EXHIBIT I
ENVIRONMENTAL CERTIFICATION FORM

[to attach]

CONTRACTOR EXCAVATION WORK PLAN CERTIFICATION
BNYDC VCP Site V00120

Project Name:	
Project Location:	
Contractor Name:	
Contractor Point of Contact:	
Contractor POC Phone & Email:	

I, _____, certify that I have reviewed the following NYSDEC approved Site
(Print name)
Management Plan (SMP) documents for the Brooklyn Navy Yard (BNY) and will complete all Site work in accordance with the requirements set forth in these plans [*Check to confirm and certify that documents have been received and reviewed*]:

- ☐ Site Management Plan (SMP)
- ☐ Excavation Work Plan (EWP)
- ☐ Health And Safety Plan (HASP)
- ☐ Community Air Monitoring Plan (CAMP)

Additionally, as the contractor's responsible party, I certify that: [*Check all that apply*]

A. ☐ All employees engaged in Site work at the BNY have obtained an OSHA HAZWOPER 40-hour Certification.

B. ☐ A Request to Import/Reuse Fill or Soil form, has been prepared by the contractor and submitted to the BNY and CORE Environmental Consultants, Inc. (CORE).

AND

☐ All imported material(s) meets the backfill and cover soil quality standards established in 6 NYCRR 375-6.7(d).

C. ☐ No backfill is being imported to the site.

D. ☐ CORE and BNY will be notified of scheduled work dates to ensure CORE is on Site to provide a Qualified Environmental Professional (QEP) to perform CAMP.

E. ☐ The reconstruction of the Site-wide cover will include a concrete or paving system at a minimum of 6" in thickness.

_____ _____

Sign Date

Brooklyn Navy Yard
Development Corporation
BrooklynNavyYard.org

Building 77
141 Flushing Ave, Suite 801
Brooklyn, NY 11205

EXHIBIT J
EXCAVATION WORK PLAN

[to attach]

APPENDIX E

Excavation Work Plan

CORE ENVIRONMENTAL CONSULTANTS

This Excavation Work Plan (EWP) contains procedures for potential future soil disturbances at the Site, including renovation, below-grade utility line repair, and new construction.

E.1 NOTIFICATION

At least 15 days prior to the start of any activity that is anticipated to breach the Site-wide protective cover as defined in Section 2.6 of the Site Management Plan (SMP), the Site owner or their representative will notify the NYSDEC. Currently, this notification will be made to:

Jonathan Greco
NYSDEC Project Manager
625 Broadway
Albany, New York 12233
(518) 402-9694
Jonathan.Greco@dec.ny.gov

This notification will include:

- A detailed description of the work to be performed, including the location and aerial extent of excavation, plans/drawings for Site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of impacted soil to be excavated, and any work that may impact an engineering control (EC);
- A summary of environmental conditions anticipated to be encountered in the work areas including the nature and concentration levels of constituents of concern, potential presence of grossly impacted media, and plans for any pre-construction sampling;
- A schedule detailing the start and completion of all intrusive work;
- A summary of the applicable components of this EWP;
- A statement that the work will be performed in compliance with this EWP and Title 29 of the Code of Federal Regulations Part 1910.120 (29 CFR 1910.120);
- A copy of the contractor's Health and Safety Plan (HASP), in electronic format, if it differs from the HASP provided in Appendix F of the Site Management Plan (SMP);
- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

Tenant Notification Requirements

Tenants who wish to disturb the existing Site-wide cover (as defined in Section 2.6 of the SMP) must notify BNYDC in advance of such activities at least 90 days in advance. A project-specific Work Plan will be provided to BNYDC by the tenant describing soil disturbance activities and will

include figures identifying the area(s) to be disturbed. The Change of Use request must include the NYSDEC 60-Day Advance Notification of Site Change of Use, Transfer or Certificate of Completion, and/or Ownership form found at http://www.dec.ny.gov/docs/remediation_hudson_pdf/changeofuse.pdf or in Appendix H of the SMP. BNYDC will review the Change of Use request and submit to NYSDEC.

E.2 SITE SECURITY

Site Security will be utilized to prevent access to the Site and vandalism or destruction of construction equipment, and to minimize health and safety concerns for surrounding properties. Currently the majority of the Site is covered by buildings, concrete, asphalt pavement, and/or millings, with some vegetated areas/landscaping.

In the event of any excavations or building demolitions, the area of excavation will be surrounded with an 8-foot security fence with a minimum of one gate that can be locked at the end of each working day. The fence will encompass the excavation, equipment, and soil storage areas, if any.

E.3 SOIL SCREENING METHODS

Visual, olfactory and instrument-based (e.g. photoionization detector) soil screening will be performed by a qualified environmental professional (QEP) during all excavations into known or potentially impacted material (remaining contamination). Soil screening will be performed when invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the No Further Action (NFA) letter.

Soils not exhibiting obvious signs of impacts may be reused on Site as backfill beneath a remedy-compliant cover comprised of at least 12 inches of soil meeting the lower of the NYSDEC Title 6 of the New York Codes, Rules and Regulations Part 375 (6 NYCRR 375) Commercial Use and Protection of Groundwater Soil Cleanup Objectives (SCOs), a building, or concrete, asphalt, or millings at least 6 inches in thickness. Soils exhibiting visual or olfactory evidence of impacts will be segregated for characterization and potential off-Site disposal.

Further discussion of off-Site disposal of materials and on-Site reuse is provided in Sections E.7 and E.8 of this Appendix.

E.4 SOIL STAGING METHODS

Any soils disturbed during excavation will be stockpiled in an on-Site staging area. Soil will be segregated into stockpiles based on screening performed as discussed in Section E.3 of this Appendix. Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters, and other discharge points.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced. Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook maintained at the Site and will be made available for inspection by NYSDEC upon request.

E.5 MATERIALS EXCAVATION AND LOAD-OUT

A QEP or person under their supervision will oversee all invasive work and excavation and load-out of all material not suitable for reuse. The owner or lessee of the property and its contractors are responsible for safe execution of all invasive and other work performed under this EWP.

The presence of utilities and easements on the Site will be investigated by a QEP. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the Site.

Loaded vehicles leaving the Site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate federal, state, local, and NYSDOT requirements (and all other applicable transportation requirements).

A truck wash will be operated on-Site, as appropriate. The QEP will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the Site until the activities performed under this section are complete. Truck wash waters will be collected and disposed of off-Site in an appropriate manner.

Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-Site soil tracking. The QEP will be responsible for ensuring that all egress points for truck and equipment transport from the Site are clean of dirt and other materials derived from the Site during intrusive excavation activities. Adjacent streets will be cleaned as needed in order to maintain a clean condition with respect to Site-derived materials.

E.6 MATERIALS TRANSPORT OFF-SITE

All materials transport will be performed by licensed haulers in accordance with appropriate federal, state, and local regulations, including 6 NYCRR 364. Haulers will be appropriately licensed and trucks properly placarded.

Material will be transported by trucks equipped with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

Truck transport routes will be developed for each project performed at the Site. This will allow the most efficient truck route with the least disturbance to remaining occupants of the Brooklyn Navy

Yard Industrial Park (BNYIP). All trucks loaded with Site materials will exit the vicinity of the Site using only these approved truck routes. The most appropriate route for each project will take into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of New York City-mapped truck routes; (c) prohibiting off-Site queuing of trucks entering the Site; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport.

Trucks will be prohibited from stopping and idling in the neighborhood outside the project Site. Off-Site queuing will be prohibited.

E.7 MATERIALS DISPOSAL OFF-SITE

All material removed from the Site will be treated as contaminated and regulated material and will be transported and disposed of in accordance with all federal, state (including 6 NYCRR 360), and local regulations. If disposal of material from this Site is proposed for unregulated off-Site disposal (i.e. clean soil removed for development purposes), a formal request, with an associated plan, will be made to NYSDEC. Unregulated off-Site management of materials from this Site will not occur without formal NYSDEC approval.

Off-Site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown of disposal facility by class, if appropriate - i.e., hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, construction/demolition (C/D) recycling facility, etc. Actual disposal quantities and associated documentation will be reported to NYSDEC in the Periodic Review Report (PRR). This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading, and facility receipts.

Non-hazardous historic fill and impacted soils taken off-Site will be handled, at minimum, as a Municipal Solid Waste per 6 NYCRR 360-1.2. Material that does not meet Part 375 Unrestricted Use SCOs is prohibited from being taken to a New York State recycling facility (6 NYCRR 360-16 Registration Facility).

E.8 MATERIALS REUSE ON-SITE

Excavated soils will be considered appropriate for reuse as on-Site backfill if the soil does not exhibit obvious signs of impacts. Soils not exhibiting obvious signs of impacts may be reused on Site as backfill beneath a remedy-compliant cover comprised of at least 12 inches of soil meeting the lower of NYSDEC Commercial Use and Protection of Groundwater SCOs as set forth in 6 NYCRR 375-6.8(b), a building, or concrete, asphalt, or millings at least 6 inches in thickness. Soils exhibiting obvious signs of impacts must be sampled prior to reuse below the Site-wide cover and must meet the lower of the Commercial Use and Protection of Groundwater SCOs and the Standards, Criteria, and Guidance (SCGs) set forth in Table 5.4(e)4 of *DER Technical Guidance for*

Site Investigation and Remediation (DER-10), included at the end of this Section. Soil will be stockpiled in accordance with Sections E.3 and E.4 of this EWP.

The QEP will ensure that procedures defined for materials reuse in the SMP are followed and that unacceptable material does not remain on-Site. Impacted on-Site material, including historic fill and impacted soil, that is acceptable for reuse on-Site will be placed below the demarcation layer or impervious surface, and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

Any demolition material proposed for reuse on-Site will be sampled for asbestos and the results will be reported to NYSDEC for acceptance. Concrete crushing or processing on-Site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing generated during Site redevelopment and/or remedial work will not be reused on Site.

Table 5.4(e)4
Reuse of Soil

Soil on the Site Meets:	Reuse on the Site:	Off-site Export & Reuse:
Unrestricted Soil SCGs	Without restrictions	Without restrictions
Meets the Applicable Use-based and Groundwater Protection SCG and where Appropriate Protection of Ecological Resources Soil SCGs for a Site w/ an Institutional Control (IC) & SMP.	In the soil cover/cap or as backfill within the area of the site subject to the IC.	Not Allowed, unless going to a site with IC subject to a 6 NYCRR 360 Beneficial Use Determination (BUD).
Meets Site-Specific Background Soil Levels.	Without restrictions. (Does not apply to sites in the BCP.)	Not Allowed, unless going to a site with IC subject to a 6 NYCRR 360 BUD.
Site-specific cleanup goals for subsurface soil	Placement below the soil cover/cap within the area of the site subject to the IC.	Not Allowed, unless going to a site with IC subject to a 6 NYCRR 360 BUD.

E.9 FLUIDS MANAGEMENT

All liquids to be removed from the Site including, but not limited to, excavation dewatering, decontamination waters, and groundwater monitoring well purge and development waters, will be handled, transported, and disposed of in accordance with applicable federal, state, and local regulations. Dewatering, purge, and development fluids will not be recharged back to the land surface or subsurface of the Site and will be managed off-Site unless prior approval is obtained from NYSDEC.

Impacted water originating from equipment decontamination, excavation dewatering, and monitoring well purging, will be pumped into storage tanks for off-Site disposal. A licensed liquid

waste hauler will remove, transport, and dispose of the liquid in compliance with all applicable regulations.

Discharge of water generated during large-scale construction activities to surface waters (i.e. a local pond, stream or river), if any, will be performed under a State Pollutant Discharge Elimination System (SPDES) permit.

E.10 SITE-WIDE COVER RESTORATION

After the completion of soil removal and any other invasive activities the Site-wide cover will be restored in a manner that complies with the Decision Document. The existing Site-wide cover is comprised of buildings, concrete and asphalt pavement, and millings. A demarcation layer will be placed to provide a visual reference to the top of the zone of remaining contamination, the zone that requires adherence to special conditions for disturbance of remaining impacted soils defined in the SMP. If the type of cover system changes from that which exists prior to the excavation (e.g., the building slab is replaced by soil cover), this will constitute a modification of the cover element of the remedy and the upper surface of the remaining contamination. A figure showing the modified surface will be included in the subsequent PRR and in an updated SMP.

E.11 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the Site will be approved by the QEP and will be in compliance with provisions in the SMP prior to receipt at the Site. A Request to Import/Reuse Fill or Soil form, which can be found at http://www.dec.ny.gov/regulations/67386.html, will be prepared and submitted to the NYSDEC Project Manager, allowing a minimum of five business days for review.

Material from industrial sites, spill sites or other environmental remediation sites, or potentially impacted sites will not be imported to the Site.

All imported soils will meet the backfill and cover soil quality standards established in 6 NYCRR 375-6.7(d). Approval will also be based on an evaluation of the land use, protection of groundwater, and protection of ecological resources criteria. Soils that meet ‘exempt’ fill requirements under 6 NYCRR 360, but do not meet backfill or cover soil objectives for this Site, will not be imported onto the Site without prior approval by NYSDEC. Solid waste will not be imported onto the Site.

Imported materials will be tested at a rate consistent with Table 5.4(e)10 of DER-10, included at the end of this Section. Samples will analyzed for Target Compound List (TCL) volatile organic compounds (VOCs), TCL semi-volatile organic compounds (SVOCs), TCL pesticides, TCL Aroclors, and Target Analyte List (TAL) metals. Sample collection will be performed in accordance with the Quality Assurance Project Plan (QAPP), included as Appendix G of the SMP.

Trucks entering the Site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

Table 5.4(e)10
Recommended Number of Soil Samples for Soil Imported To or Exported From a Site

Contaminant	VOCs	SVOCs, Inorganics & PCBs/Pesticides	
Soil Quantity (cubic yards)	**Discrete Samples**	**Composite**	**Discrete Samples/Composite**
0-50	1	1	3-5 discrete samples from different locations in the fill being provided will comprise a composite sample for analysis
50-100	2	1	
100-200	3	1	
200-300	4	1	
300-400	4	2	
400-500	5	2	
500-800	6	2	
800-1000	7	2	
> 1000	Add an additional 2 VOC and 1 composite for each additional 1000 Cubic yards or consult with DER		

E.12 STORMWATER POLLUTION PREVENTION

Smaller soil disturbances, such as those required for utility maintenance, conducted after issuance of the NFA letter, will likely not require coverage under the SPDES permit system or the preparation of a Stormwater Pollution Prevention Plan (SWPPP) due to the small size of the excavation.

For larger disturbances, such as in the event of a building demolition, a SWPPP and Notice of Intent (NOI) will be required as well as applicable inspections to maintain compliance with the SPDES permit system. Silt fencing or hay bales will be installed around the entire perimeter of the construction area. Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook maintained at the Site and will be made available for inspection by NYSDEC upon request. All necessary repairs shall be made immediately. Accumulated sediments will be removed as required to keep the barriers and hay bale checks functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.

E.13 CONTINGENCY PLAN

If underground storage tanks (USTs) or other previously unidentified sources for impacts to subsurface media are found during post-remedial subsurface excavations or development-related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Analyses will be performed for TCL VOCs, TCL SVOCs, TCL pesticides, TCL Aroclors, and TAL metals unless the Site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytical parameters will be proposed to NYSDEC for approval prior to sampling.

The NYSDEC Project Manager will be promptly notified in the event that unknown or unexpected impacted media is identified by screening during invasive Site work. Reportable quantities of petroleum product will also be reported to the NYSDEC Spills Hotline. These findings will be also included in the PRR in compliance with the SMP.

E.14 COMMUNITY AIR MONITORING

A Site-specific Community Air Monitoring Plan (CAMP) is contained in the HASP, included as Appendix F to the SMP. CAMP procedures will be implemented for all excavations on Site, regardless of size.

E.15 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors on- and off-Site. Specific odor control methods will be determined for each project to adequately address potential odors specific to that project. If nuisance odors are identified at the Site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and the New York State Department of Health (NYSDOH) will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the remedial party's Remediation Engineer, and any measures that are implemented will be discussed in the PRR.

All necessary means will be employed to prevent on- and off-Site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-Site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

E.16 DUST CONTROL PLAN

A dust suppression plan that addresses dust management during invasive on-site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved through the use of a dedicated on-Site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, un-vegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-Site roads will be limited in total area to minimize the area required for water truck sprinkling.

E.17 OTHER NUISANCES

A plan for rodent control will be developed and utilized by the contractor for all large excavation work that may be performed.

A plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinances.

Brooklyn Navy Yard
Development Corporation
BrooklynNavyYard.org

Building 77
141 Flushing Ave, Suite 801
Brooklyn, NY 11205

EXHIBIT K
SITE MANAGEMENT PLAN (SMP)

This project is located within the Voluntary Cleanup Agreement (VCA) area of the Brooklyn Navy Yard (BNY) site. Therefore, the Bidder must comply with all BNY Site Management Plan (SMP) requirements.

A copy of the BNY Site Management Plan (SMP) can be accessed by clicking the link below:

BNY SMP Compliance Documents

Brooklyn Navy Yard
Development Corporation
BrooklynNavyYard.org

Building 77
141 Flushing Ave, Suite 801
Brooklyn, NY 11205

EXHIBIT L
PROJECT DRAWINGS AND SPECIFICATIONS

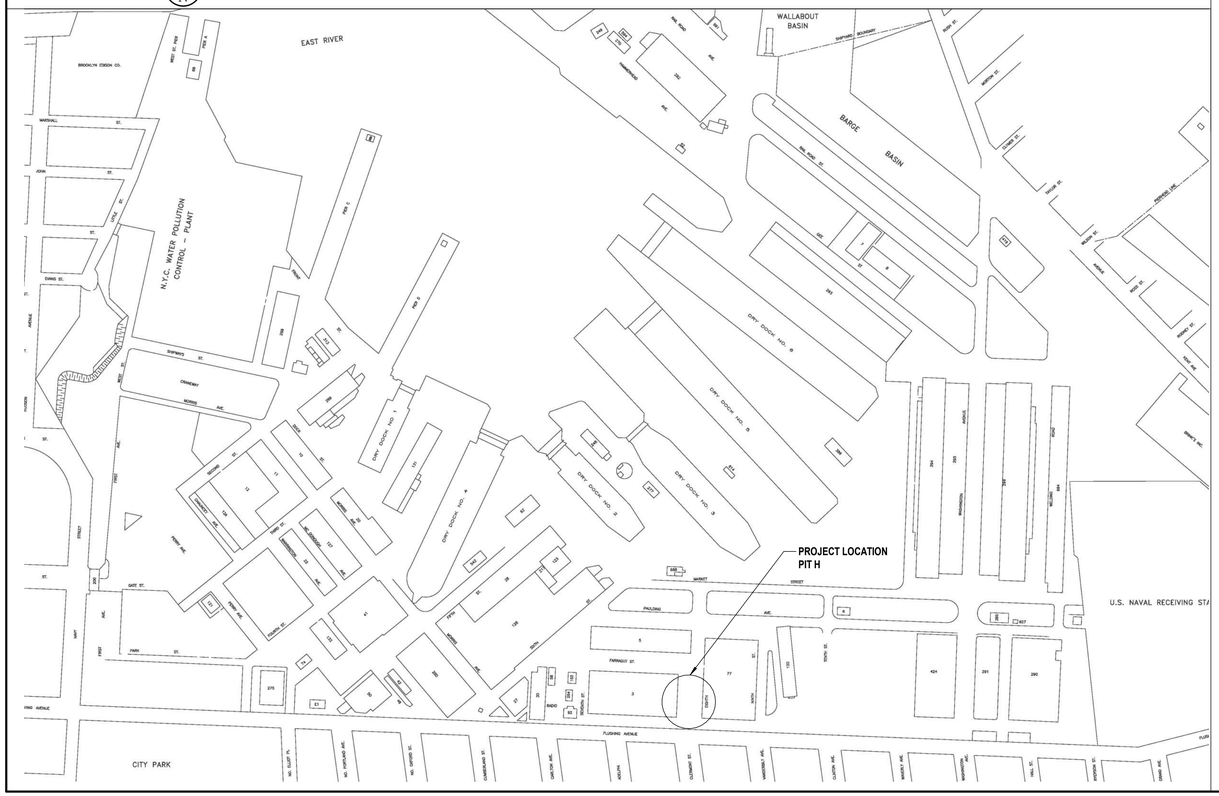
Brooklyn Navy Yard Development Corporation

Backflow Prevention Devices at Perimeter Feeds

BLOCK: 2023 LOT: 1 & 150 COUNTY: KINGS
63 FLUSHING AVE #300, BROOKYLN, NY 11205

BNYD1501
JUNE 2025

LOCATION MAP



DRAWING LIST	
Sheet Number	Sheet Name
T000	COVER SHEET
Z040	PIT H (BWSO LOCATION NO. 7) SITE PLAN, NOTES, AND ZONING
Z070	2007 FEMA PANELS 203F & 204F
Z071	2013 FEMA PANELS 203G & 204G
P000	GENERAL NOTES AND SPECIFICATIONS
P001	GENERAL NOTES AND SPECIFICATIONS
P040	PIT H (BWSO LOCATION NO. 7) SITE PIPING PLAN
P041	PIT H (BWSO LOCATION NO. 7) PIPING PLAN AND SECTIONS
P042	PIT H (BWSO LOCATION NO. 7) DIMENSIONAL SITE PLAN
P070	VAULT DETAILS
P071	WATER MAIN DETAILS
P080	SITE DISTRIBUTION MAP
S001	PILE SUPPORT BASE SLABS FOR VAULT H
S002	HELICAL PILE NOTES & DETAILS

H2M architects + engineers

538 Broad Hollow Road, 4th Floor East
Melville, NY 11747
631.756.8000 • www.h2m.com

NY Architecture & Landscape Architecture: No Certificate Required
NY Engineering Certificate of Authorization No.: 0018178

STATE OF NEW YORK · ROBERT J. LUCAS · LICENSED PROFESSIONAL ENGINEER · No. 081337

01/31/2027
Exp. Date

ROBERT J. LUCAS, P.E.
NY PROFESSIONAL ENGINEER Lic. No. 081337

"IN ACCORDANCE WITH ARTICLE 145, SECTION 7209 OF THE NYS EDUCATION LAW, ALTERATION OF THIS DOCUMENT EXCEPT BY A LICENSED PROFESSIONAL IS ILLEGAL."

DESIGNED BY:	DRAWN BY:	CHECKED BY:	REVIEWED BY:
TJM	AT		

PROJECT No:	DATE:	SCALE:
BNYD1501	JULY 2025	AS SHOWN

CLIENT

Brooklyn Navy Yard Development Corporation

Backflow Prevention Devices at Perimeter Feeds

63 Flushing Ave #300, Brooklyn, NY 11205

STATUS

FINAL BID DOCUMENT

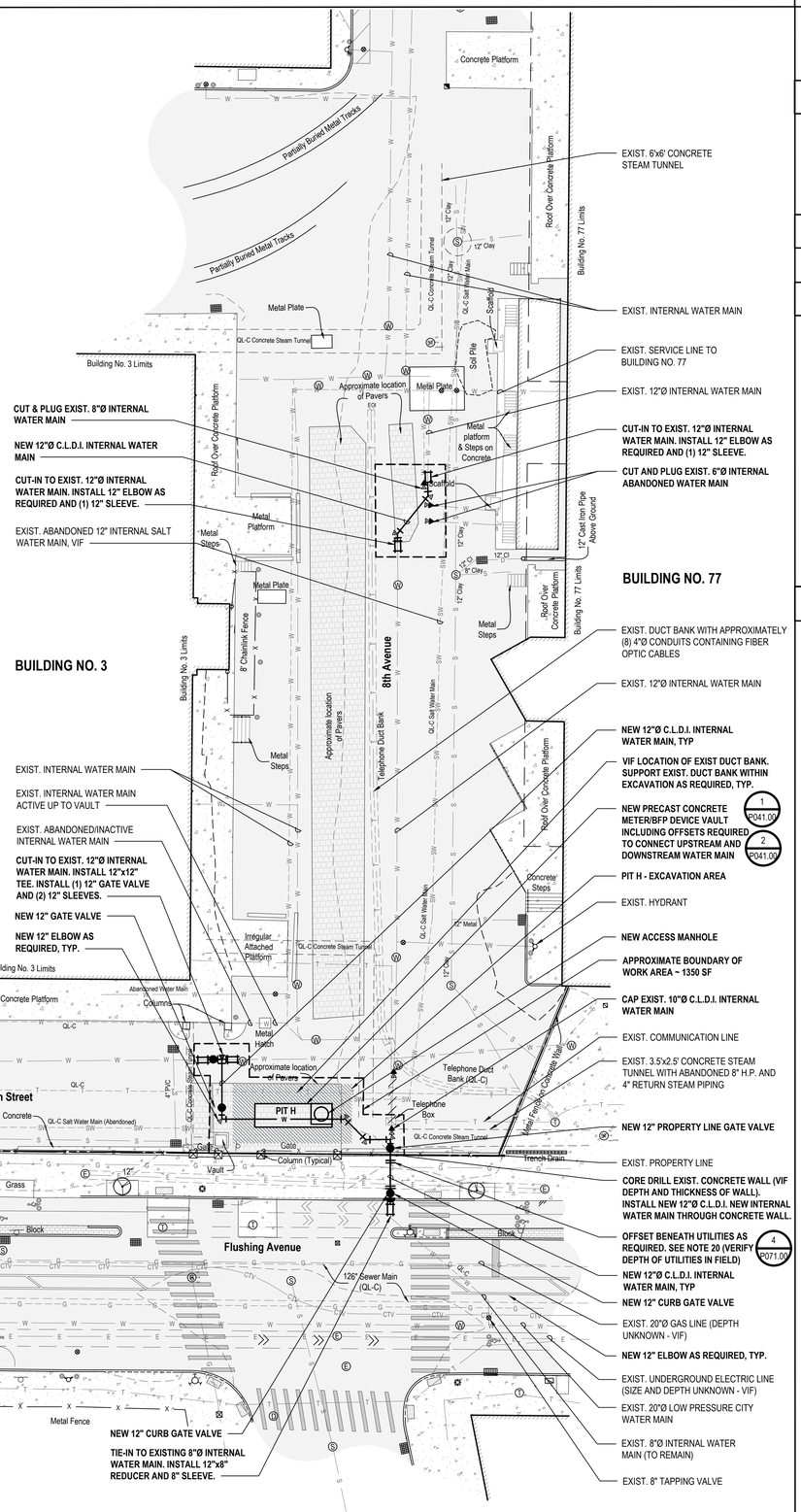
DRAWING No.

T000.00

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SITE PLAN:



SCOPE OF WORK :

FURNISH AND INSTALL NEW BACKFLOW PREVENTION DEVICES AND WATER METERS WITHIN NEW PRECAST CONCRETE ENCLOSURES TO COMPLY WITH NYC DEP CROSS CONNECTION CONTROL PROGRAM. THE ENCLOSURE IS AN UNOCCUPIED SPACE WITHOUT HEAT CONTROL. THE PURPOSE OF THE ENCLOSURE IS TO 1) PROVIDE ACCESS FOR DEVICE TESTING AND 2) HOUSE THE DEVICE BELOW THE FROST LINE TO PROTECT THE DEVICE FROM FREEZING WEATHER.

SPECIAL INSPECTION ITEMS :

CONCRETE - PRECAST.....BC 1704.4
CONCRETE - CAST-IN-PLACE.....BC 1704.4
HELICAL PILES (BB # 2014-020).....BC 1704.8.5
STRUCTURAL STABILITY.....BC 1704.20.1
EXCAVATIONS - SHEETING, SHORING, AND BRACING.....BC 1704.20.2
SUBSURFACE INVESTIGATIONS (BORINGS/TESTPITS).....BC 1704.7.1, BC 1704.7.2, BC 1704.7.3, & BC 1704.7.4
FLOOD ZONE COMPLIANCE.....BC 1704.29

PROGRESS INSPECTION ITEMS :

FINAL.....28-116.2.4.2, BC110.5, DIRECTIVE 14 OF 1975, AND RCNY 101-10

ENERGY CODE PROGRESS INSPECTION :

NONE

NOTES:

1. IN ACCORDANCE WITH SECTION BC 109.9, WHERE AN INSPECTION OR TEST FAILS, THE CONSTRUCTION SHALL BE CORRECTED.
2. IN ACCORDANCE WITH ARTICLE 116 OF TITLE 28 AND SECTION BC 109, CONSTRUCTION SHALL BE SCHEDULED TO ALLOW REQUIRED FOUNDATIONS,BASEMENTS AND ANY OTHER CONSTRUCTION SHALL NOT BE COVERED OR ENCLOSED UNTIL REQUIRED PROGRESS INSPECTIONS ARE COMPLETED OR THE PROGRESS INSPECTOR INDICATES THAT SUCH COVERING OR ENCLOSURE MAY PROCEED, AT EACH STAGE OF CONSTRUCTION, AS APPLICABLE.
3. ENERGY ANALYSIS OF CONSTRUCTED CONDITIONS. IN ACCORDANCE WITH SECTION 28-104.3 OF THE ADMINISTRATIVE CODE, IF CONSTRUCTED WORK DIFFERS FROM THE LAST-APPROVED FULL ENERGY ANALYSIS, AN AS-BUILT ENERGY ANALYSIS SHALL BE SUBMITTED AS A POST-APPROVAL AMENDMENT, LISTING THE ACTUAL VALUES USED IN THE BUILDING FOR ANN APPLICABLE ENERGY CODE-REGULATED ITEMS DEMONSTRATING THAT THE BUILDING COMPLIES WITH THE ENERGY CODE. SUCH ENERGY ANALYSIS SHALL BE SIGNED BY A REGISTERED DESIGN PROFESSIONAL, WHO SHALL CERTIFY THAT TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF THE BUILDING BUILT COMPLIES WITH THE ENERGY CODE; WHERE NO TRADE-OFFS HAVE BEEN USED AMONG DISCIPLINES, MORE THAN ONE REGISTERED DESIGN PROFESSIONAL MAY SIGN AND SEAL THE ENERGY ANALYSIS, THE ENERGY ANALYSIS SHALL BE APPROVED BY THE DEPARTMENT PRIOR TO SIGN-OFF OR ISSUANCE OF THE CERTIFICATE OF OCCUPANCY.
4. THIS WORK IS LOCATED WITHIN THE VCA AREA OF THE BNY SITE AND IS THEREFORE SUBJECT TO THE REQUIREMENTS OF THE SMP. REFER TO NOTE 34 ON SHEET P001.00.

ECCNYC CODE:

"TO THE BEST OF MY KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2014 NEW YORK CITY ENERGY CONSERVATION CODE."

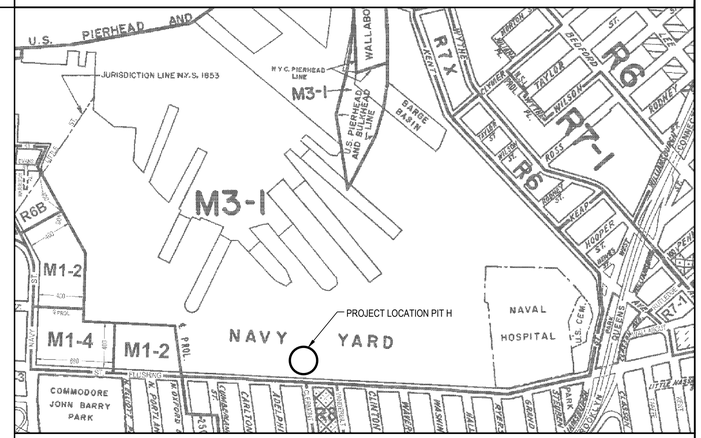
ENERGY ANALYSIS FOR ALTERATION / CLIMATE ZONE 4

ITEM	PROPOSED DESIGN VALUE	CODE PRESC. VALUE	SUPPORTING DOCUMENTS
N/A	N/A	N/A	N/A

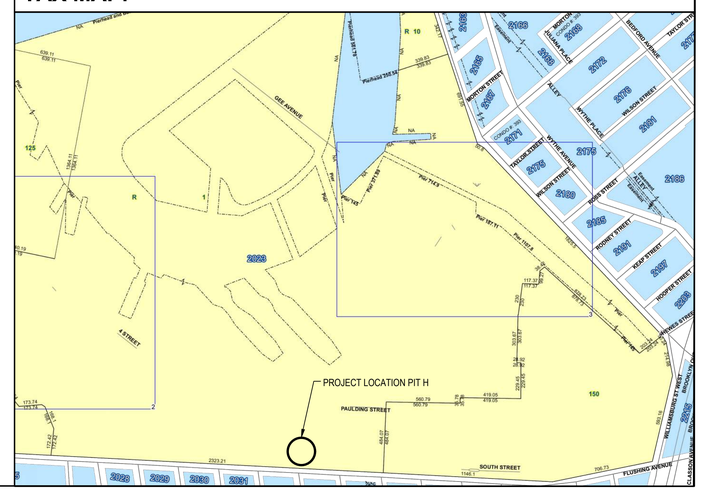
LEGEND:

- EXISTING WATER VALVE
- EXISTING HYDRANT ASSEMBLE
- EXISTING TEE
- EXISTING CROSS
- EXISTING REDUCER
- EXISTING PLUG
- EXISTING PLUG & BLOW-OFF
- EXISTING BENDS (ANGLES VARY)
- EXISTING SLEEVE
- PROPOSED WATER VALVE
- PROPOSED HYDRANT ASSEMBLY
- PROPOSED TEE
- PROPOSED CROSS
- PROPOSED REDUCER
- PROPOSED CAP/PLUG
- PROPOSED PLUG & BLOW-OFF
- PROPOSED BENDS WITH BLOCKING (ANGLES VARY)
- PROPOSED SLEEVE
- TRAFFIC SIGN
- UTILITY POLE
- DRAINAGE STRUCTURE
- CATCH BASIN
- SANITARY MANHOLE
- ELECTRICAL PULL BOX
- TELECOMMUNICATIONS PULL BOX
- STORM WATER MANHOLE
- MANHOLE
- LIGHT POLE
- EXISTING WATER MAIN
- ABANDONED WATER MAIN
- EXISTING WATER SERVICE
- EXISTING GAS MAIN
- EXISTING SANITARY SEWER
- EXISTING STORM DRAIN
- EXISTING OVERHEAD ELECTRIC
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND TELEPHONE
- EXISTING FENCE
- PROPOSED WATER MAIN
- PROPOSED WATER SERVICE
- PROPOSED FIRE SERVICE
- LOT LINE
- RIGHT OF WAY
- PROPERTY LINE
- EXISTING CURB
- EXISTING CONCRETE SIDEWALK/PAVING

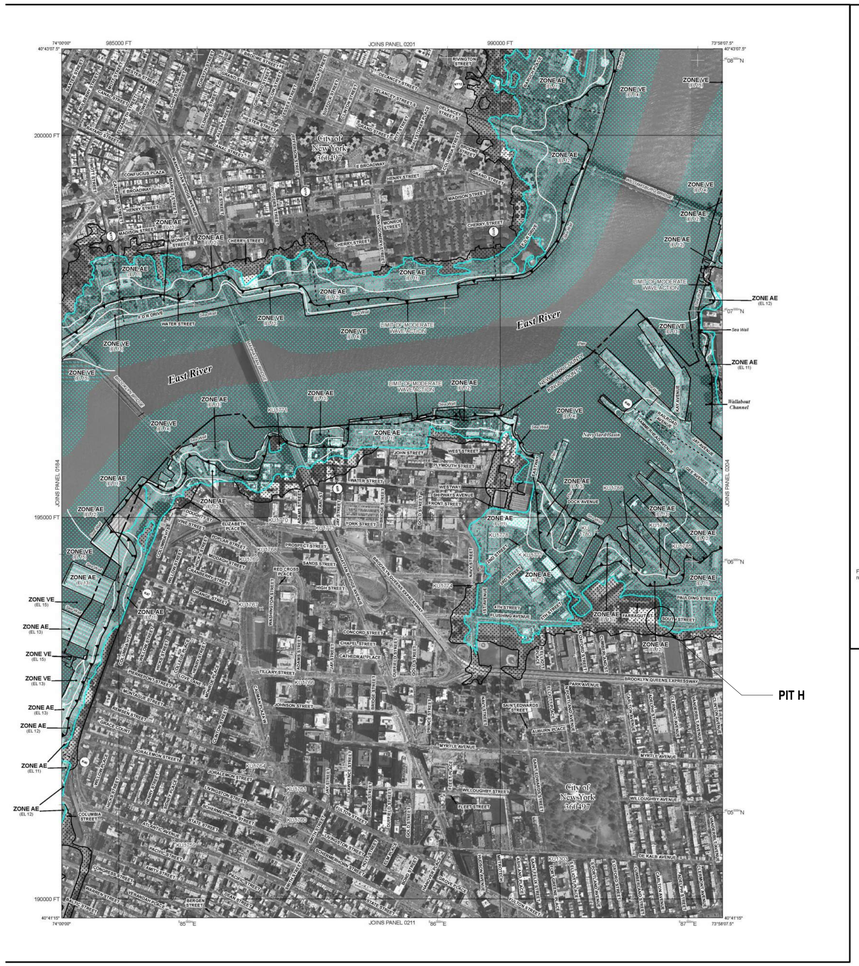
ZONING MAP :



TAX MAP:




985000 FT
990000 FT
995000 FT
JOINS PANEL 0201
JOINS PANEL 0202
JOINS PANEL 0211
JOINS PANEL 0212
JOINS PANEL 0104
JOINS PANEL 0204
JOINS PANEL 0103
JOINS PANEL 0203
200000 FT
195000 FT
190000 FT
74°00'00"W
73°58'53.8"W
40°43'57.5"N
40°41'15"N
ZONE X
ZONE AE
(EL 10)
ZONE VE
(EL 15)
East River
Wallabout Channel
PIT H
BROOKLYN NAVY YARD
(CITY OF NEW YORK PARK)
FLUSHING AVENUE
NAVY STREET
WASHINGTON AVENUE
CLINTON AVENUE
VANDERBILT AVENUE
CARLTON AVENUE
SANDERS STREET
HUDSON AVENUE
JAY STREET
TILLARY STREET
PARK AVENUE
MYRTLE AVENUE
WILLOUGHBY AVENUE
DEKALB AVENUE
GOLD STREET
BRIDGE STREET
FULTON STREET
ADAMS STREET
JOHNSON STREET
PEARL STREET
CONCORD STREET
NASSAU STREET
GOLD STREET
HOYT STREET
BOERUM PLACE
SMITH STREET
BOND STREET
NEVINS STREET
ATLANTIC AVENUE
FLATBUSH AVENUE
EXTENSION
BROOKLYN QUEENS EXPRESSWAY
SCHERMERHORN STREET
LIVINGSTON STREET
CADMAN PLAZA WEST
CADMAN PLAZA EAST
TILLARY STREET
JOHNSON STREET
JAY STREET
HIGH STREET
MAIN STREET
WATER STREET
DOCK STREET
ANCHORAGE PLACE
ADAMS



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- ZONE A — No Base Flood Elevations determined.
- ZONE AE — Base Flood Elevations determined.
- ZONE AH — Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR — Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99 — Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V — Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- Limit of Moderate Wave Action
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

- Cross-section line
- Transect line
- Culvert, Flume, Penstock or Aqueduct
- Road or Railroad Bridge
- Footbridge
- 87°07'45", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 1000-meter Universal Transverse Mercator grid values, zone 18
- 600000 FT — 5000-foot grid values: New York State Plane coordinate system, Long Island zone (FIPSZONE 3104), Lambert Conformal Conic projection
- Bench mark (see explanation in Notes to Users section of this FIRM panel)
- River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

INITIAL NFIP MAP DATE
June 28, 1974

FLOOD HAZARD BOUNDARY MAP REVISIONS
June 11, 1976

FLOOD INSURANCE RATE MAP EFFECTIVE
November 16, 1982

FLOOD INSURANCE RATE MAP REVISIONS

For descriptions of revisions see Notice to Users page in the Flood Insurance Study report.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'
250 0 500 1000 FEET
150 0 150 300 METERS

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0203G

FIRM
FLOOD INSURANCE RATE MAP

CITY OF:
NEW YORK
NEW YORK
BRONX, RICHMOND, NEW YORK, QUEENS, AND KINGS COUNTIES

PANEL 203 OF 457
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
NEW YORK, CITY OF	360497	0203	G

PRELIMINARY
DECEMBER 5, 2013

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
36049703G3

MAP REVISED

Federal Emergency Management Agency



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

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- 513 — Base Flood Elevation line and value; elevation in feet*
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MAP SCALE 1" = 500'
250 0 500 1000 FEET
150 0 150 300 METERS

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0204G

FIRM
FLOOD INSURANCE RATE MAP

CITY OF:
NEW YORK
NEW YORK
BRONX, RICHMOND, NEW YORK, QUEENS, AND KINGS COUNTIES

PANEL 204 OF 457
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
NEW YORK, CITY OF	360497	0204	G

PRELIMINARY
DECEMBER 5, 2013

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
36049704G

MAP REVISED

Federal Emergency Management Agency

NOTES:

1. PIT LOCATION IS WITHIN THE SPECIAL FLOOD HAZARD AREA "ZONE AE" AS DESIGNATED BY THE 2013 PFIRM MAP PANELS. A REVIEW OF THE 2015 PFIRM FOR THE AREA HAS RESULTED IN THE DETERMINATION THAT PRELIMINARY PANELS WERE NOT CREATED FOR THE PROJECT AREA. THEREFORE, ONLY THE 2007 FIRM AND 2013 PFIRM MAP PANELS HAVE BEEN INCLUDED.
2. THIS METER AND BACKFLOW PREVENTION DEVICE CONCRETE VAULT HAS BEEN DESIGNED INACCORDANCE WITH APPENDIX G - SECTIONS 303 & 304 AND CHAPTER 7 - ASCE 24, WITH FLOOD DAMAGE RESISTANT MATERIALS AND EQUIPMENT RATED FOR FULL SUBMERGENCE IN FLOOD WATERS OF ANY QUALITY IN ORDER TO MINIMIZE FLOOD DAMAGE TO THIS UNOCCUPIED STRUCTURE .
3. THE DUCTILE IRON WATER MAIN, THE CONCRETE VAULT HATCH, COVER, WALLS AND FLOOR, THE VARIOUS VALVES AND METERS SPECIFIED ARE ALL RATED FOR FULL SUBMERGENCE.
4. FULL SUBMERGENCE OF THE WATER MAIN IN FLOOD WATER WILL NOT IMPACT THE ABILITY TO TRANSMIT WATER THROUGHOUT THE YARD.
5. THERE ARE NO OTHER UTILITIES IN THIS VAULT THAT CAN BE DAMAGED BY FLOOD WATERS.
6. THIS VAULT IS DESIGNED TO FILL WITH FLOOD WATER TO EQUALIZE HYDROSTATIC FORCES AND PREVENT STRESS FROM THE EFFECTS OF BUOYANCY DURING CONDITIONS OF FLOODING.
7. PIT H IS LOCATED WITHIN THE VCA AREA OF THE BNY SITE AND ARE THEREFORE SUBJECT TO THE REQUIREMENTS OF THE SMP. REFER TO NOTE 34 ON SHEET P001.00.

H 2 M architects + engineers

538 Broad Hollow Road, 4th Floor East
Melville, NY 11747
631.756.8000 • www.h2m.com
NY Architecture & Landscape Architecture: No Certificate Required
NY Engineering Certificate of Authorization No.: 0018178

CONSULTANTS:

MARK	DATE	DESCRIPTION

STATE OF NEW YORK · ROBERT J. LUCAS · No. 081337 · LICENSED PROFESSIONAL ENGINEER

01/31/2027
Exp. Date

ROBERT J. LUCAS, P.E.
NY PROFESSIONAL ENGINEER Lic. No. 081337

"IN ACCORDANCE WITH ARTICLE 145, SECTION 7209 OF THE NYS EDUCATION LAW, ALTERATION OF THIS DOCUMENT EXCEPT BY A LICENSED PROFESSIONAL IS ILLEGAL."

DESIGNED BY:	DRAWN BY:	CHECKED BY:	REVIEWED BY:
TJM	TJM		

PROJECT No:	DATE:	SCALE:
BNYD1501	JULY 2025	AS SHOWN

CLIENT

Brooklyn Navy Yard Development Corporation

Backflow Prevention Devices at Perimeter Feeds

B N Y

Block: 2023 Lot: 1 County: Kings
63 Flushing Avenue, Unit #300
Brooklyn, NY 11205

STATUS

FINAL BID DOCUMENT

SHEET TITLE

2013 FEMA PANELS 203G & 204G

DRAWING No.

Z071.00

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GENERAL NOTES + SPECIFICATIONS

1. NOTIFICATION AND MISCELLANEOUS

(a) Notify the Owner and the Engineer prior to starting work, connecting to existing water main, chlorinating and flushing of water mains. BNYDC staff to operate existing isolation valves and verify water service to surrounding buildings as functional prior to work commencing in any area.

(b) The Contractor must provide advance notice of excavation to each operator of underground facilities listed in the Central Registry of the Borough of Brooklyn per Industrial Code 753 (cited as 16 NYCRR 753).

(c) The Contractor shall coordinate all shutdowns of existing mains with the Brooklyn Navy Yard and notify all consumers of shutdowns at least twenty-four (24) hours in advance of, and immediately prior to shutdown.

(d) Location and sizes of all existing water mains and valves shown on the drawings were determined from old records or field inspections. The actual sizes, locations and types shall be verified by the Contractor in the field. Existing pipe sizes to be verified in the field prior to purchase of connecting materials.

(e) Locations of all underground utilities, gas mains, electric and telephone conduits, and storm drains were obtained from old maps, surveys, drawings or records supplied by others or field inspections performed by utility companies and others. The Brooklyn Navy Yard Development Corporation (BNYDC) and the Consulting Engineers do NOT guarantee or accept responsibility for any damage to such facilities due to discrepancies in location and size shown on the Plans, nor will any compensation be made to the Contractor for any inconvenience caused him by encountering the aforementioned utilities which are not shown, or incorrectly shown on the plans.

(f) The Contractor shall perform daily clean-up operations which include sweeping of roadways, sidewalks, etc., removal of debris and excess construction material, all to the satisfaction of the Engineer and the proper road authority.

(g) The Contractor shall conform to the standard traffic requirements of the New York State Manual of Uniform Traffic Control Devices for work in Public Roadways.

(h) Miscellaneous work including protection of existing curbing; hand-digging around and bracing of poles and signs; removing and replacing mailboxes, signs, etc.; protection of underground utilities; crossing under, over or adjacent to underground utilities, surface or subsurface structures; sheeting required due to location of water main and close proximity of existing utilities, curbs, etc.; protection of pedestrian and vehicular traffic, etc., shall be included in the lump sum bid prices.

(i) Drawings do not include necessary components for construction safety. The Contractor should have his insurance company safety engineer visit the job site periodically.

(j) Bids shall be based on normal working conditions without frost in the ground.

2. SITE PROTECTION AND MISCELLANEOUS WORK

The Contractor shall perform, but not be limited to, the following miscellaneous work to install the water main at the proper location:

(a) The Contractor shall place a sufficiency of yellow, Type C steady burn lights on or near any work accessible to the public, and keep them burning sunset to sunrise; it shall erect suitable railings or barriers on the work as required and deemed necessary for the safety of the work.

Under no conditions are flares and mechanical equipment to be left on or operating overnight. ALL EXCAVATIONS ARE TO BE BACKFILLED BEFORE CLOSE OF DAY'S WORK. The entire work area is to be left in a safe condition.

The proposed project is in the vicinity of a developed area and it is the Contractor's responsibility to ensure that sufficient safety precautions are taken during the completion of this contract. Consequently, the Contractor will be responsible for any safety related problems that may occur.

The BNYDC reserves the right (after 24 hours notice in writing) to remedy any neglect on the part of the Contractor regarding the protection of the work which may come to its attention; except that in cases of emergency, it shall have the right to remedy any neglect without notice; and in either case to deduct the cost of such remedy from money due to the Contractor.

(b) Tunneling under or around existing drains, utilities, manholes or other irremovable structures.

(c) Hand digging around and bracing any poles, signs or other existing surface or subsurface structures.

(d) Tunneling under and protection of concrete curbs.

(e) Any sheeting required due to the location of the water main and proximity of existing utilities, curbs, sidewalks, driveway aprons, buildings, etc.

(f) Providing protection of underground utilities such as drains, electrical cables, gas mains, conduits, sewer and sewer laterals, etc., including additional costs to cross under, over or adjacent to these underground utilities.

(g) Installation and removal of temporary blow-offs for testing purposes including piping, curb valve and boxes.

(h) Installation of field lok gaskets at all push on joints and wedge type restraining glands at all mechanical connections.

(i) Installation of steel road plates to maintain traffic and protect open excavations during construction.

3. BURIED PIPE

C.L.D.I. Pipe: "Cement Lined Ductile Iron" water main, thickness class as indicated, with double thickness cement lining and push-on joints. A bituminous coating shall be applied to the outside and inside of all pipes by the manufacturer. Two (2) serrated silicon bronze wedges shall be driven in at each joint for electrical continuity.

THICKNESS CLASS FOR BURIED PIPE

PIPE SIZES (INCHES)	THICKNESS SPECIAL CLASS	THICKNESS (INCHES)
6"	56	.43
8"	56	.45
10"	56	.47
12"	56	.49
16"	56	.52

4. COVER

Pipe shall be installed to provide the following minimum cover to finished grade:

8-inch diameter - 4 feet, 0 inches
10-inch diameter - 4 feet, 0 inches
12-inch diameter - 4 feet, 0 inches
16-inch diameter - 4 feet, 0 inches

5. DRAINAGE PIPES AND SANITARY SEWERS

The water main shall be installed to provide a minimum 10-foot horizontal clearance between the main and both sanitary sewers and storm drains, where possible. Center one length of ductile iron water main at all sewer crossings and where passing adjacent to sewer manholes and drainage structures where 10-foot minimum clearance cannot be maintained.

Where water mains cross sanitary sewers, provide an 18-inch minimum vertical clearance.

Water mains crossing drainage piping shall be laid (18-inch minimum clearance vertically) under the drainage pipe unless specifically indicated to cross over on the Plans.

6. PRESSURE TESTING & BACTERIOLOGICAL TESTING

Water mains shall be chlorinated and tested in accordance with the latest edition of AWWA Standard C651, New York City Department of Environmental Protection (NYCDEP) requirements, and the Contract Specifications. Following the "cook" period, the main shall be flushed and pressure tested. The pressure test(s) shall be performed in accordance with the latest edition of AWWA Standard C600 with the following exception; no leakage will be allowed in new D.I.P. Following satisfactory pressure test results, the new main shall be flushed again until a chlorine residual representative of the typical operating parameters of the BNYDC is achieved and shall sit for a minimum of 3 hours prior to the collection of the first set of samples. The second set of samples shall be taken at least 24 hours after the first, and shall be representative of the water that has been in the pipe for 24 hours.

If any positive bacteriological sample results occur, the contractor shall cancel subsequent sampling and re-chlorinate all new piping before resuming sampling procedures.

Contractor shall furnish and install a 1" tap where directed by the engineer for pressure and bacteriological testing. When tests are satisfactorily completed, the copper tubing shall be removed.

7. a. BURIED VALVES AND VALVE BOXES (6", 8" 10" and 12")

Mechanical joint gate valves and sliding-type valve boxes shall be installed where indicated on the plans.

b. BURIED VALVES AND VALVE BOXES (16")

Mechanical joint butterfly valves and sliding-type valve boxes shall be installed where indicated on the plans.

8. SPECIAL CASTINGS

Cement-lined mechanical joint fittings shall be used with "push-on" joint pipe. Wedge type restraining glands shall be installed on all mechanical connections. In addition two ¾" galvanized steel tie rods with anchoring clamps and eye-bolts shall be utilized at all M.J. fittings. Duc-lugs shall not be permitted.

Only full-bodied fittings are approved for use.

9. BURIED VALVES AND VALVE BOXES

Mechanical joint resilient wedge gate valves shall be installed up to 12" in size. Butterfly valves shall be installed for sizes 16" or greater. All valves shall be provided with valve boxes. All valve boxes shall be 2-piece ductile iron sliding type with square drop-in cover.

10. CONNECTION TO EXISTING MAIN

Cut-ins to existing water mains to make connections shall be done in accordance with the BNYDC specifications. The existing mains are typically oversized cast iron. All costs for connecting to oversized existing mains shall be included in the lump sum bid price for each pit location.

Connection to the existing water main shall not be performed until after satisfactory pressure & bacteriological testing of the new main is complete. The contractor shall utilize a nearby hydrant and RPZ device to introduce water into the mains for testing purposes.

The contractor shall plan and coordinate the connections to the existing main with the affected consumers.

11. WATER MAIN SHUTDOWNS

The Contractor shall not operate any existing valves or hydrants. The BNYDC shall be notified 24 hours prior to the commencement of water main installation and 24 hours prior to requiring a shutdown on existing mains.

12. EXCAVATION

Any and all excavation necessary to complete the installation of the new main, precast concrete vaults and removal of all excess material off-site shall be included in the lump sum bid. All existing pavement, rails, pavers, reinforced concrete, cobble, etc. and all trench material excavated to install the new main and precast concrete structures and piping shall be removed and disposed of off-site and replaced with new, clean granular fill in accordance with the specifications. Soil and groundwater management is subject to SMP Compliance outlined in Note 34 on Drawing No. P001.

The Water Main Contractor shall submit to the engineer for review, details and calculations in accordance with OSHA requirements prepared by a qualified Professional Engineer Licensed in the State of New York, for the shoring method to be used for the Water Main and Precast Concrete Vault Installation. This submission will be forwarded to the Brooklyn Navy Yard for Review and Approval.

Open excavations on or adjacent to the Brooklyn Navy Yard must be secured safely with fencing, barricades and flashing lights or other methods.

13. ROCK AND MASONRY EXCAVATION

Rock and masonry rubble excavation shall be included in the lump sum bid. Past exploratory test holes made in the Navy Yard have revealed buried concrete rubble, stones and asphalt pieces.

14. TRENCH AND EXCAVATION COMPACTION

Trench compaction on all water main trenches and vault excavations shall be by the mechanical tamping method. Jetting of trenches will not be permitted. Backfilling and compaction shall be performed in 6" lifts.

15. DEWATERING OF TRENCHES

Dewatering via one or more methods may be necessary during the performance of the contract work. Ground water levels have been found 3'-0"± below grade, is believed to be tidal, and remains somewhat consistent throughout the Navy Yard. However, field conditions at time of construction may be considerably different. The cost of dewatering trenches, pits, excavated areas, permits etc. shall be included in the lump sum bid.

All dewatering is subject to NYCDEP/NYSDEC regulations and permits. See note 34 (n) on Drawing No. P001 for SMP requirements regarding off-site disposal of groundwater. If approval is given to discharge back into the excavation under a Jurisdictional Determination (JD) from NYSDEC, then the specific requirements outlined in the JD are to be followed.

16. TEST HOLES

Test holes shall be performed at all cut-in connection locations and utility crossing areas where the depth/ invert of the existing utility is unknown. Ground water level shall also be noted. The contractor shall dig all test holes prior to ordering materials and before any installation of new piping. The engineer shall be present during the test hole work. Test hole information shall dictate whether new water main crosses over or under a particular facility. Test holes may also be performed via vacuum extraction with spoils replaced with clean fill.

17. ACCESS WITHIN THE NAVY YARD

The contractor shall obtain a daily vehicle pass for all trucks, vans, cars etc. entering the Navy Yard. A roster of employees must be submitted to the Navy Yard by 2:00 p.m. on the day prior to that crew's work day. The Navy Yard will assist in having any stored vehicles from the various tenants moved prior to construction.

18. TEMPORARY ASPHALT PAVEMENT

Temporary asphaltic pavement shall consist of 2" thickness (compacted) hot plant mix and shall be installed in all areas where existing asphalt roadways, driveways, and sidewalks are removed to facilitate installation of new water main. All costs for the installation, maintenance, and removal of temporary asphalt pavement shall be included in the bid price.

19. FINAL RESTORATION

All areas disturbed during construction shall be permanently restored at the completion of the project, including but not limited to asphalt and concrete roadways/driveways, traffic islands, sidewalks, curb and grass/landscape areas.

As per SMP compliance restoration of the site cover will be 6" of asphalt pavement or concrete and 12" of topsoil that meets the SCOs for 6 NYCRR Part 375-6.7(d). In addition, approval is to be based on criteria for land use, groundwater protection, and ecological resources. Soil that meets the requirements for "exempt fill" under Part 360, but do not meet backfill or cover requirements of the SMP will not be imported to the site.

20. PERMITS AND WORKING HOURS

Working hours along roadways outside of the Brooklyn Navy Yard shall be as dictated in the appropriate Street Works Permit and coordinated with NYC DOT. The water main contractor shall make application and bear all costs for obtaining Street Works Permits for the appropriate agencies. All permits shall be in the name of the water main Contractor.

Working hours along roadways, sidewalks and driveways within the Brooklyn Navy Yard will be limited from 8am - 4pm.

The Contractor shall coordinate with New York City Department of Small Business Services and Local laws and ordinances of the City of New York and the Brooklyn Navy Yard Development Corporation.

The Contractor shall provide adequate time in the construction schedule for required permit inspections. A list of special permit inspections required on this project are attached to the project specifications as Appendix A.

The Contractor shall coordinate with NYCDEP to temporarily shutdown service feeds and obtain required permits.

21. APPROVAL

All work in conjunction with the water main, appurtenances and restoration shall be performed in accordance with the project specifications, to the approval of the Engineer and the BNYDC and in accordance with the New York State Sanitary Code.

The activation of the new water mains is dependent on the approval of construction of the NYC DEP Bureau of Water Supply operations and cross connections control unit.

Prior to activation of the new water main, satisfactory pressure and bacteriological tests shall be performed by the Contractor and approved by the Engineer.

22. MAINTENANCE & PROTECTION OF TRAFFIC (M.P.T.)

All costs for M.P.T., including lighting, flagmen, barrels, cones, signage, & arrow boards shall be included in the lump sum bid price for each pit location. MPT requirements shall be as stipulated in the appropriate road permits and be in accordance with the Manual of Uniform Traffic Control Devices. It is required that local traffic and emergency vehicles be granted access to all roads and residences along the proposed water main route at all times. The use of arrow boards & multiple flagmen may be required. The contractor shall provide the road agency with a M.P.T. plan suitable for issuance of the road opening permit and submit to the engineer for record prior to the commencement of work.

H2M architects + engineers
538 Broad Hollow Road, 4th Floor East
Melville, NY 11747
631.756.8000 • www.h2m.com
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CONSULTANTS:

MARK	DATE	DESCRIPTION

STATE OF NEW YORK • ROBERT J. LUCAS • No. 081331 • LICENSED PROFESSIONAL ENGINEER

01/31/2027
EXP. DATE

ROBERT J. LUCAS, P.E.
NY PROFESSIONAL ENGINEER Lic. No. 081337

"IN ACCORDANCE WITH ARTICLE 145, SECTION 7209 OF THE NYS EDUCATION LAW, ALTERATION OF THIS DOCUMENT EXCEPT BY LICENSE PROFESSIONAL IS ILLEGAL"

DESIGNED BY:	DRAWN BY:	CHECKED BY:	REVIEWED BY:
TJM	JMA		

PROJECT No.:	DATE:	SCALE:
BNYD1501	JULY 2025	AS SHOWN

CLIENT

Brooklyn Navy Yard Development Corporation

Backflow Prevention Devices at Perimeter Feeds

BNY

Block: 2023 Lot: 1 County: Kings
63 Flushing Avenue, Unit #300
Brooklyn, NY 11205

STATUS

REGULATORY REVIEW

SHEET TITLE

GENERAL NOTES AND SPECIFICATIONS

DRAWING No.

P000.00

X:\BNYD\ (Brooklyn Navy Yard) - 40700\BNYD1501 - BPOs at Meters and Various Bldgs\Proj.G. H & M\BIM-CAD\BNYD1501_P1_G & H Water Main Notes.dwg Last Modified: Jul 02, 2025 - 11:16am Plotted on: Jul 02, 2025 - 12:09pm By: mgolubinski

GENERAL NOTES + SPECIFICATIONS

23. INCOMPLETE UTILITY INFORMATION

The contractor shall test hole and locate top and bottom of all marked and known buried utility facilities, including Water, prior to performing any excavation. No additional payment will be made for delays associated with hitting of marked or mis-marked utilities due to lack of digging the proper size, quantity and depth of test holes. Digging of test holes shall be included in the lump sum bid price.

24. ADDITIONAL EXCAVATION & SHEETING

The contractor shall be responsible for installing sheeting and bracing in accordance with OSHA requirements. All costs associated with the installation of sheeting, bracing, and additional excavation required to install the new main and precast concrete vaults, due to the depth or proximity of existing utilities, including the existing water mains and services, shall be included in the bid price. The Contractor shall provide excavation support system drawings and calculations, stamped by a NYS professional engineer retained by the Contractor.

No additional payment shall be made for utility crossings where the depth of cover of the new main exceeds the minimum requirement of 4'-0".

Due to the depth and location of the required connections and utility crossings the duration of work may exceed working hours for the day. The contractor must request approval from the Engineer and Road Agency to keep an excavation open overnight. If approved, the contractor shall be responsible for safely protecting the open excavation, including the installation of steel plates, barriers, traffic barrels, signage, and warning lights, in accordance with NYC DOT Standards. All costs shall be included in the bid price.

25. NO ADDITIONAL PAYMENT

The contractor is responsible for installing the new water main & appurtenances to the limits shown on the plan at the lump sum bid price. No additional payment will be made for working on, in or around existing and abandoned utility facilities. Where necessary, abandoned facilities shall be removed and disposed of to accommodate installation of the new main.

26. PRECAST CONCRETE STRUCTURES

(a) All precast concrete structures shall be designed by a licensed New York State registered Professional Engineer. Each drawing for design shall be stamped and signed by a Professional Engineer. Precast concrete structures shall be manufactured in accordance with ATM C478, latest revision, and shall be designed for HS-20 Live Load latest revision.

(b) Precast concrete structures shall be of approved design and sufficient strength to withstand the loads to be imposed upon them. an approved watertight joint shall provided between precast concrete sections.

(c) Mark date of manufacture and name or trademark of manufacturer on inside of precast concrete chamber section.

(d) Sizes of precast concrete structures shall be as shown on the drawings.

(e) All concrete in precast units shall be stone aggregate and develop a strength of 4,000 psi at 28 days and shall conform to the following specifications:

All concrete furnished and installed for precast concrete vaults shall be in accordance with ACT 318 Code for Reinforced Concrete.

Materials: Cement- Portland Cement, ASTM C150, Type I or Type II. Admixtures- other than air entraining shall not be used. Air entraining admixture shall conform to ASTM C260. Air content of concrete with 3/4-inch maximum size aggregate shall be 6 percent plus or minus 1 percent volume.

Water: Clean and free from injurious amounts of oils, acids, alkalis, organic materials, or other substances. Aggregates: Shall conform to ASTM C33, latest revision. Course aggregate shall be size number 67 (nominal 3/4-inch to No. 4).

Proportions of materials in concrete and strength of concrete shall be subject to the following conditions: 1) Minimum 28-day compressive strength - 4,000psi, 2) Minimum water cement ration by weight - 0.45, 3) Minimum cement content 600 lbs/cubic yard.

(f) All precast concrete shall be manufactured by wet cast methods only, and shall be approved design.

(g) All precast concrete shall be reinforced. Reinforcing shall be designed for all applicable loads and forces encountered. Steel reinforcing shall be ASTM A 496-A 615 Grade 60-60 KSI.

(h) Prior to backfilling, all below grade exterior faces of the concrete structures shall be painted with two coats of sealer. The sealer shall be Bitumastic 300-M, a comparable grade of Carboline, or approved equal.

(i) Precast section shall be installed level on a flat stable subgrade. Where an unstable condition exists, the Contractor shall excavate the unstable material and replace with compacted granular material. All joints shall be filled inside and out with mortar to provide a smooth and continuous surface.

(j) Steps: Shall be installed in vertical alignment spaced 12-inches on center. In concrete sections the steps shall be cast into the section or secured with stainless steel bolts to threaded inserts which are precast into the concrete.

(k) Lifting holes shall be sealed tight with a solid rubber plug driven into hole and remaining void filled with a mix of 1 part cement and 2 part sand mortar.

(l) All precast concrete structures shall be free from visible leakage: each structure shall be tested for leaks and inspected and all leaks shall be repaired in a manner subject to the engineer's approval.

(m) Grading at chambers: All precast concrete structures in unpaved areas shall be constructed as shown or directed to an elevation or original ground. The ground surface shall be graded to drain away from structure. Fill shall be placed around them to a level of the upper rim of the frame and cover, and the surface evenly graded on 1 to 5 slope to the existing surrounding ground. The slope shall be covered with 12 inches of topsoil, seeded, and maintained. Topsoil must be part of Request to Import Fill material in EWP submission. All precast structures installed with or under pavement areas shall be constructed to an elevation, which permits the frame and cover to be set flush with the final paving grade.

(n) If vault is precast in three sections, a 6-inch butyl rubber gasket shall be incorporated between sections. Butyl rubber gasket shall meet ASTM C-990 requirements for butyl rubber sealant. Utilize "EZ-Stik" Pre-Formed Butyl Sealant manufactured by Press-Seal Gasket Corporation, or specifically approved equal.

27. HATCH COVER ASSEMBLY

(a) Hatch cover shall be a single leaf type assembly with extruded aluminum angle style frame and continuous anchor flange. Hatch cover and assembly shall be manufactured from 6061-T6 aluminum for bars, angles, and extrusions.

(b) Hatch leaf shall be manufactured from diamond plate, for H20 wheel loading aluminum. Each hatch shall be furnished with an aluminum hold open arm.

(c) Door lock shall open in 90° position and shall be supplied with an exposed padlock clip.

(d) Hinges shall be heavy-duty type, brass alloy, with 65,000 psi tensile strength, and a 3/4-inch Grade 316 stainless steel pin.

(e) Each hatch shall be furnished with an aluminum lift handle flush with top of diamond plate leaf. All aluminum shall have mill finish. all aluminum contact with concrete shall be coated with bituminous paint.

(f) Hatch cover assembly shall be as manufactured by Bilco, Model No. JAL-H20.

28. FRAMES AND COVER

(a) Made from best merchantable gray cast iron, tough, even-grained, and free from all flaws and injurious or unsightly defects, ASTM A48, Class 30, cast iron.

(b) Frame and covers shall be rated for HS-20 loading, latest revisions.

(c) All covers for catch basins shall be bicycle safe type covers.

(d) Letters to be cast on every manhole cover as shown on the drawings. If not detailed on drawings, covers for manhole vaults shall be provided with the designation "water."

(e) Machined to insure proper fit and even bearing in all positions.

(f) Properly clean castings and coat with asphaltic varnish applied by immersion, while the coating is hot.

(g) Frames and castings shall be set in a full bed of mortar a maximum of $\frac{1}{2}$" thick. Where required to adjust the frames and castings to grade there shall be installed to a maximum of four brick courses.

29. LARGE FLANGED PIPING

C.L.D.I Pipe: "Cement Lined Ductile Iron" water main, thickness class as directed, with double thickness cement lining and flanged joints. A Bituminous coating shall be applied to the inside of all pipes by manufacturer.

THICKNESS CLASS FOR POTABLE WATER PIPE

PIPE SIZES (INCHES)	THICKNESS SPECIAL CLASS	THICKNESS (INCHES)
6"	56	.43
8"	56	.45
10"	56	.47
12"	56	.49
16"	56	.52

30. FLANGED VALVES

The contractor shall provide AWWA C509, ductile iron body, OS&Y type, resilient wedge gate fully encapsulated with rubber, bronze trim, forged rising manganese bronze stem, stuffing box shall be triple o-ring seal, opening to the left.

31. BACKFLOW PREVENTION DEVICES

The DCV shall consist of two (2), internally spring-loaded check valves and two (2) OS&Y gate valves. The main body shall be cast iron construction with an FDA approved epoxy coating. The first and second checks shall be accessible for maintenance without removing the device from the line.

All check valve internal parts shall be easily accessible from the top of the device without removing the check valve body from the line. The device shall be suitable for installation in any position. The assembly shall be rated to 175 psi working pressure and shall withstand water temperatures to 140 degrees F.

32. CONSTRUCTION NOTES

(a) This plan and application has been filed for stated work only. Any revisions or changes to the scope of the work shall require amended plans and/or a separate application.

(b) The contractor shall check and verify all dimensions and notes.

(c) The contractor shall provide permanent sheet piling (where required) and temporary shoring of adjacent properties during excavation.

(d) Protection of adjoining properties shall be maintained in accordance with all applicable building codes, rules, and regulations.

(e) Safety of public and property to be maintained during construction operations in compliance wit article 19 B.C.

(f) No work shall commence until all necessary permits have been obtained by the contractor from all applicable agencies.

(g) Contractor to obtain and/or accommodate all required agency inspections, special inspections and sign-offs as required to obtain a new certificate of occupancy and/or letter of completion.

(h) All agreements between contractor and owner to be made using "AIA" standard documents.

(i) The architect shall not be responsible for methods of construction, or safety procedures or practices of contractors.

(j) The contractor shall repair all portions of the premises that are damaged during the course of his work.

(k) All material incorporated into work shall be new and conform to all current standards and specifications.

(l) Contractor is to pay for and obtain all permits from the department of small building services prior to the start of any work.

(m) Contractor shall properly shore, and make safe all foundations existing and adjacent to the property as job conditions require.

(n) All work listed on the construction note sheet and shown or implied on all drawings shall be supplied and installed by the general contractor. It is expected that the general contractor shall closely coordinate his work with that of the sub-contractors to assure that all schedules are met.

(o) The general contractor shall provide all necessary protection for his work until turned over to the owners.

(p) The general contractor shall provide necessary protection for his work until turned over to the owners.

(q) The general contractor shall furnish all labor and materials as required to complete demolition and removal of all items shown on architects drawings or required by the construction.

(r) All the work shall be installed in strict accordance with the requirements.

(s) All completed work shall be guaranteed under this contract for a period of one (1) year from the date of completion and acceptance by the owner. Acceptance shall be approval of final payment.

(t) The general contractor shall leave the premises in "broom clean" condition. All debris and equipment to be completely removed.

(u) The general contractor shall be responsible to schedule all necessary inspections from agencies responsible.

(v) All fees for permits required for the work shall be paid for by the general contractor as part of his contract price for the job.

(w) All work shall comply with applicable local and municipal building codes.

(x) The general contractor shall execute all work within the regulations of the NYC Building Department for Demolition and Debris Removal.

(y) The general contractor shall obtain a permit from the Department of Sanitation for excavated soils.

33. PROJECT DURATION AND PHASING

(a) The anticipated duration of construction for Pit H is 2 months.

(b) The contractor may only work on one location at a time as to minimize the disturbance to the water supply system.

(c) The Contractor shall utilize the area designated on the drawings for staging.

(e) The Contractor shall coordinate with the Engineer and the Special Inspector for the required permit inspections. The Contractor shall allocate time in the construction schedule for each required inspection.

(f) The Contractor shall submit excavation support system drawings and calculations, stamped by a NYS professional engineer retained by the Contractor, and a narrative describing the sequence of excavation for review and approval by the NYS DOB BEST Squad prior to beginning excavation.

34. SMP COMPLIANCE

(a) Construction work at the Brooklyn Navy Yard industrial park is required to comply with the site management plan (SMP) prepared by Core Environmental Consultants, Inc, latest date: 10/18/2022. Core is BNYDC's Environmental Consultant. An electronic copy of the SMP will be made available to the contractor.

(b) The contractor will be required to review and conform to the excavation work plan (EWP) included in appendix e of the SMP. Contractor shall sign the excavation work plan certification provided by BNYDC.

(c) The contractor will be required to follow the Health And Safety Plan (HASP) included in appendix F of the SMP.

a. The contractor must designate a site Health And Safety Officer (HSO).

(d) All personnel who will be involved with earthwork (excavation, trenching, sampling or any activity that results in a cover breach) on site must have completed the appropriate 40-hour OSHA Hazwoper site worker training. The contractor shall submit these certificates to BNYDC prior to work.

(e) This project constitiues a major cover breach. Prior ground intrusive acitvities a 60-day advance notice submission is required to be submitted to NYSDEC. The submission includes a site specific excavation work plan. Core will be responsible for submitting the notification and EWP. In order to prepare the EWP, the contractor shall submit the following information to core:

a. Scope Of Work of Ground Intrusive Activities
b. Schedule
c. Proposed Backfill Materials
d. Proposed Disposal Facilities
e. Dewatering Information
f. Hazwoper Certificates
g. Details Of Cover Restoration

(f) Excavated soils will be considered appropriate for reuse as on-site backfill if the soil does not exhibit obvious signs of impacts, as determined by Core.

(g) The contractor shall submit a request to import fill form to Core environmental prior to importing backfill materials to the site. Imported materials will be tested at a rate consistent with Table 5.4(E)10 of DER-10, included in the appendix E of the SMP.

(h) The following material may be imported, without chemical testing, to be used as backfill beneath pavement, buildings or as part of the final site cover, provided that it contains less than 10% by weight material which would pass through a size 80 sieve and consists of:

a. Gravel, rock or stone, consisting of virgin material from a permitted mine or quarry; or

b. recycled concrete or brick from a dec registered construction and demolition debris processing facility if the material conforms to the requirements of Section 304 of the New York State Department Of Transportation Standard Specifications Construction And Materials Volume 1 (2002).

c. ASTM #57, approved source NYS 10-12R from New York stand and stone

(i) As part of the bid, the contractor shall identify a potential disposal facility in the event that excavated soil is determined to be inadequate for on-site re-use. The contractor shall assume that any soil deemed to be inadequate for on-site re-use is non-hazardous. Any proposed disposal facility shall be permitted to accept non-hazardous historic fill. An alternative facility should be provided for soil that may be potentially hazardous or contain PCB contamination.

(j) Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-site soil tracking. The QEP will be responsible for ensuring that all egress points for truck and equipment transport from the Site are clean of dirt and other materials derived from the Site during intrusive excavation activities. Adjacent streets will be cleaned as needed to maintain a clean condition with respect to site-derived materials.

(k) All intrusive work is subject to the site-specific community air monitoring plan (CAMP). An on-site QEP (Core) will be present during all intrusive activities and will perform CAMP monitoring as part of this project. The contractor shall be responsible for controlling any dust generated as part of the work. The contractor shall apply dust-control methods at the request of the QEP and/or BNY in the event that dust is observed or CAMP monitoring indicates that dust is migrating out of the work area. If the dust suppression methods performed by the contractor as directed by the QEP fail to reduce the downwind particulate matter concentration from exceeding 150µg/m3 more the particulate matter concentration being measured upwind of the excavation for a duration extending beyond 15 minutes, the work must halt until additional dust suppression measure are implemented. The contractor is not responsible for performing any CAMP monitoring.

(l) In the event that inadequate soil is excavated and must be disposed of off-site, the contractor shall be prepared to stage this soil in an on-site staging area. Soil shall be segregated into stockpiles based on QEP screening. Soil stockpiles shall be continuously encircled with a berm and/or silt fence. Hay bales shall be used as needed near catch basins, surface waters, and other discharge points. Stockpiles shall be kept covered at all times with appropriately anchored tarps. Stockpiles shall be routinely inspected and damaged tarp covers shall be promptly replaced. In the event that an on-site soil staging area is necessary the BNY will authorize construction of this staging area, in writing, and the contractor shall submit a cost to construct this area and stage the soil for the review and approval by the BNY. Stockpiles will be staged on top of polyurethane sheeting so the soil is not contacting the cover surface, in addition to being surrounded by silt fence to prevent soil from eroding. Stockpiles not actively being used for a period greater than 14 days must be stabilized with sod.

(m) In the event that inadequate soil must be disposed of off-site, the contractor shall arrange for all soils to be properly transported off-site. All loaded vehicles leaving the site shall be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate federal, state (including 6 NYCRR PART 360), local, and NYSDOT requirements, as well as any other applicable transportation requirements.

(n) All liquids to be removed from the site including, but not limited to, excavation dewatering, decontamination waters, and groundwater monitoring well purge and development waters, will be handled, transported, and disposed of in accordance with applicable federal, state, and local regulations. The contractor shall be responsible for sampling dewatering fluids, determining the level of contamination of the water, and determining the appropriate disposal method. In the event that dewatering fluid is determined to be contaminated and special off-site disposal is required, the contractor shall be responsible for obtaining and providing the bnydc with disposal manifests for this waste stream. Dewatering, purge, and development fluids will not be recharged back to the land surface or subsurface on the site and will be managed off-site unless prior approval is obtained from NYSDEC.

(o) If underground storage tanks (USTS) or previously unidentified sources for impacts to subsurface media are found during development-related construction, excavation activities shall be suspended until sufficient equipment is mobilized to address the condition.

(p) If nuisance odors are identified at the site boundary, or if odor complaints are received as a result of the work being performed, work shall be halted and the source of odors shall be identified and corrected. Work shall not resume until all nuisance odors have been abated. NYSDEC and the New York State Department of Health (NYSDOH) will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the QEP.

(q) After the completion of soil removal and any other intrusive activities, the site-wide cover shall be restored in a manner that complies with the SMP. The existing site-wide cover is comprised of buildings, concrete, and asphalt pavement, and millings. The restored site-wide covered shall be comprised of at least 12 inches of soil meeting the commercial use SCOS as set forth in 6 NYCRR PART 375-6.7(B), a building, or concrete, asphalt, or millings at least 6 inches in thickness.

(r) The contractor is to submit the following information and deliverables to the QEP as soon as reasonably possible for the Major Cover Breach Notification to NYSDEC:

A) Excavation Work Plan (EWP) including:
- Earthwork Scope of Work and construction phasing
- Estimated volume of excavated material
- Excavation locations and dimensions
- Site security details
- Personnel training requirements and associated training certification
- Estimated volume of soil to be disposed of off site
- Backfill submittals, request to import fill form, and analytical testing (if required)

B) Contractor's Health & Safety Plan (HASP).
C) Contractor EWP Certification.
D) Completed NYSDEC Request to Import Fill Form with certified design specs from source providing the imported fill material.
E) Excavated Materials Disposal Work Plan (EMDWP). This document addresses in further detail information also included in the EWP pertaining to the specific details of the soil disposal. This includes:
- Waste characterization plan (sampling methodology, sample locations, sample frequency, and analytical parameters that are being used to determine the soil disposal facility)
- Proposed disposal facilities - hazardous soil, non-hazardous soil, and PCB impacted soil
- Waste profiles (signed by the contractor/consultant performing the waste characterization)
- Disposal facility approval letters
- Disposal facility permits
- Transporter permits

35. REGULATION AND CODE COMPLIANCE

The Contractor shall comply with and perform all work in accordance with the following regulations and codes:

(a) NYC Building, Plumbing, Energy and Fire Code 2014
(b) Appendix G: Flood Resistant Construction
(c) Chapter 7 - ASCE 24
(d) Industrial Code 753
(e) NYC DEP Cross Connection Control Program
(f) 29CFR 1910.120
(g) 6NYCRR 375
(h) NYS DEC Site Management Plan for BNYDC
(i) Part 5 of the NYS Sanitary Code

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CONSULTANTS:

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STATE OF NEW YORK · ROBERT J. LUCAS · No. 081337 · LICENSED PROFESSIONAL ENGINEER

01/31/2027
EXP. DATE

ROBERT J. LUCAS, P.E.
NY PROFESSIONAL ENGINEER Lic. No: 081337

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PROJECT No.:	DATE:	SCALE:
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CLIENT

Brooklyn Navy Yard Development Corporation

Backflow Prevention Devices at Perimeter Feeds

BNY

Block: 2023 Lot: 1 County: Kings
63 Flushing Avenue, Unit #300
Brooklyn, NY 11205

STATUS

REGULATORY REVIEW

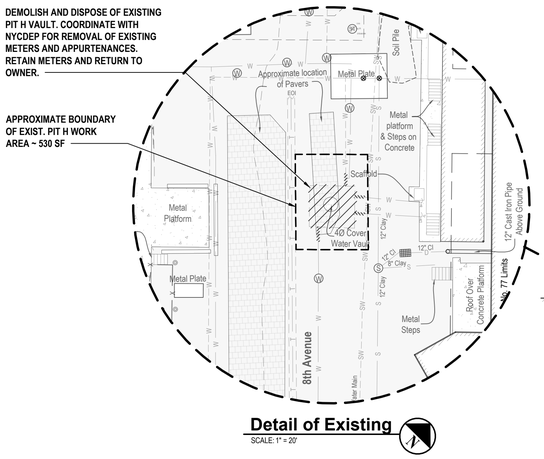
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GENERAL NOTES AND SPECIFICATIONS

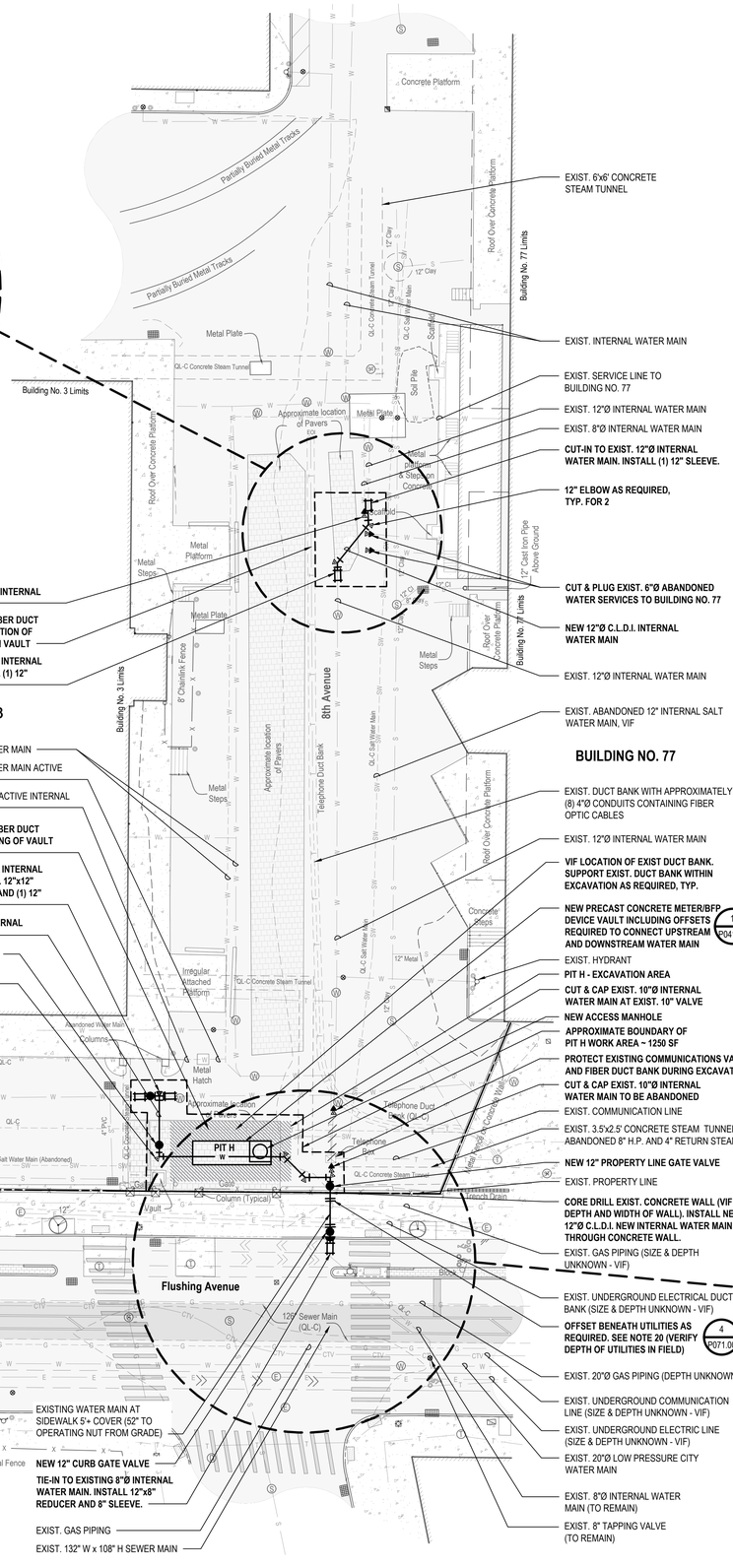
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P001.00

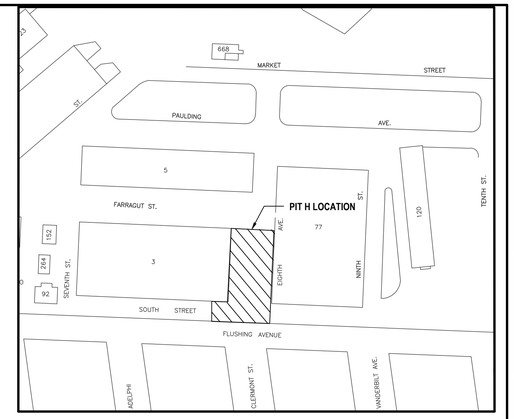
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Detail of Existing
SCALE: 1" = 20'



Location Map
SCALE: NTS

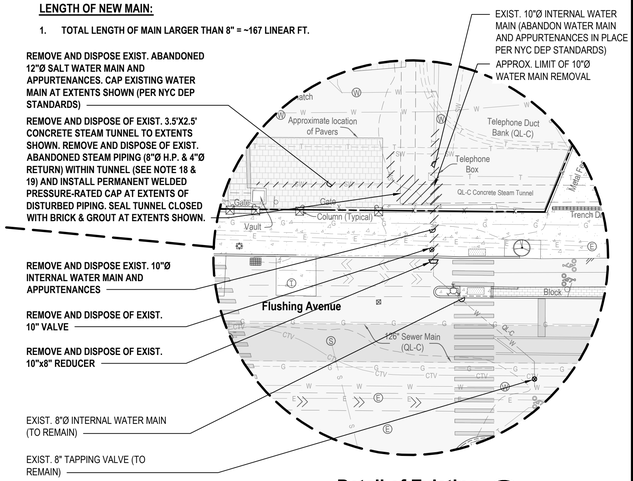


GENERAL NOTES:

1. ALL FITTINGS SHALL BE FULL BODY TYPE (AWWA C110).
2. ALL MECHANICAL JOINTS SHALL UTILIZE WEDGE TYPE RESTRAINING GLANDS.
3. ALL PUSH-ON JOINTS SHALL INCORPORATE LOCKING TYPE GASKETS.
4. ALL ASPHALT DRIVEWAYS, PARKING LOTS, ROADWAYS AND OR CONCRETE AREAS DISTURBED DURING CONSTRUCTION SHALL BE REPLACED IN KIND. AFTER CONSTRUCTION IS COMPLETE, THE SITE SHALL BE RESTORED WITH FULL DEPTH (6") ASPHALT REPLACEMENT IN COMPLIANCE WITH THE SMP. THIS INCLUDES NYC DOT BOTTOM COURSE (NOS. 1, 2, AND 4 STONE), NYC DOT BINDER COURSE (TYPE 3) AND NYC DOT WEARING COURSE (TYPE 6F).
5. ANY VEGETATED AREAS NOT COVERED BY BUILDINGS, ROADS, OR PARKING LOTS (I.E. LANDSCAPED AREAS) SHALL BE COVERED BY A 1-FOOT THICK SOIL COVER CONSISTING OF SOIL THAT MEETS NYSDEC SCOS FOR COMMERCIAL USE UNDERLAIN BY A DEMARCATION LAYER TO DELINEATE THE COVER SOIL FROM THE SUBSURFACE SOIL. THE TOP 6-INCHES OF SOIL MUST BE OF SUFFICIENT QUALITY TO SUPPORT VEGETATION.
6. ALL CONNECTIONS ON THE DOMESTIC WATER SERVICE SHALL BE DOWNSTREAM FROM BACKFLOW PREVENTION DEVICE. BYPASSING OF A BACKFLOW PREVENTION DEVICE IS A VIOLATION OF NEW YORK STATE HEALTH DEPARTMENT RULES AND REGULATIONS.
7. INSTALLATION SHALL BE IN ACCORDANCE WITH ALL APPLICABLE NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND NEW YORK STATE HEALTH DEPARTMENT REGULATIONS. BACKFLOW PREVENTION DEVICES SHALL BE INDICATED ON NEW YORK STATE DEPARTMENT OF HEALTH ACCEPTABLE LIST.
8. SERVICE PIPING TO BE UNBRANCHED AND UNOBSTRUCTED FROM MAIN TO THE DEVICE EXCEPT FOR METER.
9. A NEW YORK STATE HEALTH DEPARTMENT CERTIFIED BACKFLOW PREVENTION DEVICE TESTER SHALL TEST THE REDUCED PRESSURE ZONE DEVICE ON INSTALLATION AND AT LEAST ANNUALLY WITH RESULTS REPORTED TO NEW YORK CITY D.E.P ON N.Y. STATE FORM GEN 215.
10. THE PLUMBER SHALL BE LICENSED BY THE CITY OF NEW YORK.
11. ALL THE WORK SHALL BE DONE PER DEP RULES AND REGULATIONS.
12. TEST COCKS SHALL BE POSITIONED FROM FREEZING AND FLOODING.
13. ALL BACKFLOW ASSEMBLIES MUST BE TESTED BY A NEW YORK STATE CERTIFIED BACKFLOW PREVENTION DEVICE INSPECTOR AND THE RESULTS FORWARD TO THE N.Y.C.D.E.P. WITHIN 30 DAYS OF INSTALLATION.
14. ALL PIPING BETWEEN THE POINT OF ENTRY AND THE BACKFLOW PREVENTION DEVICE SHALL BE STENCILED WITH "FEED TO BACKFLOW PREVENTER. DO NOT TAP OR CONNECT TO THIS LINE." PIPING SHALL BE MARKED WITH 1-INCH HIGH WHITE LETTERING ON DARK BACKGROUND AT 5-FOOT INTERVALS.
15. ALL NEW PIPING SHALL BE CLASS 56, CEMENT-LINED DUCTILE IRON (CLDI). MINIMUM DEPTH OF COVER SHALL BE 4'-0".
16. COORDINATE WITH NYC DEPARTMENT OF ENVIRONMENTAL PROTECTION FOR SHUTDOWN & SCHEDULING OF ALL WORK IN FLUSHING AVE.
17. ASBESTOS CONTAINING PAVERS HAVE BEEN IDENTIFIED AT THE PIT H LOCATIONS. LOCATIONS OF ASBESTOS CONTAINING PAVERS SHOWN ON THE DRAWING ARE APPROXIMATE AND PAVERS MAY EXIST OUTSIDE OF THE AREAS SHOWN. CONTRACTOR TO ASSUME ASBESTOS CONTAINING PAVERS AT ALL WORKS LOCATIONS WITHIN THE PROPERTY LINES. CONTRACTOR TO REMOVE ASBESTOS CONTAINING PAVERS AND THE SETTING BED FOR THE PAVERS. ASBESTOS ABATEMENT WORK SHALL CONFORM TO ALL APPLICABLE FEDERAL AND STATE CODE REQUIREMENTS. CONTRACTOR SHALL PAY FOR AND SECURE ALL PERMIT AND NOTIFICATIONS REQUIRED FOR ASBESTOS ABATEMENT WORK. ALL WORK RELATED TO ASBESTOS PAVER ABATEMENT SHALL BE PAID FOR OUT OF THE ASSOCIATED CONTRACT ITEM.
18. ALL WATER MAIN MUST BE INSTALLED AT A DEPTH OF AT LEAST FOUR (4) FEET AND NO MORE THAN SIX (6) FEET BELOW GRADE AT UTILITY CROSSINGS.
19. EXIST. ABANDONED STEAM PIPING MAY BE WRAPPED IN ASBESTOS CONTAINING INSULATION. ASBESTOS ABATEMENT WORK ASSOCIATED WITH REMOVAL OF PIPING AND INSULATION SHALL CONFORM TO ALL APPLICABLE FEDERAL AND STATE CODE REQUIREMENTS. CONTRACTOR SHALL PAY FOR AND SECURE ALL PERMIT AND NOTIFICATIONS REQUIRED FOR ASBESTOS ABATEMENT WORK. ALL WORK RELATED TO ASBESTOS INSULATION ABATEMENT SHALL BE PAID FOR OUT OF THE ASSOCIATED CONTRACT ITEM.
20. HIGH-PRESSURE STEAM PIPE:
    - A) ALL WORK TAKING PLACE ON HIGH-PRESSURE STEAM PIPE MUST BEGIN BETWEEN APRIL 15 AND JUNE 15.
    - B) ALL WORK TAKING PLACE ON HIGH-PRESSURE STEAM PIPE MUST BE COMPLETE NO LATER THAN AUGUST 31.
    - C) NOTIFICATION OF INTENT TO WORK ON HIGH-PRESSURE STEAM PIPE MUST BE RECEIVED BY BNY PROJECT MANAGER 7 DAYS PRIOR TO WORK START TO CONFIRM LINE IS INACTIVE.
    - D) NOTIFICATION TO BE RECEIVED BY BNY PROJECT MANAGER DAY OF WORK START TO CONFIRM HIGH-PRESSURE STEAM LINE WILL REMAIN INACTIVE FOR THE ENTIRE DURATION OF WORK TAKING PLACE.
21. ALL WATER MAIN MUST BE INSTALLED AT A DEPTH OF AT LEAST FOUR (4) FEET AND NO MORE THAN SIX (6) FEET BELOW GRADE AT UTILITY CROSSINGS. CONTRACTOR SHALL FOLLOW THE EXISTING PATH OF THE RELAY CONNECTION.

LENGTH OF NEW MAIN:

1. TOTAL LENGTH OF MAIN LARGER THAN 8" = ~167 LINEAR FT.



Detail of Existing
SCALE: 1" = 20'

GRAPHIC SCALE
20 0 10 20
(IN FEET)
1 inch = 20 ft.

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MARK	DATE	DESCRIPTION

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PROJECT No.:	DATE:	SCALE:
BNYD1501	JULY 2025	AS SHOWN

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Brooklyn Navy Yard Development Corporation

Backflow Prevention Devices at Perimeter Feeds

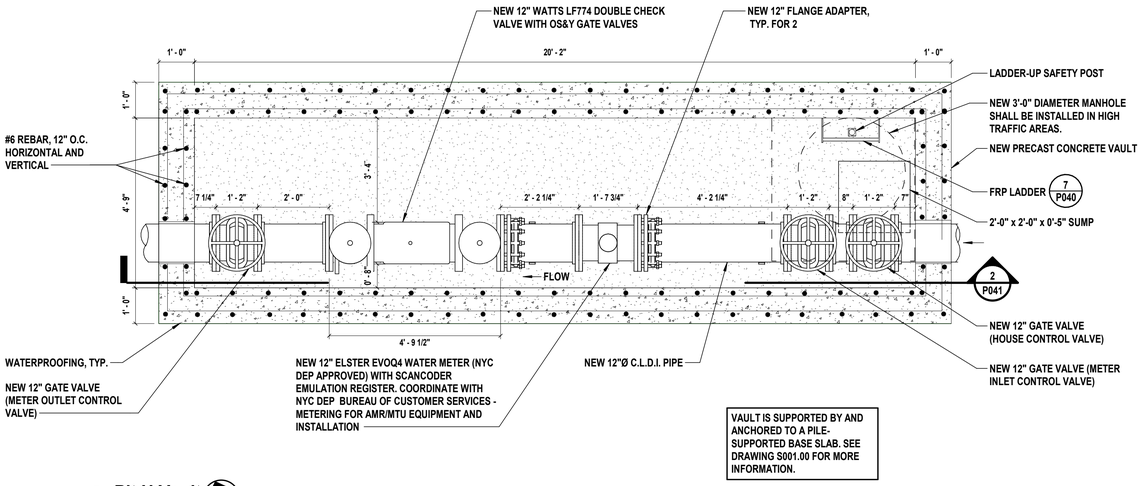
Block: 2023 Lot: 1 County: Kings
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STATUS
FINAL BID DOCUMENT

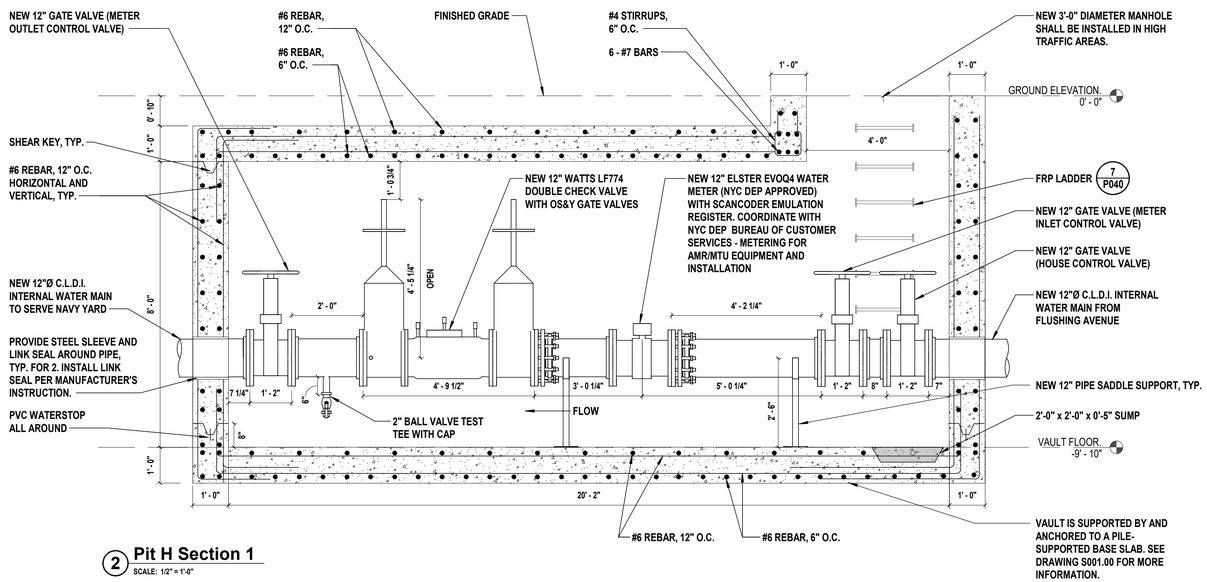
SHEET TITLE
PIT G & H (BWSO LOCATION NO. 7) SITE PIPING PLAN

DRAWING No.
P040.00

X:\BNYD (Brooklyn Navy Yard) - 40700\BNYD1501 - BPDs at Meters and Various Bldgs\Pde G, H & N\BIM-CAD\BNYD1501_P(-G & H Site Piping_FINAL.CDR (dwg) Last Modified: Jul 28, 2025 - 12:39pm Plotted on: Jul 28, 2025 - 12:39pm By royalinski



1 **Pit H Vault**
SCALE: 1/2" = 1'-0"



2 **Pit H Section 1**
SCALE: 1/2" = 1'-0"

GENERAL NOTES:

1. THE INSTALLATION OF BFP SHALL MEET ALL NYC DEP CROSS-CONNECTION CONTROL UNIT AND NYS DOH REQUIREMENTS.
2. UNLAWFUL TO REMOVE THIS DEVICE FOR ANY REASON UNLESS DEP IS NOTIFIED.
3. EACH BFP DEVICE SHALL BE TESTED ANNUALLY BE NEW YORK STATE CERTIFIED TESTER.
4. THE P.E. IS RESPONSIBLE FOR CHECKING THAT THE DEVICE IS INSTALLED ACCORDING TO APPROVED PLAN AND SIGNING THE CERTIFICATION STATEMENT ON FORM GEN 2158.
5. BETWEEN POINT OF ENTRY AND BFP, PIPES MUST BE STENCILED "FEED TO BACKFLOW PREVENTER. DO NOT TAP OR CONNECT TO THIS LINE" AT 5" INTERVALS, AND AT ALL WALL AND FLOOR PENETRATIONS.
6. PROVIDE S.S. PIPE SUPPORT UNDER EACH VALVE.
7. PROVIDE 6" OF 3/4" CRUSHED BLUESTONE UNDERNEATH FLOOR SLAB OF VAULT.
8. CONCRETE 4,000 PSI AT 28 DAYS
9. REINFORCING: ASTM A-615 - GRADE 60
10. CONCRETE VAULT SHALL BE DESIGNED TO MEET AASHTO H-20 WHEEL LOADING.
11. ALL LIFTING HOLES TO BE PROPERLY MORTARED FLUSH TO WALLS.
12. WATER MAIN TO BE CENTERED IN STEEL WALL SLEEVE, CAST SLEEVE IN PLACE.
13. INLET SIDE OF VAULT MUST BE PERPENDICULAR TO LINE OF PIPE.
14. INSTALL PRECAST VAULT BELOW DEPTH OF ASPHALT RESTORATION AND EXTEND CASTING FLUSH WITH FINISHED ASPHALT WITH BRICK AND MORTAR.
15. CENTER MANHOLE AND CASTING OVER VAULT STEPS.
16. INSTALL NYC DEP AMR/MTU EQUIPMENT AT LOCATION DIRECTED BY NYC DEP.
17. THE INSTALLATION OF THE METER SHALL MEET ALL NYC DEP BUREAU OF CUSTOMER SERVICES - METERING REQUIREMENTS. AN APPLICATION FOR PERMIT SHALL BE FILED AND APPROVED BY THE NYC DEP. UPON COMPLETION OF WORK A COMPLETED PERMIT SHALL BE RETURNED TO THE NYC DEP WITHIN 10 BUSINESS DAYS.
18. IF VAULT IS PRECAST IN THREE SECTIONS, A 6-INCH BUTYL RUBBER GASKET SHALL BE INCORPORATED BETWEEN SECTIONS.

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CLIENT

Brooklyn Navy Yard Development Corporation

Backflow Prevention Devices at Perimeter Feeds

Block: 2023 Lot: 1 County: Kings
63 Flushing Avenue, Unit #300
Brooklyn, NY 11205

STATUS

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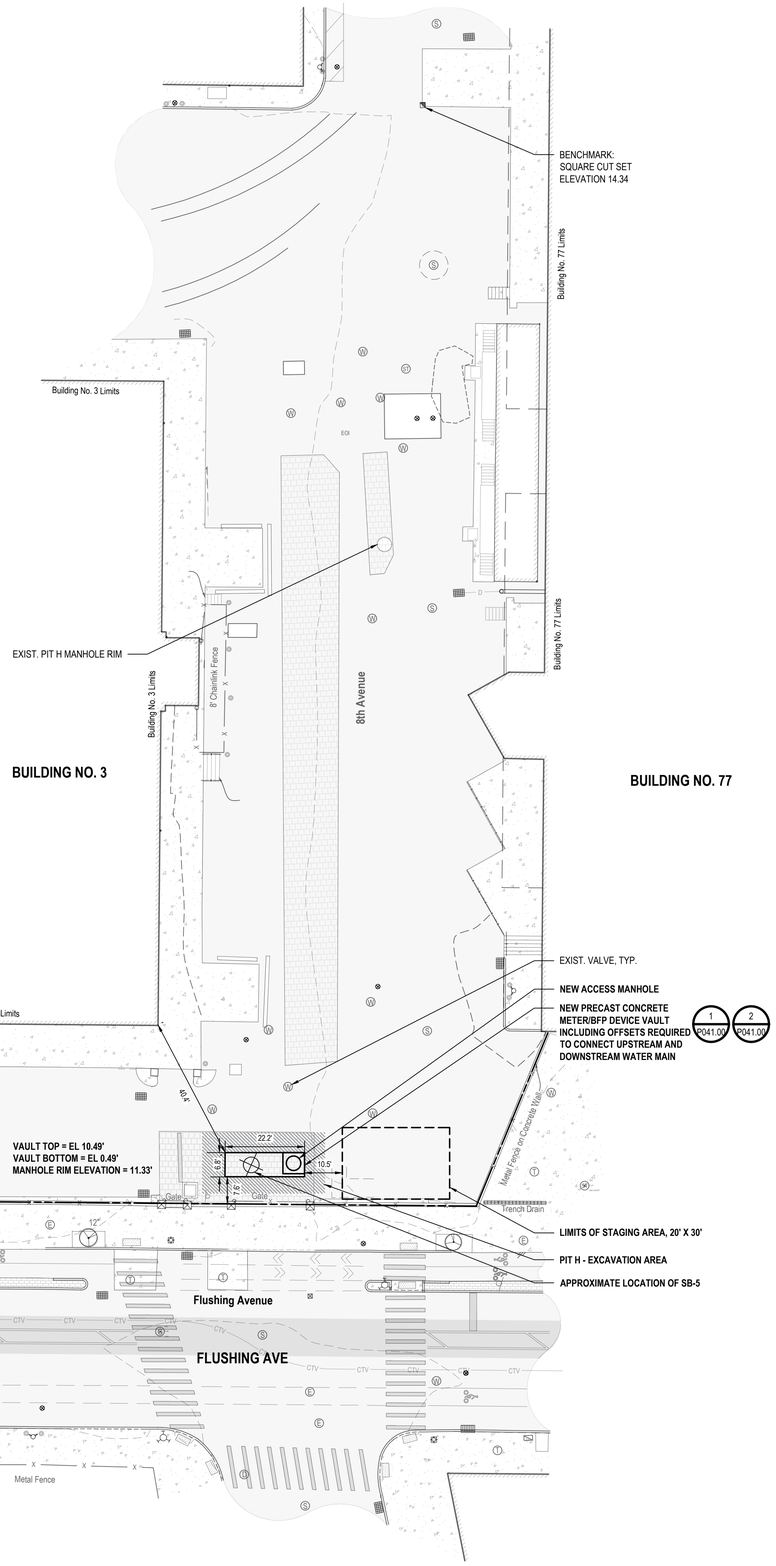
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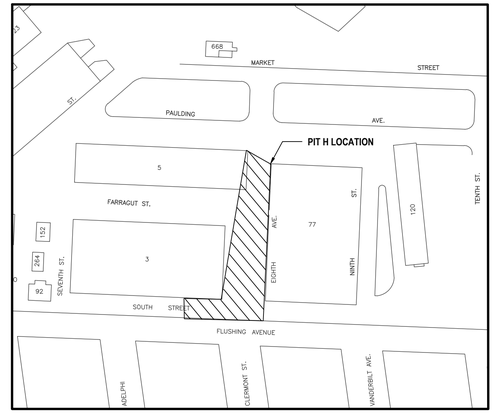
PIT H (BWSO LOCATION NO. 7) PIPING PLAN AND SECTIONS

DRAWING No.

P041.00

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7/3/2025 9:49:14 AM





Location Map
SCALE:NTS

GENERAL NOTES:

1. ELEVATIONS OBTAINED FROM XRAY LOCATING SERVICE, INC. ON JUNE 10, 2024.
2. ELEVATIONS ARE BASED UPON NAVD 1988 PER GPS OBSERVATION USING KEYSTONE AND KEYNET VRS NETWORK. ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) WHICH IS 1.46 FEET BELOW THE BROOKLYN BOROUGH HIGHWAY DATUM AND 0.62 FEET BELOW THE BROOKLYN BOROUGH SEWER DATUM. TO CONVERT FROM NAVD 88 TO BROOKLYN HIGHWAY DATUM, SUBTRACT 1.46 FEET FROM THE NAVD ELEVATIONS LISTED. TO CONVERT FROM NAVD 88 TO BROOKLYN SEWER DATUM, SUBTRACT 0.62 FEET FROM THE NAVD ELEVATIONS LISTED. TO CONVERT FROM NAVD 88 TO NGVD 29, ADD 1.1 FEET TO THE NAVD ELEVATIONS LISTED.
3. AS PER BC 1802.4, A MINIMUM OF ONE EXPLORATORY BORING IS REQUIRED FOR AREAS UP TO 750 SQUARE FEET. FOR PIT H:
   PIT H VAULT AREA ~150 SQUARE FEET < 750 SQUARE FEET
   ONE SOIL BORING REQUIRED - ONE SOIL BORING DONE.

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Brooklyn Navy Yard Development Corporation

Backflow Prevention Devices at Perimeter Feeds

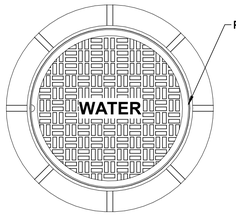
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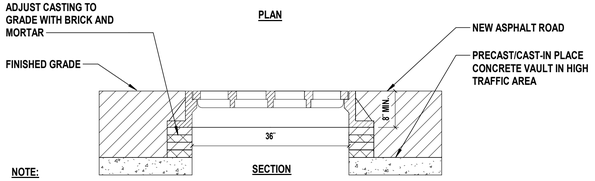
SHEET TITLE
PIT H (BWSO LOCATION NO. 7) DIMENSIONAL SITE PLAN

DRAWING No.
P042.00

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PLAN



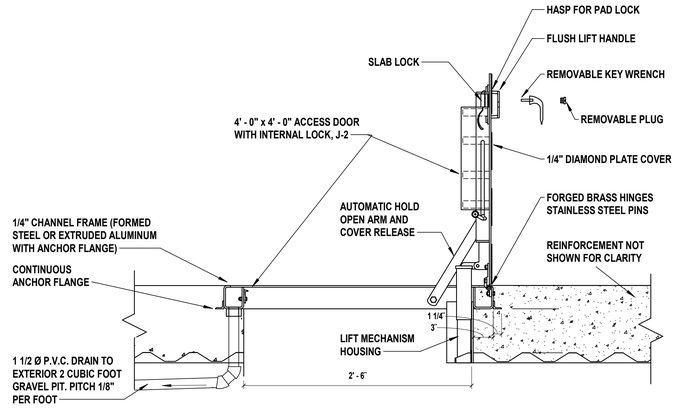
SECTION

NOTE:

CASTINGS MUST BE CAPABLE OF SUPPORTING THE AASHTO HS-20 HIGHWAY LOADING.

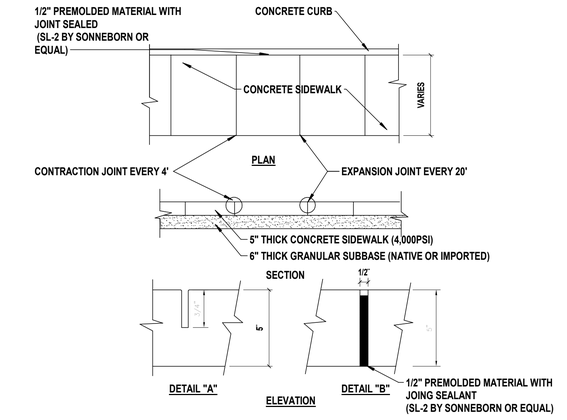
1 Circular Frame & Cover - Heavy Duty

SCALE: 1" = 20'-0"



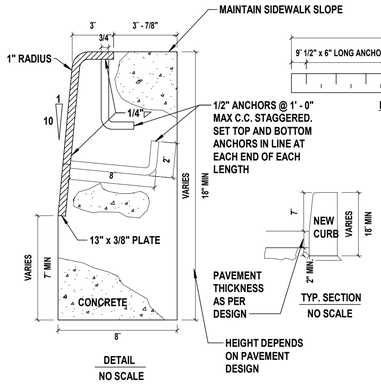
2 Access Door Section

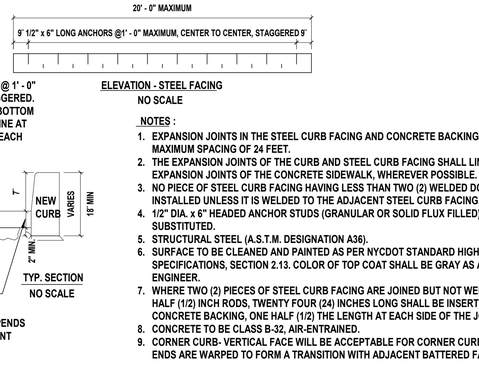
SCALE: NTS



3 Typical Water Main Sidewalk Crossing

SCALE: 3/4" = 1'-0"



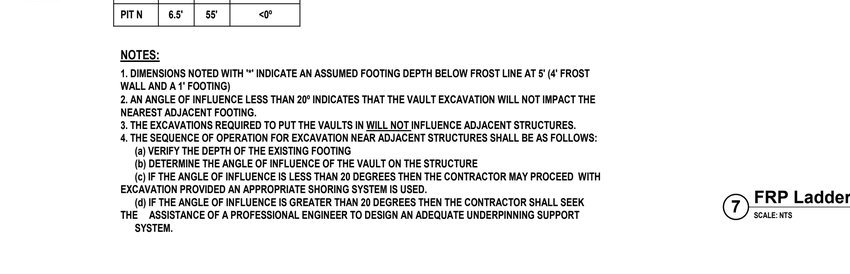


NOTES :

1. EXPANSION JOINTS IN THE STEEL CURB FACING AND CONCRETE BACKING SHALL BE AT A MAXIMUM SPACING OF 24 FEET.
2. THE EXPANSION JOINTS OF THE CURB AND STEEL CURB FACING SHALL LINE UP WITH THE EXPANSION JOINTS OF THE CONCRETE SIDEWALK, WHEREVER POSSIBLE.
3. NO PIECE OF STEEL CURB FACING HAVING LESS THAN TWO (2) WELDED DOWELS MAY BE INSTALLED UNLESS IT IS WELDED TO THE ADJACENT STEEL CURB FACING.
4. 1/2" DIA. x 6" HEADED ANCHOR STUDS (GRANULAR OR SOLID FLUX FILLED) MAY BE SUBSTITUTED.
5. STRUCTURAL STEEL (A.S.T.M. DESIGNATION A36).
6. SURFACE TO BE CLEANED AND PAINTED AS PER NYCDOT STANDARD HIGHWAY SPECIFICATIONS, SECTION 2.13. COLOR OF TOP COAT SHALL BE GRAY AS APPROVED BY THE ENGINEER.
7. WHERE TWO (2) PIECES OF STEEL CURB FACING ARE JOINED BUT NOT WELDED, TWO (2) ONE-HALF (1/2) INCH RODS, TWENTY FOUR (24) INCHES LONG SHALL BE INSERTED INTO THE CONCRETE BACKING, ONE HALF (1/2) THE LENGTH AT EACH SIDE OF THE JOINT.
8. CONCRETE TO BE CLASS B-32, AIR-ENTRAINED.
9. CORNER CURB- VERTICAL FACE WILL BE ACCEPTABLE FOR CORNER CURBS PROVIDING THE ENDS ARE WARPED TO FORM A TRANSITION WITH ADJACENT BATTERED FACE CURBS.

4 Steel Faced Curb

SCALE: NTS

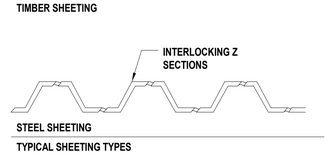


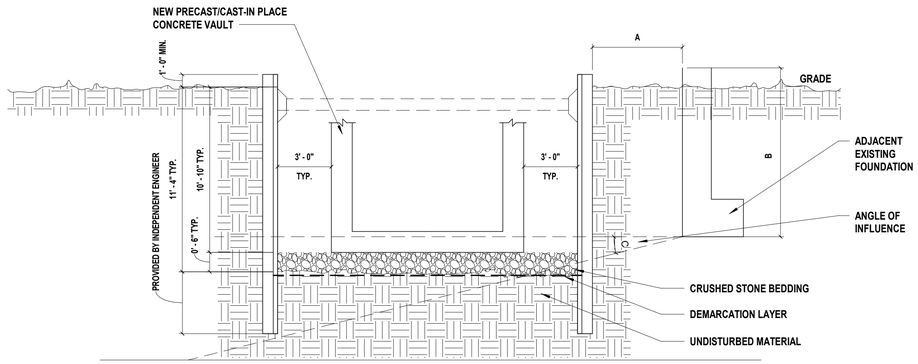
NOTES:

1. THIS DETAIL IS TYPICAL, ALL SHEETING TYPES, MATERIALS, SIZES, DIMENSIONS & DEPTHS ARE TO BE DESIGNED BY LICENSED NYS PROFESSIONAL ENGINEER RETAINED BY CONTRACTOR
2. CONTRACTOR SHALL PROVIDE NYS PE STAMPED DRAWINGS, CALCULATIONS FOR THE EXCAVATION SUPPORT SYSTEM FOR EACH PIT BY A LICENSED PROFESSIONAL ENGINEER RETAINED BY THE CONTRACTOR. CONTRACTOR SHALL ALSO PROVIDE A SEQUENCE OF WORK FOR THE EXCAVATION.
3. THE EXCAVATION SUPPORT SYSTEM DESIGN DRAWINGS AND CALCULATIONS AND THE SEQUENCE OF WORK FOR THE EXCAVATION ARE TO BE SUBMITTED TO AND APPROVED BY THE NYC DOB BEST SQUAD AS PART OF THE PERMIT APPROVALS REQUIRED TO BEGIN EXCAVATION.

5 Typical Shoring Detail

SCALE: NTS





NOTE:

1. THIS DETAIL IS TYPICAL, ALL SIZES, DIMENSIONS & DEPTHS ARE TO BE DESIGNED BY A LICENSED NYS PROFESSIONAL ENGINEER RETAINED BY CONTRACTOR

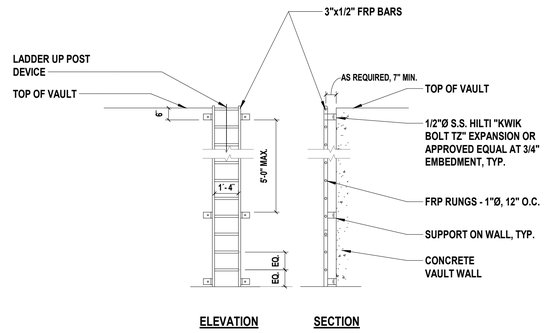
6 Typical Excavation Detail

SCALE: NTS

DIMENSIONS FROM VAULT TO ADJACENT STRUCTURE			
	A	B	C
PIT A	39.8'	*5'	9.02°
PIT B	18'	*5'	19.42°
PIT E	25.3'	*5'	14.04°
PIT F	18'	10'	10.08°
PIT H	38.9'	*5'	9.06°
PIT I	37'	*5'	9.71°
PIT N	6.5'	55'	<0°

NOTES:

1. DIMENSIONS NOTED WITH '*' INDICATE AN ASSUMED FOOTING DEPTH BELOW FROST LINE AT 5' (4' FROST WALL AND A 1' FOOTING)
2. AN ANGLE OF INFLUENCE LESS THAN 20° INDICATES THAT THE VAULT EXCAVATION WILL NOT IMPACT THE NEAREST ADJACENT FOOTING.
3. THE EXCAVATIONS REQUIRED TO PUT THE VAULTS IN WILL NOT INFLUENCE ADJACENT STRUCTURES.
4. THE SEQUENCE OF OPERATION FOR EXCAVATION NEAR ADJACENT STRUCTURES SHALL BE AS FOLLOWS:
   (a) VERIFY THE DEPTH OF THE EXISTING FOOTING
   (b) DETERMINE THE ANGLE OF INFLUENCE OF THE VAULT ON THE STRUCTURE
   (c) IF THE ANGLE OF INFLUENCE IS LESS THAN 20 DEGREES THEN THE CONTRACTOR MAY PROCEED WITH EXCAVATION PROVIDED AN APPROPRIATE SHORING SYSTEM IS USED.
   (d) IF THE ANGLE OF INFLUENCE IS GREATER THAN 20 DEGREES THEN THE CONTRACTOR SHALL SEEK THE ASSISTANCE OF A PROFESSIONAL ENGINEER TO DESIGN AN ADEQUATE UNDERPINNING SUPPORT SYSTEM.



7 FRP Ladder Detail

SCALE: NTS

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CONSULTANTS:

MARK	DATE	DESCRIPTION

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01/31/2027
Exp. Date

ROBERT J. LUCAS, P.E.
NY PROFESSIONAL ENGINEER Lic. No. 081337

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PROJECT No:	DATE:	SCALE:
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CLIENT

Brooklyn Navy Yard Development Corporation

Backflow Prevention Devices at Perimeter Feeds

Block: 2023 Lot: 1 County: Kings
63 Flushing Avenue, Unit #300
Brooklyn, NY 11205

STATUS

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SHEET TITLE

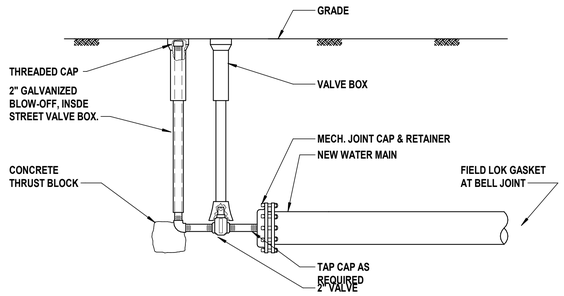
VAULT DETAILS

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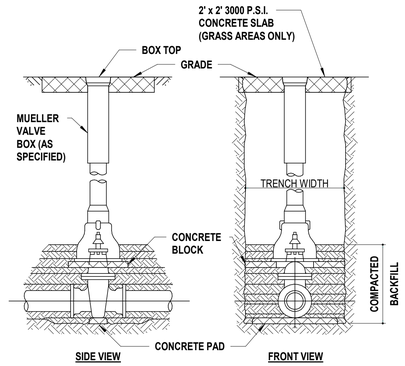
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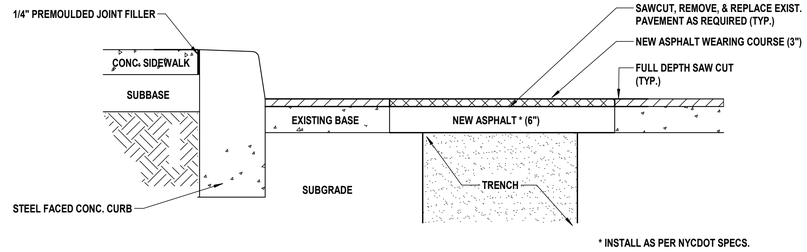
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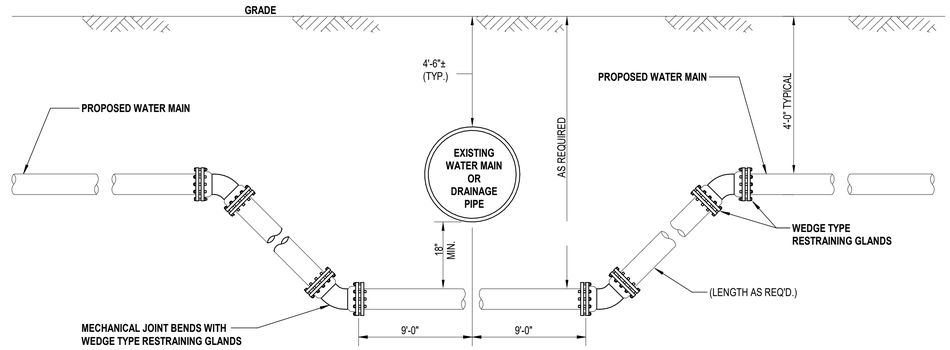
1 Blow-Off Detail
SCALENTS



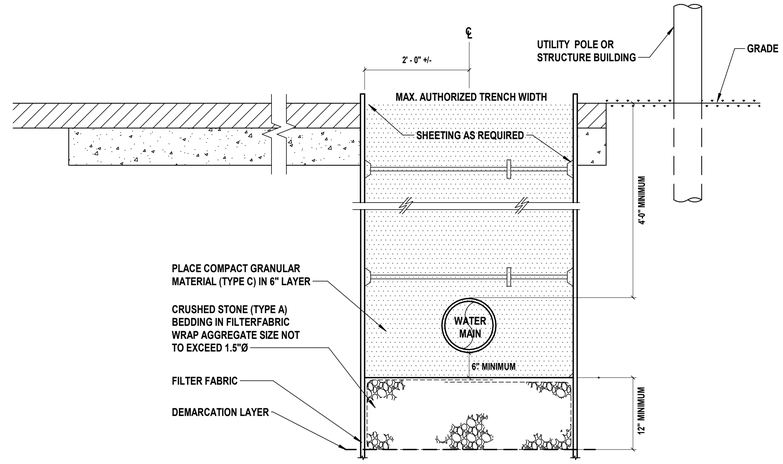
2 Valve Box/Curb Stop Installation Detail
SCALENTS



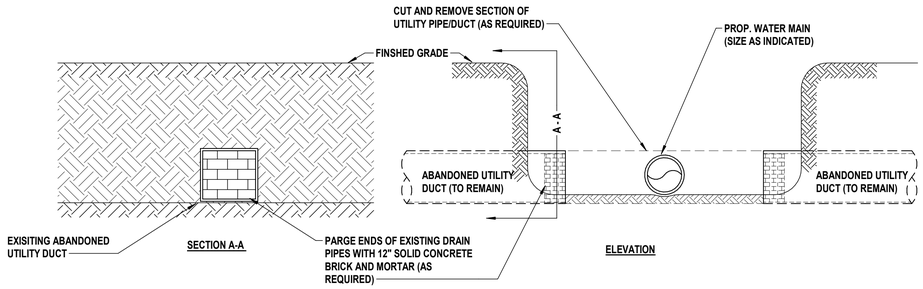
3 Pavement Replacement Over Water Main Trench
SCALENTS



4 Water Main Offset Detail
SCALENTS



5 Pipe Trench Detail
SCALENTS



6 Parging Detail
SCALENTS

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WATER MAIN DETAILS

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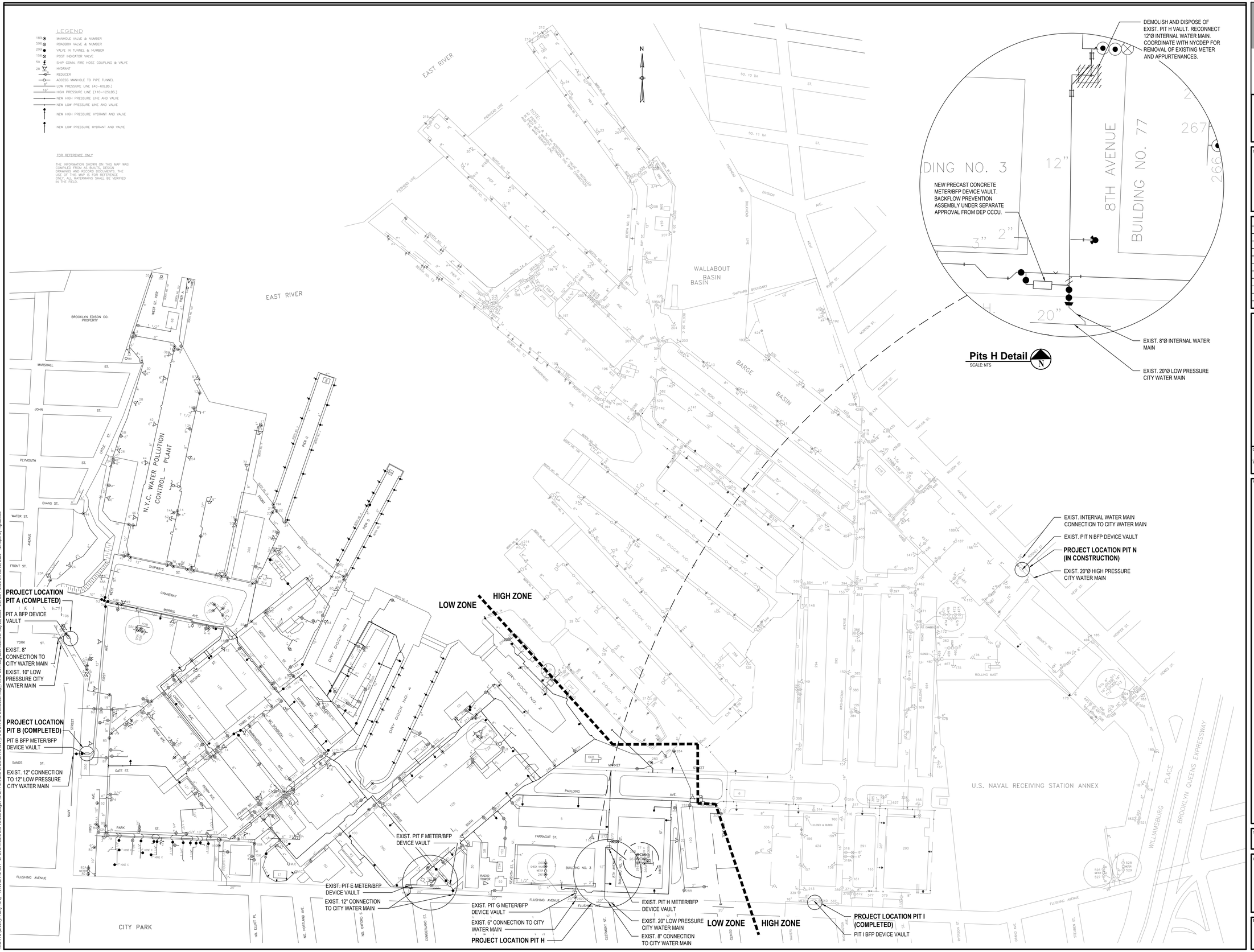
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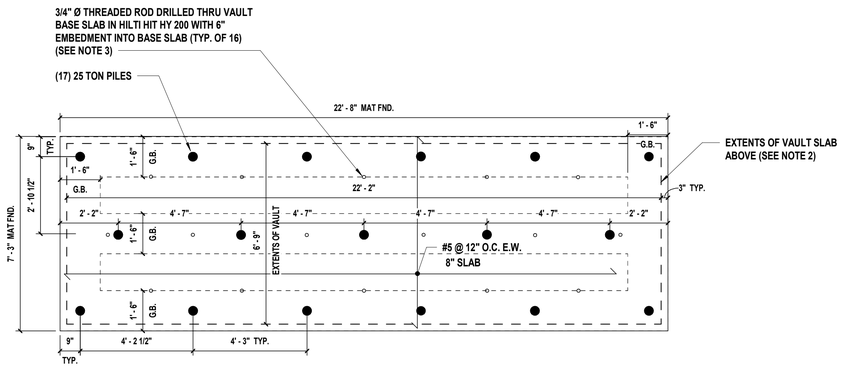
LEGEND

- MANHOLE VALVE & NUMBER
- ROADBOX VALVE & NUMBER
- VALVE IN TUNNEL & NUMBER
- POST INDICATOR VALVE
- SHIP CONN. FIRE HOSE COUPLING & VALVE
- HYDRANT
- REDUCER
- ACCESS MANHOLE TO PIPE TUNNEL
- LOW PRESSURE LINE (40~60LBS.)
- HIGH PRESSURE LINE (110~125LBS.)
- NEW HIGH PRESSURE LINE AND VALVE
- NEW LOW PRESSURE LINE AND VALVE
- NEW HIGH PRESSURE HYDRANT AND VALVE
- NEW LOW PRESSURE HYDRANT AND VALVE

FOR REFERENCE ONLY

THE INFORMATION SHOWN ON THIS MAP WAS COMPILED FROM AS BUILTS, DESIGN DRAWINGS AND RECORD DOCUMENTS. THE USE OF THIS MAP IS FOR REFERENCE ONLY. ALL WATERMAINS SHALL BE VERIFIED IN THE FIELD.





1 Base Slab Plan for Vault H (Traffic Loading)

SCALE: 3/8" = 1'-0"

LEGEND

- OUTLINE OF VAULT ABOVE
- EDGE OF GRADE BEAM
- THREADED ROD CONNECTING VAULT TO BASE SLAB
- HELICAL PILE CAST INTO BASE SLAB

NOTES

1. USE XYPEX WATERPROOFING ADDITIVE IN THE CONCRETE MIX.
2. INSTALL SIKAFLEX 1A WATERPROOF SEALANT OVER SIKAFLEX 429 PRIMER ALONG THE PERIMETER JOINT WHERE THE PRECAST SLAB MEETS THE CAST-IN-PLACE BASE SLAP.
3. PROVIDE CONTINUOUS INSPECTION DURING INSTALLATION OF ANCHORS CONNECTING VAULT TO THE BASE SLAB. ANCHORS SHALL BE INSTALLED WHILE DEWATERING IS OCCURRING. HOLES SHALL BE PREPARED AS PER HILTI GUIDELINES AND FILLED WITH ADHESIVE GROUT FOR FULL DEPTH TO ACHIEVE WATERTIGHT BOND WITH SURROUNDING CONCRETE. THE TOP 6" SHALL BE FILLED WITH HYDRAULIC CEMENT.

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CONSULTANTS:

MARK	DATE	DESCRIPTION

STATE OF NEW YORK · KATIA DUQUE · 071486 · LICENSED PROFESSIONAL ENGINEER

02/28/2027
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KATIA DUQUE, P.E.
NY PROFESSIONAL ENGINEER Lic. No. 071486

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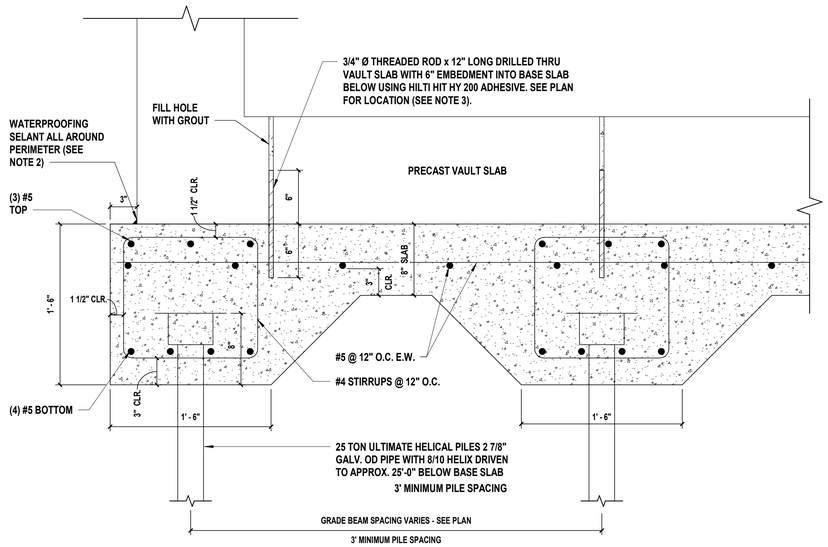
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PILE SUPPORTED BASE SLABS FOR VAULT H

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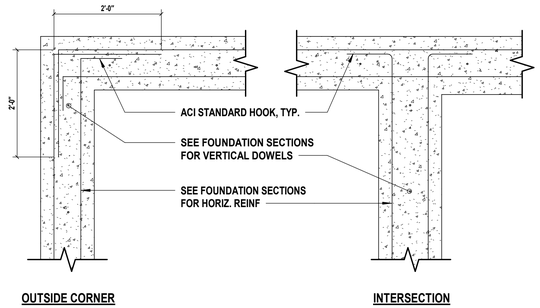
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1 Section Thru Base Slab

SCALE: 1 1/2" = 1'-0"



2 Typical Corner & Intersection Reinforcement

SCALE:N.T.S.

NOTES

1. USE XYPEX WATERPROOFING ADDITIVE IN THE CONCRETE MIX.
2. INSTALL SIKAFLEX 1A WATERPROOF SEALANT OVER SIKAFLEX 429 PRIMER ALONG THE PERIMETER JOINT WHERE THE PRECAST SLAB MEETS THE CAST-IN-PLACE BASE SLAP.
3. PROVIDE CONTINUOUS INSPECTION DURING INSTALLATION OF ANCHORS CONNECTING VAULT TO THE BASE SLAB. ANCHORS SHALL BE INSTALLED WHILE DEWATERING IS OCCURRING. HOLES SHALL BE PREPARED AS PER HILTI GUIDELINES AND FILLED WITH ADHESIVE GROUT FOR FULL DEPTH TO ACHIEVE WATERTIGHT BOND WITH SURROUNDING CONCRETE. THE TOP 6" SHALL BE FILLED WITH HYDRAULIC CEMENT.

PILE NOTES

1. SCOPE OF WORK

1.1. PROVIDE ALL REQUIRED LABOR, MATERIALS, EQUIPMENT & SUPERVISION FOR INSTALLATION OF HELICAL PILES AS SHOWN ON THE CONTRACT DRAWINGS OR AS DIRECTED BY THE ENGINEER.

1.2. BEFORE STARTING WORK, THE CONTRACTOR SHALL CHECK AND VERIFY GOVERNING DIMENSIONS, ELEVATIONS, AND APPROXIMATE LOCATIONS OF THE EXISTING STRUCTURES AFFECTED BY THE WORK.

1.3. THE CONTRACTOR SHALL OBTAIN THE SERVICES OF A LICENSED PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NEW YORK TO SUPERVISE ALL HELICAL PILE OPERATIONS. THE SUPERVISORY ENGINEER SHALL KEEP A COMPLETE RECORD (LOG) OF THE PILE INSTALLATION OPERATION.

1.4. THE TIP ELEVATION AND CAPACITY OF EACH HELICAL PILE SHALL BE CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER.

1.5. ALL PILES SHALL BE PATENTED HELICAL PILES AND APPURTENANCES AS MANUFACTURED BY AB CHANCE CO. CENTRALIA, MO., FURNISHED AND DISTRIBUTED BY DANBRO DISTRIBUTORS (215-271-7700 INFO@DANBRO.COM) OR APPROVED EQUAL. ALL HELICAL PILES ARE TO BE INSTALLED BY A FACTORY CERTIFIED INSTALLER, OTHERWISE A CERTIFIED TECHNICIAN FROM DANBRO DISTRIBUTORS MUST BE AT THE SITE FOR TRAINING AND CERTIFICATION. ALL HELICAL PILES MUST BE ICC-ES (REPORT ESR-2794) APPROVED AND TO BE IN ACCORDANCE WITH 2014 NYC BUILDING CODE SECTION 1812.

2. MATERIALS

2.1. HELICAL PILES SHALL BE DESIGNED TO SUPPORT THE NOMINAL COMPRESSIVE LOAD AS SHOWN ON THE PLANS. THE OVERALL LENGTH, HELIX CONFIGURATION, AND MINIMUM EFFECTIVE TORSIONAL RESISTANCE OF A HELICAL PILE SHALL BE SUCH THAT THE REQUIRED GEOTECHNICAL CAPACITY IS DEVELOPED BY THE HELIX PLATE(S) IN AN APPROPRIATE BEARING STRATUM.

2.2. CONTRACTOR SHALL INSTALL A TEST PILE AT THE CONSTRUCTION SITE PRIOR TO INSTALLATION OF REMAINING PILES. LOCATION OF TEST PILE SHALL BE IN THE SAME LOCATION AS A PERMANENT PILE. AFTER DESIGN TORQUE HAS BEEN ACHEIVED AND TEST PILE HAS MET THE REQUIREMENTS OF THE DESIGN, THE PILE MAY BE RETRACTED AND REMOVED AND RE-USED AS A PART OF A PERMANENT PILE INSTALLATION.

2.3. ALL BOLTS SHALL BE AS PER ASTM A320, GRADE L7. ALL WELDING SHALL BE DONE BY CERTIFIED WELDERS IN ACCORDANCE WITH ASW D1.1

2.4. ALL MATERIAL SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153. ALL GALVANIZING OF WELDED AREAS SHALL BE CLEANED AND COATED WITH APPROVED GALVANIZING COMPOUND.

3. INSTALLATION

3.1. ALL HELICAL PILES SHALL BE INSTALLED AS SHOWN ON THE APPROVED SHOP DRAWINGS. ALL CHANGES IN PILE LOCATIONS SHALL BE APPROVED BY THE CONTRACTOR'S ENGINEER PRIOR TO INSTALLATION.

3.2. THE INSTALLATION OF ALL HELICAL PILES SHALL BE DONE UNDER THE SUPERVISION OF THE CONTRACTOR'S LICENSED PROFESSIONAL ENGINEER. HELICAL PILES SHALL BE CAREFULLY LOCATED AS SHOWN ON THE CONTRACT DRAWINGS. HELICAL PILES SHALL BE INSTALLED TO AN ULTIMATE CAPACITY OF (25) TONS. (WHICH INCLUDES A SAFETY FACTOR OF 2.5).

3.3. THE CONTRACTOR SHALL ACCURATELY LOCATE THE INSTALLATION POINT OF EACH HELICAL PILE.

3.4. THROUGHOUT THE INSTALLATION, CONSTANT DOWN PRESSURE SHALL BE MAINTAINED AND TORQUE SHALL BE APPLIED IN A SMOOTH, CONTINUOUS MANNER. THE RATE OF HELICAL PILE INSTALLATION ROTATION SHALL BE IN THE RANGE OF 3 TO 20 REVOLUTIONS PER MINUTE.

3.5. IF THE MINIMUM TORQUE REQUIREMENT HAS NOT BEEN SATISFIED AT THE MINIMUM DEPTH, THE CONTRACTOR SHALL CONTINUE INSTALLATION USING ADDITIONAL EXTENSION MATERIAL UNTIL SPECIFIED MINIMUM TORQUE LEVELS ARE OBTAINED (REFERENCE NOTE 2.1).

3.6. HELICAL PILE PLUMBNESS SHALL BE WITHIN 2 DEGREES OF DESIGN ALIGNMENT.

3.7. TOP ELEVATION OF HELICAL PILE SHALL BE WITHIN +1 INCH TO -2 INCHES OF DESIGN VERTICAL ELEVATION.

3.8. HELICAL PILES SHALL BE INSTALLED TO AN APPROXIMATE DEPTH OF 25 FEET BELOW BASE SLAB (BUT ALL HELIXES MUST EXTEND THROUGH THE FILL LAYER) AND A MINIMUM TORQUE OF 5,600 FT. LBS.

3.9. WHERE PILES ARE CUT, WELD PILE CAP TO PILE. PERFORM COMPLETE WELD AROUND ENTIRETY OF PILE USING MIN. 3/16" E70XX FILLET WELDS.

4. EQUIPMENT

4.1. A TORQUE INDICATOR SHALL BE USED FOR ALL INSTALLATIONS. THE MINIMUM INSTALLED CAPACITY SHALL BE AS INDICATED IN 3.8.

4.2. INSTALLATION EQUIPMENT SHALL HAVE A MAXIMUM TORQUE CAPABILITY. INSTALLATION UNITS SHALL CONSIST OF ROTARY TYPE, TORQUE MOTOR WITH FORWARD AND REVERSE CAPABILITY. INSTALLATION EQUIPMENT SHALL BE IN GOOD WORKING ORDER AND SHALL BE SAFE TO OPERATE.

4.3. INSTALLATION EQUIPMENT SHALL BE GROUNDED WITH A MINIMUM OF 4/0 FLEXIBLE INSULATED COPPER CABLE TO THE NEAREST STATION GROUND.

4.4. ADAPTORS SHALL BE EMPLOYED TO SAFELY CONNECT THE INSTALLATION UNITS TO THE HELICAL PILES.

4.5. THE TORQUE BEING APPLIED BY THE INSTALLING UNITS SHALL BE MONITORED THROUGHOUT THE INSTALLATION PROCESS.

5. OBSTRUCTIONS

5.1. IF UNDERGROUND OBSTRUCTIONS ARE ENCOUNTERED DURING INSTALLATION, THE CONTRACTOR SHALL REMOVE AND RELOCATE THE HELICAL PILE. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL THE NEW LOCATION OF THE HELICAL PILE AND ANY REVISIONS TO THE PILE CAPS OR GRADE BEAMS.

5.2. IF THE HELICAL PILE IS DAMAGED AND CANNOT BE REUSED AS DETERMINED BY THE ENGINEER, AN ADDITIONAL HELICAL PILE SHALL BE INSTALLED AT A NEW LOCATION. THE CONTRACTOR SHALL INCUR ALL COSTS ASSOCIATED WITH ADDITIONAL HELICAL PILES REQUIRED TO REPLACE THOSE DAMAGED DURING INSTALLATION.

5.3. PILES WHICH ARE DAMAGED DUE TO MISHANDLING DURING DELIVERY OR INSTALLATION SHALL BE REPLACED WITH NEW PILES AT THE CONTRACTOR'S EXPENSE.

5.4. THE CONTRACTOR SHALL ACCURATELY LOCATE ALL EXISTING AND NEW BURIED PIPES OR STRUCTURES WITHIN THE PROJECT AREA PRIOR TO HELICAL PILE INSTALLATION. CARE SHALL BE TAKEN TO PREVENT DAMAGE TO BURIED PIPING AND STRUCTURES DUE TO PILE INSTALLATION. ANY DAMAGE CAUSED TO BURIED PIPING AND STRUCTURES RESULTING FROM PILE INSTALLATION SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER/ARCHITECT AT THE CONTRACTOR'S EXPENSE.

6. SUBMITTALS

6.1. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL SUBMIT THE FOLLOWING TO THE ARCHITECT/ENGINEER:

A) INSTALLATION EQUIPMENT

B) TORQUE MONITORING DEVICES

C) HELICAL PILE MATERIAL INCLUDING LEAD SECTION, EXTENSIONS, AND ADAPTORS

D) PROVIDE ERECTION AND FABRICATION DRAWINGS

E) WRITTEN INSTALLATION RECORD - FIELD LOG OF EACH HELICAL PILE PREPARED BY THE SPECIAL INSPECTOR. THE PILE LOG SHALL BEAR THE SEAL AND SIGNATURE AND A LICENSED PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NEW YORK. AS PER THE SPECIAL INSPECTION REQUIREMENTS OF THE BUILDING CODE OF NEW YORK CITY, THESE RECORDS SHALL INCLUDE:

- PROJECT NAME & LOCATION
- NAME OF CONTRACTOR'S FOREMAN OR REPRESENTATIVE WHO WITNESSED THE INSTALLATION
- DATE AND TIME OF INSTALLATION
- LOCATION AND REFERENCE NUMBER OF EACH PILE
- DESCRIPTION OF LEAD SECTION AND EXTENSIONS INSTALLED
- OVERALL DEPTH OF INSTALLATION REFERENCED FROM BOTTOM OF FOUNDATION TORQUE READING FOR THE LAST THREE (3) FEET OF INSTALLATION, IF PRACTICAL. IN LIEU OF THIS REQUIREMENT, THE TERMINAL TORQUE SHALL BE RECORDED AS A MINIMUM.

6.2. UPON COMPLETION OF CONSTRUCTION THE CONTRACTOR SHALL SUBMIT THE FOLLOWING RECORD INFORMATION.

A) AS-BUILT DRAWINGS INCLUDING BUT NOT LIMITED TO THE ELEVATION OF EACH PILE TIP AND LOCATION OF EACH PILE.

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BNY

Block: 2023 Lot: 1 County: Kings
63 Flushing Avenue, Unit #300
Brooklyn, NY 11205

STATUS

FINAL BID DOCUMENT

SHEET TITLE

HELICAL PILE NOTES & DETAILS

DRAWING No.

S002.00

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BROOKLYN NAVY YARD DEVELOPMENT CORPORATION

BACKFLOW PREVENTION DEVICES AT PERIMETER FEEDS

CAPITAL PROJECT #

(H2M PROJECT NO. BNYD1501)

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SECTION 000010 – SMP COMPLIANCE

PART 1 - GENERAL

1.01 SMP COMPLIANCE FOR THE PROJECT

A. The majority of Work for this project falls within the Voluntary Cleanup Agreement (VCA) area of the Brooklyn Navy Yard (BNY) site. As such, this Work is subject to the requirements of the Site Management Plan (SMP) that is in place.
B. All Work performed within the VCA area shall comply with the SMP.

1.02 NOMENCLATURE

A. Where the terms “Qualified Environmental Professional” or “QEP” are used throughout this specification, they shall mean the firm of CORE Environmental Consultants, Inc. as may be abbreviated by CORE.
B. This Article shall serve as a supplement to Section 011113, “Summary of Work,” Article 1.01, “Nomenclature,” of these Contract Documents.
C. The Brooklyn Navy Yard (BNY) shall refer to the entire property owned and operated by the Brooklyn Navy Yard Development Corporation (BNYDC).
D. The Voluntary Cleanup Agreement (VCA) area shall refer to the entire BNY property.
E. The Site Management Plan (SMP) refers to the document titled “Brooklyn Navy Yard Industrial Park, Kings County, Brooklyn, New York Site Management Plan, NYSDEC Site Number V00120,” prepared by CORE Environmental Consultants, Inc. (CORE) for the BNYDC, dated February 2022.
F. The Excavation Work Plan (EWP) refers to Appendix E of the above-referenced SMP.
G. Intrusive Activities are defined as any Work activities that breach the on-site 1’ thick soil or 6” thick pavement engineered cover system that is in place within the VCA area of the Site.
H. Contamination shall refer to the contaminants of concern for the BNY VCA area, as described in Article 1.04 of this Section.

1.03 PARTIAL LISTING OF OVERALL CONTRACT REQUIREMENTS

A. Unless otherwise specified, the Contractor shall perform all Work in accordance with the SMP.

1.04 EXISTING CONDITIONS

A. As stated in Article 1.01, the majority of the BNY site falls within the VCA area, which is subject to the requirements of the SMP. The main contaminant of concern on the site are polychlorinated biphenyls (PCBs), with the potential for exposure to secondary contamination such as VOCs, SVOCs, and heavy metals.
B. The existing conditions at the Site require additional protections and requirements that are presented within this Section.

1.05 SUBMITTALS

A. Submit the following under provisions of Section 013300:
    a. As part of the Environmental Protection Plan / Erosion Control Plan, as described in Section 015719, “Temporary Environmental Controls,” the Contractor shall provide the following:
        i. A description of how the Work will be performed;
        ii. Methods to be employed for excavation;
        iii. Backflow preventer installation;
        iv. Dewatering;
        v. Removal/restoration of pavement.
    b. In the event that inadequate soil must be disposed of off-site as part of this project, the Contractor shall submit the following prior to transportation and disposal off-site:
        i. An example transportation and disposal manifest for review and approval by BNYDC.
    c. The Contractor shall submit a Site-Specific Health and Safety Plan (SSHASP) to BNYDC a minimum of twenty (20) calendar days prior to the start of any intrusive activities.
    d. Notification of Intrusive Activities prior to the start of intrusive activities.

1.06 SITE ACCESS AND CONTROL

A. The Contractor shall provide site security in accordance with Appendix E, “Excavation Work Plan,” Section E.2, “Site Security” of the SMP. This includes restricting public access to any open excavations or excavated soil in accordance with the EWP.

1.07 SITE PERSONNEL REQUIREMENTS

A. All on-site Contractor personnel that may come into contact with soils below the 1’ thick site-wide engineered cover system during intrusive work shall be 40-hour HAZWOPER trained. The Contractor shall submit the certificates of HAZWOPER training completion for these designated personnel as part of the Site-Specific Health and Safety Plan (SSHASP).

1.08 NOTIFICATION OF INTRUSIVE WORK

A. The Contractor shall notify the BNY of any intrusive activities a minimum of twenty (20) calendar days prior to the start of these intrusive activities. This notification shall include a schedule detailing the start and completion of all intrusive activities.
B. These intrusive activities may not commence until written authorization to proceed is received from the BNY. BNY is required to notify the NYSDEC of any Site-wide cover breaches a minimum of fifteen (15) calendar days prior to the start of Work.

1.09 TESTING REQUIREMENTS

A. Any fill material brought to the Site shall meet the lower of the Commercial Use SCOs and the Protection of Groundwater SCOs as set forth in 6 NYCRR Part 375-6.7(d). The Contractor shall identify a clean backfill source meeting these requirements prior to Site mobilization.
B. The Contractor will be responsible for collecting and analyzing backfill samples to ensure that these samples meet the criteria set forth above.
C. The Contractor shall submit a request to import fill form to core environmental prior to importing backfill materials to the site. Imported materials will be tested at a rate consistent with table 5.4(e)10 of DER-10, included in the Appendix E of the SMP.
D. The following material may be imported, without chemical testing, to be used as backfill beneath pavement, buildings or as part of the final site cover, provided that it contains less than 10% by weight material which would pass through a size 80 sieve and consists of:
    a. Gravel, rock or stone, consisting of virgin material from a permitted mine or quarry; or
    b. recycled concrete or brick from a dec registered construction and demolition debris processing facility if the material conforms to the requirements of section 304 of the new York State Department of Transportation standard specifications construction and materials volume 1 (2002).
    c. ASTM #57, approved source NY 10-12r from New York Sand and Stone
E. BNY reserves the right to reject any proposed backfill source for any reason. In the event that a backfill source is rejected, the Contractor shall propose secondary backfill sources to be used. All materials proposed for import onto the Site will be approved by the QEP and will be in compliance with provisions in the SMP prior to receipt at the Site.
F. The Contractor shall select and notify the BNY of any potential borrow source ten (10) business days prior to importing the material to the Site to allow for testing and laboratory analysis. The BNYDC and QEP are not responsible for any delays to the project associated with sampling and analysis of potential borrow sources.

1.10 ON-SITE RE-USE OF EXCAVATED MATERIAL

A. Soil excavated from beneath the site-wide engineering cover may be re-sued as fill on-site based on soil screening by a QEP. Visual, olfactory, and instrument-based (e.g. photo-ionization detector) soil screening will be performed by a QEP during all excavations into known or potentially impacted material (remaining contamination).
B. Soil screening will be performed when intrusive work is done and will include all excavation and intrusive work performed.

1.11 DISPOSAL OF SUITABLE EXCESS EXCAVATED MATERIAL

A. Excess, inadequate material excavated by the Contractor shall become the Contractor's property and is to be properly disposed of at the Contractor's expense. The BNYDC reserves the right to have the Contractor dispose of the material on another site within the yard at no additional cost to the BNYDC.
B. All excess material excavated from below the site-wide engineered cover shall be properly disposed of off-site at a disposal facility permitted to accept PCB-impacted waste. Prior to off-site transportation and disposal, the Contractor shall propose a disposal facility that is permitted to receive the excess material generated and provide example transportation and disposal waste manifests for review and approval by BNYDC as described in Article 1.05 of this Section.
C. The Contractor is responsible for obtaining any necessary permits for the transportation and off-site disposal of any excess excavated soil or materials generated from beneath the 1' thick site-wide engineered cover.

1.12 COVER SYSTEM RESTORATION

A. After completion of soil removal and any other intrusive activities, the site-wide cover system shall be restored in a manner that complies with the SMP. The existing site-wide cover is comprised of buildings, concrete and asphalt pavement, and millings.
B. The restored site-wide cover shall be comprised of at least 12 inches of soil meeting the Commercial Use SCOs as set forth in 6 NYCRR Part 375-6.7(b), a building, or concrete, asphalt, or millings at least 6 inches in thickness.

1.13 DEWATERING

A. Means and Methods of construction of the Work are the sole responsibility of the Contractor. The Contractor shall conduct the Work in such a manner that the potential for dewatering fluid generation is limited.
B. Impacted water originating from equipment decontamination, excavation dewatering, and monitoring well purging shall be pumped into storage tanks for off-site disposal. A licensed liquid hauler shall remove, transport, and dispose of the liquid in compliance with all applicable regulations.
C. Discharge of water generated during large-scale construction activities to surface waters (i.e. a local pond, stream, or river), if any, will be performed under a State Pollutant Discharge Elimination System (SPDES) permit.
D. The Contractor shall take proper care to protect the excavation from storm events and to ensure that large quantities are dewatering fluid are not generated unnecessarily.
E. In the event that the Contractor does not include adequate protections during a storm event that results in excavation flooding, the Contractor shall be solely responsible for removal, handling, sampling, and disposal of the excess dewatering fluid at no additional cost to the BNYDC. The Contractor shall not hold BNYDC responsible for any schedule delays experienced due to excavation flooding or additional required dewatering work.

1.14 REFERENCES

A. This specification shall serve as a supplement to the following specification sections of these Contract Documents:
    a. Section 011113, "Summary of Work"
        i. Article 1.01, "Brief Purpose of Project – General"
        ii. Article 1.02, "Nomenclature"
        iii. Article 1.05, "Partial Listing of Overall Contract Requirements"
        iv. Article 1.06, "Existing Conditions"
    b. Section 011400, "Work Restrictions"
        i. Article 1.02, "Site Access and Control"
        ii. Article 1.03, "Work Hours, Employee Conduct and Employee Requirements"
    c. Section 013216, "Construction Schedule"
        i. Article 1.02, "Schedule Preparation Milestone Dates & Requirements"
    d. Section 014100, "Regulatory Requirements"
        i. Article 1.02, "Codes"
        ii. Article 1.03, "Governing Agencies"

e. Section 015719, “Temporary Environmental Controls”
    i. Article 1.02, “Definitions”
    ii. Article 3.01, “Protection of Environmental Resources”
f. Section 017839, “Project Record Documents”
    i. Article 1.05, Submittal of Record Documents
g. Section 312319, “Dewatering”
    i. Article 1.03, “Project Conditions”
    ii. Article 1.04, “Regulatory Requirements”
h. Section 312323, “Backfilling”
    i. Article 2.01, “Fill Materials”
i. Section 312333, “Trenching”
    i. Article 2.01, “Materials”
    ii. Article 2.04, “Excavation”
    iii. Article 2.05, “Backfilling”
j. Section 329119, “Topsoil Placement and Grading”
    i. Article 2.01, “Materials”

PART 2 - PRODUCTS
Not Used

PART 3 – EXECUTION
Not Used

END OF SECTION 000010

SECTION 011113 – SUMMARY OF WORK

PART 1 - GENERAL

1.01 BRIEF PURPOSE OF PROJECT - GENERAL

A. The Brooklyn Navy Yard Development Corporation is proceeding with the installation of new backflow prevention (BFP) devices at Pit H. The purpose of this project is to install a new backflow prevention device in a new below grade utility vault. As part of the BFP device installation, new valves, C.L.D.I. pipe, and water meter are also to be installed. These modifications will allow the Brooklyn Navy Yard Development Corporation to meet the requirements of the New York City Department of Environmental Protection cross connection control.

B. Demolition of existing Pit H vault, including coordination of removal of existing meters and appurtenances from existing Pit H vault. All meters to be retained and returned to Owner.

C. Demolition of portion of existing concrete steam tunnel and high-pressure steam pipe to facilitate installation of new water main.

D. Reconnection of existing internal water main to the new water main.

E. Reconnection to existing NYC distribution main in Flushing Avenue.

F. Removal of existing valve boxes and caps on all abandoned utilities. Work includes abandoning water main and valves in Flushing Avenue which are operated by the New Yor City Department of Environmental Protection (NYCDEP), and abandonment therefore must be in accordance with NYCDEP standards.

G. Restoration of the areas where the new main is installed. Restoration of trench area, including full depth asphalt with cut-back, replacement of curbs, replacement of sidewalk, and restriping will be in accordance with the New York City Department of Transportation requirements.

H. The project is located in Brooklyn, New York, within the boundaries of the Brooklyn Navy Yard Development Corporation, as well as within the street at Flushing Avenue.

1.02 NOMENCLATURE

A. Where the terms "Engineer/Architect" or "Architect/Engineer" are used throughout these Contract Documents, they shall mean the firm of H2M architects + engineers as may be abbreviated by H2M or H2M Group.

B. The terms "Contractor" and/or "Prime Contractor" where used shall refer to the individual or company who has entered into an agreement with the Owner to perform the work contained within these Contract Documents. The lack of word capitalization shall be incidental.

C. The CONTRACTOR may be referred to as the "General Contractor", "Prime Contractor" or similar wording. The lack of word capitalization shall be incidental.

1.03 ABBREVIATED SUMMARY OF WORK

A. The work included is as shown on the Contract Plans and as outlined in the technical specifications.

B. Furnish all labor, equipment, materials, tools, means, methods, and incidentals necessary to complete the Work as required by the Contract Documents for this Construction Contract. Each contractor shall coordinate, through the Owner/Engineer, the work of their contract with the work by others.

C. This following abbreviated summary is provided in order to briefly describe the work covered by the Contract Documents for this Construction Contract. It is not all inclusive of the work under the Contract.

D. The work includes, but is not limited to, the following:

1. Site work including utility mark-out, erection of safety fencing, and soil erosion/ slope protection, connection to and removal of existing water mains, installation of new below grade utility vaults, new water lines and misc. piping offsets.
2. Excavation, earth movement, subgrade preparation, removal of excess and/or unsuitable excavated material, dewatering, and import of suitable material, as necessary to install and construct all the work defined within the Contract Documents.
3. Installation of shoring and sheeting protection as required to perform work.
4. Installation of helical piles and concrete mat slab.
5. Site restoration work including, but not limited, backfilling and compacting excavations, rough and final grading, curbing, sidewalks, paving, striping, and topsoil and seeding.
6. Road restoration including full depth asphalt with cut-back, replacement of curbs, replacement of sidewalk, and restriping, in accordance with the New York City Department of Transportation requirements.
7. Pressure testing of piping systems.
8. Disinfection and water quality testing of all water piping and treatment systems.
9. Startup participation for the various equipment and systems of the project and provide complete service to troubleshoot and assist manufacturer service representatives in obtaining a completely functional installation.
10. Project closeout submittals.

E. All other work shown and specified within the Contract Documents.

1.04 PARTIAL LISTING OF SPECIFIC CONTRACT REQUIREMENTS

A. The Contract Documents detail the work included in the Contract. Related requirements and conditions covered by the Contract Documents include, but is not limited to, the following:

1. Securing of road opening permits from the New York City Department of Transportation.
2. Guidelines and requirements of the New York City Department of Environmental Protection (NYCDEP) and Occupational Safety & Health Administration (OSHA).
3. Coordination with New York City Department of Small Business Services and Department of Buildings to obtain required permits and permit inspections.
4. Local laws and ordinances of the City of New York and the Brooklyn Navy Yard Development Corporation.
5. Guidelines and requirements of OSHA.

1.05 PARTIAL LISTING OF OVERALL CONTRACT REQUIREMENTS

A. The Contract Documents detail the work included in the Contract. Related requirements and conditions covered by the Contract Documents include, but is not limited to, the following:

1. Coordination with the Brooklyn Navy Yard Development Corporation and local consumers regarding the interruption of water service and subsequent shut-downs of existing water mains.
2. Coordination with utility companies necessary to schedule utility mark-out services and in the event of damage to existing facilities; their repair.
3. Coordination with the Brooklyn Navy Yard Development Corporation and the Engineer during flushing and testing operations.
4. Coordination with NYCDEP to temporarily shutdown service feeds.
5. Coordination with the Brooklyn Navy Yard Development Corporation, the Engineer, the Special Inspector, the New York City Department of Small Business Services and Department of Buildings, and the New York City Cross Connection Control Unit to obtain required permits and permit inspections.
6. Coordination with the New York City Department of Environmental Protection Bureau of Customer Services - Metering

B. Site safety in accordance with all applicable federal, state, and local regulations.

1.06 EXISTING CONDITIONS

A. The Drawings show certain information that has been obtained by the Owner and various utilities regarding the location of various pipelines, utilities, and structures that exist at the location of the project both below and above grade.

B. The Owner and the Engineer/Architect expressly disclaims all responsibility for the accuracy or completeness of the information given on the Drawings with regard to existing facilities.

C. In the case where the Contractor discovers an obstruction not indicated on the Drawings or not described via specification reference, then the Contractor shall immediately notify the Engineer/Architect of the obstructions' existence.

D. The Engineer/Architect will determine if the obstruction is to be relocated or removed.

E. Compensation for this extra work will be paid for in accordance with the provisions in the Contract for "EXTRA WORK".

PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION
Not Used

END OF SECTION 011113

SECTION 011400 – WORK RESTRICTIONS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Site access and control of areas outside of site.

B. Work hours, employee conduct and miscellaneous employee requirements.

C. Contract requirements related to maintaining Owner's current operations and excess inspection required.

1.02 SITE ACCESS AND CONTROL

A. The Contractor shall not close any road for any period in time unless approved ahead of time by appropriate road agency. The Contractor shall take whatever measures are necessary to not cause any inconvenience to the area's residents.

B. The Contractor is responsible to employ methods to prevent construction materials and/or debris from leaving the work areas. The Contractor is responsible to routinely monitor the areas surrounding the site during the day as well as at the end of the work-day and to immediately clean-up any area to its previous condition.

C. The Contractor shall employ methods to prevent the transmission of dirt from vehicles driving on exposed areas of the work area from reaching the surrounding roadways. The Contractor will be responsible to immediately clean the roadway, should the measures being taken by the Contractor not satisfactorily control the transmission of any dirt to the roadway.

D. Any damages to areas outside the site, spills of soil, liquid, or any other material shall immediately be repaired, cleaned and restored to its previous condition.

E. The Contractor shall comply with all state and local requirements for allowable weight limits of vehicles on all roads.

F. The Owner reserves the right to back charge the Contractor for all costs associated with maintaining areas outside the work area, which may be disturbed by the Contractor should the Contractor fail to maintain or repair the aforementioned in a condition acceptable to the Owner.

G. The Contractor shall maintain the premises in a safe condition throughout the construction period. Compliance with OSHA regulations and site safety shall be the responsibility of the Contractor as it relates to work of the Contract. The posting of all applicable OSHA safety signs shall be the responsibly of the Contractor.

H. Contractor shall be responsible for protecting private property. All existing buildings, structures, shrubs, trees, lawn fixtures, sculptures and misc. equipment shall be protected at all times. Any removals or relocation of said objects, if allowed shall be as directed by the Engineer or Brooklyn Navy Yard Development Corporation. Contractor shall protect all of the physical structures, property and improvements from damage by their Work and shall immediately repair or replace damage caused by construction operations, employees or equipment employed by the Contractor. All labor, materials and equipment and outside contractors that are employed by the Owner to repair damage caused by the Contractor shall be billed to the Contractor directly or withheld from money due the Contractor for work already completed.

I. Keep all existing driveways, roads, and parking areas free and clear of materials and equipment. Do not unreasonably encumber the work area with materials and equipment.

J. Immediately remove excess excavated material or relocate to areas on the site requiring placement of fill. Do not stockpile excess material.

K. The Contractor is responsible for cleaning up the work area. Failure to maintain a clean work site daily, will result in others performing the work and the contractor being back charged for the cleaning cost plus construction administration fees.

L. Do not discard or dispose of any waste on-site.

M. The Contractor shall be responsible for managing dust.

1.03 WORK HOURS, EMPLOYEE CONDUCT AND EMPLOYEE REQUIREMENTS

A. The Contractor will be permitted to schedule working days and hours as specified in the Contract, if no times are specified therein then the work hours shall be **Monday – Friday 8:00 am to 4:00 pm** unless otherwise noted on the contract plans or applicable permits.

B. Employees are to act in a professional manner. Any employee using inappropriate language or who is disruptive to the work environment will be banned from the site. Proper work attire is required. Shirts are to be worn at all times and no short pants are permitted.

C. Any employee found under the influence of any drug or alcohol will be banned from the site.

1.04 CONTRACT REQUIREMENTS RELATED TO MAINTAINING OWNER'S CURRENT OPERATIONS AND EXCESS INSPECTION REQUIRED

A. The Contractor shall schedule working days and hours as specified. The Contractor shall pay all excess costs for inspection services provided by the Owner/Engineer/Architect for working beyond the times specified.

PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION
Not Used

END OF SECTION 011400

SECTION 012100 - ALLOWANCES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Allowance pricing for the following items:
   1. Independent Laboratory Testing Allowance
   2. Asbestos Insulation Abatement Allowance
   3. Asbestos Paver Abatement Allowance
   4. Allowance for Disposal of RCRA Hazardous Soil
   5. Allowance for Disposal of PCB Contaminated Soil
   6. Contingency Allowance for Additional Work

B. This Section covers the requirements for use of the cash allowances listed above contained in the proposal (Bid Forms, Price Schedule) and included in the Contract Price bid by the Contractor and defines and stipulates the charges that will be paid for out of the stipulated allowances.

C. The Contractor shall include the cash allowances stipulated in this Section in the amount bid (Base Bid).

D. Eligible costs described in this Section, and Sections referenced herein, will be the only costs paid for out of the stipulated allowances.

E. All other costs associated with the project as specified and/or shown, including but not limited to the delivery, installation and all Contractor overhead and/or collateral expenses are to be distributed among the other portions of the work and shall be included in the lump sum base bid.

1.02 SUBMITTALS

A. Make all submissions under the provisions of Section 013300.

B. For each type of product/material specified to be furnished under allowance pricing provide documentation of the unit pricing on manufacturer’s letterhead certifying pricing of the product/material.

C. Submit additional backup information to substantiate the invoiced amount(s) as the Engineer/Architect may require for review and approval, prior to order or payment of item.

D. Provide written breakdowns for extra work as the Owner may require.

1.03 CHANGES TO STIPULATED (CASH) ALLOWANCE

A. If the actual cost of services differs from the cash allowance, then the Contract Price will be adjusted accordingly.

1.04 PAYMENTS TO BE MADE OUT OF TESTING ALLOWANCE

A. Include the cash allowance of **$25,000.00 (TWENTY-FIVE THOUSAND DOLLARS AND ZERO CENTS)** in the amount bid for independent testing laboratory services specified in Section 014500.

B. The actual invoiced charges of the testing laboratory, incurred for field and laboratory tests, as specified *only* in Section 014500 - Quality Control, shall be paid for out of the cash allowance.

1. Any other requirement specified herein throughout these specifications for providing the services of an independent testing laboratory or similar outside independent service are to be borne by the Contractor.
2. All costs for quality control services are to be included as part of the Contract Price (as-bid).

C. One (1) week prior to each partial payment, submit a certified invoice from each company listing and detailing the total costs incurred since the last invoice.

1. The invoice shall be on company letterhead signed by an authorized representative of the company and shall include man-hours, tests conducted, date of tests and associated costs and fees.
2. Payment for costs will not be made unless the information is provided and certified. Payment for costs will not be made unless the typed test data reports have been received by the Engineer.

D. If in the event test results (provided by the independent testing laboratory) show non-compliance with these specifications, then at the option of the Contractor and only with the approval of the Owner, he may re-test samples to verify the original test results at his/her own expense.

E. Costs for re-testing failed components of the work, when ordered by the Engineer/Architect, will not be paid for out of the cash allowance and will be directly borne by the Contractor.

F. Funds remaining at project closeout shall be credited to the Owner.

1.05 PAYMENTS TO BE MADE OUT OF ASBESTOS INSULATION ABATEMENT ALLOWANCE

A. Include the cash allowance amount indicated in the proposal for unit cost associated with the work to perform abatement of asbestos containing steam pipe insulation.

B. One (1) week prior to each partial payment, submit a certified invoice from each company listing and detailing the total costs incurred since the last invoice.

1. The invoice shall be on company letterhead signed by an authorized representative of the company and shall include man-hours, work conducted, date of work and associated costs and fees.
2. Payment for costs will not be made unless the work has been completed as determined by the Engineer.

C. Funds remaining at project closeout shall be credited to the Owner.

1.06 PAYMENTS TO BE MADE OUT OF ASBESTOS PAVER ABATEMENT ALLOWANCE

A. Include the cash allowance amount indicated in the proposal for unit cost associated with the work to perform abatement of asbestos containing pavers.

B. One (1) week prior to each partial payment, submit a certified invoice from each company listing and detailing the total costs incurred since the last invoice.

1. The invoice shall be on company letterhead signed by an authorized representative of the company and shall include man-hours, work conducted, date of work and associated costs and fees.
2. Payment for costs will not be made unless the work has been completed as determined by the Engineer.

C. Funds remaining at project closeout shall be credited to the Owner.

1.07 PAYMENTS TO BE MADE OUT OF ALLOWANCE FOR DISPOSAL OF RCRA HAZARDOUS SOIL

A. Include the cash allowance amount indicated in the proposal for unit cost associated with the disposal of excavated soil determined to be RCRA hazardous waste.

B. One (1) week prior to each partial payment, submit a certified invoice from each company listing and detailing the total costs incurred since the last invoice.

1. The invoice shall be on company letterhead signed by an authorized representative of the company and shall include man-hours, work conducted, date of work and associated costs and fees.
2. Payment for costs will not be made unless the work has been completed as determined by the Engineer.

C. Funds remaining at project closeout shall be credited to the Owner.

1.08 PAYMENTS TO BE MADE OUT OF ALLOWANCE FOR DISPOSAL OF PCB CONTAMINATED SOIL

A. Include the cash allowance amount indicated in the proposal for unit cost associated with the disposal of excavated soil CONTAINING PCBs at concentrations requiring off-site disposal.

B. One (1) week prior to each partial payment, submit a certified invoice from each company listing and detailing the total costs incurred since the last invoice.

1. The invoice shall be on company letterhead signed by an authorized representative of the company and shall include man-hours, work conducted, date of work and associated costs and fees.
2. Payment for costs will not be made unless the work has been completed as determined by the Engineer.

C. Funds remaining at project closeout shall be credited to the Owner.

1.09 PAYMENTS TO BE MADE OUT OF CONTINGENCY ALLOWANCE FOR ADDITIONAL WORK

A. Include the cash allowance of **$100,000.00 (ONE-HUNDRED THOUSAND DOLLARS AND ZERO CENTS)** in the amount bid for use upon the Owner's instructions.

B. Should any additional work be required due to unforeseen conditions or Owner requests, the cost shall be negotiated by the Engineer and paid for out of the allowance. Include allowance in lump sum amount in proposal statement. Show as separate line item in Schedule of Values.

C. One (1) week prior to each partial payment, submit a certified invoice from each company listing and detailing the total costs incurred since the last invoice.

1. The invoice shall be on company letterhead signed by an authorized representative of the company and shall include man-hours, work conducted, date of work and associated costs and fees.
2. Payment for costs will not be made unless the work has been completed as determined by the Engineer.

D. Funds remaining at project closeout shall be credited to the Owner.

PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION
Not Used

END OF SECTION 012100

SECTION 012500 – PRODUCT SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This Section includes the requirements for substitution of specified products during construction.

B. The Engineer/Architect will consider requests for substitutions only within **thirty (30)** days from the date of the Notice to Proceed *with the exception of the generator, automatic transfer switch and generator enclosure where substitutions shall be in accordance with Section 2.02.*.

C. Only products not specifically named in the bid are eligible for substitution in accordance with the requirements contained herein these specifications.

D. Products named by the Bidder, at the time of bid, shall be furnished and installed and substitutions will not be considered by the Owner/Engineer/Architect for those products named in the bid.

1.02 CONTRACTOR'S OPTIONS

A. For products specified only by reference standard, select any product meeting that standard.

B. For products specified by naming several products or manufacturers, select any one of the products or manufacturers named which complies with the Specifications.

C. Where products are not named, then submit products that meet the specifications.

PART 2 - PRODUCTS

2.01 SUBSTITUTIONS

A. Name - The Drawings and Specifications list acceptable manufacturers, commercial names, trademarks, brands and other product, material and equipment designations. Such names are provided to establish the required type, quality and other salient requirements of procurement.

B. Equals - An item equal to that named or described on the Drawings or in the Specifications may be provided by Contractor if accepted by the Engineer/Architect.

C. A request for product substitution constitutes a representation that the Contractor:

1. Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified Product.
2. Shall provide the same warranty for the Substitution as for the specified Product.
3. Shall coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner, including extra charges by other Prime Contractors, material suppliers, and vendors.

4. Waives claims for additional costs or time extension that may subsequently become apparent.
5. Shall reimburse the Owner and the Engineer/Architect for review or redesign services associated with re-approval by authorities.
6. Shall reimburse the Owner for all additional engineering services claimed by the Engineer for extra services associated with the review of the Contractor's substituted item since it could not have been originally included in the Engineer's professional engineering services agreement. Reimbursement shall be based on the man-hours expended, at current billing rates.

D. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

E. Substitution Submittal Procedure:

1. The Contractor shall submit three (3) copies of the Request for SUBSTITUTION FORM for consideration including all required information.
2. The Contractor shall use the form included within this Section.
3. All forms shall be type written.
4. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence.

F. The burden to prove product equivalence rests on the Contractor.

G. The Engineer will notify Contractor in writing of decision to accept or reject request and at that time the Contractor can make a formal submittal in accordance with the requirements contained in Section 013300.

H. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.

PART 3 - EXECUTION
Not Used

This space left intentionally blank.

REQUEST FOR SUBSTITUTION FORM

Project: _____ Substitution Request Number: _____

Contractor: _____

Address: _____

To: _____ Date: _____

H2M Project Number: _____ Owner: _____

Contract Name: _____ Contract No. _____

Specification Title: _____

Section: _____ Page: _____ Article/Paragraph: _____

Drawing No(s): _____

Proposed Substitution: _____

Manufacturer: _____ Address: _____

Trade Name: _____ Phone #:_____

Installer: _ Address: _____

Phone #: (____)_____

History: □ New product □ 2-5 years old □ 5-10 years old □ More than 10 years old

Differences between proposed substitution and specified product:

□ Point-by-point comparative data attached

Reason for not providing specified item (Attach separate sheet if necessary):

Typical Similar Installation:

Project: _____

Engineer/Architect: _____

Address: _____

Owner: _____

Date Installed: _____

Submit complete installation list on separate sheets.

Proposed substitution affects other parts of Work: ☐ No ☐ Yes

Explain:

Gross Savings to Owner for accepting substitution: $____

Proposed substitution changes Contract Time: ☐ No ☐ Yes

Add / deduct (circle): _____ days

Supporting data attached for evaluation of the proposed substitution:

☐ Product Data ☐ Photos ☐ Drawings ☐ Tests ☐ Reports ☐ Samples

☐ Other (explain): _____

Attached data includes description, specifications, drawings, photographs, performance and test data adequate for evaluation of request; applicable portions of data are clearly identified.

Attached data also includes a description of changes to Contract Documents that proposed substitution will require for its proper installation.

The undersigned certifies that the following paragraphs, unless modified by attachments, are correct:

1. Proposed Substitution has been fully checked and coordinated with Contract Documents.

2. Proposed Substitution does not affect dimensions shown on Drawings.

3. Proposed Substitution does not require revisions to any other Prime Contractor’s work.

4. The undersigned will pay for changes to building design, including Architectural and Engineering design, detailing, and construction costs caused by requested Substitution.

5. Proposed Substitution will have no adverse affect on other trades, construction schedule, or specified warranty requirements.

6. Maintenance and service parts will be locally available for proposed substitution.

7. The undersigned further states that the function, appearance, and quality of proposed Substitution are equivalent or superior to specified item.

This request for product substitution also constitutes a representation that I, as the Contractor:

1. Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified Product.

2. Shall provide the same warranty for the Substitution as for the specified Product.

3. Shall coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner, including extra charges by other Prime Contractors, material suppliers, and vendors.

4. Waives claims for additional costs or time extension that may subsequently become apparent.

5. Shall reimburse the Owner and the Engineer/Architect for review or redesign services associated with re-approval by authorities.

6. Shall reimburse the Owner for all additional engineering/architectural services claimed by the Engineer/Architect for extra services associated with the review of the Contractor's substituted item since it could not have been originally included in the Engineer/Architect's professional services agreement. Reimbursement shall be based on the man-hours expended, at current billing rates.

Contractor's Authorized Representative (Typewritten): _____

Authorized Signature: _____

Date: _____

END OF SECTION 012500

SECTION 012900 – PAYMENT PROCEDURES

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work under this Section specifies the procedures used to process partial payments

1.02 APPLICATIONS FOR PAYMENT

A. The form of application for payment shall be AIA Document G702, application and certificate for payment supported by AIA Document G703, Continuation Sheet.

B. Submit one (1) copy of each payment application, completed, signed and notarized.

C. Submit one (1) copy of the Brooklyn Navy Yard Development Corporation voucher or other required documentation.

D. Submit certified payroll receipts for all works and subcontractors. Payroll receipts shall be submitted with every application for payment. All payroll receipts shall be certified correct and notarized by a Notary in the State of New York. Application for Payment will not be processed unless all payroll receipts are received.

E. The Brooklyn Navy Yard Development Corporation will not pay for any stored materials and equipment that is not installed.

F. Contractor shall pay all workers and have all subcontractors pay all workers the prevailing New York State Dept. of Labor wage rates.

G. The Brooklyn Navy Yard Development Corporation may conduct on-site interviews with all workers to verify payment of prevailing wage rates is enforced.

H. Work or services specified in Division No. 1 or for providing miscellaneous temporary or accessory works or services, Contractor’s field office, sanitary requirements, testing, safety devices, approval and record drawings, water supplies, power, maintaining traffic, removal or waste, watchmen, bonds, insurance and all other items not directly incorporated into the work shall be included in the bid price for Item 1.

PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION
Not Used

END OF SECTION 012900

SECTION 012973 – SCHEDULE OF VALUES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Schedule of Values

1.02 SCHEDULE OF VALUES

A. Submit for approval prior to the start of the work a Schedule of Values that indicates a breakdown of the labor, materials and equipment and other costs used in the preparation of the bid. This schedule shall be in sufficient detail to indicate separate figures for such items as excavation, concrete, equipment and all other items making up the lump sum price. The cost breakdown shall be separately itemized for each lump sum bid item in the project.

B. Where the cost breakdown includes items for bond payment, insurance payment, job set-up, or job mobilization, these items will be paid based on paid invoices and copies of cancelled checks.

C. Submit a Schedule of Values to the Engineer/Architect for review and approval within fifteen (15) calendar days from the date shown on the Notice to Proceed.

1.03 FORM OF SUBMITTAL

A. Submit typewritten Contract Cost Breakdown on AIA Form G703 - Application and Certificate for Payment Continuation Sheet or EJCDC 1910-8-E. The Engineer reserves the right to revise the form or provide a form prepared by the Engineer.

B. Use the Table of Contents of the Contract Specifications as a basis for format for listing costs of work for Sections under Divisions 1-48 as sections apply to work. Not all Sections need be assigned a breakout price as determined by the Engineer/Architect.

C. Identify each line item with number and title as listed in Table of Contents.

D. Provide dollar values for each line item for labor, overhead, profit, material, and equipment components for each category of work if requested by the Engineer.

E. List quantities of materials specified under unit price allowances.

F. The Schedule of Values, after approval by the Engineer/Architect, shall be the basis for the Contractor's Application for Payment.

G. The first Application for Payment will not be reviewed prior to an approved breakdown.

1.04 PREPARATION OF SCHEDULE OF VALUES

A. In addition to the above, provide a separate line item cost for each of the following items which shall be supported by proof where requested by Architect/Engineer:

1. Performance and payment bonds.
2. Insurance.
3. Mobilization and Demobilization (Amounts shall be equal in value).
4. Temporary facilities and measures as specified in Section 015000.
5. Project Coordination Meetings as specified in Section 013100.
6. Preparation of the Project Construction Schedule, and updates, as specified in Section 013300.
7. Preparation of Weekly Schedules as specified in Section 013100
8. Rubbish removal and daily cleaning up. (Provide a total dollar amount and a daily rate for each calendar day during the contract period.)
9. All Cash Allowance items as contained in Section 012100.
10. On-site, full time superintendent starting on the date of the Notice To Proceed and ending on the date that all punch list items are completed, which for the purposes of the Schedule of Values, shall be the contract completion date.
11. Surveyor used for layout, if necessary.
12. A total dollar amount for furnishing all the Operations and Maintenance Manuals specified throughout the specifications.
13. Record Drawing retainage amount specified in Section 017839.
14. Final cleaning.

B. Show total costs including overhead and profit.

C. Provide additional details and data to substantiate the cost breakdown as requested by the Engineer.

PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION
Not Used

END OF SECTION 012973

SECTION 013100 – PROJECT MANAGEMENT & COORDINATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Work of this Section includes:

1. Requests for Interpretation or for information
2. Administration of subcontracts
3. Coordination of work with utility companies, Owner and the Engineer/Architect
4. Communication and coordination requirements

B. Site staffing requirements for the Contractor's superintendent is also specified herein, the costs for which shall be included in the Contract price.

1.02 FOR INTERPRETATION OR INFORMATION

A. The Contractor shall contact the Engineer when the Contractor feels that additional information is needed to perform the work of the Contract.

B. The Engineer/Architect's verbal response(s) to the Contractor's formal requests, if provided, shall not constitute an official response and if acted upon by the Contractor are done so at the Contractor's own risk and liability and shall not be subject to claims for additional compensation.

C. The Engineer/Architect will respond in writing to the request as soon as possible.

1.03 SUBCONTRACTOR ADMINISTRATION AND COORDINATION

A. Terms and conditions of the Contract shall be binding upon each subcontractor.

B. Provide at least one (1) copy of each approved shop drawing to each subcontractor whose work may depend upon the contents of the shop drawing submittal. The Owner reserves the right to stop all work, without claims for delay, until such time as appropriate subcontractors are furnished with appropriate shop drawings.

C. Each Contractor shall sequence and schedule the work of subcontractors, coordinate construction and administration activities of subcontractors. Subcontractor and vendor questions and clarifications shall be directed to the Engineer by the Contractor.

D. The Contractor's on-site project superintendent shall inspect all the work of all of his/her subcontractors, as it is being constructed. The Contractor's subcontractor shall not be permitted to do any work on the site without the Contractor's job site superintendent also being there to inspect the work as it is being performed.

1.04 UTILITY COORDINATION

A. Comply with the requirements of 16 NYCRR Part 753 – Protection of Underground Facilities. Submit a letter stating the case number.

B. Comply with the utility coordination requirements contained in the General Notes.

1.05 PUBLIC/PRIVATE UTILITIES

A. Notify all public and private utilities in accordance with Article 20, Section 322-a of the New York State General Business Law for location and markout of existing utilities in the vicinity of the work.

B. Repair all utilities damaged during the Work to the standards and approval of the respective utility at no cost to the Owner.

1.06 SPECIFIC COORDINATION REQUIREMENTS

A. Sequence and schedule work so as not to interfere with the work by others. Coordinate the work of this Contract with the work by others. In case of conflicts due to improper coordination by the Contractor, the Owner/Engineer's resolution will be final. No compensation will be awarded for extra work required to resolve conflicts.

B. Follow routing shown for pipes and conduit as closely as practicable. Place runs parallel with curb lines. Utilize spaces efficiently to maximize accessibility for other installations, maintenance, and to facilitate repairs.

1.07 CONTRACTOR'S JOB SITE SUPERINTENDENT

A. Employ an on-site superintendent as specified herein below. He/She shall be a full-time employee of the Contractor.

B. He/She shall have the authority to sequence and schedule the work, and to staff the project, so as not to interfere with the work by others and to complete the work daily within the time so required.

C. Each Superintendent shall have a minimum of five (5) years of experience as a job site superintendent for projects of equal size and complexity.

D. The Superintendent shall be qualified to perform the duties so required to successfully complete the work in accordance with the Contract Documents.

E. The Superintendent shall speak English. If required by the Engineer, provide a resume for the proposed superintendent that shall be typed and shall list the qualifications of the superintendent. The Contractor shall employ a superintendent acceptable to the Owner.

PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION
Not Used

END OF SECTION 013100

SECTION 013119 – PROGRESS MEETINGS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Work of this Section includes the requirements for progress meetings.

1.02 PRE-CONSTRUCTION CONFERENCE

A. The Contractor is required to attend the pre-construction conference at a location, date, and time selected by the Owner.

B. The owner, a partner, or a corporate officer representing the Contractor shall attend the conference. The job site superintendent and office project manager for the Contractor shall also attend.

C. The Engineer will prepare an agenda for the conference.

1.03 PROGRESS MEETINGS

A. Progress meetings will be held approximately once every two (2) weeks during the project. The Owner may elect to hold meetings more or less frequently.

B. At least seven (7) calendar days advance notice will be given by the Engineer or the date for the upcoming meeting will be set during the progress meeting.

C. Attendance at progress meetings shall be mandatory for all Contractors. An amount of **$500** shall be deducted from the Contract Amount for each announced meeting not attended by the Contractor.

D. The job site superintendent and/or office project manager for the Contractor shall attend.

E. Subcontractors shall attend when requested by the Owner or Engineer at no cost to the Owner.

F. Meetings will be conducted by Engineer at a location selected by the Owner, normally at or adjacent to the project site.

G. The minimum agenda will cover:

1. Review minutes of previous meetings.
2. Identify present problems and resolve them.
3. Plan work progress during next work period.
4. Review the status of off-site fabrication and delivery schedule.
5. Review shop drawings and submittal schedules.
6. Review change order status.
7. Review status of construction progress schedule.
8. Coordinate access requirements.
9. Other business related to the work.

1.04 OTHER MEETINGS

A. Attend special meetings which may be required or called for by federal, state or local authorities, utility companies, Owner, Engineer or any other firm, person, or organization related to the project.

1.05 CONDUCTING MEETINGS

A. General - This paragraph covers Owner and/or Engineer meetings with Contractor and/or his subcontractors. Neither Owner nor Engineer wishes to meet solely with a subcontractor and requests for such meetings will be discouraged. If a meeting is deemed necessary, every effort will be made to have Contractor attend. If, for some reason, circumstances do not allow such, the meeting may be held, minutes of the meeting will be sent to Contractor and decisions on any major questions will be reserved until contractor has been consulted. Subcontractors may accompany Contractor to meetings provided contractor notifies Engineer in advance.

B. Chairman - When Engineer or Engineer and Owner attend meetings, Engineer, or his duly authorized representative, will act as chairman. Should Owner-Contractor meetings be necessary, Owner will chair such meetings.

C. Notices - Engineer or Owner will issue notices of meetings to all parties concerned and will note, thereof, who must attend and who may attend if they so desire. When Contractor desires a formal meeting, make a request through Engineer. Except when Engineer determines that a prompt meeting is essential, all notices will be issued at least one week in advance of the meeting date.

D. Agenda - All parties shall inform Engineer of items desired to be discussed and Engineer will notify all parties of all items to be considered. This is to allow each party to fully prepare for the meeting. This shall not be construed to mean that other items cannot be brought up at the meetings.

E. Time Limits - It is the intent to hold productive and efficient meetings and to keep them as short as is reasonably possible. The Chairman will be the sole judge as to whether or not further discussion on any matter is warranted and all discussions shall cease when he so orders.

F. Minutes - Minutes of meetings will be kept, written and distributed by the Chairman or his duly authorized representative. Minutes of all meetings will be available upon request to the Chairman.

G. Conduct - It is the intent to conduct all meetings in an orderly manner, to reasonably discuss all items and to hear and observe the rights and opinions of all parties. The Chairman will allow each party to speak, however, he reserves the right to order any individual to leave the meeting at any time for any reason.

PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION
Not Used

END OF SECTION 013119

SECTION 013216 – CONSTRUCTION SCHEDULE

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This Section specifies the requirements for preparing construction schedules and for keeping them up to date.

B. All schedules shall be submitted in accordance with the requirements contained herein in Section 013300.

C. Refer to Section 013100 regarding the requirements for attendance at Project Coordination Meetings and additional requirements concerning the submission of other project coordination and sequencing information.

1.02 SCHEDULE PREPARATION MILESTONE DATES & REQUIREMENTS

A. The Contractor shall prepare Draft #1 Construction Schedule for presentation and discussion during *Project Coordination Meeting No. 1*.

1. The Engineer/Architect will provide at least seven (7) calendar days written notice regarding the date of the first meeting.
2. At the Engineer/Architect's discretion, *Project Coordination Meeting No. 1* may immediately take place on the same date and directly following the *Pre-Construction Conference*. The *Notice To Proceed* will contain information regarding the *Pre-Construction Conference* and *Project Coordination Meeting No. 1* should it be so decided by the Engineer.
3. Draft #1 Construction Schedule shall be prepared as specified hereinafter.

    a. The schedule shall show all the major and subordinate tasks necessary to complete the project in the specified time and interim milestones.
    b. It being understood that the Contractor's allotted time for others to perform their work is non-binding and does not relieve the Contractor from completing all the work in the specified contract completion time in accordance with the Contract Documents. It also being understood that this is the Contractor's realistic best estimate of the time needed for others to complete their related work.
    c. The schedule shall also show the dependencies and time allocated for each task.

4. The date, place, and time for *Project Coordination Meeting No. 2* shall be established at the first meeting, but in no case be more than ten (10) calendar days from the date of the first meeting.

B. As a result of the first meeting, a better understanding of the Contractor's time requirements will have been achieved. Within five (5) working days of the date of *Project Coordination Meeting No. 1*, the Contractor shall prepare Draft #2 Construction Schedule and submit it to the Engineer/Architect for review. The Contractor shall mail his/her schedule via Overnight Mail with a Return Receipt Requested.

1. *Project Coordination Meeting No. 2* shall focus on the time needed to complete each task and subordinate task and for establishing task dependencies.

2. The Contractor shall deliver to the Engineer a hard copy of his/her Draft #2 Construction Schedule at the meeting.

C. The Engineer/Architect's decision regarding the time allotted for a given task shall be final and each Contractor shall apply necessary resources to accomplish the work. Submission of a bid shall be intended to mean that the Contractor agrees that the determination is binding.

D. Once revisions to the schedule have been made after *Project Coordination Meeting No. 2*, the agreed upon schedule shall become the Final Construction Schedule. The Contractor shall mail his/her Final Construction Schedule via Overnight Mail with a Return Receipt Requested.

1.03 PRIME CONTRACTORS SCHEDULE TYPES

A. Gantt Chart Type: The Contractor shall prepare a Gantt Chart type schedule as specified hereinafter.

1.04 CONSTRUCTION SCHEDULE - GENERAL

A. Coordinate the work and maintain the construction schedule. In the event actual progress begins to lag the schedule, promptly employ additional means and methods of construction to make up the lost time.

B. Keep the construction schedule current and revise and resubmit as often as necessary to accurately reflect the conditions of the work, past progress and anticipated future progress.

C. The construction schedule shall be completed, submitted, and deemed received by the Engineer prior to the first payment application.

D. The schedule, when approved by the Engineer/Architect and the Owner, shall establish the dates for starting and completing work for the various portions of the Contract. It shall be the duty of the Contractor to conform to his/her own schedule and to perform the work within the time limits indicated. Failure to adhere to the approved schedule shall expose the Contractor to disputes, claims and additional costs incurred by others.

E. Coordinate letting of subcontracts, material purchases, shop drawing submissions, delivery of materials, and sequence of operations, to conform to the schedule.

F. Coordinate the construction schedule with the proposed schedules of the equipment suppliers and subcontractors.

G. The schedule shall be plotted out in color and shall be 36-inch by 40-inch. It shall contain as many sheets as are necessary to show all rolled down tasks. Partially printed schedules will not be accepted.

H. Prepare the schedule in a manner so that the actual progress of the work can be recorded and compared with the expected progress.

I. The schedule shall be Gantt Chart and use the following convention:

1. Tasks for the General Contractor in blue ink.
2. Task links/task dependency in blue ink.
3. Work by others in green ink.
4. Milestone dates (zero duration) by a red diamond.

5. The end date for each task and subtask at the end of a bar.
6. The description of all major tasks within the bar. The bar shall be red.
7. Critical path.

J. The construction schedule shall also show the following:

1. Critical sequence items where new units must come on-line before existing facilities go off-line, if applicable to the project.
2. Engineer's construction trailer delivery to site, if so specified in Section 015213.
3. Telephone service and high speed internet cable installation.
4. Electric service installation.
5. Gas service installation.
6. Lead time for major manufactured systems and equipment (MCC, I& C panels, treatment systems, pumps etc.)

K. Project scheduling software shall be the latest version of Microsoft Project ®

L. One licensed latest version of Microsoft Project ® shall be delivered to the Owner, which shall remain registered to the Owner after the project is completed.

1.05 REVISION OF PROJECT PROGRESS SCHEDULE

A. The Contractor shall evaluate and provide updated construction schedules monthly in accordance with job requirements. Each update shall be submitted to the Engineer/Architect for information purposes and be provided by the last Friday of every month.

B. From time to time, and at stages deemed appropriate by the Engineer/Architect, the Engineer/Architect may ask for updated schedules from the Contractor to reflect the project's status. The percent complete for each task may be shown for review by the Engineer/Architect.

PART 2 - PRODUCTS

2.01 Not Used

PART 3 - EXECUTION

3.01 Not Used

END OF SECTION 013216

SECTION 013223 - SURVEYING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Project record documents shall be prepared as specified herein.

1.02 QUALITY ASSURANCE

A. The Contractor shall employ a land surveyor licensed in the State where the project is located. The surveyor shall be acceptable to the Engineer in terms of experience and qualifications.

1. Submit evidence of the surveyor's errors and omissions (professional liability) insurance coverage in the form of an insurance certificate.
2. The surveyor shall maintain a minimum coverage of $1,000,000 for professional liability.
3. The Owner, Engineer, and Contractor shall be named as insurance certificate holders.
4. A thirty-day cancellation notice shall be provided.
5. Physical work shall not be performed until the certificate is provided and approved by the Owner.

B. All instruments used on the project shall be of professional quality and in first class condition.

1. All instruments shall have been calibrated by a manufacturer’s service station within the last twelve (12) months.
2. Submit certificate of calibration or paid invoice showing that the unit has been calibrated, if so required by the Engineer/Architect.

1.03 SUBMITTALS FOR REVIEW

A. Submit name, address, and telephone number of Surveyor before starting survey work.

B. Surveyor’s professional liability insurance certificate.

C. On request, submit documentation verifying accuracy of survey work.

D. Submit a copy of the site drawing signed by the land surveyor showing locations of other benchmarks set by the surveyor, baseline location and offset hubs. If requested, the Engineer will provide a reproducible drawing or a drawing in digital format for use by the surveyor.

1.04 EXAMINATION

A. Verify locations of survey control points prior to starting work.

B. Promptly notify Engineer/Architect of any discrepancies discovered.

1.05 SURVEY REFERENCE POINTS

A. The Contractor's surveyor shall locate and protect survey control and reference points located throughout the project site.

B. Control datum for survey is that indicated on the Drawings or will be provided by the Engineer.

C. The Contractor shall protect survey control points prior to starting any site work. Preserve permanent reference points during construction.

D. Promptly report to the Engineer/Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

1. The surveyor shall replace dislocated survey control points based on original survey control when directed by the Engineer/Architect.
2. Make no changes without prior written notice to Engineer/Architect.

E. The surveyor shall set control lath for rough and final grading purposes. Lath shall be placed at sufficient intervals to control grade or as directed by the Engineer/Architect.

F. All new structures, pits, chambers, drainage pools, curbs, roads, swales, and other physical elements shall be located by survey control.

G. Underground pipelines need not be located using survey control but shall be located using standard survey equipment operated by persons experienced in their operation.

1.06 SURVEY REQUIREMENTS

A. The Contractor shall, with his own forces, obtain working or construction lines or grades as needed subject to the check of the surveyor. The surveyor shall set offsets.

B. Establish elevations, lines, offsets and levels. Locate and lay out by instrumentation and similar appropriate means:

1. Site improvements including pavements, stakes for grading, curbs, fill and topsoil placement, utility locations, slopes and invert elevations.
2. Grid or axis for structures.
3. Building foundation, column locations, ground floor elevations, and equipment foundations.

C. The Contractor shall provide at least 48 hours notice and adequately protected access to all underground structures, valves, pipes, and utilities installed as work of this Contract to H2M prior to backfilling. Please contact H2M at least 48 hours in advance of backfilling. In the event the trench must be backfilled in less than 48 hours, the Contractor shall stake the junctions and termination points of the utility and note the depth to the top of the utility on the stake. Stakes must be protected for at least 48 hours until H2M survey can record the locations.

PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION
Not Used

END OF SECTION 013223

SECTION 013300 – SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This Section specifies the requirements for making submissions for the project. Electronic submissions will be required unless expressly noted otherwise.

1.02 IDENTIFICATION OF SUBMITTALS

A. Each and every submission shall be provided by the Contractor and shall be accompanied by a SUBMISSION TRANSMITTAL FORM. Identify each submittal and re-submittal using the form.

1.03 COORDINATION OF SUBMITTALS

A. Prior to submitting to the Engineer/Architect, fully coordinate all interrelated work. As a minimum, do the following:

1. Determine and verify all field dimensions and conditions by field measuring existing conditions and the installed work of this Contract and work by others.
2. Coordinate with all trades, subcontractors, vendors, system and equipment suppliers and manufacturers, public agencies, and utility companies and secure all necessary approvals, in writing.

B. Make submittals in groups containing all associated items that in some way depend upon each other.

1. The Engineer/Architect may elect not to review partial or incomplete submissions, whereupon he will notify the Contractor of the additional submissions that are required before a review can be made.

1.04 TIMING OF SUBMITTALS

A. Make submittals far enough in advance of scheduled dates of installation to provide time for reviews, for securing necessary approvals, for possible revisions and resubmittals, and for placing orders and securing delivery. The Engineer/Architect will review submittals in a manner as expedient as possible.

B. Submissions may be returned reviewed, unreviewed, rejected, returned conditioned upon submission of related items, or for other reasons set forth in the Contract Documents.

C. Make submissions well in advance as the returning, rejecting or disapproval of submissions or other similar circumstances are possible and are deemed "avoidable delays". Costs for these delays or those attributed to Contractor’s tardiness in making submittals shall be borne by the Contractor.

D. Submittals requiring Engineer/Architect's review as required under the technical specifications of these documents shall be submitted prior to installation.

E. If material or equipment is installed before it has been deemed to be in general compliance with the Contract Documents, as determined by the Engineer/Architect, the Contractor shall be liable for its removal and replacement at no extra charge and without an increase in contract time.

1.05 DESTINATION OF SUBMITTALS

A. Submissions shall be sent to the Engineer/Architect's office to the attention of the Project Manager whom will be named in the Notice to Proceed or at the Construction Kick-Off meeting.

B. All submittals shall be made via electronic format via e-mail or information exchange server. An information exchange server will be made available to each prime contractor by the Engineer.

C. When submitting samples, the contractor shall arrange for the delivery of said samples to the office of the Engineer. Samples shall be clearly marked with name of the project and the Engineer/Architect's project manager.

D. The Contractor is responsible for the pick-up of the sample from the Engineer's office following approval. In the event that a sample is not retrieved from the Engineer's office within thirty days of approval, it will be disposed of.

1.06 CLARITY OF SUBMITTALS

A. All printed materials shall be neat, clean, professionally drafted by hand or by computer, clear, legible, and of such quality that they can be easily reproduced by normal photocopying or blueprinting machines.

B. Information shall be separated into groups, subsystems, or similar equipment/function. Copies not conforming to this paragraph will be returned to the Contractor without the Engineer/Architect's review.

1.07 CONTRACTOR'S REPRESENTATION

A. By making a submission, the Contractor represents that he has determined and verified all field measurements and dimensions, field construction criteria, site and building constraints in terms of limitations in moving equipment into an enclosed space, materials, catalog and model numbers and similar data and that he has checked and coordinated each submission with other work at or adjacent to the project site as required

1.08 ENGINEER/ARCHITECT'S REVIEW

A. Engineer/Architect will review and comment on each submission conforming to the requirements of this Section.

1. Engineer/Architect's review will be for conformance with the design concept of the project and will be confined to general arrangement and compliance with the Contract Documents only, and will not be for the purpose of checking dimensions, weights, clearances, fittings, laying lengths, tolerances, interference's, for coordinating the work by others or subcontractors.
2. The Engineer/Architect's review of a separate item, or portion of a system, does not represent a review of an assembly or system in which the item functions.

B. The Engineer/Architect will mark submittals as follows:

1. NO EXCEPTION TAKEN ***(A)*** - No corrections, no marks. The content of this submittal has been reviewed by the Engineer/Architect and been found to be in general compliance with the Contract Documents. No further submission of this submittal is required and the information contained in the submittal may be built into the work in accordance with the Contract Documents.
2. MAKE CORRECTIONS NOTED ***(B)*** - Minor amount of corrections. The content of this submittal has been reviewed by the Engineer/Architect and has been found in general to be in compliance with the Contract Documents. The notations made on the submittal by the Engineer/Architect shall be incorporated into the work in accordance with the terms and conditions of the Contract Documents. No further submission of this submittal is required.
3. AMEND AND RESUBMIT ***(C)*** - The content of this submittal has been reviewed by the Engineer/Architect and this review has determined that additional data and/or modification to the submitted data or other changes are required to bring the work represented in this submittal into compliance with the Contract Documents. This submittal shall be reviewed and revised in accordance with the Engineer/Architect's comments and resubmitted to the Engineer/Architect for review. The information contained on the resubmittal shall not be incorporated into the work until the submittal is returned to the Contractor marked "NO EXCEPTION TAKEN" or "MAKE CORRECTIONS NOTED".
4. REJECTED ***(D)*** - The content of this submittal has been reviewed by the Engineer/Architect and has been determined not to be in accordance with the requirements contained in the Contract Document and requires too many corrections or other justifiable reason. The submittal shall be corrected and resubmitted or a submittal of an alternate shall be provided. No items are to be fabricated under this mark.
5. SUBMIT SPECIFIED ITEM ***(E)***- The content of this submittal has been reviewed by the Engineer/Architect and this review has indicated that the work displayed in the submittal is not in compliance with the Contract Documents. The Contractor shall submit another submittal for this portion of the work, which complies with the Contract Documents.
6. RECEIVED ***(R)*** - This submittal is accepted on the project and filed for record purposes only, in accordance with the terms and conditions of the Contract Documents. Documents marked "RECEIVED" will not be returned.

C. No payment will be made on any item for which a submission is required if such submission:

1. has not been made,
2. has been made but was not stamped "No Exceptions Taken" by Engineer/Architect,
3. has been made and stamped "Make Corrections Noted", but contractor has not complied with Engineer/Architect's notes marked on the submittal,
4. has been made and stamped "No Exceptions Taken", but item provided does not conform to the shop drawing nor to the Contract Documents.

D. Submittals not required by these specifications will not be recognized or processed.

E. Provide space for the Engineer/Architect's review stamp.

1.09 RESUBMISSIONS

A. Prepare new and additional submissions, make required corrections, and resubmit corrected copies until found in compliance with the Contract Documents.

B. On, or with, resubmittals, clearly describe revisions and changes made, other than the corrections requested by Engineer/Architect, which did not appear on the previous submissions.

1.10 CONTRACTOR'S RESPONSIBILITIES

A. Engineer/Architect's review of submittals shall not relieve the Contractor of his/her responsibility for any deviation from the requirements of the Contract Documents nor relieve the Contractor from responsibility for errors or omissions in the submittals.

B. No portion of the work requiring a submission shall be commenced until the Engineer/Architect has found the submission in general compliance with the Contract Documents.

C. The Contractor shall provide notification of any specification or drawing deviation.

1.11 EXCESS COSTS FOR ENGINEERING/ARCHITECTURAL SERVICES

A. The Owner will charge to the Contractor, and will deduct from the partial and final payments due the Contractor, all excess engineering and architectural expenses incurred by the Owner for extra services (work) conducted or undertaken by the Engineer/Architect as stipulated below:

1. Services and other similar charges because of the Contractor's errors, omissions, or failures to conform to the requirements of the Contract Documents as related to administrative charges associated with non-compliance with the requirements for making project submissions.
2. Services and other similar charges required to examine and evaluate any changes or alternates proposed by the Contractor and which may vary from the Contract Documents.
3. Services and other similar charges as a result of the Contractor's proposed substitution of materials, equipment or products which require a redesign of any portion of the project, as contained in the Contract Documents at the time of bid.
4. Services and other similar charges as a result of the Contractor's proposed substitution of products which require an engineering and/or architectural evaluation to determine if the substituted product is equal to that specified.
5. Services and other similar charges as a result of changes by the Contractor to dimensions, weights, sizes, voltages, phase, horsepower, materials of construction, and similar physical or operating characteristics of the product furnished which require redesign of the project in any way.
6. Services and other similar charges for the review of resubmissions of shop drawings that have been marked as "No Exceptions Taken" or "Make Corrections Noted".
7. Services and other similar charges for the review of shop drawings submitted more than two (2) times for the same product or portion of the work.

1.12 MISCELLANEOUS SUBMITTALS

A. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.13 SUBCONTRACTOR LIST

A. The Contractor shall submit within ten (10) calendar days after the date of the Notice to Proceed, a list of all subcontractors, including the names of the major subcontractors that were submitted at the time of the bid.

1.14 MATERIAL SAFETY DATA SHEETS (MSDS)

A. Comply with "Right to Know" requirements of Chapter 551 of Laws of New York, 1980, concerning notification of the use of toxic substances.

B. Any product or substance used by the Contractor or its subcontractors which is listed in Subpart Z of OSHA Part 1910 Title 29 of the Code of Federal Regulations entitled "Toxic and Hazardous Substances" shall be identified to the Owner/Engineer/Architect by the Contractor's submission of a standard Material Safety Data Sheet (MSDS) in accordance with "Right To Know" requirements.

C. Products will not be permitted to be kept on site without a MSDS.

1.15 MANUFACTURER'S INSTRUCTIONS

A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to Engineer/Architect.

B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation. Provide manufacturer's instructions with shop drawings.

1.16 CERTIFICATIONS

A. Submit certifications of compliance indicated in the Contract Documents.

B. Certifications shall be complete and exact, they shall be properly authenticated by the written signature, in ink, of an owner, officer or duly authorized representative of the person, firm or organization issuing such certification and they shall guarantee that the materials or equipment are in complete conformance with the requirements of these specifications.

PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION
Not Used

END OF SECTION 013300

SECTION 013300 - SUBMITTALS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This Section specifies the requirements for making submissions for the project. Electronic submissions will be required unless expressly noted otherwise.

B. Refer to Section 013216 - Construction Schedule for the requirements concerning the submission of construction schedules and for making updates thereto.

1.02 IDENTIFICATION OF SUBMITTALS

A. Each and every submission shall be provided by the Contractor and shall be accompanied by a SUBMISSION TRANSMITTAL FORM. The Contractor shall use the specimen form made a part of this Section. *Submittals not containing the form will be returned to the Contractor un-reviewed*. The Engineer/Architect will not review project submissions until such time as the form is competed in its entirety. Identify each submittal and resubmittal using the form.

B. Each individual submittal shall be identified with a 'submission log number' as specified here in this example: 03300.01-1

1. The Section number for which the submittal applies, followed by a period, shall be indicated, "03300.".
2. The submittal within the Section shall be indicated by the next grouping "01". For instance and in this example, the concrete design mix may be submission "01", the waterstop catalog cut may be "02", and so on. Submittals shall be sequentially numbered within the Specification Section, i.e. 01, 02, etc.
3. The number of times the submission was made shall be preceded by a dash and a numerical suffix as follows: "-1". In this example, the concrete design mix is being submitted for the first time. Use the number "1" for the first time it is being submitted.
4. Subsequent submissions of the concrete design mix shall utilize the original number and a sequential numeric suffix, i.e. "2" for a resubmission, "3" for the second resubmission, and so on. Substitute the new number for the original "1".

C. Where a layout drawing, containing different elements of the project, is being submitted and there is a question as to what the log number might be, then the Contractor shall contact the Engineer/Architect so that an agreed upon log number can be assigned.

D. It is incumbent on the Contractor to initially assign the submission log number designation to each submission. Submissions not containing a log number, as specified above, will be returned to the Contractor un-reviewed by the Engineer/Architect.

E. Every submittal shall also be accompanied by a Transmittal Letter (or "Speed Form") addressed to the Engineer/Architect's Project Manager as hereinafter defined.

1.03 COORDINATION OF SUBMITTALS

A. Prior to submitting to the Engineer/Architect, fully coordinate all interrelated work. As a minimum, do the following:

1. Determine and verify all field dimensions and conditions by field measuring existing conditions and the installed work of this Contract and work by others.
2. Coordinate with all trades, subcontractors, vendors, system and equipment suppliers and manufacturers, public agencies, and utility companies and secure all necessary approvals, in writing.

B. Make submittals in groups containing all associated items that in some way depend upon each other.

1. This also applies to color charts, as one color may not be able to be selected without the selection of other colors so as to form a color-coordinated group.
2. The Engineer/Architect may elect not to review partial or incomplete submissions, whereupon he will notify the Contractor of the additional submissions that are required before a review can be made.

1.04 TIMING OF SUBMITTALS

A. Make submittals far enough in advance of scheduled dates of installation to provide time for reviews, for securing necessary approvals, for possible revisions and re-submittals, and for placing orders and securing delivery. The Engineer/Architect will review submittals in a manner as expedient as possible, and will generally send a written response to the Contractor within seven (7) calendar days of receipt of submittals.

B. Submissions may be returned reviewed, unreviewed, rejected, returned conditioned upon submission of related items, or for other reasons set forth in the Contract Documents.

C. Make submissions well in advance as the returning, rejecting or disapproval of submissions or other similar circumstances are possible and are deemed “avoidable delays”. Costs for these delays or those attributed to Contractor’s tardiness in making submittals shall be borne by the Contractor.

D. ***All*** submittals requiring Engineer/Architect’s review (except operations manuals) as required under the technical specifications of these documents shall be submitted within **FORTY FIVE (45)** consecutive calendar days after the date of the Notice to Proceed. An amount of **$500** per calendar day shall be deducted from payment due the Contractor for ***each*** day that an outstanding submittal exists, said amount being the cost associated with the Engineer/Architect’s review.

E. Operation and maintenance manuals shall be submitted at least **FORTY-FIVE (45)** consecutive calendar days prior to scheduled startup of the unit or system.

F. If material or equipment is installed before it has been deemed to be in general compliance with the Contract Documents, as determined by the Engineer/Architect, the Contractor shall be liable for its removal and replacement at no extra charge and without an increase in contract time.

1.05 DESTINATION OF SUBMITTALS

A. Each submission of documents shall be accompanied by a transmittal form containing the name of the project, the contract name, the Engineer/Architect's project manager, a submittal ID number, and a description of content for the submitted items.

B. A copy of the TRANSMITTAL FORM shall also be provided to the Engineer/Architect's resident engineer/inspector at the job site.

C. Electronic submittals shall be transmitted through the Newforma® Project Center website or by email, pending instruction by the Engineer. H2M architects + engineers is using a project information application called Newforma® Project Center. One of its components is Newforma Info Exchange, a web application that facilitates sending and sharing transmittals, and file sharing.

D. As an external team member on this project the Contractor will be required to access the H2M architects + engineers/Newforma Info Exchange website for information related to the project, including file transfers, RFI, Submittals, Action Items, and project Calendar information. The Contractor will have access to this website using any internet-capable computer running Internet Explorer or Firefox. All data transmitted through the H2M architects + engineers/Newforma Info Exchange website is encrypted and logged. Further instructions will be provided to the Contractor after the contract is awarded.

E. Other submissions, such as material samples or other items as instructed by the Engineer, shall be sent to the Engineer/Architect's office as follows:

a. H2M architects + engineers
b. 538 Broad Hollow Road - 4th Floor East
c. Melville, New York 11747
d. Attention: H2M Project Manager (Named at Pre-Construction Conference or in the Notice to Proceed)

1.06 CLARITY OF SUBMITTALS

A. All printed materials shall be neat, clean, professionally drafted by hand or by computer, clear, legible, and of such quality that they can be easily reproduced by normal photocopying or blueprinting machines.

B. All electronic submittals shall be produced with a minimum resolution of 300 dpi.

C. Binders of information shall be separated into groups, subsystems, or similar equipment/function. Copies not conforming to this paragraph will be returned to the Contractor without the Engineer/Architect's review.

1.07 CONTRACTOR'S REPRESENTATION

A. By making a submission, the Contractor represents that he has determined and verified all field measurements and dimensions, field construction criteria, site and building constraints in terms of limitations in moving equipment into an enclosed space, materials, catalog and model numbers and similar data and that he has checked and coordinated each submission with other work at or adjacent to the project site in accordance with the requirements contained in Section 013100 - Project Management and Coordination and the Contract Documents.

B. Every SUBMISSION TRANSMITTAL FORM shall contain the Contractor's approval stamp and date showing that the submittal has been approved by the Contractor. The Engineer/Architect will not review submittals that have not yet been reviewed and approved by the Contractor.

1.08 ENGINEER/ARCHITECT'S REVIEW

A. Engineer/Architect will review and comment on each submission conforming to the requirements of this Section.

1. Engineer/Architect's review will be for conformance with the design concept of the project and will be confined to general arrangement and compliance with the Contract Documents only, and will not be for the purpose of checking dimensions, weights, clearances, fittings, laying lengths, tolerances, interference's, for coordinating the work by others or subcontractors.
2. The Engineer/Architect's review of a separate item, or portion of a system, does not represent a review of an assembly or system in which the item functions.

B. The Engineer/Architect will mark submittals as follows:

1. NO EXCEPTION TAKEN ***(A)*** - No corrections, no marks. The content of this submittal has been reviewed by the Engineer/Architect and been found to be in general compliance with the Contract Documents. No further submission of this submittal is required and the information contained in the submittal may be built into the work in accordance with the Contract Documents.
2. MAKE CORRECTIONS NOTED ***(B)*** - Minor amount of corrections. The content of this submittal has been reviewed by the Engineer/Architect and has been found in general to be in compliance with the Contract Documents. The notations made on the submittal by the Engineer/Architect shall be incorporated into the work in accordance with the terms and conditions of the Contract Documents. No further submission of this submittal is required.
3. AMEND AND RESUBMIT ***(C)*** - The content of this submittal has been reviewed by the Engineer/Architect and this review has determined that additional data and/or modification to the submitted data or other changes are required to bring the work represented in this submittal into compliance with the Contract Documents. This submittal shall be reviewed and revised in accordance with the Engineer/Architect's comments and resubmitted to the Engineer/Architect for review. The information contained on the resubmittal shall not be incorporated into the work until the submittal is returned to the Contractor marked "NO EXCEPTION TAKEN" or "MAKE CORRECTIONS NOTED".
4. REJECTED ***(D)*** - The content of this submittal has been reviewed by the Engineer/Architect and has been determined not to be in accordance with the requirements contained in the Contract Document and requires too many corrections or other justifiable reason. The submittal shall be corrected and resubmitted or a submittal of an alternate shall be provided. No items are to be fabricated under this mark.
5. SUBMIT SPECIFIED ITEM ***(E)***- The content of this submittal has been reviewed by the Engineer/Architect and this review has indicated that the work displayed in the submittal is not in compliance with the Contract Documents. The Contractor shall submit another submittal for this portion of the work, which complies with the Contract Documents.
6. RECEIVED ***(R)*** - This submittal is accepted on the project and filed for record purposes only, in accordance with the terms and conditions of the Contract Documents. Documents marked "RECEIVED" will not be returned.

C. No payment will be made on any item for which a submission is required if such submission:

1. has not been made,
2. has been made but was not stamped “No Exceptions Taken” by Engineer/Architect,
3. has been made and stamped “Make Corrections Noted”, but contractor has not complied with Engineer/Architect’s notes marked on the submittal,
4. has been made and stamped “No Exceptions Taken”, but item provided does not conform to the shop drawing nor to the Contract Documents.

D. Submittals not required by these specifications will not be recognized or processed.

E. Suffolk County Department of Public Works standard review stamp will be used containing similar notations.

F. Provide an 8-inch by 10-inch space for the Engineer/Architect’s review stamp.

1.09 RESUBMISSIONS

A. Prepare new and additional submissions, make required corrections, and resubmit corrected copies until found in compliance with the Contract Documents.

B. On, or with, re-submittals, clearly describe revisions and changes made, other than the corrections requested by Engineer/Architect, which did not appear on the previous submissions.

1.10 CONTRACTOR’S RESPONSIBILITIES

A. Engineer/Architect’s review of submittals shall not relieve the Contractor of his/her responsibility for any deviation from the requirements of the Contract Documents nor relieve the Contractor from responsibility for errors or omissions in the submittals.

B. No portion of the work requiring a submission shall be commenced until the Engineer/Architect has found the submission in general compliance with the Contract Documents.

C. The Contractor shall provide written notification of any specification or drawing deviation.

1.11 EXCESS COSTS FOR ENGINEERING/ARCHITECTURAL SERVICES

A. The Owner will charge to the Contractor, and will deduct from the partial and final payments due the Contractor, all excess engineering and architectural expenses incurred by the Owner for extra services (work) conducted or undertaken by the Engineer/Architect as stipulated below:

1. Services and other similar charges because of the Contractor’s errors, omissions, or failures to conform to the requirements of the Contract Documents as related to administrative charges associated with non-compliance with the requirements for making project submissions.
2. Services and other similar charges required to examine and evaluate any changes or alternates proposed by the Contractor and which may vary from the Contract Documents.
3. Services and other similar charges as a result of the Contractor’s proposed substitution of materials, equipment or products which require a redesign of any portion of the project, as contained in the Contract Documents at the time of bid.

4. Services and other similar charges as a result of the Contractor's proposed substitution of products which require an engineering and/or architectural evaluation, beyond the time stipulated in Section 012500, to determine if the substituted product is equal to that specified.
5. Services and other similar charges as a result of changes by the Contractor to dimensions, weights, sizes, voltages, phase, horsepower, materials of construction, and similar physical or operating characteristics of the product furnished which require redesign of the project in any way.
6. Services and other similar charges for the review of resubmissions of shop drawings that have been marked as "No Exceptions Taken" or "Make Corrections Noted".
7. Services and other similar charges for the review of shop drawings submitted more than two (2) times for the same product or portion of the work.

1.12 MISCELLANEOUS SUBMITTALS

A. Provide a Submittal Schedule within seven (7) calendar days from the date of the Notice to Proceed. The Submittal Schedule shall list all submittals for the project referenced by draft log number. Provide the estimated date that the submittal will be transmitted to the Engineer/Architect for review.

B. Within seven (7) calendar days from the date of the Pre-Construction Meeting, submit a Proposed Products List. This list shall be a complete listing of all products proposed for use, with name of manufacturer, service headquarters, trade name and model number of each product. Partial listings will not be accepted.

C. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.13 SUBCONTRACTOR LIST

A. The Contractor shall submit, on AIA Form G705, within THIRTY (30) calendar days after the date of the Notice to Proceed, a list of all subcontractors, including the names of the major subcontractors that were submitted at the time of the bid.

B. Indicate M/WBE subcontractors in accordance with the requirements contained in other portions of the Project Manual.

1.14 MATERIAL SAFETY DATA SHEETS (MSDS)

A. Comply with "Right to Know" requirements of Chapter 551 of Laws of New York, 1980, concerning notification of the use of toxic substances.

B. Any product or substance used by the Contractor or its subcontractors which is listed in Subpart Z of OSHA Part 1910 Title 29 of the Code of Federal Regulations entitled "Toxic and Hazardous Substances" shall be identified to the Owner/Engineer/Architect by the Contractor's submission of a standard Material Safety Data Sheet (MSDS) in accordance with "Right To Know" requirements.

C. Products will not be permitted to be kept on site without a MSDS.

1.15 SHOP DRAWINGS

A. Submit shop drawings for all fabricated work, for all manufactured items and for items specifically required by the specifications.

B. Submit each shop and layout drawing to Engineer/Architect in the form of one (1) quality reproducible transparency and two (2) prints.

1. After the submittal has been reviewed by the Engineer/Architect, the transparency will be annotated, prints will be made for Engineer/Architect's and Owner's use, records, and distribution.
2. Engineer/Architect will return the transparency to the Contractor.
3. Send one print to the Owner as specified above.

C. Submit one (1) electronic copy of each standard drawing, catalog cut, or other material. All shop drawings or submittals that are not in the standard 8-1/2" x 11" format shall be submitted both electronically and in paper. Samples shall be delivered directly to the office of the Engineer/Architect. The Engineer/Architect will return an electronic copy of each submittal once reviewed.

D. Subcontractors shall submit shop drawings directly to the Contractor for checking. Thoroughly check subcontractors' shop drawings for measurements, sizes of members, details, materials, and conformance with the Contract Documents.

1. Return submittals which are found to be inaccurate or in error.
2. Do not submit to the Engineer/Architect until all corrections have been made.

E. Clearly show the relationship of the various parts of the project and where the information provided on the submission depends upon field measurements and existing conditions.

F. The Contractor shall make all measurements, confirm existing conditions, and include them on the shop drawings before making a submission to the Engineer/Architect.

G. Submissions for a single item, or group of related items shall be complete.

H. When submitting manufacturers' catalogs, pamphlets or other data sheets, in lieu of prepared shop drawings, clearly mark the items being submitted for review.

I. If the shop drawings contain any departures from the contract requirements, specifically describe them in the letter of transmittal.

1. Where such departures require revisions to layouts, structural, architectural, electrical, HVAC or any other changes to the work as shown, Contractor shall, at his own expense, prepare and submit revised drawings accordingly.
2. Make drawings the same size as the Contract Drawings and to the same scale.

1.16 SAMPLES

A. Where required, or where requested by the Engineer/Architect, submit sample or test specimens of materials to be used or offered for use.

1. Samples shall be representative, in all respects, of the material offered or intended, shall be supplied in such quantities and sizes as may be required for proper examination and tests, and shall be delivered to Engineer/Architect, prepaid, along with identification as to their sources and types of grades.
2. Submit samples well in advance of anticipated use to permit the making of tests or examinations.

B. Samples will be checked for conformance with the design and for compliance with the Contract Documents.

C. Work shall be in accordance with the approved sample. The use of materials or equipment for which samples are requested or required to be submitted is not permitted until such time that the Engineer/Architect has completed his review.

1.17 MANUFACTURER'S INSTRUCTIONS

A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to Engineer/Architect.

B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation. Provide manufacturer’s instructions with shop drawings.

1.18 CERTIFICATIONS

A. Submit certifications of compliance indicated in the Contract Documents.

B. Certifications shall be complete and exact, they shall be properly authenticated by the written signature, in ink, of an owner, officer or duly authorized representative of the person, firm or organization issuing such certification and they shall guarantee that the materials or equipment are in complete conformance with the requirements of these specifications.

1.19 COLORS AND PATTERNS

A. Unless the precise color and pattern are specified, whenever a choice of color or pattern is available in a specified product, submit accurate color and pattern charts for Engineer/Architect’s and Owner’s review and selection.

1.20 MANUFACTURER’S SERVICE CENTER

A. The product of a manufacturer who does not maintain an adequate nearby service center and a sufficient stock of spare parts are subject to rejection by Engineer/Architect solely on that basis.

B. With each submission, submit information on manufacturer’s facilities and give complete details of his service policies and capabilities, and a general idea of the stock of spare parts available. Submit this information in the form of a certification. Also include names, addresses and telephone numbers of at least three of the service center’s present customers who are in the area of the project.

1.21 TEST RESULTS AND INSTALLATION

A. Whenever field startup services are specified, the Contractor shall obtain from the manufacturer and submit to the Engineer/Architect Manufacturer Startup Reports (MSR's). The report shall detail the results of the field visit and all special conditions resulting from the startup.

B. Whenever field or factory tests are required on materials, equipment and systems, such tests shall be performed and the test results submitted to Engineer/Architect in the form of a MSR.

C. Do not deliver to the project or incorporate into the work any materials or equipment for which Engineer/Architect has not completed his review and found same to be in general conformance with the Contract Documents.

D. Submit MSR's within thirty (30) calendar days after the date of the startup or factory test.

1.22 SPARE PARTS LIST

A. Prepare a list of all spare parts specified to be provided in other Sections. Compile the total list for the purposes of reviewing actual spare parts delivered versus spare parts specified to be provided. The list shall reference the Section, model number, and quantity to be provided.

1.23 WAIVER OF CERTAIN SUBMITTAL REQUIREMENTS

A. Unless otherwise specified, the requirement to submit data and samples for products specified for approval will be waived for products specified by brand name if the specifically named products are furnished for the work. In such cases, the Contractor shall submit two (2) copies of required Product Data directly to the Engineer/Architect's field representative for information and verification during its incorporation into the work. The SUBMISSION TRANSMITTAL FORM shall always be used.

PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION
Not Used

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SUBMISSION TRANSMITTAL FORM
OWNER'S NAME:
PROJECT NAME & CONTRACT DESIGNATION:
CONSTRUCTION CONTRACT NO.:

<table>
<tr><td>Product, Item, or System Submitted:</td><td colspan="3"></td></tr>
<tr><td>Submission Date:</td><td></td><td>Submission Log No.:</td><td></td></tr>
<tr><td>Specification Section:</td><td></td><td>Paragraph Reference:</td><td></td></tr>
<tr><td>Contract Drawing Reference(s):</td><td colspan="3"></td></tr>
<tr><td>Manufacturer's Name:</td><td colspan="3"></td></tr>
<tr><td>Manufacturer's Mailing Address:</td><td colspan="3"></td></tr>
<tr><td rowspan="2">Manufacturer's Contact Information:</td><td></td><td>( )</td><td></td></tr>
<tr><td>Name</td><td>Tel. no.</td><td>Email</td></tr>
<tr><td>Supplier's Name:</td><td colspan="3"></td></tr>
<tr><td>Supplier's Mailing Address:</td><td colspan="3"></td></tr>
<tr><td rowspan="2">Supplier's Contact Information:</td><td></td><td>( )</td><td></td></tr>
<tr><td>Name</td><td>Tel. no.</td><td>Email</td></tr>
<tr><td colspan="2">This item is a substitution of the specified item:</td><td>☐ No</td><td>☐ Yes</td></tr>
<tr><td colspan="2" rowspan="2">Contractor's Approval Stamp with Signature & Date</td><td colspan="2">Contractor's Brief Comments or Remarks
(attach separate letter as needed):</td></tr>
<tr><td colspan="2">By making this submission, we represent that we have determined and verified all field measurements and dimensions, field construction criteria, site and building constraints in terms of limitations in moving the item into the enclosed space, materials, catalog and model numbers and similar data and that we have checked and coordinated this submission with other work at or adjacent to the installed location in accordance with the requirements contained in the Contract Documents.</td></tr>
</table>

END OF SECTION 013300

SECTION 014100 – REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Codes

B. Governing agencies

C. Permits

1.02 CODES

A. Comply with the requirements of the various codes referred to in these Specifications. Such codes shall be the date of the latest revision in effect at the time of receiving bids.

B. If there is a conflict between local, state, and/or Federal regulatory requirements, seek a consultation with the State Department of Labor. Resolve conflicts to the satisfaction of the State Department of Labor prior to commencing work.

1.03 GOVERNING AGENCIES

A. All work shall conform to and be performed in strict accordance with all governing agencies such as, but not limited to:

1. Occupational Safety and Health Act - OSHA
2. New York City Department of Environmental Protection
3. New York City Codes, Rules, Laws, and Ordinances
4. New York State Department of Health
5. Brooklyn Navy Yard Development Corporation Codes, Rules, Laws and Ordinances
6. New York City Department of Small Business Services Codes and Requirements
7. New York City Department of Buildings
8. New York City Department of Transportation

1.04 PERMITS AND INSPECTIONS

A. Representatives of the Owner shall have access to the work for inspection purposes. The Contractor shall provide facilities suitable to the Owner to facilitate inspections of the installed work.

B. The Contractor shall provide adequate time in the construction schedule for required permit inspections.

C. A list of special permit inspections required on this project are attached to this project specification as Appendix A.

D. Obtain and pay for all permits, fees, licenses, certificates, inspections and other use charges required in connection with the work.

E. A meter installation permit shall be obtained from the NYC DEP Bureau of Customer Services – Metering.

F. All road opening permit fees are the responsibility of the contractor. The contractor shall contact the New York Department of Transportation to assess the total fee charged.

1.05 COORDINATION WITH GAS/ELECTRIC/TELEPHONE/CABLE UTILITY COMPANY

A. Comply with the gas/electric/telephone/cable utility companies regarding excavation around or in the vicinity of existing facilities.

1.06 COORDINATION WITH WATER UTILITY

A. Make necessary connections to existing public water mains under supervision of the water utility representative, New York City Department of Environmental Protection, Bureau of Water Supply Operations.

1.07 UTILITY WORK WITHIN RIGHT-OF-WAY

A. Utility Work, either overhead or underground, within the boundaries of the NYC right-of-way, shall conform to procedures set forth by the applicable permits.

PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION
Not Used

END OF SECTION 014100

SECTION 014500 – QUALITY CONTROL

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Requirements for monitoring the quality of the constructed project.

B. Work of this Section also includes services of an independent testing laboratory for quality assurance testing.

1.02 REFERENCES

A. ASTM C1077 - Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation.

B. ASTM D3740 - Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.

C. ASTM D4561 - Practice for Quality Control Systems for an Inspection and Testing Agency for Bituminous Paving Materials.

D. ASTM E548 - Practice for Preparation of Criteria for Use in the Evaluation of Testing Laboratories and Inspection Bodies.

E. ASTM E699 - Practice for Criteria for Evaluation of Agencies Involved in Testing, Quality Assurance, and Evaluating Building Components in Accordance with Test Methods Promulgated by ASTM Committee E6.

1.03 QUALITY ASSURANCE - CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.

B. Comply with specified standards as a minimum quality for the work except when more stringent tolerances, codes, or specified requirements indicate higher standards or workmanship that is more precise.

C. Perform work by persons qualified to produce workmanship of specified quality.

D. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

E. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

1.04 QUALITY ASSURANCE - TESTING LABORATORY

A. In order to establish compliance with the Contract Documents, materials shall be tested, examined and evaluated before they are incorporated into the work. During and after installations, additional tests, examinations, and evaluations shall be made to determine continued compliance throughout the course of the work.

B. Testing laboratory shall be a reputable, experienced firm that is capable of performing all of the required testing and authorized to operate in the state in which the project is located.

C. Perform all sampling and testing in accordance with specified procedures and use the materials, instruments, apparatus, and equipment required by the codes, regulations and standards. Where specific testing requirements or procedures are not described, perform the testing in accordance with all pertinent codes and regulations and with recognized standards for testing.

D. In the event that samples and test specimens are not properly taken, handled, stored or delivered or if other requirements of this Section are not complied with, Engineer/Architect reserves the right to delegate any or all of this work to others, or to take whatever action deemed necessary to ensure that sampling and testing are properly accomplished, for which all costs shall be borne by Contractor.

E. Engineer/Architect reserves the right to disapprove the use of a specific testing laboratory, even after prior approval, if the laboratory fails to meet or comply with the requirements of this Section. If this should occur, immediately discharge the testing laboratory and retain the services of a different laboratory acceptable to Engineer/Architect.

F. The testing laboratory shall meet the following criteria:

1. Be capable of performing all of the required tests.
2. Be regularly engaged in performing the types of services required.
3. Have adequate facilities, materials, equipment, and personnel to perform the services.
4. Have an adequately trained, experienced and qualified staff.
5. Have at least one registered professional engineer licensed in the state in which the project is located who shall be capable of performing field tests, supervising laboratory testing and interpreting test results. The professional engineer shall be thoroughly knowledgeable in materials, soils, asphalt paving and concrete.
6. Shall be able to be on the Project site within two hours after being notified.
7. Comply with the requirements of ASTM C1077, ASTM D3740, ASTM D4561, ASTM E548 and ASTM E699.

G. Testing Equipment: Calibrated at reasonable intervals with devices of accuracy traceable to either National Bureau of Standards or accepted values of natural physical constants.

1.05 REFERENCES

A. Conform to reference standards by date that the project was last bid.

B. Obtain copies of standards when required by Contract Documents.

C. Should specified reference standards conflict with Contract Documents, request clarification from Engineer/Architect before proceeding.

D. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.06 SUBMITTALS

A. Within seven (7) calendar days from the date of the Notice to Proceed, submit documentation from testing laboratories that clearly indicates experience, location, qualifications of staff, and descriptions of any limitations or restrictions of the firm.

B. Certified copies of each test report shall be mailed directly to the Engineer/Architect. The Contractor shall arrange with the laboratory to secure copies.

C. Each report shall be in writing and shall include the testing method used, the test results, the specified results, the exact location of where the test specimens were taken, the date taken, Project identification, Contractor's name and other pertinent information required for a complete and meaningful test report.

D. Each report shall be signed and certified by a responsible officer of the testing laboratory.

E. Mail reports directly to Engineer/Architect within 24 hours after the sample is taken, except in those instances when tests cannot be immediately performed because of required curing, incubation periods, or lengthy testing procedures.

F. The laboratory shall verbally communicate test results when requested by the Engineer/Architect. This does not eliminate nor replace the requirements for a written report.

1.07 SCHEDULING - LABORATORY SERVICES

A. Except where otherwise specified, the Engineer/Architect will determine the number of samples to be taken, the date and time samples will be taken and tests made, the number and type of tests to be performed, who will collect the samples, how they will be handled and stored and when laboratory personnel are required on site.

B. Engineer/Architect will notify Contractor of his decision to take samples and/or have tests made and provide him with the pertinent information. Contractor is responsible for notifying the testing laboratory and for having the testing performed, on schedule.

C. Contractor shall make his own arrangements for the sampling and testing of materials he proposes to incorporate into the work.

D. Notify Engineer/Architect at least 72 hours in advance of the times at which scheduled samples or tests will be conducted.

E. If samples and/or tests cannot be taken or performed when required, delay the work until such time that they can be accomplished. Where possible, any work that has been installed but has not been sampled or tested as required shall be tested by other means. Upon Engineer/Architect's request, uncover any work, which has been buried or covered, and perform special tests designated by Engineer/Architect. If the work cannot be tested by other means, Engineer/Architect may declare the work unacceptable. All costs associated with noncompliance and for special testing shall be borne by the Contractor.

F. Should the testing laboratory be scheduled to take or collect samples or to perform tests, and finds that it is unable to do so as a result of delays in construction, inclement weather, or any other reason, reschedule the tasks for a date acceptable to Engineer/Architect. Costs associated with times testing laboratory is unable to perform scheduled services shall be borne by the Contractor and will not be paid for under the allowance.

G. Plan all work and operations to allow for the taking and collection of samples and allow adequate time for the performance of tests. Delay the progress of questionable work until the receipt of the certified test reports.

1.08 TESTING REQUIREMENTS

A. Compaction Testing - Soil:

1. Perform compaction testing in accordance with ASTM D2922, Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth) or ASTM D1556 Density and Unit Weight of Soil In Place by the Sand Cone Method.
2. Perform tests and analysis of fill material in accordance with ANSI/ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 55-lb. Rammer and 12-inch Drop.

B. Compaction Testing - Asphaltic Concrete Pavement:

1. Perform asphaltic concrete compaction testing in accordance with ASTM D2950 - Standard Test Method of Density of Bituminous Concrete in Place by Nuclear Methods.
2. Calibrate nuclear density measurement equipment based on theoretical maximum specific gravity of asphaltic concrete pavement material.
3. Perform test to determine theoretical maximum specific gravity in accordance with ASTM D2041 Theoretical Maximum Specific Gravity of Bituminous Pavement Mixtures. Perform test on mix at plant prior to delivery. Collect sample at plant in accordance with ASTM D979 - Sampling Bituminous Paving Mixtures and perform test in approved laboratory if plant does not have necessary equipment.

C. Asphalt Testing:

1. Collect samples at point of delivery in accordance with ASTM D979, Standard Practice for Sampling Bituminous Paving Mixtures.
2. Perform extraction test in accordance with ASTM D2172, Standard Test Methods for Quantitative Extraction of Bitumen from Bituminous Paving Mixtures.
3. Perform gradation test in accordance with ASTM C136, Method for Sieve Analysis of Fine and Coarse Aggregates.

D. Concrete Testing:

1. Collect samples in accordance with ASTM C172, Practice for Sampling Freshly Mixed Concrete.
2. Make test cylinders in accordance with ASTM C31, Standard Practice for Making and Curing Concrete Test Specimens in the Field.
3. Test concrete cylinders in accordance with ASTM C39, Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
4. Test slump and air entrainment.

E. Water Quality Testing:

1. See Section 331300

1.09 TESTING SCHEDULE

A. Compaction Testing of Soil:

1. Pipe Installation: 1 test per 100 linear feet per foot of backfill.
2. Pavement Subgrade: 1 test per 50 square feet per lift.

B. Asphalt Testing: 1 test per 50 square feet per course.

C. Compaction Testing of Pavement: 1 test per 50 square feet per course.

D. Concrete Testing: Make six (6) concrete test cylinders for each 50 c.y. or fraction thereof.

1. Test two (2) cylinders at 7 days.
2. Test two (2) cylinders at 28 days.
3. The remaining cylinders shall be tested at a time to be determined by the Engineer. This requirement shall be subject to change as required by the Engineer.

E. Water Quality Testing: See Section 331300

1.10 FIELD OBSERVATION OF CONTRACTOR'S WORK

A. The Engineer/Architect will provide periodic observation of the Contractor's work.

1.11 SPECIAL INSPECTION OF CONTRACTOR'S WORK

A. The Special Inspector will conduct the required permit inspections of the Contractor's work.

B. A list of special permit inspections required on this project are attached to this project specification as Appendix A.

PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions. Verify that the existing substrate is capable of structural support or attachment of new Work being applied or attached. Examine and verify specific conditions described in individual specification sections. Verify that utility services are available, of the correct characteristics, and in the correct locations.

3.02 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance. Seal cracks or openings of substrate prior to applying next material or substance.

B. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 FIELD QUALITY CONTROL

A. Allow representatives of the testing laboratory access to the work at all time. Provide all equipment, labor, materials, and facilities required by the laboratory to properly perform its functions. Cooperate with and assist laboratory personnel during the performance of their work.

B. Test specimens and samples shall be taken by the person(s) designated in other Sections, or as directed by Engineer/Architect. Conduct field sampling and testing in the presence of Engineer/Architect. Provide all materials, equipment, facilities and labor for securing samples and test specimens and for performing all field-testing.

END OF SECTION 014500

SECTION 015000 – TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This Section supplements the General Conditions.

B. The Work of this Section includes temporary facilities, utilities, and controls to be furnished by the Contractor for this project as it is specified herein.

1.02 CARE AND PLACEMENT

A. All temporary and permanent facilities and controls and all other elements on the project site shall meet all standards of the Occupational Safety and Health Act of 1970 and subsequent revisions. The Contractor shall comply with all requirements of the Act.

B. The Contractor shall take every precaution and shall provide such equipment and facilities as are necessary or required for the safety of its employees and persons at the site.

C. In the event of damage to existing and/or temporary facilities then immediately make all repairs and replacements to an equal condition prior to the event.

1.03 QUALITY PERFORMANCE

A. Comply with and perform all work in accordance with the requirements of local authorities and utility companies having jurisdiction, and all applicable codes, regulations and ordinances.

B. Secure approvals from the appropriate jurisdictions and utility companies on all repairs, relocations, connections, disconnections and the Work.

C. All barricades, warning signs, lights, temporary signals and other protective devices shall conform with “Manual on Uniform Traffic Control Devices for Streets and Highways”, US Government Printing Office.

1.04 SUBMITTALS

A. The Contractor shall provide a list of contact numbers as follows:

1. Contractor’s superintendent and office project manager (home, beeper, cellular, office, fax, trailer, and email address).
2. All subcontractors.
3. All utility companies.
4. Emergency services such as fire department, police, and ambulance.
5. The Contractor shall also submit the following:
6. Name and qualifications of person or persons who shall be available to render first aid.

7. Names, addresses and telephone numbers of personnel who can be telephoned and act on behalf of Contractor in the event of emergencies or other problems requiring prompt attention during winter shutdown, holidays, nights and other periods when the Contractor's superintendent may be absent from the project site.

B. The Contractor shall provide a sketch showing routing of temporary water service for construction purposes and for exfiltration tank testing. Provide cuts and plumber's certification for backflow device(s).

1.05 CONTRACTOR'S RESPONSIBILITY

A. The Contractor shall be responsible for the installation, performance, maintenance, and repair of all temporary facilities and controls specified herein this Section as originally provided.

B. The Owner reserves the right to immediately correct a Contractor caused action, if in the opinion of the Owner, the situation may result in the immediate loss of life, property, and degradation of the environment. The costs for actions taken by the Owner shall be deducted from money due or to become due the Contractor. Amounts in excess shall be paid by the Contractor.

C. If the Contractor caused situation is not deemed immediate, then the Contractor shall, within 24 hours of receipt of written and/or verbal notice, correct the defect or unsatisfactory condition.

D. The Owner may repair, correct, replace, or install temporary facilities to correct the situation if the Contractor fails to perform within the allowed time. The costs to make the corrections shall be deducted from money due or to become due the Contractor. Amounts in excess shall be paid by the Contractor.

PART 2 - PRODUCTS

2.01 GENERAL

A. The Owner may use temporary power lines, pipes, roadways or other facilities that each Contractor furnishes, installs, and maintains (then removes at the completion of the work), during the period of construction.

B. The location of all temporary power lines, roadways, and other necessary temporary facilities shall be subject to the approval of the Engineer, and these shall be located and operated so as not to interfere with the operation of the facilities.

2.02 WATER FOR CONSTRUCTION PURPOSES

A. The Contractor shall obtain water from the nearest potable water source as designated by the Owner.

B. The Owner will pay for water usage for general construction activities such as dust control and for sanitary purposes, like hand washing.

C. Potable water, used for pipe exfiltration testing, process tank testing, storage tank testing, or elevated water storage tank testing, will not be paid for by the Owner. The Contractor shall include the costs for water for this purpose in the price as-bid.

D. The Contractor shall install his or her own backflow prevention device at the supply point where it is connected to the Owner's system.

1. The water purveyor shall approve the device.
2. The device shall be tested and certified as functioning properly.
3. Post the certification in a location acceptable to the water purveyor.

E. A water meter shall also be installed on any water service lines used to supply water for exfiltration testing.

F. The Contractor shall exercise measures to conserve water.

G. Provide insulation and heat tracing to prevent freezing of temporary piping. Drain hoses at the end of each use.

H. The Contractors, subcontractors, and personnel involved in the project shall be permitted to use water for construction purposes as provided under this paragraph.

2.03 SANITARY FACILITIES

A. The Contractor shall provide and maintain temporary toilet facilities for use by all contractors.

B. These facilities shall be maintained in a strictly sanitary manner and be screened from the general public.

C. All facilities shall be in accordance with the Occupational Safety and Health Act (OSHA) standards and all other applicable local codes.

D. All applicable codes and regulations regarding the maintenance and method of waste disposal for these facilities will be strictly enforced. These facilities shall be of the portable type.

E. The Owners sanitary facility will not be available for use by any contractor.

F. Comply with the requirements also contained in Section 015719 – Temporary Environmental Controls.

G. The Contractor shall provide and pay for heating devices and fuel as required to maintain adequate heat for specific construction operations; i.e. painting, application of coatings, etc., where so specified elsewhere in these specifications.

H. Maintain minimum ambient temperature of 40 degrees F in areas where construction is in progress, unless indicated otherwise in specifications or as required by proposed working conditions and manufacturer's installation/application instructions.

2.04 VENTILATION

A. The Contractor shall ventilate enclosed areas to assist in the curing of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors or gases.

2.05 BARRIERS AND PROTECTION

A. The Contractor shall provide railings, barricades, signs, fences and other protective devices to prevent unauthorized entry to construction areas, to allow for the Owner's safe use of the site and to protect existing facilities and adjacent structures from damage from the work.

B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing buildings.

C. Provide protection for plant life designated to remain.

D. Protect vehicular traffic, stored materials, public utilities, site and structures from damage.

E. Provide warning signs, detour signs and other traffic control devices to insure the safety of plant operators and to adequately direct traffic around the work. Illuminate barricades, obstructions, and warning signs from sunset to sunrise.

2.06 TEMPORARY FENCING

A. The Contractor is responsible for performance compliance with OSHA standards.

B. The Contractor shall provide temporary safety fence around all open excavations or other dangerous conditions on the construction site.

1. All temporary safety fencing shall be designed and erected in compliance with OSHA standards, but in no case less stringent than these specifications for fencing.
2. Fence is to be bright orange in color, a minimum of 4 feet high, and properly secured using 1” diameter steel pipe at 4’-0” on-center as support posts.
3. Stake each support post to a depth of 18” and tamp securely into place.
4. Each post shall be plumb.
5. Secure fencing to posts using heavy-duty 12” long cable ties or tie wire.
6. The fence and supports shall remain the property of the Contractor and be promptly removed at the appropriate time.
7. Post the following sign every 100-ft. along the perimeter of the fence: “RESTRICTED AREA KEEP OUT”.

    a. Each sign shall be commercially printed and be 18” x 36”.
    b. It shall be secured to the fence with heavy-duty tie wraps.

2.07 TEMPORARY HANDRAILS AND SCAFFOLDS

A. All temporary handrailing and scaffolds shall be designed and erected in compliance with OSHA standards. Each Contractor is responsible for performance compliance with OSHA standards.

B. Handrails shall be securely installed and maintained in accordance with OSHA regulations until the permanent railing or grating has been permanently installed and approved by the Engineer.

C. All scaffolding and platforms shall be erected in a safe and substantial manner complying with OSHA requirements.

D. All temporary handrails and scaffolds shall be designed by a professional engineer licensed in the state where the project is being constructed.

1. The design drawings and details shall be stamped by the licensed engineer and submitted for record purposes.
2. The Contractor's design engineer shall visit the site to certify that the handrailing and/or scaffolds have been erected pursuant to the stamped design.

E. The Contractor shall protect all openings in building/structures of any type such as shafts, deck openings, and other building related chases.

F. The Contractor shall also install two (2) separate temporary handrailing installations at two (2) separate stages of the construction for all structures where OSHA requires handrailing is to be provided.

1. OSHA approved wooden railing shall be installed at the point where the deck platform formwork is proceeding and before reinforcement steel is placed.

    a. Railing shall be installed using the bridge brackets used to construct the cantilevered platforms or other method as selected by the Contractor in compliance with OSHA.
    b. Coordinate and advise the Prime Electrical Contractor of the date when the handrailing will be in place so that embedded conduit can be installed.

2. The second installation of railing shall be fabricated of steel structural members with aircraft cable and turnbuckles installed immediately after the deck platform is constructed and the formwork is removed.

2.08 EROSION CONTROL

A. The Contractor shall provide measures to keep the ground surface well drained, but avoid erosion of embankments, excavations, the project site, and adjacent areas.

B. The Contractor shall comply with all local codes, rules, and regulations concerning soil erosion.

1. Use hay bales or silt fences to control erosion to the satisfaction of the Engineer and regulatory agencies. Use hay bales or silt fences to stop silt and sediment from reaching surface waters, parking lots and roads.
2. Leave erosion control methods in place until ground cover is established or until date of substantial completion.

C. The Contractor shall install erosion control measures as shown on the Drawings.

2.09 DUST CONTROL

A. The Contractor shall provide measures to control dust resulting from the work.

B. Control dust at locations and in such quantities and frequencies as required to prevent dust from becoming a nuisance to the surrounding area.

C. In the event the Contractor does not adequately provide for dust control, or should insufficient quantities of dust control agents be placed and Contractor fails to place additional quantities within 4 hours after Engineer's direction, Owner will perform the required work by whatever means deemed expedient and all expenses incurred by Owner will be charged to and paid by Contractor.

D. Take care in selecting and applying dust control agents so as not to make roadways or walkways slippery, muddy or hazardous. Dust control agents shall be acceptable to the Engineer.

E. The General Contractor shall provide all roadways with dust control.

2.10 RUBBISH REMOVAL

A. The Contractor shall be responsible for overall rubbish removal.

B. Burning of rubbish and trash will not be permitted.

C. The Contractor shall clean up trash as specified in Section 011400 - Work Restrictions or more often if the trash interferes with the work of others, presents a hazard or if directed by the Engineer.

D. Dispose of rubbish and waste materials in accordance with state regulations and local ordinances.

E. The Contractor shall also place rubbish containers at locations selected by the Engineer.

1. Furnish adequately sized rubbish containers from the date of initial mobilization to the date of final payment.
2. As a minimum, the Contractor shall furnish ten (10) 55-gallon general trash containers. Secure the top of each container to the container.
3. Secure the container itself so that it does not get blown about the site.

F. The Contractor shall be responsible for maintaining the site free of trash.

2.11 SNOW REMOVAL

A. The Contractor shall be responsible for maintaining roads, walkways, sidewalks, and parking areas/lots free of snow. Provide snow plowing during and after each snow fall equal to or greater than 1.0 inch as reported by the local weather service.

B. Any damage resulting from the Contractor’s snow clearing operations shall be immediately repaired at no additional cost to the Owner.

2.12 ENCLOSURES

A. The Contractor shall provide and maintain temporary enclosures, sheds, or fenced-in areas to accommodate protection for products, material and equipment.

B. Store equipment that cannot be exposed to outdoors in accordance with Section 016500 - Product Delivery, Storage and Handling.

2.13 SECURITY

A. The Contractor shall provide security and facilities to protect work from unauthorized entry, vandalism and theft.

B. Coordinate with Owner's security program, if applicable.

C. The Contractor has full responsibility for the working area until final acceptance and payment.

D. The Contractor shall maintain the perimeter fence that pre-existed prior to the start of construction. A temporary perimeter fence shall be required at all times during the construction and until the new perimeter fence is installed, or until the project is accepted by the Owner.

E. It shall be the Contractor’s responsibility to lock all gates to the site, and on the access road, at the end of each work day.

F. All on-site employees shall bear, at all times, an identification badge, conspicuously worn, which shall include, at a minimum, a passport or similar size photograph, the name of the employee and the name of the company.

G. Any employee working on site without a photo identification badge will be instructed to leave the site.

H. All company vehicles shall be conspicuously identified, through sufficiently sized lettering on both the passenger and driver sides, with the company name, address and telephone number.

1. All employee owned vehicles shall have an 8-1/2 inch by 11 inch sign with the company name, address and telephone number placed on the dashboard on the driver side.
2. Vehicles may be subject to search by the Owner or owner’s representatives.
3. Any vehicle that does not have the company name, address and telephone number will not be permitted on the Owners’ property.

I. Submit to the Owner a complete listing of all employees that will or might be performing work at the project site.

1. Furthermore, provide sufficient information as may be required for the Owner to conduct background checks, in accordance with the Fair Credit Reporting Act.
2. Background checks may be performed at the discretion of the Owner due to the sensitive nature of the work and the extensive, and sometimes unsupervised, access to Owner property and buildings.
3. The Contractor shall be required, on request from the Owner, at any time prior to or during the work, to provide releases from its employees and officers to the Owner, H2M, and a background search firm, hired by either the Owner or H2M, to conduct background checks in accordance with the Fair Credit Reporting Act and applicable state law.

2.14 PARKING

A. The Contractor shall provide an area suitable for parking at least three (3) vehicles by leveling the surface and installing 3 inches of QPS over the level surface.

1. This area shall be used for the exclusive use of the Owner and Engineer.

B. Do not allow heavy construction vehicle parking on existing pavement, if existing pavement is not scheduled for replacement or restoration.

C. Provide and maintain access to fire hydrants, building entrances, process tanks, doors and the work in general.

D. The Contractor shall have his or her employees and subcontractors park in areas designated by the Owner/Engineer/Architect.

E. If designated on the Contract Drawings, then only use those areas for parking.

F. Where trades work from their trucks, then coordinate the parking of trucks with other prime contractors.

G. Since the site is limited in space, special transportation may have to be furnished by the respective Contractor to have their employees bused to the site from off-site parking.

2.15 DAMAGES

A. The Contractor, with the prior approval of the Owner/Engineer/Architect, shall promptly repair any damage, directly or indirectly caused by the Contractor's operations.

B. All repairs shall be to the complete satisfaction of the Owner and equal in quality to that which pre-existed.

2.16 FIRST AID FACILITIES & EMERGENCY TELEPHONE NUMBERS

A. The Contractor shall provide and maintain adequately equipped first aid facilities in a location or at locations that are readily accessible to workmen, Engineer and visitors to the site.

B. Provide at least one on-site employee who is properly trained in first aid and who shall be available to render first aid whenever construction is in progress.

C. Provide a list of emergency telephone numbers as specified above.

D. Post the list of emergency telephone numbers as directed by the Engineer.

2.17 POLLUTION CONTROL

A. Do not permit pollutants, such as chemicals, fuels, lubricants, calcium chloride, sewage, water containing sediments and other deleterious, poisonous, toxic or oxygen demanding substances to enter or leach into streams, lakes, wetlands, other surface waters, into groundwater, or into the air.

B. In waters used for public water supply or used for trout, salmon or other game or forage fish spawning or nursery, control measures must be adequate to assure that turbidity in the receiving water will be increased not more than 10 standard turbidity units (s.t.u.) in the absence of other more restrictive locally established limitations, unless otherwise permitted by the State.

C. In no case shall the classification for the surface water be violated, unless otherwise permitted by the State.

D. In water used for other purposes, the turbidity shall not exceed State limits.

2.18 TEMPORARY ROADS

A. The Contractor shall construct temporary roads where shown on the Contract Drawings and as specified in Division 2 specifications.

B. Maintain the roads through the construction up until substantial completion or until final roads are constructed.

C. Remove all temporary roads and pavement and restore road area as designated on the Contract Drawings.

D. All temporary roads shall be properly constructed as detailed, or if not detailed, to the extent required to form a sound driving surface in accordance with trade standards.

E. The Contractor shall construct temporary roads for site access as detailed on the Drawings.

2.19 REMOVALS

A. Remove all items provided under this Section except as otherwise specified.

PART 3 - EXECUTION

3.01 PROTECTION OF EXISTING UTILITIES AND PUBLIC WORKS

A. Maintain and protect existing utilities and public works including, but not limited to, conduits, sewers, water mains, electric and telephone conductors or conduits, and gas mains encountered during the construction.

B. In the event that it is not possible to cross over, under, around or otherwise avoid the existing utility, the owner of the utility shall be notified that the utility must be altered or moved.

C. In the event that damage shall result to any service pipe for water or gas, or any private or public sewer or conduit, the Contractor shall immediately, and at its own expense, repair same to the satisfaction of the Engineer/Architect.

D. Any contents from the pipes, sewers or conduits shall be immediately removed and disposed in accordance with applicable laws.

3.02 REMOVAL OF UTILITIES, FACILITIES AND CONTROLS

A. Remove temporary above grade or buried utilities, equipment, facilities and materials, immediately following substantial completion and prior to release of retainage.

B. Remove underground installations to a minimum depth of 2 feet.

C. Regrade site to restore to existing slope and elevation, and restore the surface.

D. Clean and repair damage caused by installation or use of temporary work.

E. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

F. Remove temporary parking and access roads.

G. Regrade area to existing slope and elevation and restore the surface to its existing condition.

H. Final payment will not be processed until all removals have been completed to the satisfaction of the Owner/Engineer/Architect.

3.03 PROTECTION OF EXISTING PROPERTY

A. Protect existing structures and finishes during performance of the work.

B. Protect existing trees and plants during performance of the work.

C. Do not deposit excavated materials or store materials around trees or plants or attach guy wires to trees.

END OF SECTION 015000

SECTION 015526 – MAINTENANCE & PROTECTION OF TRAFFIC

PART 1 - GENERAL

1.1 SCOPE

A. Work under this section includes furnishing all labor, materials, equipment and appliances necessary to maintain both vehicular and pedestrian traffic, to protect the public from all damage to person and property, and to minimize inconveniences to the residences and businesses adjacent to the contract area for the duration of the contract. All work shall be done in accordance with the specifications, and the appropriate State, County or local agency, and in accordance with the Manual of Uniform Traffic Control Devices (MUTCD).

B. Comply with New York City Department of Transportation requirements.

1.2 GENERAL

A. The Contractor shall maintain traffic over a reasonably smooth travel way which shall be so marked by signs, delineations and/or other methods so that a person who has no knowledge of conditions can safely, and with a minimum of discomfort and inconvenience, ride, drive or walk over all or any portion of the roadway under construction. This shall include the maintenance of temporary pavement in accordance with the appropriate temporary pavement specifications.

B. The Contractor will be required to prepare and submit a detailed maintenance and protection of traffic plan to the appropriate road agency in order to obtain the road opening permit. The plan shall outline a schedule of operations for the maintenance, protection and detouring of traffic, showing in complete detail the methods, sequences, procedures and facilities he proposes to install. The contractor shall secure written approval from that agency prior to beginning work. In addition, the contractor shall submit the approved plan to the Engineer for record prior to beginning work.

C. All detour schemes and maintenance details shall conform to the requirements of the latest edition of the MUTCD and Section 619 of the New York State Standard Specifications.

D. The Contractor is placed on notice that the maintenance and protection of traffic over this highway during construction is considered as important and necessary an item of work as is the actual construction itself. The Contractor shall at all times conduct his operation in a manner to ensure the safety of motorists, pedestrians and his own employees.

E. The Contractor shall protect the user from damage to person and property by reason of any construction operation (i.e., painting, paving, blasting, tree work, demolition, etc.) by such protective screens, devices or methods as are approved by the appropriate governing agency.

F. The Contractor shall under this item be responsible for the maintenance within the limits of the contract of the entire pavement, drainage facilities and other highway elements, both old and new, beginning on the date construction commences and ending on the date the contract is officially accepted.

G. The Contractor shall schedule his work so as to minimize the amount of the old travel way that is destroyed or substantially damaged at any one time.

H. Throughout the course of the work, the health and welfare of the people shall be provided for. The Contractor shall ascertain, at least one week in advance of proposed work, the specific needs of individuals whose homes or places of business may be inaccessible for periods of time while required construction work is in progress. In all such cases, the Contractor shall make all arrangements with health, safety and protective agencies to ensure that any and all emergency or accidental needs of seriously hampered people will be cared for. Roads which must be closed to traffic completely shall be completed during the normal work week. One week's advance notification of construction shall be given to affected area residents.

1.3 MATERIALS

A. All materials used shall comply with the requirements for the various items or materials as established in the specifications or the contract plans.

B. All temporary signs, delineators, barricades, lighting and other warning and guiding devices shall be as approved by the Engineer, and will remain the property of the Contractor.

C. All materials, equipment and workmanship for electrical installations shall be in strict compliance with the Standard Code Requirements and the work shall be performed by licensed electricians. The Contractor shall obtain, supply and pay for all required electrical energy, and shall make all necessary arrangements with the utility company for service points. All electrical services, permits and certificates shall be obtained and paid for by the Contractor.

1.4 CONSTRUCTION DETAILS

A. The Contractor shall generally provide a travel way suitable for maintaining a minimum of two lanes of traffic. This travel way shall be kept well-drained and reasonably smooth and hard at all times, and free of potholes, bumps, irregularities and depressions that hold or retain water.

B. Warning Signs & Delineators

1. The Contractor shall erect barricades, detour signs, warning lights and other facilities approved by the State or appropriate agency at the beginning, end and for the entire length of any detours to adequately warn the traveling public that the road is closed and indicate the direction and route of the detour. He shall conduct his operations to ensure a minimum of delay to traffic.
2. The Contractor shall furnish, erect and maintain proper reflectorized signs, indicating to motorists the status of the highway under construction.
3. All signs shall be kept clean, mounted at the indicated height and so placed as to be effective both day and night. Signs, warnings, delineators and barricades shall be used to adequately inform the motorist of any unusual or unsafe condition and to safely and clearly guide him through the contract area. Such signs, barricades, warnings or devices shall be so placed and lighted as to give timely warning and permit the motorist to take the necessary action to traverse the area safely. Barricades and signs shall be lighted when and as required.
4. The Contractor shall delineate areas where there is a drop-off near the edge of the travel lanes and areas on which it is unsafe to travel. Where the drop-off is less than six inches and where soft or unsafe areas occur, an approved delineator shall be placed along the edge of the travel way at intervals of not more than 200 feet. Where the drop-off is greater than 18 inches, a continuous delineation consisting of a white board or band shall be used in addition to individual delineators.

5. Thirty to fifty-gallon drums or containers set on end may be used as delineators, provided they are painted orange and white and kept clean at all times. Other markers or delineators may be circular or rectangular in shape, and shall be constructed of reflective sheeting having a minimum area of 20 square inches or reflective buttons having a minimum diameter of three (3) inches.
6. All reflective delineators or markers shall be yellow or amber in color, except those at entrances to commercial establishments, where the Contractor shall place a green reflective marker on each side of the designated safe entrance to the establishment. The entire entrance area between adjacent green markers shall be kept safe and smooth for convenient ingress and egress. Delineators shall be substantially mounted so that the bottom of the reflective unit is four feet above the elevation of the travel way. Any area judged to be particularly hazardous shall be marked by the use of oil-burning flares or signal flashers with a large reflectorized orange lens in addition to the reflective markers.
7. All signs, markers and other facilities shall indicate actual conditions existing and shall be moved, removed or changed immediately as conditions require. Details and types of signs, temporary barricades, timber curb and other devices are shown on Standard Structure Sheets, Manual of Uniform Traffic Control Devices, of the New York State Traffic Commission. These are minimum requirements, and the Contractor shall have an adequate quantity of each available for use as required. If conditions warrant additional signs may be required. In that event, they shall be consistent with the arrangements, material requirements and details of those shown on the Standard Structure Sheets.
8. Lighted barricades shall be fully equipped with complete electrical facilities including fixtures, lamps, conduits, switches, cut-outs, boxes, cable and all other required equipment, appurtenances and connections to the service points designated by the utility company as necessary to install and light the barricades. The Contractor shall set and adjust time switches and other equipment as required to put the lighting system in satisfactory operation.

C. Maintenance

1. The Contractor shall furnish materials, labor and equipment at any time, day or night, to immediately repair, remedy and prevent washouts, formation of holes, ruts and depressions, sunken trenches and the destruction or sinking of temporary pavements. This applies when the work is underway and when the work is temporarily suspended for any period of time. Special attention shall be given to maintenance of a satisfactory travel way over weekends, holidays and during the winter season.
2. Any damage to any portion of the work occasioned by lack of adequate maintenance shall be repaired by the Contractor at his own expense.

D. Whenever it is necessary to maintain traffic, the Contractor shall employ a sufficient number of competent flagmen during the time traffic is to be maintained. The Contractor shall also provide a sufficient number of competent flagmen in areas where traffic is congested, particularly where construction equipment is operating.

E. Under this Item, the Contractor shall construct and maintain at all times, where required temporary bridges or bridging across pipe trenches, excavations, obstructions and newly laid pavements to provide adequate ingress and egress for pedestrian and vehicular traffic to and from private driveways, business and commercial establishments or for main street intersections and heavily traveled crossings.

F. The Contractor will be required, after the installation of all pipes and necessary appurtenances thereto, to immediately backfill all trenches; compact same with the surface of the fill graded off; and install temporary pavement to permit the resumption of traffic without delay. The surfaces of all trenches shall be maintained continually by the Contractor to carry traffic smoothly, safely and without interruptions or slowdowns until the permanent pavement has been restored.

G. Signs

1. All highway signs and supports within the contract limits are to remain under the control and jurisdiction of the governing road authority and are to be properly maintained for the duration of the contract by the Contractor.
2. The Contractor shall not remove signs until directed to by the governing road agency or the Owner.
3. Existing signs or markers lost or damaged because of negligence on the part of the Contractor shall be replaced at the Contractor's expense.

PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION
Not Used

END OF SECTION 015526

SECTION 015719 – TEMPORARY ENVIRONMENTAL CONTROLS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Control of environmental pollution and damage that the Contractor must consider for air, water, and land resources in preparing a bid and while constructing the project. This Section includes management of site aesthetics, noise, solid and liquid waste and wastewater, and other pollutants that may be generated by the Contractor.

B. Include all costs associated with environmental protection as specified herein and as specified in other Sections of these specifications in the total price bid.

1.02 DEFINITIONS

A. Environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents which:

1. Adversely effect human health or welfare,
2. Unfavorably alter ecological balances of importance to human life,
3. Impact wetlands,
4. Effect other species of importance to man, or;
5. Degrade the utility of the environment for aesthetic, cultural, and historical purposes.

B. Definitions of Pollutants:

1. Sediment: Soil and other debris that has been eroded and transported by runoff water.
2. Solid Waste: Rubbish, debris, garbage, and other discarded solid materials resulting from industrial, commercial, and agricultural operations and from community activities.
3. Rubbish: Combustible and noncombustible wastes such as paper, boxes, glass and crockery, metal and lumber scrap, tin cans, and bones.
4. Debris: Combustible and noncombustible wastes, such as leaves, tree trimmings, ashes, and waste materials resulting from construction or maintenance and repair work.
5. Chemical Waste: Petroleum products, bituminous materials, salts, acids, alkalies, herbicides, pesticides, organic chemicals, and inorganic wastes.

C. Sanitary Wastes:

1. Sewage: Domestic sanitary sewage and human and animal waste.
2. Garbage: Refuse and scraps resulting from preparation, cooking, dispensing, and consumption of food.

1.03 SUBMITTALS

A. Submit the following under provisions of Section 013300:

1. Environmental Protection Plan / Erosion Control Plan: After the Contract is awarded and prior to the commencement of the work, meet with the Engineer to discuss the proposed Environmental Protection Plan and to develop mutual understanding relative to details of environmental protection. Not more than twenty (20) days after the meeting, prepare and submit to the Engineer for approval, a written and/or graphic Environmental Protection Plan including, but not limited to, the following:

    a. Methods for protection of features to be preserved within authorized work areas including trees, shrubs, vines, grasses, ground cover, landscape features, air and water quality, fish and wildlife, soil, historical, and archeological and cultural resources.
    b. Permits, licenses, and the location of the solid waste disposal area(s).
    c. Drawings showing locations of any proposed temporary excavations or embankments for haul roads, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials.

2. Prepare an Erosion Control Plan describing and showing methods for erosion control that shall be employed by the Contractor to protect adjoining wetlands.
3. Prepare a Work Area Plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. Plan shall include measures for marking the limits of use areas. This plan may be incorporated within the Erosion Control Plan.
4. Approval of the Contractor's Environmental Protection Plan / Erosion Control Plan will not relieve the Contractor of responsibility for adequate and continued control of pollutants and other environmental protection measures.

PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION

3.01 PROTECTION OF ENVIRONMENTAL RESOURCES

A. Protect environmental resources within the project boundaries and those affected outside the limits of permanent work during the entire period of this Contract. Confine activities to areas defined by the Contract Documents.

B. Protection of Land Resources: Prior to construction, identify all land resources to be preserved within the work area. Do not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, top soil, and land forms without permission from the Engineer. Do not fasten or attach ropes, cables, or guys to trees for anchorage unless specifically authorized, or where special emergency use is permitted.

C. Work Area Limits: Prior to any construction, mark the areas that require work to be performed under this Contract. Mark or fence isolated areas within the general work area that are to be saved and protected. Protect monuments, works of art, and markers before construction operations begin. Convey to all personnel the purpose of marking and protecting all necessary objects.

D. Protection of Landscape: Protect trees, shrubs, vines, grasses, land forms, and other landscape features shown on the drawings to be preserved by marking, fencing, or using any other approved techniques.

1. Box and protect from damage existing trees and shrubs to remain on the construction site.
2. Immediately repair all damage to existing trees and shrubs by trimming, cleaning, and painting with antiseptic tree paint.
3. Do not store building materials or perform construction activities closer to existing trees or shrubs than the farthest extension of their limbs.

E. Reduction of Exposure of Unprotected Erodible Soils: Plan and conduct earthwork to minimize the duration of exposure of unprotected soils. Clear areas in reasonably sized increments only as needed to use. Form earthwork to final grade as shown. Immediately protect side slopes and back slopes upon completion of rough grading.

1. Temporary Protection of Disturbed Areas: Construct diversion ditches and berms to retard and divert runoff from the construction site to protected wetlands areas as defined in the Clean Water Act and federal, state and local regulations.
2. Erosion and Sedimentation Control Devices:

    a. Construct or install all temporary and permanent erosion and sedimentation control features as shown or specified in the Contract Documents and as required by the Owner pursuant to direction of the regulatory authority.
    b. Maintain temporary erosion and sediment control measures such as berms, dikes, drains, hay bales, erosion control fencing, sedimentation basins, grassing, and mulching, until permanent drainage and erosion control facilities are completed and operative.

3. Manage borrow areas on and off Owner property to minimize erosion and to prevent sediment from entering nearby property, watercourses and local streets.
4. Manage and control spoil areas on and off Owner property to limit spoil to areas shown on the Environmental Protection Plan and prevent erosion of soil or sediment from entering nearby property, watercourses or streets.
5. Protect adjacent areas from degradation by temporary excavations and embankments.

F. Handle and dispose of solid wastes in such a manner that will prevent contamination of the environment.

1. Place solid wastes (excluding clearing debris) in containers that are emptied on a regular schedule.
2. Transport all solid waste off Owners' property and dispose of waste in compliance with Federal, State, and local requirements.
3. Store chemical waste away from the work areas in corrosion resistant containers and dispose of waste in accordance with Federal, State, and local regulations.
4. Handle discarded materials other than those included in the solid waste category as directed by the Engineer.

G. Protection of Water Resources: Keep construction activities under surveillance, management, and control to avoid pollution of surface and ground waters and sewer systems. Implement management techniques to control water pollution by the listed construction activities that are included in this Contract.

H. Washing and Curing Water: Do not allow wastewater directly derived from construction activities to enter water areas. Collect and place wastewater in retention ponds allowing the suspended material to settle, the pollutants to separate, or the water to evaporate.

I. Control movement of materials and equipment during construction to prevent violation of water pollution control standards of the Federal, State, or local government.

J. Monitor water areas affected by construction.

K. Protection of Fish and Wildlife Resources:

1. Keep construction activities under surveillance, management, and control to minimize interference with, disturbance of, or damage to fish and wildlife.
2. Prior to beginning construction operations, list species that require specific attention along with measures for their protection.

L. Protection of Air Resources: Keep construction activities under surveillance, management, and control to minimize pollution of air resources.

1. Burning is not permitted on the job site. Keep activities, equipment, processes, and work operated or performed, in strict accordance with the State and Federal emission and performance laws and standards.
2. Maintain ambient air quality standards set by the Environmental Protection Agency and State, for those construction operations and activities specified.

M. Particulates: Control dust particles, aerosols, and gaseous by-products from all construction activities, processing, and preparation of materials (such as from asphaltic batch plants) at all times, including weekends, holidays, and hours when work is not in progress.

N. Particulates Control: Maintain all excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, spoil areas, borrow areas, and all other work areas within or outside the project boundaries free from particulates which would cause a hazard or a nuisance. Sprinkle, chemical treatment of an approved type, light bituminous treatment, baghouse, scrubbers, electrostatic precipitators, or other methods are permitted to control particulates in the work area.

O. Hydrocarbons and Carbon Monoxide: Control monoxide emissions from equipment to Federal and State allowable limits.

P. Odors: Control odors of construction activities and prevent obnoxious odors from occurring.

Q. Reduction of Noise: Minimize noise using every action possible. Perform noise-producing work in less sensitive hours of the day or week as directed by the Engineer. Maintain noise-produced work at or below the decibel levels and within the time periods specified in accordance with OSHA and local ordinances, whichever is more restrictive.

1. Perform construction activities involving repetitive, high-level impact noise only between 8:00 a.m. and 5:00 p.m unless otherwise permitted by local ordinance or by the Engineer.
2. Repetitive impact noise on the property shall not exceed the following dB limitations:
3. Provide sound-deadening devices on equipment and take noise abatement measures that are necessary to comply with the requirements of this Contract, consisting of, but not limited to, the following:

a. Use shields or other physical barriers to restrict noise transmission.
b. Provide soundproof housings or enclosures for noise-producing machinery.
c. Use efficient silencers on equipment air intakes.
d. Use and maintain efficient intake and exhaust mufflers on internal combustion engines.
e. Line hoppers and storage bins with sound deadening material.
f. Conduct truck loading, unloading, and hauling operations so that noise is kept to a minimum.

END OF SECTION 015719

SECTION 016100 – COMMON PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This Section includes the general requirements for products that are to be furnished, installed, or otherwise incorporated into the project.

1.02 QUALITY ASSURANCE APPLIES TO ALL PRODUCTS

A. In addition to the Contractor's warrantees and guarantees on materials and equipment required under the General Conditions of the Contract and the Technical Specifications contained hereinafter, the Contractor shall also be responsible for all materials, equipment, and products that have or is planned to be incorporated into the work.

1. The Contractor shall be responsible for the finished work and that it accurately and completely complies with these Contract Documents.
2. The Contractor shall be responsible for work performed by subcontractors, equipment suppliers, and material vendors.
3. The Contractor shall be satisfied as to the product's performance before it is ordered for installation. At the Contractor's option, he/she shall have tested each product to determine compliance with these specifications.

B. The Engineer/Architect may check all or any portion of the work and the Contractor shall afford all necessary assistance to the Engineer/Architect in carrying out such checks.

1. Such checking by the Engineer/Architect shall not relieve the Contractor of any responsibilities for the accuracy or completeness of the work.
2. Such checking is a courtesy service being provided by the Owner and does not relieve the Contractor of his/her responsibilities under this Construction Contract.

C. Should a dispute arise as to the quality of workmanship, equipment or material performance, then the final decision regarding acceptability with these Contract Documents shall be that of the Owner.

D. At the request of the Engineer/Architect, the Contractor shall promptly provide the services of a competent representative of the manufacturer at the project site, fully equipped and prepared to answer questions, perform tests, make adjustments and to prove compliance with the Contract Documents free of all additional charges. Proof of compliance shall be the responsibility of the Contractor.

1.03 QUALITY ASSURANCE - EQUIPMENT

A. All material furnished shall be new, and guaranteed free from defects in workmanship, installation, and design.

B. Equipment shall be products of manufacturers who produce evidence of their ability to promptly furnish any and all interchangeable replacement parts as may be needed at any time within the expected life of the equipment.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. The Owner reserves the right to reject any material or equipment manufacturer who, although he appears to be qualified and meets the technical requirements, does not provide satisfactory evidence indicating adequate and prompt post-installation repair and maintenance service, as required to suit the operational requirements of the Owner.

B. Whenever it is required that the Contractor furnish materials or manufactured articles or shall do work for which no detailed specifications are set forth, the materials or manufactured articles shall be of the best grade in quality and workmanship obtainable on the market from firms of established good reputation, or, if not ordinarily carried in stock, shall conform to the usual standards for first-class materials or articles of the kind required.

C. Perform work in full conformity and harmony with the intent to secure the best standard of construction and equipment of the work as a whole or in part.

D. Items of any one type of material or equipment shall be the product of a single manufacturer.

1. For ease of the Owner in maintaining and obtaining service for equipment and for obtaining spare parts from as few places as possible, to the maximum extent possible, use equipment of a single manufacturer.
2. The Engineer/Architect reserves the right to reject any equipment from various manufacturers if suitable equipment can be secured from fewer manufacturers and to require that source of materials be unified to the maximum extent possible.

E. Substitute equipment shall not be fabricated nor installed until after written decision to accept request is received from the Engineer/Architect.

PART 3 - EXECUTION

3.01 PREPARATION

A. Prior to work under any Section, carefully inspect the work of all other prime trades and verify that all such work is in conformance with the Contract Documents and is complete to the point where the work under that Section may properly commence.

B. Verify that all work can be installed in strict accordance with the drawings and the approved shop drawings. Immediately report discrepancies to Engineer/Architect.

C. Do not proceed with the work under any Section until these conditions are obtained.

3.02 INSTALLATION

A. Furnish and install materials and equipment in accordance with the instructions of the applicable manufacturer, fabricator or processors, except as otherwise provided in the Contract Documents.

B. All work shall be done in a workmanlike manner and set to proper lines and grades. The work shall be square, plumb and/or level as the case may be.

C. Where performance criteria are specified, do all work necessary to attain the required end results.

3.03 FIELD QUALITY CONTROL

A. Neither observations by Engineer/Architect nor inspections, tests or approvals by other persons shall relieve the Contractor from his obligations to perform the work in accordance with the requirements of the Contract Documents.

B. If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any work to specifically be inspected, tested or approved by some public body, the Contractor shall assume full responsibility therefore, pay all costs in connection therewith, and furnish the Engineer/Architect with the required certificates of inspection, testing or approval.

3.04 UNCOVERING WORK

A. Unless otherwise specified or directed by Engineer/Architect, no work shall be covered until it has been observed, tested, photographed, measured, and authorized to be covered by Engineer/Architect.

B. Tie distances to above ground physical structures as reference points to all underground utilities, conduits, pits, manholes, valves, and pipelines shall be obtained by the Contractor prior to covering the work. Immediately comply with the Engineer/Architect's direction to uncover the work if tie distances were not obtained.

C. If any work has been covered with Engineer/Architect's consent and Engineer/Architect considers it necessary or advisable that covered work be observed or tested, the Contractor, at Engineer/Architect's request, shall uncover, expose or otherwise make available for observation, or testing as Engineer/Architect may require, that portion of the work in question, furnishing all necessary labor, material and equipment.

1. If it is found that such work is defective, the Contractor shall bear all the expenses of such uncovering, exposure, observation, and testing of satisfactory reconstruction, including compensation for additional engineering and architectural services and an appropriate deductive change order shall be issued.

3.05 DEFECTIVE WORK

A. The repair, removal, replacement and correction of defective work is a part of this Contract and shall be promptly performed in accordance with the requirements set forth in the General Conditions or other portions of the Contract Documents. All costs in connection with the correction of defective work shall be borne by the Contractor.

B. Products that fail to maintain the performance or other salient requirements of the Contract Documents, shows undue wear, or other deleterious effects during the maintenance period shall be considered defective.

END OF SECTION 016100

SECTION 016500 – PRODUCT DELIVERY, STORAGE AND HANDLING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. The Section includes the transportation, handling, storage and protection of products that are to be incorporated into the work.

B. The procedures for turning equipment over to the Owner for installation by others is also included herein.

1.02 GENERAL

A. Items shall be delivered as complete assemblies direct from the manufacturer with all internal wiring, piping, valving, and control devices intact except where partial disassembly is required by transportation regulations, protection of components, or where physical constraints may exist or be created for the setting of the item.

B. Coordinate the disassembly and reassembly requirements with the manufacturer. Determine the need and extent of reassembly prior to bid.

1. All labor, material and equipment costs associated with the disassembly and reassembly of the product shall be included in the Contract Price.
2. Where reassembly of equipment is necessary, then the manufacturer shall provide reassembly instruction at the project site.
3. A technician shall be present during the entire reassembly procedure and the manufacturer shall certify, in writing, that the unit was reassembled properly in accordance with instructions provided by the manufacturer and that all as-specified warranties remain in effect.
4. The manufacturer’s reassembly inspection time shall be in addition to the field service time specified and shall be included in the Contract Price. This time shall not be eligible for payment under any cash allowance item.

C. In the case where equipment is to be installed by others, then the supplying contractor shall be responsible for its reassembly. If reassembly is necessary and the unit(s) are to be set inside an enclosure or building, reassemble the equipment inside said enclosure. The equipment once reassembled shall be turned over to the installing contractor as specified below.

1.03 PACKING

A. Transport products in containers, crates, boxes or similar means such that the products are protected against damage that may occur during transportation.

B. All parts shall be packaged separately or in container where parts of similar systems are grouped.

C. Part numbers shall be indicated on the individual part. Use indelible ink to mark part numbers.

D. All equipment shipments shall be included with a parts list showing a description (name) of the part and the manufacturer's part number.

1. The parts list shall be shipped in a plastic zippered envelope with the words "Parts List" lettered on it in indelible ink.
2. The parts list shall be placed inside the shipping container so that it is on the top of the contents.

E. Equipment shall be shipped with storage, handling and installation instructions.

1. The Engineer reserves the right to withhold payment for equipment delivered to the site until such time as the storage, handling and installation instructions are supplied by the manufacturer.
2. In the case where operation and maintenance manuals have been provided by the manufacturer, which includes the installation instructions, then the installation instructions shall also be included with the equipment shipment.

F. Delicate instruments and devices, reagents, chemicals, and glassware shall be shipped in packaging normally provided by the manufacturer.

G. The Contractor shall require the manufacturer to be responsible for the proper packing of all products.

1.04 SHIPPING AND DELIVERY

A. Product deliveries shall be accompanied with a bill of lading indicating the place of origination and the Contractor's purchase order number.

B. Inspect shipments immediately upon delivery, to assure compliance with requirements of the Contract Documents and those products are undamaged.

C. Promptly remove damaged material and unsuitable items from the job site.

D. Provide equipment and personnel to handle products by methods to prevent soiling; disfigurement or damage.

1.05 STORAGE

A. Store sensitive products and all spare parts in weather tight, climate controlled enclosures in an environment favorable to product.

B. Store and protect products in accordance with the manufacturer's instructions.

C. All other products that are to be installed underground or products such as pipe, valves, and fittings shall be stored outdoors but shall be blocked off the ground and covered with impervious sheet coverings.

D. Store fabricated products above the ground on blocking or skids.

E. Store loose granular materials in well-drained areas on solid surfaces to prevent mixing with foreign matter.

F. Provide adequate ventilation to avoid condensation.

G. In accordance with manufacturer's instructions protect bearings, couplings, shafts, rotating components, and assemblies. Protection of said equipment shall be continuous until the time the equipment is placed into permanent service.

H. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored products to assure that products are maintained under specified conditions, and free from damage or deterioration.

I. Do not store volatile liquids in any building on site.

J. Storage of products shall be the responsibility of the supplying contractor. The installing contractor shall take all necessary precautions to protect the equipment being furnished by others.

K. Store with seals and labels intact and legible.

1.06 PROTECTION OF WORK

A. The Contractor shall protect the installed work. All costs for protection shall be borne by the Contractor. Provide coverings as necessary to protect installed products from damage, from traffic and subsequent construction operations. Remove when no longer needed.

B. Cover and protect equipment from dust, moisture or physical damage. Protect finished floor surfaces prior to allowing equipment or materials to be moved over such surfaces. Maintain finished surfaces clean, unmarred and suitably protected until accepted by the Owner.

C. Additional time required to secure replacements and to make repairs will not be considered by the Engineer/Architect to justify any extension in the Contract Time of Completion. In the event of the damage, promptly make replacement and repairs to the approval of the Engineer at no additional costs.

PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION
Not Used

END OF SECTION 016500

SECTION 017550 – PROCESS PIPE AND TANK TESTING

PART 1 - GENERAL

1.01 SUMMARY

A. Testing of piping.

B. Testing of tanks vented to atmosphere and watertight vaults.

C. Pipe leakage testing shall comply with the conditions noted in the Schedule.

1.02 DEFINITIONS

A. Leakage (or exfiltration) - The quantity of water to be supplied into the newly laid pipe, any valved section thereof, manhole, or other appurtenance, necessary to maintain the specified leakage test pressure after the pipe has been filled with water and the air expelled.

B. Infiltration - The quantity of water that enters into any pipe, manhole, or other appurtenance when the static groundwater elevation is at the maximum elevation above the pipe or appurtenance as specified hereinafter.

1.03 QUALITY ASSURANCE

A. Prior to Substantial Completion, pressure pipes and non-pressure pipes shall meet specific leakage requirements. These leakage requirements shall be satisfied by the basic materials alone. Where joint fillers and the like have been specified, primarily to protect jointing materials, and secondarily to provide a factor of safety, they shall not be applied until after leakage tests have been completed and have been accepted by Engineer.

B. Engineer will witness tests. Tests not witnessed will be considered as not having been performed.

C. Do not close or cover up work until it has been observed for proper and satisfactory construction and installation in compliance with the Contract Documents. Should incomplete or unacceptable work be covered, the Contractor shall, at his/her own expense, uncover all work so that it may be properly observed. After such observations, repair and replace the work that was found defective, unsatisfactory, and not in accordance with the Contract Documents. After such repair and replacement, bring all work to completeness and status as it was before it was closed and covered, all at the Contractor's own expense. Submit for review and approval proposed corrective action to correct failed systems.

D. Successful completion of required tests shall be in no way interpreted as relieving the Contractor of responsibility for defects that become apparent subsequent to the time of testing. It shall be the sole right of the Engineer/Architect to determine whether defects exist. Retest all portions of the work deemed necessary by the Engineer/Architect prior to Substantial Completion.

1.04 SUBMITTALS

A. Submit under provisions of Section 013300.

B. Provide details and specifications on testing apparatus.

C. Provide certified test results on forms approved by the Engineer/Architect.

1.05 SEQUENCING AND SCHEDULING

A. Notify Engineer/Architect and governing agencies, if necessary, at least 48 hours in advance of a scheduled test so that the test may be witnessed.

B. Test underground pipe prior to backfilling.

C. At Engineer/Architect's discretion, additional sections of pipelines may be required to be tested as soon as pipe is laid and prior to backfilling when working conditions or the standard of workmanship have been altered.

PART 2 - PRODUCTS

2.01 TESTING APPARATUS

A. Provide labor, plugs, measuring equipment, and other apparatus, complete, to perform testing.

B. Provide clean water, air, and other materials as required to accomplish testing.

C. Provide plugs and caps capable of withstanding test pressures.

D. Provide temporary flanges, plugs, bulkheads, thrust blocks, weighing, bracing and other items necessary to prevent joints from separating, and to prevent injuries or damage.

E. Provide adequate pump capable of exceeding test requirements.

F. Provide new hoses certified for potable drinking water use

G. Clean and disinfect transfer barrels.

PART 3 - EXECUTION

3.01 PREPARATION

A. Plug open ends, adequately block bends, tees, ends, and other fittings, and do whatever is necessary to brace piping system so that it will safely withstand the pressures developed under the tests and so that no damage or injury shall occur to the pipeline, people or property.

B. Before tests are conducted, isolate, or remove any regulator, gauge, trap, or other apparatus or equipment that may be damaged by test pressures.

3.02 GENERAL

A. Trapped Air: Trapped air may cause a false indication of the rate of leakage. Points of concern include ends of lines, stubs, house connections and high points in pipelines. No credit will be made for this condition and no adjustment will be made to the allowable leakage. When trapped air is suspected of causing a test failure, do whatever is necessary to evacuate the air and repeat tests until the actual leakage is equal to or less than allowable rate of leakage.

B. Water Absorption: No credit will be given for absorption of water in pipe and manhole walls. If necessary, fill pipes and manholes with water well in advance of testing and allow them to soak in order to eliminate or minimize the effects of absorption.

3.03 TESTS FOR PRESSURE PIPES

A. Leakage testing shall include all installed water piping, service connections, and other appurtenances.

B. Test pipes prior to applying insulation and before they are concealed or furred-in.

C. Provide all necessary gauges. Gauges shall be standard pressure type with a minimum 3.5 inch diameter dial and a pressure range not in excess of 150% of the maximum required test pressure.

D. Provide and maintain at the site a gauge stand with an approved laboratory calibrated test gauge. Periodically check test gauge used for testing against the test gauge, and whenever requested by Engineer.

E. Where it is necessary for testing, tap pipes and insert approved plugs after testing is completed.

F. Provide a hand or motor driven compressor to maintain the required test pressure constant throughout the duration of the test. If a water pump is used, pump water from a container with a known volume of water. If an air or inert gas pump is used, leakage shall be determined and calculated by the cycling of the pump.

G. Provide test gauges at each end of the line being tested.

H. All joints, fittings, valves and other potential leak sources shall be checked for leakage during the pressure test. For gas piping a soap water leak detection solution shall be used.

I. Conduct leakage test in accordance with the requirements contained in the Schedule.

3.04 ALLOWABLE LEAKAGE

A. The maximum allowable leakage for the various piping systems is presented in the schedule.

B. It is the intent of this Contract to secure piping systems without leakage.

1. Each section of pipe and within each structure shall not exceed the allowable leakage.
2. It is also the intent to secure a piping system free from visible drips, streams and leaks. Therefore, even if a portion of the system meets the requirements for allowable leakage, visible leaks are not permitted and shall be repaired.

C. Leakage tests will be considered satisfactorily passed when the rate of leakage is equal to or less than the stipulated allowances, there is no evidence of visible leaks, and there is no evidence of other system defects.

3.05 TEST FOR TANKS VENTED TO ATMOSPHERE AND WATERTIGHT VAULTS

A. Prior to testing liquid holding tanks open to the atmosphere and water tight vaults, piping and equipment within the tank/vault that might affect the watertightness of the tank shall be completely installed. The vault shall not be backfilled so any potential leaks can be visually observed and repaired from both sides.

B. Tank/vault Exfiltration testing:

1. Fill with clean, potable water to the maximum operating level.
2. After a suitable stabilization period, the maximum operating level shall be reestablished and a twenty-four (24) hour leakage test shall be performed.
3. During the test, no water shall be added to or taken from the tank/vault. The drop in the water level shall be recorded at the end of the period.
4. The allowable loss is no more than1/4-inch per eight hours.
5. Leaks shall be repaired by methods and materials approved by the Engineer prior to the start of the corrective action.
6. Leakage shall be corrected and the retested prior to acceptance.

C. The Engineer will determine if the test was satisfactory and if the individual tank/vault has passed the leakage test. Upon completion of the test the tank/vaults must be completely emptied of test water.

3.06 RETESTING

A. Pipes, tanks, vaults and manholes not passing the tests shall have all defects corrected with methods approved by the Engineer/Architect to the inspection and satisfaction of Engineer/Architect, and shall be retested and re-corrected as often as is necessary until the test requirements have been met.

B. It is the intent of this Contract to obtain work meeting test requirements on their own and solely through the use of the normal integral sealing components.

1. Joint leaks shall not be stopped using concrete, caulking, mortar, or other patching materials.
2. Leaking pipe joints shall be re-jointed and leaking manhole joints shall have joints reset, or replaced if necessary.

C. Methods other than rejoining, resetting or replacing joint seals shall require the written approval of Engineer/Architect.

3.07 SCHEDULE OF LEAKAGE TESTING REQUIREMENTS

SERVICE	FLUID	PRESSURE	DURATION (Hrs.)	ALLOWABLE LEAKAGE (Note 1)		
				UNDERGROUND		EXPOSED
				Infil.	Exfil.	
Pressure Piping	Water	**(Note 1)**	**(Note 1)**	0	0	0
Pressure Gas Piping	Air	**(Note 1)**	**(Note 1)**	0	0	0

A. NOTES:
1. Maintain 150 psi or 1.5 times operating pressure, whichever is greater, for 2 hours.
2. Maintain 50 psi for a minimum of 30 minutes or as directed by the local plumbing code, whichever is greater.

END OF SECTION 017550

SECTION 017800 – CLOSEOUT SUBMITTALS

PART 1 - GENERAL

1.01 SUBMITTALS

A. Submit the following items to the Engineer/Architect with the final application for payment:

1. Approved change orders.
2. Maintenance Bond (period beginning date to match the date of final payment) prepared in accordance with the Contract,
3. Utility company signoffs and inspection approvals, if applicable.
4. Federal, state, county, town and local signoffs and inspection approvals, where applicable.
5. Certified Payroll records with affidavits of labor.
6. NYC DOB/SBS/DEP and all other agency sign-offs
7. Certified backflow test reports on Form GEN215.

B. All documents shall be complete, signed, dated, and notarized (where applicable) and be subject to the Engineer/Architect's acknowledgment of receipt or approval.

PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION
Not Used

END OF SECTION 017800

SECTION 017823 – OPERATING AND MAINTENANCE DATA

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This Section specifies the requirements for Operations and Maintenance Manuals required to be prepared by system suppliers and equipment manufacturers.

B. The Contractor shall submit Operations and Maintenance Manuals for all equipment.

C. Where the technical specifications call for the submission of manuals, said manuals shall be prepared in accordance with the requirements contained herein. It being understood that manuals shall be submitted for all equipment even if it is not specifically called out in the specifications.

1.02 MANUAL CONTENTS AND FORMAT

A. All Operations and Maintenance Manuals shall be as specified hereinafter.

B. The binder shall be 8 1/2” x 11”, metal hinge, vinyl, large capacity by National or Equal. It shall show the name of the manufacturer or supplier and project name on the spine of the binder.

C. A cover shall be provided showing the names of the Owner, Engineer/Architect, Contractor, and Manufacturer.

1. It shall show the Contractor’s order number and manufacturer’s project number.
2. The address of the manufacturer, service station telephone number, project title, contract number, and year shall also be shown.

D. Provide tabbed color dividers for each separate product and system.

1. The name of the product shall be typed on the tab.
2. A separate tab shall also be provided for information such as troubleshooting instructions, spare parts list, etc.

E. An index shall be provided in the back of the binder, with a separate tab, providing a quick way for the operator to find key and important topics contained in the manual.

F. A separate listing for all charts, graphs, tables, figures and shop drawings shall be provided directly following the table of contents.

G. Each manual shall contain one (1) copy of all shop drawings deemed in compliance with the Contract Documents by the Engineer submitted for the equipment or system for which the manual is prepared.

1. Only these shop drawings shall be included in the manual.
2. All shop drawings larger than 8 1/2” x 11” shall be folded and placed in a heavy duty, top loading plastic sheet protector with the title of the drawing showing; one (1) drawing per protector page.

H. For systems being furnished with control panels, each manual shall contain a catalog cut for every electrical device installed inside the control panel or motor control center.

I. Where emergency generator(s) are included as work of this Contract, the manufacturer's standard manual will be allowed if the manual clearly shows the instructions for the particular model of generator. Cross out chapters and paragraphs that do not apply to the Owner's generator.

J. Where manuals are prepared for treatment systems for water or wastewater, a process chapter, written in plain language for the operators, shall be prepared by the manufacturer providing the following:

1. A general discussion regarding the theory of the process.
2. A specific discussion relating the theory to the project as designed and constructed. Provide capacities, sizes, loading rates, application criteria, design values, and design assumptions.
3. Provide model numbers for equipment comprising the system.
4. Provide figures, tables, and graphs to assist the operator in understanding the operation of the treatment system.
5. Where operator interfaces are provided, provide step-by-step instructions for changing a process control variable such as set points.

    a. The instructions shall be numbered and written such as "press", "hold" "scroll", etc.
    b. Each operator interface instruction sheet shall be laminated and placed in the binder.
    c. Another laminated sheet shall be provided and placed inside the control panel.

K. Each manual shall contain the following as a minimum:

1. Table of contents
2. Final version of the warranty statement approved by the Engineer/Architect
3. Nameplate data of each component, year of installation, contract number and specification number
4. Name, address and telephone number of the manufacturer and the manufacturer's local representative(s)
5. Installation instructions
6. Operation instructions including adjustments, the interrelation of components and the control sequence describing break-in, start-up, operation and shutdown
7. Emergency operating instructions and capabilities
8. Maintenance requirements include routine procedures and guide for preventative maintenance and troubleshooting; disassembly, repair and reassembly instructions; and alignment, adjusting, balancing, and checking instructions
9. Troubleshooting guide and corrective maintenance (repair) procedures for all electrical and mechanical equipment. These guides shall list the most frequent and common problems, together with the symptoms, possible causes of the trouble, and remedies
10. Drawings (pictures or exploded views) which clearly depict and identify each part, suitable for assembly and disassembly of entire system and each component
11. Wiring and control diagrams, if applicable
12. Panelboard circuit directories including electrical service characteristics, if applicable
13. Part list with current prices; ordering information; and recommended quantities of spare parts to be maintained in storage
14. Charts of valve tag numbers, with location and function of each valve, keyed to the process and instrumentation diagram prepared as part of the Contract Documents
15. Name, address, and telephone number of nearest parts supply house and nearest authorized repair service center.

16. List of recommended spare parts and the recommended number of each per unit and per group of units.
17. Approved shop drawings, submittals and product data.

L. Submit two (2) copies of a preliminary draft manual at least fourteen (14) calendar days prior to the date set for start-up.

1. The Engineer/Architect will review the manual for content and compliance with these specifications.
2. Written comments will be provided, but the manual will not be returned.
3. One (1) manual will be used at start-up, to record changes that should be made to the final manual.
4. This copy of the manual will be retained on the site until such time as the final, updated manual is provided.

M. Two (2) weeks after the date the unit was placed into service and the Owner has gained beneficial use, submit two (2) paper and two (2) electronic copies of the final updated Operations and Maintenance Manual. Refer to Section 017500 - Starting and Adjusting for requirements related to updating the manual(s).

N. Where installation instructions are not included with the manual, they shall be shipped at least ten (10) days prior to the date the equipment is scheduled for installation.

1.03 RETAINAGE

A. The Engineer will retain from payment due the Contractor, for failure to submit manuals as specified, an amount equal to 5% of the scheduled value for the equipment or system for which the manual applies. This Contract requirement only applies when a manual is specified to be provided in the Technical Specifications for a particular system or piece of equipment.

PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION
Not Used

END OF SECTION 017823

SECTION 017839 – PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This Section includes:

1. Maintenance of documents
2. Recording of record information
3. Submission of record documents

B. Work of this section also includes the furnishing of underground pipeline documentation.

1.02 PLANS AND SPECIFICATIONS FURNISHED TO THE CONTRACTOR

A. A digital pdf of the Contract Documents (plans, specifications and addenda) will be furnished to the Contractor upon request.

1.03 MAINTENANCE OF DOCUMENTS

A. The Contractor shall maintain at the site one (1) set of the following: drawings, specifications, addenda, change orders, approved shop drawings, test reports, operations and maintenance manuals, and shop drawing log.

B. The Contractor shall make these documents available for use by the Owner, Engineer/Architect, regulatory agencies and other parties designated by the Owner.

C. Provide a drawing rack for storage of plans.

D. Maintain these documents in a clean, dry, legible condition throughout the entire contract period.

E. This field set of documents shall returned to the Engineer for scanning.

1.04 RECORDING OF RECORD INFORMATION

A. The Contractor shall include a lump sum amount in the bid amount for preparation of record drawings.

1. Stipulated amount in the bid item will be released when the record drawings have been accepted by the Engineer.
2. Satisfactory evidence shall be provided by the Contractor demonstrating compliance with these specifications and said drawings have been delivered and deemed in compliance with the specifications by the Engineer/Architect.
3. Progress payments will be allowed against the line item in the Schedule of Values only if record documents are considered accurate and up-to-date by the Engineer.

B. The contractor shall be required to keep accurate record drawings, in hard copy format, as well as Autocad 2008 or newer digital format, of the work actually performed which is in accordance with the contract documents and that which deviates from them.

C. As work progresses, the contractor shall maintain an on the field set of hard copy drawings, a complete and accurate set of field notes clearly delineating all work as it is actually installed. This set of drawings shall be available at all times for the engineer to review and shall be examined at all jobsite meetings.

D. Do not permanently conceal any work until required information has been recorded.

E. Final record drawings shall be hard copy format and AutoCad 2008 or newer digital format, 24" x 36", completed by a competent draftsman or CAD operator with the following information as a minimum:
1. A dimensioned drawing of all equipment installed.
2. Field changes of dimension and detail.
3. Changes made by Change Order.
4. Clarification plans not on original contract.

F. At final contract closeout engineer will review preliminary set of final record drawings. After approval of this submission, the contractor will be required to submit one (1) set of hard copy, 24" x 36" drawings and one (1) digital CD-ROM disc including all as-built drawings in AutoCad 2008 or newer format as detailed above. No portion of the line item bid amount in the proposal for the record drawings will be released until final record drawings have been submitted and approved. No exceptions.

1.05 SUBMITTAL OF RECORD DOCUMENTS

A. At completion of project prior to the final project close-out meeting, deliver marked-up record documents to the Engineer.

B. Accompany submittal with transmittal letter, containing:
1. Date.
2. Project title and number.
3. Contractor's name and address.
4. Title and number of each record document.
5. Certification that each document as submitted is complete and accurate.
6. Signature of Contractor or its authorized representative.

C. Upon completion of the work, Contractor shall prepare and furnish the Engineer a set of marked up prints of the as-built drawings for review, with all changes conspicuously circled or otherwise emphasized.

D. Prior to final payment, Contractor shall conform the drawings to the comments made by the Engineer and then provide the Owner a complete set of as-built drawings on 24" x 36" paper and PDF as well as a set in digital CD-ROM AutoCad 2008 or newer format.

E. As-built drawings shall be the same size as the contract drawings, with 1/2 inch margins space on three sides and a 2 inch margin on the left side for binding. Each drawing shall bear the legend "AS-BUILT" and the name of the Contractor in heavy black lettering 1/2 inch high and be certified as complete and accurate.

F. As a convenience, Engineer will make available to the Contractor electronic media of the contract drawings for the sole purpose of the Contractor preparing as-built drawings. Electronic media made available is without guarantee of compatibility with the Contractor's software or hardware. If the Contractor wishes to take advantage of this offer, the Contractor will be required to execute an indemnification and hold harmless agreement with the Engineer. Payment shall be by check, payable to H2M architects +engineers, in advance of picking up the requested materials. Electronic media shall be returned to the Engineer upon acceptance of the as-built drawings by the Owner.

1.06 RELATED DOCUMENTS

A. Provide certificate of release of liens if requested by the Engineer.

1.07 UNDERGROUND PIPELINE DOCUMENTATION

A. The Contractor shall provide at least 48 hours notice and adequately protected access to all underground structures, valves, pipes, and utilities installed as work of this Contract to H2M prior to backfilling. Please contact H2M at least 48 hours in advance of backfilling. In the event the trench must be backfilled in less than 48 hours, the Contractor shall stake the junctions and termination points of the utility and note the depth to the top of the utility on the stake. Stakes must be protected for at least 48 hours until H2M survey can record the locations.

PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION
Not Used

END OF SECTION 017839.10

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Broad Scope: Asbestos containing materials (ACM) have been identified at the project site. Samples of pavers within the Brooklyn Navy Yard property and in close proximity to the project site have been previously tested and confirmed to contain asbestos; additional samples may be required as existing materials are removed or revealed during the course of work. The scope of work and procedures outlined herein shall be followed by a New York State Department of Labor (NYS DOL) certified asbestos abatement contractor.

B. SCOPE OF WORK

1. Removal of the following items, in accordance with NYSDOL ICR 56 and NYCDEP Title 15:

    a. Exterior – Asbestos-Containing Pavers: Pavers at the project site are assumed to contain asbestos. Testing results of pavers in close proximity to the project site are available upon request. The setting bed of the pavers should also be assumed contaminated and disposed of with the pavers.
    b. Interior, steam tunnel – Thermal System Insulation (TSI): Steam piping within concrete steam tunnel scheduled for partial removal is suspected to be wrapped in asbestos-containing thermal insulation. Testing is to be performed by the Owner's environmental consultant upon uncovering of any steam piping with suspected asbestos containing thermal insulation.

2. Asbestos Containing materials must be removed only by a New York State Department of Labor (NYS DOL) licensed asbestos abatement contractor (herein referred to as the "Contractor").
3. The Contractor shall be aware of all conditions of the Project and is responsible for field verifying quantities and locations of all ACM to be removed prior to submission of any bid. Failure to do so shall not relieve the Contractor of its obligation to furnish all labor and materials necessary to perform the Work. The quantities presented in this Specification are approximate and should not be used solely as the basis for any bid. In the event that suspect materials not included in this Specification are encountered while the work is in progress, such material shall be tested for asbestos content or assumed positive for asbestos content, and removed in accordance with the procedures herein. Any discovery of new ACM shall not delay the progress of the Work. Payment for any additional work shall be considered on a case-by-case basis by the Engineer and Owner.
4. All Work shall be performed in strict accordance with the Contract Documents and all applicable codes, rules, and regulations. Where conflicts occur between the Contract Documents and applicable codes, rules, and regulations, the more stringent shall apply.
5. The Contractor's industrial hygiene practices during asbestos abatement will be monitored by the Owner's representative. The Contractor shall be responsible for monitoring his own construction safety work practices for compliance with the OSHA regulations.

1.02 SPECIAL JOB CONDITIONS

A. Any special job conditions, including variances to be obtained by the Contractor, are described herein.
    1. The contractor shall be responsible for obtaining any site specific variances.

1.03 CODES, PERMITS AND COMPLIANCE

A. The Contractor shall assume full responsibility and liability for compliance with all applicable Federal, State, and local laws, rules, and regulations pertaining to Work practices, protection of workers, authorized visitors to the site, persons, and property adjacent to the Work.

B. Perform asbestos related Work in accordance with New York State Industrial Code Rule 56, 40 CFR 61, and 29 CFR 1926, as specified herein. Where more stringent requirements are specified, adhere to the more stringent requirements.

C. State Licenses: The Contractor must maintain current licenses pursuant to New York State Department of Labor and Department of Environmental Conservation for all Work related to this Project, including the removal, handling, transport, and disposal of asbestos containing materials.
   1. The Contractor must have and submit proof upon request that any persons employed by the Contractor to engage in, or supervise Work on any asbestos Project have a valid NYS asbestos handling certificate pursuant to Industrial Code Rule 56.
   2. The Contractor shall comply fully with the variances secured from regulatory agencies in the performance of the Work. The Contractor shall also be responsible for paying and complying with any additional variances. Should the Contractor choose to apply for any variance, approval from the Engineer is first required. In the event that the Contractor chooses to use more than one NYS Applicable Variance in the same Work Area simultaneously, the Contractor is responsible for complying with all conditions of each variance and any New York State Department of Labor (NYS DOL) interpretations concerning the use of these variances together.

D. Agency Notifications: The Contractor shall prepare written notification to EPA Region 2, and to the New York State Department of Labor (NYS DOL) at least 10 days prior to commencement of Work, when applicable. The Contractor shall be responsible for use and payment of any notifications required for performance of the Work.

E. It is the sole responsibility of the Contractor to determine what, if any patents are applicable to the Project. The Contractor shall pay all royalties and/or license fees. He/She shall defend all suits or claims for infringement of any patent rights and save the Owner, Architect, Engineer, and Construction Manager harmless from loss, including attorney's fees, on account thereof.

F. Before commencement of Work, the Contractor shall review and adhere to the Contract Documents. Failure to adhere to the Contract Documents shall constitute a breach of the Contract and the Owner shall have the right to and may terminate the Contract provided, however, the failure of the Owner to so terminate shall not relieve the Contractor from future compliance.

1.04 APPLICABLE STANDARDS AND REGULATIONS

A. The Contractor shall comply with the following codes and standards, except where more stringent requirements are shown or specified:

B. Federal Regulations:
   1. 29 CFR 1910.1001, "Asbestos" (OSHA)
   2. 29 CFR 1910.1200, "Hazard Communication" (OSHA)
   3. 29 CFR 1910.134, "Respiratory Protection" (OSHA)
   4. 29 CFR 1910.145, "Specification for Accident Prevention Signs and Tags" (OSHA)
   5. 29 CFR 1926, "Construction Industry" (OSHA)
   6. 29 CFR 1926.1101, "Asbestos, Tremolite, Anthophyllite, and Actinolite" (OSHA)
   7. 29 CFR 1926.2, "Variances from safety and health standards" (OSHA)
   8. 29 CFR 1926.500 "Guardrails, Handrails and Covers" (OSHA)

9. 29 CFR 1926.1200 "Confined Spaces in Construction" (OSHA)
10. 40 CFR 61, Subpart A, "General Provisions" (EPA)
11. 40 CFR 61, Subpart M, "National Emission Standard for Asbestos" (EPA)
12. 49 CFR 171-172, Transportation Standards (DOT)
13. 40 CFR Part 763, “Asbestos Hazard Emergency Response Act” (AHERA)

C. New York State Regulations:
1. 12 NYCRR, Part 56, "Asbestos", Industrial Code Rule 56 (DOL)
2. 6 NYCRR, Parts 360, 364, Disposal and Transportation (DEC)
3. 10 NYCRR, Part 73, "Asbestos Safety Program Requirements" (DOH)
4. New York State Department of Health (NYSDOH) Training Requirements

D. Standards and Guidance Documents:
1. American National Standard Institute (ANSI) Z88.2-80, Practices for Respiratory Protection
2. ANSI Z9.2-79, Fundamentals Governing the Design and Operation of Local Exhaust Systems
3. EPA 560/585-024, Guidance for Controlling Asbestos Containing Materials in Buildings (Purple Book)
4. EPA 530-SW-85-007, Asbestos Waste Management Guidance

1.05 AUTHORITY TO STOP WORK

A. The Owner shall have the authority to stop the abatement work at any time a determination is made that conditions are not within Specification and applicable regulations. The stoppage of work shall continue until conditions have been corrected to the satisfaction of the Owner. Standby time to resolve the problems shall be at the contractor's expense.

1.06 SUBMITTALS

A. Pre-contract Submittals. After bids are opened, the apparent low bidder shall submit the following documentation, in accordance with the project deadlines outlined in the Contract Documents. Failure to submit all required documentation truthfully or in a timely manner may be cause for rejection of the bid.
1. Contractor license issued by New York State Department of Labor.
2. A list of Projects performed within the past two (2) years and include the dollar value of all Projects. Provide Project references to include Owner, consultant, and air monitoring firm's name, contact persons, address, and phone number.
3. A standard operating procedures manual describing Work practices and procedures, equipment, type of decontamination facilities, respiratory program, special removal techniques, etc.
4. Citations/Violations/Legal Proceedings: Submit a notarized statement describing:
   a. Any citations, violations, criminal charges, or legal proceedings undertaken or issued by any law enforcement, regulatory agency, or consultant concerning performance on previous abatement contracts. Briefly describe the circumstances citing the Project and involved persons and agencies as well as the outcome of any actions.
   b. Any litigation or arbitration proceedings arising out of performance on past Projects.
   c. Any liquidated damages assessed within the last 2 years.
5. Preliminary Schedule: Provide an estimate of manpower to be utilized and the time required for completion of each major Work Area. Include estimated size and number of crews and work shifts.

B. Pre-Work Submittals. The Contractor shall submit 3 copies of the documents listed below, in accordance with the project deadlines outlined in the Contract Documents:

1. Progress Schedule:
   a. Show the complete sequence of abatement activities and the sequencing of Work within each building or building section.
   b. Show the dates for the beginning and completion of each major element of Work including substantial completion dates for each Work Area, building, or phase.
2. Notifications: As required by Federal, State and local regulatory agencies together with proof of transmittal (i.e. certified mail return receipt).
3. Permits: As required by State and local regulations, including arrangements for storage, transportation, and disposal of contaminated material.
4. Abatement Work Plan: Provide plans which clearly indicate the following:
   a. All Work Areas/containments numbered sequentially.
   b. Locations and types of all decontamination enclosures.
   c. Entrances and exits to the Work Areas/containments.
   d. Type of abatement activity/technique for each Work Area/containment.
   e. Number and location of negative air units and exhaust.
   f. Proposed location and construction of storage facilities and field office.
   g. Location of water and electrical connections to building services.
5. Subcontractor List: List of all subcontractors to be used on the Project (i.e. Waste Hauler).
6. Material Safety Data Sheets (MSDS): Copies of MSDS for each chemical or material used for the Project (encapsulant, surfactant, mastic remover, etc.).
7. Laboratory: Submit the NYS Department of Health ELAP certification for the laboratory that will be analyzing the OSHA personnel air samples.

C. Project Close-out Submittal. Submit the following at the closeout of the Project:
1. Copies of all waste disposal manifests, seals, and disposal logs.
2. OSHA compliance air monitoring records conducted during the Work.
3. Daily progress log.
4. Entry and exit log.
5. A list of each Worker used in the performance of the Project, including name, social security number, and New York State Department of Labor (NYS DOL) certification number.

1.07 HEALTH & SAFETY

A. Worker Protection: The Contractor shall comply with OSHA and provide and maintain all safety measures necessary to properly protect all individuals that enter the work area.

B. Emergency Actions: In an emergency affecting the safety of life, the work, or adjoining property, the Contractor shall immediately act in such a manner to prevent such threatened loss or injury.

C. Fire Protection, And Emergency Egress: The Contractor shall be responsible to the security and safeguarding of all areas turned over by the Owner to the Contractor. The Contractor shall designate to his workers and other building occupants the means of egress in case of emergency.

D. The Contractor shall establish emergency and fire exits from the work area. First aid kit, two (2) full sets of protective clothing and respirators shall be provided for use by qualified emergency personnel in the clean room of the decontamination facility.

E. Contractor shall provide fire watch and logbook throughout the entire term of the project, to protect against fire and unauthorized entry into and around the work area. Any intrusion or incident shall be documented in the logbook. Fire watch personnel shall be present during off-hours shift such as night shift, weekends and holidays when abatement work is not in progress.

Fire watch shall be a certified asbestos handler by New York State Department of Labor (NYS DOL).

1.08 PRE-CONSTRUCTION CONFERENCE

A. Prior to start of preparatory Work under this Contract, and in accordance with the deadlines outlined in the Contract Documents, the Contractor shall attend a pre-construction conference attended by Owner, Facility Personnel, and Engineer, if requested.

B. Agenda for this conference shall include but not necessarily be limited to:
   1. Contractor's scope of Work, Work plan, and schedule to include number of Workers and shifts.
   2. Contractor's safety and health precautions including protective clothing and equipment and decontamination procedures.
   3. Owner & Engineer’s duties, functions, and authority.
   4. Contractor's Work procedures including:
      a. Methods of job site preparation and removal methods.
      b. Respiratory protection.
      c. Disposal procedures.
      d. Cleanup procedures.
      e. Fire exits and emergency procedures.
   5. Contractor's plan for twenty-four (24) hour project security both for prevention of theft and for barring entry of unauthorized personnel into Work Areas.
   6. Temporary utilities.
   7. Handling of furniture and other moveable objects.
   8. Storage of removed asbestos containing materials.
   9. Waste disposal requirements and procedures.

C. In conjunction with the conference, if requested, the Contractor shall accompany the Owner and/or Engineer on a pre-construction walk-through documenting existing condition of finishes and furnishings, reviewing overall Work plan, location of fire exits, fire protection equipment, water supply and temporary electric tie-in.

1.09 PROJECT MONITORING, AIR SAMPLING, AND INSPECTIONS

A. The Owner shall engage the services of an Environmental Consultant (the Consultant) or Engineer who shall serve as the Owner's Representative in regard to the performance of the asbestos abatement Project and provide direction as required throughout the entire abatement period.

B. The Contractor is required to ensure cooperation of its personnel with the Consultant/Engineer for the air sampling and project monitoring functions described below. The Contractor shall comply with all direction given by the Consultant/Engineer during the course of the Project.

C. The Consultant/Engineer shall provide the following administrative services:
   1. Review and approve or disapprove all submittals, shop drawings, schedules, and samples.
   2. Assure that all notifications to governmental agencies by the Contractor are submitted in a timely manner and are correct in content.
   3. Review and approve the Contractor's OSHA compliance testing laboratory.

D. The Consultant/Engineer shall provide abatement project air sampling and analysis as required by applicable regulations (New York State and/or AHERA). Sampling will include background, pre-abatement, during-abatement and clearance sampling.

1. Unless otherwise required by applicable regulations, the Consultant shall have samples analyzed by Phase Contrast Microscopy (PCM) using NIOSH Method 7400. Results shall be available within 24 hours of completion of sampling.
2. If the air sampling during abatement reveals airborne fiber levels at or above 0.01 fibers/cc or the background level (whichever is greater) outside the Work Area, then the Owner shall issue an immediate Stop Work order. The Contractor shall then inspect the barriers for leakage and HEPA vacuum and/or wet clean the surface outside the Work Area. The Contractor shall bear the burden of any and all costs incurred by this delay.
3. Final air clearance sampling will be conducted by Transmission Electron Microscopy (TEM) in accordance with 40 CFR Part 763 (AHERA), as applicable.

1.10 CONTRACTOR AIR SAMPLING

A. In addition to the requirements of OSHA 1926.1101, the Contractor shall be required to perform personal air monitoring every Work shift in each Work Area during which abatement activities occur in order to determine that appropriate respiratory protection is being utilized (OSHA Monitoring).

B. The Contractor shall conduct air sampling that is representative of both the 8-hour time weighted average and 30-minute short-term exposures to indicate compliance with the permissible exposure and excursion limits.

C. The Contractor's laboratory analysis of air samples shall be conducted by an New York State DOH ELAP approved laboratory.

1.11 WORK SUPERVISION

A. The Contractor shall designate a full-time Project Supervisor who shall meet the following qualifications:
   1. The Project Supervisor shall hold New York State certification as an Asbestos Supervisor.
   2. The Project Supervisor shall meet the requirements of a "Competent Person" as defined by OSHA 1926.1101 and shall have a minimum of one year experience as a supervisor.
   3. The Project Supervisor must be able to read and write English fluently, as well as communicate in the primary language of the Workers.

B. If the Project Supervisor is not on-site, all Work shall be stopped. The Project Supervisor shall remain on-site whenever asbestos removal is being performed. The Project Supervisor cannot be removed from the Project without the written consent of the Owner and the Engineer.

C. The Project Supervisor shall maintain the Project Log Book required by New York State Department of Labor and Section 2.03 of the specifications and the Waste Disposal Log required by Section 4.04 of the specifications.

D. The Project Supervisor shall be responsible for the performance of the Work and shall represent the Contractor in all respects at the Project site. The Supervisor shall be the primary point of contact for the Asbestos Project Monitor.

1.12 DELIVERY AND STORAGE

A. Deliver non-contaminated materials to the job site in original packages with containers bearing manufacturer's name and label.

B. Store all materials at the job site in a suitable and designated area.
   1. Store materials subject to deterioration or damage away from wet or damp surfaces and under cover.
   2. Protect materials from unintended contamination.

C. Remove damaged or deteriorated materials from the job site. Materials contaminated with asbestos shall be disposed of as asbestos debris as herein specified.

1.13 TEMPORARY UTILITIES

A. Shut down and lock out all electrical power to the asbestos Work Areas.

B. Provide temporary 120-208 volt, single phase, three wire, 100 amp electric service with Ground Fault Circuit Interrupters (GFCI) for all electric requirements within the asbestos Work Area.
   1. Where available, obtain from Owner's existing electrical system. Otherwise provide power from other sources (i.e. generator).
   2. Provide temporary wiring and "weatherproof" receptacles in sufficient quantity and location to serve all HEPA equipment and tools.
   3. Provide adequate "weatherproof" receptacles, to incorporate use by the APM for air sampling equipment.
   4. All power to the Work Area shall be brought in from outside the area through GFCI's at the source.

C. Provide temporary lighting with "weatherproof" fixtures for all Work Areas including decontamination chambers.
   1. The entire Work Area shall be kept illuminated at all times work is in progress.
   2. Provide lighting adequate for the purposes of performing required inspections.

D. All temporary devices and wiring used in the Work Area shall be capable of decontamination procedures including HEPA vacuuming and wet-wiping.

E. Utilize domestic water service, if available, from Owner's existing system. Provide hot water heaters with sufficient capacity to meet Project demands.

PART 2 - PRODUCTS

2.01 PROTECTIVE CLOTHING

A. Provide personnel utilized during the Project with disposable protective whole body clothing, head coverings, gloves and foot coverings. Provide disposable plastic or rubber gloves to protect hands. Cloth gloves may be worn inside the plastic or rubber for comfort, but shall not be used alone. Make sleeves secure at the wrists and make foot coverings secure at the ankles by the use of tape, or provide disposable coverings with elastic wrists or tops.

B. Provide sufficient quantities of protective clothing to assure a minimum of four (4) complete disposable outfits per day for each individual performing abatement Work.

2.02 DISPOSAL BAGS, DRUMS, AND CONTAINERS

A. Provide 6 mil polyethylene disposal bags printed with asbestos caution labels. Bags shall be imprinted with U.S. Department of Transportation required markings.

B. If the asbestos waste has the potential to damage or puncture the disposal bags, burlap sacks shall be utilized as a liner inside the polyethylene disposal bags to prevent puncture or damage to the disposal bags. In addition, 30 or 55 gallon capacity fiber or metal drums capable of being sealed air and water tight may also be used. Affix asbestos caution labels on lids and at one-third points around drum circumference to assure ready identification.

C. Containers and bags must be labeled with the names of the waste generator and the location at which the waste was generated in accordance with 40 CFR Part 61 NESHAPS.

D. Labeled ACM waste containers or bags shall not be used for non-ACM waste or trash. Any material placed in labeled containers or bags, whether turned inside out or not shall be handled and disposed of as ACM waste.

2.03 HEPA VACUUM EQUIPMENT

A. All dry vacuuming performed under this contract shall be performed with High Efficiency Particulate Absolute (HEPA) filter equipped industrial vacuums conforming to ANSI Z9.2.

B. Provide tools and specialized equipment including scraping nozzles with integral vacuum hoods connected to a HEPA vacuum with flexible hose.

2.04 POWER TOOLS

A. Any power tools used to drill, cut into, or otherwise disturb asbestos material shall be equipped with HEPA filtered local exhaust ventilation.

PART 3 - EXECUTION

3.01 GENERAL REQUIREMENTS

A. Should the area beyond the Work Area(s) become contaminated with asbestos containing materials or elevated fiber levels, immediately stop Work and institute emergency procedures. Contaminated non-Work Areas shall be isolated and decontaminated in accordance with procedures established for asbestos removal. All costs incurred in decontaminating such non-Work Areas and the contents thereof shall be borne by the Contractor, at no additional cost to the Owner.

B. New York State (NYS) DOL certificates shall be on site prior to admittance of any Contractor's employees to the asbestos Work Area.

C. Perform all asbestos removal Work using wet removal procedures. Dry removal procedures are not permitted.

D. The following documents shall be posted at the site at an easily accessible location:
   1. Company Asbestos Abatement license.
   2. Worker's asbestos handling certificates (copies are acceptable provided Workers have original certificates in their possession).
   3. Project specifications.
   4. Project drawings.
   5. Notifications and variances.
   6. Applicable regulations.
   7. Material Safety Data Sheets.
   8. Abatement Work plan.
   9. List of emergency telephone numbers.
   10. Waste Disposal Log.

E. The Work Area must be vacated by building occupants prior to decontamination enclosure construction and Work Area preparation.

3.02 PERSONNEL DECONTAMINATION ENCLOSURE

A. Full (five room) Decontamination Facility: The Contractor shall provide a full decontamination enclosure system for large asbestos projects in accordance with OSHA Standard 29 CFR 1926.1101 and 12NYCRR Part 56 (ICR 56).

B. Remote Decontamination Facility: The Contractor shall provide a remote personnel decontamination enclosure system for small asbestos projects, asbestos projects that utilize multiple tents, and exterior asbestos roof projects in accordance with OSHA Standard 29 CFR 1926.1101 and 12NYCRR Part 56 (ICR 56).

C. Decontamination Enclosure System Utilities: Lighting, heat, and electricity shall be provided as necessary by the Contractor.

3.03 WASTE DECONTAMINATION ENCLOSURE

A. Waste/Equipment Decontamination Enclosure System: This system is located adjacent to the work area and personnel decontamination system. If the decontamination chamber is accessible to the public it shall be fully framed and sheathed to prevent unauthorized entry. A remote decontamination unit may be used that complies with subpart 56-9 of NYS Industrial Code Rule 56 of Title 12, section 30 of the Labor Law. This remote enclosure system must be on the property and stationary, within 50 feet of the building.

B. Where only one egress from the Work Area exists, the holding area of the waste decontamination enclosure system may branch off from the personnel decontamination enclosure equipment room, which then serves as the waste wash room.

C. The waste wash room water shall be drained, collected, and filtered as specified in 12NYCRR Part 56 (ICR 56).

D. In small asbestos projects where only one egress from the Work Area exists, the shower room may be used as a waste washroom. In this instance, the clean room shall not be used for waste storage, but shall be used for waste transfer to carts, which shall immediately be removed from this enclosure.

3.04 WORK AREA ENTRY AND EXIT PROCEDURES

A. Personnel Entrance and Decontamination Procedures for Gross Removal Operations utilizing full decontamination facility, the following entry/exit procedures shall be used for gross removal using full containment:
   1. All workers and authorized visitors shall enter the work area through the worker decontamination enclosure system.
   2. All individuals who enter the work area shall sign the entry log, located in the clean room, upon each entry and exit. The log shall be permanently bound and shall identify fully the facility, agents, contractor(s), the project, each work area and worker respiratory protection employed. The site supervisor shall be responsible for the maintenance of the log during the abatement activity.
   3. Each worker or authorized visitor shall, upon entering the job site, remove street clothes in the clean room and put on a clean respirator (with new filters, if appropriate) and clean protective clothing before entering the work area through the shower room and equipment room.
   4. Each worker or authorized visitor shall, each time he/she leaves the work area: remove gross contamination from clothing before leaving the work area; proceed to the equipment room and remove all clothing except the respirator; still wearing the respirator, proceed to the shower room; clean the outside of the respirator with soap and water while showering; remove filters, wet them, and dispose of them in the container provided for that purpose; wash and rinse the inside of the respirator; and thoroughly shampoo and wash himself/herself.
   5. Following showering and drying off, each worker or authorized visitor shall proceed directly to the clean room, dress in street clothes, and exit the decontamination enclosure system immediately. Disposable clothing of the type worn inside the work area is not permitted outside the work area.

B. Personnel Entrance and Decontamination Procedures for Removal Operations utilizing remote decontamination facility: The following entry/exit procedures shall be used for removal work areas.
   1. All individuals who enter the Work Area shall sign the entry log, located in the clean room, upon each entry and exit. The log shall be permanently bound and shall identify fully the facility, agents, contractor(s), the project, each Work Area, and worker respiratory protection employed. The job supervisor shall be responsible for the maintenance of the log during the abatement activity.
   2. Each worker shall remove street clothes in the clean room; wear two disposable suits, including gloves, hoods and non-skid footwear; and put on a clean respirator (with new filters) before entering the work area.
   3. Each worker shall, before leaving the work area or tent, shall clean the outside of the respirators and outer protective clothing by wet cleaning and/or HEPA vacuuming. The outer disposable suit shall be removed in the work area and the worker shall then proceed to the shower room. The inner disposable suit and respirator shall be wet wiped and HEPA vacuumed thoroughly before removing and prior to aggressive shower.
   4. Following showering and drying off, each worker or authorized visitor shall proceed directly to the clean room, dress in street clothes, and exit the decontamination enclosure system immediately.

3.05 WORK AREA PREPARATION

A. Work Area preparation shall be performed in accordance with 12NYCRR Part 56 (ICR 56), the Contract Documents and the approved Asbestos Work Plan.

B. Temporary lighting within the work area and decontamination system shall be provided as required to achieve minimum illumination levels.

C. Unless otherwise specified for removal, the Contractor shall either protect all fiberglass insulation on piping, ductwork, tanks, etc. in the Work Area using two layers of six mil polyethylene or remove the insulation as asbestos containing waste. If the Contractor elects to remove the fiberglass insulation, he/she shall be responsible for reinsulation, if reinsulation of removed ACM is part of the Contract or Project.

D. Emergency exits. Emergency exits and routes shall be established and clearly marked with florescent paint or other effective designations to permit easy location from anywhere within the work area. Emergency exits shall be secured to prevent access from uncontaminated areas and yet permit emergency exiting. Exits shall be checked daily against exterior blockage or impediments to exiting.

E. Remove all items attached to or in contact with ACM only after the Work Area enclosure is in place. HEPA vacuum and wet wipe with amended water all removed items prior to their removal from the Work Area and before the start of asbestos removal operations.

F. If, required, suspended ceiling tiles shall only be removed after Work Area preparation is complete. Non-contaminated ceiling tiles shall be HEPA vacuumed and removed from the Work Area before asbestos removals begin. Contaminated ceiling tiles shall be disposed of as asbestos waste.

G. For tent enclosures: the Contractor shall use negative pressure ventilation equipment to continuously exhaust the enclosed area. A minimum of two (2) volume changes per hour is required. All required air monitoring must be successfully completed before the tent/barrier is collapsed.

3.06 NEGATIVE AIR PRESSURE FILTRATION SYSTEM

A. Provide a portable asbestos filtration system that develops a minimum pressure differential of negative 0.02 in. of water column within all full enclosure areas relative to adjacent unsealed areas and that provides a minimum of 4 air changes per hour in the Work Area during abatement.

B. The system shall include a series of pre-filters and filters to provide High Efficiency Particulate Air (HEPA) filtration of particles down to 0.3 microns at 100% efficiency and below 0.3 microns at 99.9% efficiency. Provide sufficient replacement filters to replace pre-filters every 2 hours, secondary pre-filters every 24 hours, and primary HEPA filters every 600 hours of operation.

C. At no time will the unit exhaust indoors, within 50 feet of a receptor, including but not limited to windows and doors, or adversely affect the air intake of the building.

D. The Contractor shall provide either a manometer or a photohelic style negative air pressure gauge with chart recorder to measure and record negative pressure differential across the Work Area barriers without interruption 24 hours per day as directed by the Environmental Consultant.

E. There shall be at least a 12-hour settling period after the Work Area is fully prepared and the negative filtration units have been started to ensure integrity of the barriers. Unless otherwise specified in the variance(s) utilized by the contractor.

3.07 REMOVAL OF ASBESTOS CONTAINING MATERIALS

A. Asbestos-containing materials shall be removed in accordance with 12NYCRR Part 56 (ICR 56), the Contract Documents and the approved Asbestos Work Plan.

B. Sufficiently wet asbestos materials with a low pressure, airless fine spray of surfactant to ensure full penetration prior to material removal. Re-wet material that does not display evidence of saturation.

C. One Worker shall continuously apply amended water while ACM is being remove

D. Perform cutting, drilling, abrading, or any penetration or disturbance of asbestos containing material in a manner to minimize the dispersal of asbestos fibers into the air. Use equipment and methods specifically designed to limit generation of airborne asbestos particles. All power operated tools used shall be provided with HEPA equipped filtered local exhaust ventilation.

E. Power or pressure washers will not be allowed to be used for asbestos removal or clean-up procedures.

3.08 ACM WASTE CONTAINERIZING, DECONTAMINATION AND LOAD OUT PROCEDURES

A. Packaging of ACM shall conform to OSHA Standard 29 CFR 1926.1101, DOT 49 CFR 171, 172, and 173, and EPA Standard 40 CFR Part 61 and the requirements as herein specified. Materials to be transported through a non-Work area building space shall be placed in hard wall shipping containers for handling.

B. The cleaned containers of asbestos material and equipment shall be placed in water tight carts with doors or tops that shall be closed and secured. These carts shall be held in the holding area pending removal. The carts shall be wet cleaned and/or HEPA vacuumed at least once each day.

C. The exit from the decontamination enclosure system shall be secured to prevent unauthorized entry.

D. Where the waste removal enclosure is part of the personnel decontamination enclosure, waste removal shall not occur during shift changes or when otherwise occupied. Precautions shall be taken to prevent short circuiting and cycling of air outward through the shower and clean room.

3.09 WORK AREA CLEANING PROCEDURES

A. Following completion of gross abatement and after all accumulations of asbestos waste materials have been containerized, decontamination procedures shall be followed as specified in ICR 56, unless otherwise stated in the variance(s) utilized by the Contractor.

B. Following each decontamination procedure (i.e., first, second, and third cleanings) the APM shall inspect the Work Area for effectiveness of the cleanings. If necessary, additional cleaning shall be performed by the Contractor as directed by the APM.

C. As a result of any air sampling results that indicate high fiber levels, the Contractor will clean or reclean the affected areas at no additional expense to the Owner.

3.10 TENT ENCLOSURES

A. Tent enclosures may only be used in areas specifically permitted by New York State (NYS) Code Rule 56 or a Project specific variance issued by the New York State (NYS).

B. The Contractor shall restrict access to the immediate area where tent removal procedures are taking place using barrier tape and/or construction barriers. Caution signs shall be posted.

C. Remote personnel and waste decontamination enclosures shall be constructed. Configuration shall be as required by Project size.

D. During removal activity, a HEPA vacuum or small capacity negative pressure filtration unit shall be used to provide a negative air pressure inside the tent. A minimum of six air changes per hour is required.

E. Workers shall wear two disposable suits for all phases of Work. Workers exiting the tent shall HEPA vacuum the outer suit, enter the airlock, remove the outer suit and then place it back into the Work Area. A clean second suit shall be donned before exiting the airlock and proceeding to the decontamination enclosure or another tent.

F. ACM removal shall follow procedures defined in Article 3.07.

G. Waste material shall be placed in properly labeled 6 mil plastic bags or other appropriate containers. The outside of the bags or containers shall be wet wiped and/or HEPA vacuumed before being passed into the airlock for double- bagging. The bags or containers shall then be transported to the decontamination enclosure and then bagged for a third time and transported to the waste storage container. All transportation of waste bags and containers outside the Work Area shall be in watertight carts.

H. The APM shall conduct a visual inspection of the Work Area for cleanliness and completion of abatement.

3.11 GLOVEBAG REMOVAL

A. Glovebag removals may only be used as specifically permitted by New York State (NYS) Code Rule 56 , Applicable Variance 108 (AV 108) Glovebag Operations, or a Project specific

variance issued by the New York State (NYS) Department of Labor. Glovebags may only be used on piping.

B. As specified in applicable regulations and variances, glovebag removals are only permitted to be conducted within tent enclosures complying with these specifications. Removal and disposals must also be conducted in conformance with all Project variance conditions.

C. The Contractor shall restrict access to the immediate area where tent/glovebag removal procedures are taking place using barrier tape and/or construction barriers. Caution signs shall be posted.

D. Remote personnel and waste decontamination enclosures shall be constructed. Configuration shall be as required by Project size.

E. The glovebags shall be smoke tested by the APM before removal operations commence. Glovebags that do not pass the smoke test shall be resealed and then retested.

F. After glovebag removals are complete, tent decontamination procedures shall be followed.

3.12 RESTORATION OF UTILITIES, FIRESTOPPING, AND FINISHES

A. After final clearance, remove locks and restore electrical and HVAC systems. All temporary power shall be disconnected, power lockouts removed and power restored. All temporary plumbing shall be removed.

B. Finishes damaged by asbestos abatement activities including, but not limited to, plaster/paint damage due to duct tape and spray adhesives, and floor tile lifted due to wet or humid conditions, shall be restored prior to final payment, unless the damaged surfaces are to be replaced during renovation activities.
   1. Finishes unable to be restored shall be replaced under this Contract.
   2. All foam and expandable foam products and materials used to seal Work Area openings shall be completely removed upon completion of abatement activities.

C. All penetrations (including, but not limited to, pipes, ducts, etc.) through fire rated construction shall be firestopped using materials and systems tested in accordance with ASTM E814 on Projects where re-insulation is part of the required work.

3.13 ASBESTOS WASTE

A. Applicable Regulations: All asbestos waste shall be stored, transported and disposed of in accordance with the following regulations as a minimum:
   1. NYS DEC 6 NYCRRNYRCC part 360 and 364.
   2. US EPA NESHAPS 40 CFR 61.
   3. US EPA Asbestos Waste Management Guidance EPA/530-SW85.

B. Waste Storage Containers.
   1. As work progresses, remove sealed and labeled bags of ACM from the Work area and place in a lockable trailer, dumpster, or other container approved for storage or transport of asbestos waste. Open containers will not be permitted on-site (i.e. open dumpster with canvas cover, etc.).
   2. The container interior shall be plasticized and sealed with a minimum of two (2) layers of 6 mil polyethylene.
   3. While on-site, the container shall be labeled with EPA Danger signage:

DANGER
CONTAINS ASBESTOS FIBERS

AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

4. The danger sign legend, text size, style and arrangement shall conform to the requirements of EPA Standard 40 CFR Part 61.149 (d) (1).
5. The New York State Department of Environmental Conservation Asbestos Hauler's Permit number shall be stenciled on both sides and back of the container.
6. Once the container is loaded at the site, the door(s) will be locked at all times.
7. Before the container is removed from the Project Site for transportation to the Disposal Site, the door(s) shall be locked. The locks shall be removed at the Disposal Site by the operator of the Disposal Facility.
8. The Owner may initiate random checks at the Disposal Site to insure that the procedures outlined herein are complied with.

3.14 DISPOSAL AND TRANSPORTATION OF ASBESTOS-CONTAMINATED WASTES

A. Sealed and labeled disposal bags or waste wrapped in two layers of plastic sheeting sealed airtight shall be used to transport asbestos-contaminated waste to the landfill. Procedures for hauling and disposal shall comply with 40 CFR, Part 61, 49 CFR, Part 171 and 172, and other applicable state, regional, and local government regulations.
   1. An asbestos waste shipment record or waste manifest shall accompany asbestos waste, which is transported to a disposal site.
   2. The waste manifest shall be completed by the Contractor.
   3. The waste manifest shall have the appropriate signatures of the APM, the Contractor, and the Hauler representatives prior to any waste being removed from the site.
   4. Copies of the completed waste manifest shall be retained by APM and the Contractor and shall remain on site for inspection. The Contractor shall forward originals of the waste manifest, which include final sign-off by the disposal facility, to Consultant/Engineer within 14 days of the waste container being removed from the site. Failure to do so may result in payment being withheld from the Contractor.

3.15 DISPOSAL SITE

A. The Contractor's Hauler and Disposal Site shall be approved by the Owner.

B. The Contractor shall have the Hauler provide the estimated date and time of arrival at the Disposal Site.

C. Unless specifically approved by the Owner, the Contractor shall not permit any off-site transfers of the waste or allow the waste to be transported or combined with any other off-site asbestos material. The Hauler must travel directly to the disposal site without unauthorized stops.

END OF SECTION 028200

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

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

1. Footings.
2. Foundation walls.
3. Slabs-on-grade.
4. Suspended slabs.
5. Concrete toppings.

1.03 REFERENCES

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

B. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.

C. ACI 305 - Hot Weather Concreting.

D. ACI 306 - Cold Weather Concreting.

E. ACI 308 - Standard Practice for Curing Concrete.

F. ACI 350 - Concrete Sanitary Engineering Structures.

G. ANSI/ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement.

H. ASTM C33 - Concrete Aggregates.

I. ASTM C94 - Ready-Mixed Concrete.

J. ASTM C150 - Portland Cement.

K. ASTM C260 - Air Entraining Admixtures for concrete.

L. ASTM C309 - Liquid Membrane-Forming Compounds for Curing Concrete.

M. ASTM C494 - Chemical Admixtures for Concrete.

N. ASTM C618 - Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete.

O. ASTM C 1116- Standard Specification for Fiber Reinforced Concrete and Shotcrete.

P. ASTM D1751 - Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction.

Q. ASTM D2103 - Polyethylene Film and Sheeting.

1.04 DEFINITIONS

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

1.05 ACTION SUBMITTALS

A. The contractor shall comply with the requirements of Division 01 Specification of the Project Manual

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

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

1. Indicate amounts of mixing water to be withheld for later addition at Project site.
2. Submit mix design mixtures for each type of concrete to be used on the Project at least 30 calendar days prior to the first scheduled concrete pour. The Contractor's testing laboratory shall develop concrete mix designs and test all materials and mixes for conformance with ACI 301 and these specifications. The costs associated with development of the design mix and testing of samples shall be included in the bid price.
3. Submit the following:

    a. Name, address, and telephone number of Contractor's laboratory.
    b. Mix proportions.
    c. Source of cement, type, brand, and certified copies of mill reports, including physical and chemical analysis.
    d. Sources of fine aggregates and results of test made in accordance with ASTM C33 and ASTM C40.
    e. Source of coarse aggregates and results of tests made in accordance with ASTM C33.
    f. Catalog cuts of all admixtures.
    g. Furnish test results of slump, air entrainment and water-cement ratio for each mix design.
    h. For each mix proposed, make and cure four (4) standard 6in. concrete test specimens to the laboratory in accordance with ASTM C192. Furnish compression test results made in accordance with ASTM C39. Break two (2) cylinders at seven (7) days and two (2) at 28 days.
    i. If the concrete is intended to be pumped, design mix accordingly and submit certification that it has been tested for pumping.
    j. If adopted mix fails to produce concrete meeting the requirements for strength and placibility, the Architect may order additional cement or adjustments to mix proportions at no extra cost to the Owner.

4. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, spacing, locations, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement including steel bars and wire fabric.
5. Formwork Shop Drawings: Prepared by or under the supervision of a qualified professional engineer licensed in the state where the project is located; detailing fabrication, assembly, and support of formwork. Shop drawings shall bear the signature and seal of the same licensed Professional Engineer.

    a. Shoring and Reshoring: Indicate proposed schedule and sequence of stripping formwork, shoring removal, and reshoring installation and removal
    b. Shop drawings shall indicate formwork dimensioning, materials and arrangement of joints and ties.
    c. Manufacturer's instructions: Indicate installation procedure and interface required with adjacent work

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

    a. Location of construction joints is subject to approval of the Architect, if not shown on the drawings.

7. Samples: For waterstops and vapor retarder.

1.06 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer and testing agency.

B. Welding certificates.

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

1. Cementitious materials.
2. Admixtures.
3. Form materials and form-release agents.
4. Steel reinforcement and accessories.
5. Curing compounds.
6. Bonding agents.
7. Adhesives. Vapor retarders.
8. Semi rigid joint filler.
9. Joint-filler strips.
10. Repair materials.
11. Floor surface flatness and levelness measurements indicating compliance with specified tolerances.
12. Field quality-control reports.
13. Minutes of preinstallation conference.
14. Furnish transit-mix delivery slips to Owner's Representative.

1.07 QUALITY ASSURANCE

A. Comply with Referenced Standards specified in Division 01 Section "References" in addition to ACI 301.

B. Perform testing under the provisions of Division 01 Section "Quality Requirements"

C. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.

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

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
2. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

    a. The contractor shall provide an adequately sized, insulated curing box to house concrete cylinders at the discretion of the Architect, for the 24-hour period between concrete pour and sample collection pick-up by the Testing Laboratory. As directed by the Architect, the contractor shall cure additional cylinders in the same fashion as the in-place concrete.
    b. Curing box shall be located away from the main construction area and shall be blocked up off the ground.
    c. A log sheet shall be provided in a waterproof sheet protector to log in the placement and removal of the concrete test samples by the testing laboratory.
    d. Minimum information to be logged for each pour date shall include: date of pour, date of pick-up, weather conditions at the time of pour, testing

3. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer. To further insure consistency, coloration, finish and quality; all aggregates, cement, water and other ingredients shall each be secured from the same source for the duration of the project.

    a. The batching plant and raw materials may be subject to inspections and test performed by the Architect.

4. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D 1.4M, "Structural Welding Code - Reinforcing Steel."
5. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

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

6. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.
7. Preinstallation Conference: Conduct conference at Project site.

    a. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:

        1) Contractor's superintendent.

2) Independent testing agency responsible for concrete design mixtures.
3) Ready-mix concrete manufacturer.
4) Concrete subcontractor.

b. Review special inspection and testing and inspecting agency procedures for field quality control, cold- and hot-weather concreting procedures, curing procedures, construction contraction and isolation joints, and joint-filler strips, semi rigid joint fillers, forms and form removal limitations, shoring and reshoring procedures, vapor-retarder installation, anchor rod and anchorage device installation tolerances, steel reinforcement installation, floor and slab flatness and levelness measurement, concrete repair procedures, and concrete protection.

1.08 DELIVERY, STORAGE, AND HANDLING

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

B. Store cement off the ground in a dry, weatherproof, adequately ventilated structure with provisions to prevent the absorption of water.

C. Transport dry concrete batches from the central plant to the site in approved truck mixers conforming to the requirements of the Truck Mixer Manufacturer's Agitating Standards. Each truck shall contain a plate stating the capacity, drum speeds and be provided with a revolution counter.

D. Packaged material shall be delivered and stored in the original packages until ready for use. Packages or materials showing evidence of water or other damage shall be rejected.

E. Protect all materials from freezing.

1.09 COORDINATION

A. Coordinate work under provisions of Division 01 Specification of this Project Manual.

B. The Contractor shall provide at least five (5) working days advance notice prior to formwork closure to the Architect.

C. Coordinate work of other Sections in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors, and other inserts.

D. Notify Architect a minimum of three (3) working days prior to commencement concrete pours.

1.10 REGULATORY REQUIREMENTS

A. Conform to ACI 304 and all applicable codes for placement of concrete and related work.

PART 2 - PRODUCTS

2.01 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

1. Plywood, metal, or other approved panel materials.
2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
3. Douglas Fir Species, solid one side grade and sound
4. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
5. Forms for Cylindrical Columns, Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that will produce surfaces with gradual or abrupt irregularities not exceeding specified formwork surface class. Provide units with sufficient wall thickness to resist plastic concrete loads without detrimental deformation. Inside surfaces shall be treated with a non-staining form release agent.
6. Pan-Type Forms: Glass-fiber-reinforced plastic or formed steel, stiffened to resist plastic concrete loads without detrimental deformation.
7. Void Forms: Biodegradable paper surface, treated for moisture resistance, structurally sufficient to support weight of plastic concrete and other superimposed loads.
8. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum unless indicated otherwise on the drawings.
9. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal. Patterns and sizes as shown on the drawings.
10. Form-Release Agent: Commercially formulated, colorless, water based, non-toxic, V.O.C. compliant, environmentally safe material which will not stain concrete, absorb moisture or impair natural bonding or color characteristics of coating intended for use on concrete; manufactured by DAYTON SUPERIOR or equal. Agent shall be NSF/ANSI Standard 61 approved for all concrete surfaces used for retention of potable water.

    a. Formulate form-release agent with rust inhibitor for steel form-facing materials.

11. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

    a. For tanks, containment structures, clearwells, etc. snap ties shall have a neoprene waterseal washer. Product Sansoe Snapties Waterseal as manufactured by Sansoe Snaptie or specifically approved equal
    b. Furnish units that will leave no corrodible metal closer than 1 inchto the plane of exposed concrete surface.
    c. Furnish ties that, when removed, will leave holes no larger than 1 inchin diameter in concrete surface.

2.02 STEEL REINFORCEMENT

A. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 60 percent.

B. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

C. Steel Bar Mats: ASTM A 184/A 184M, fabricated from [ASTM A 615/A 615M, Grade 60, ASTM A 706/A 706M, deformed bars, assembled with clips.

D. Deformed-Steel Wire: ASTM A 496/A 496M.

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

2.03 REINFORCEMENT ACCESSORIES

A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.

B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:

1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.
2. Provide load bearing pad on bottom to prevent vapor barrier puncture.

2.04 CONCRETE MATERIALS

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

1. Portland Cement: ASTM C 150, Type I/II, gray.
2. Normal-Weight Aggregates: ASTM C 33, No. 57 or 67 crushed stone coarse aggregate or better, graded. Provide aggregates from a single source with documented service record data of at least 10 years' satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials.

    a. Maximum Coarse-Aggregate Size: 3/4 inchnominal.
    b. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

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

2.05 ADMIXTURES

A. Air-Entraining Admixture: ASTM C 260.

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

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Retarding Admixture: ASTM C 494/C 494M, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

2.06 VAPOR RETARDERS

A. Sheet Vapor Retarder: ASTM E 1745, Class C or polyethylene sheet, ASTM D 4397. Thickness shall be as described on plans but not less than 10 mils thick. Include manufacturer's recommended adhesive or pressure-sensitive tape.

1. Manufacturers: Subject to compliance with requirements, provide the following:

a. Carlisle Coatings & Waterproofing, Inc.;
b. Grace Construction Products, W. R. Grace & Co.;
c. Insulation Solutions, Inc.;
d. Meadows, W. R., Inc.;
e. Reef Industries, Inc.;
f. Stego Industries, LLC;
g. Or approved equal.

B. Fine-Graded Granular Material: Clean mixture of crushed stone, crushed gravel, and manufactured or natural sand; ASTM D 448, Size 10, with 100 percent passing a 3/8-inchsieve, 10 to 30 percent passing a No. 100sieve, and at least 5 percent passing No. 200sieve; complying with deleterious substance limits of ASTM C 33 for fine aggregates.

2.07 FLOOR AND SLAB TREATMENTS

A. Slip-Resistive Emery Aggregate Finish: Factory-graded, packaged, rustproof, non-glazing, abrasive, crushed emery aggregate containing not less than 50 percent aluminum oxide and not less than 20 percent ferric oxide; unaffected by freezing, moisture, and cleaning materials with 100 percent passing No. 4 sieve.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Dayton Superior Corporation; Emery Tuff Non-Slip.
b. Lambert Corporation; EMAG-20.
c. L&M Construction Chemicals, Inc.; Grip It.
d. Metalcrete Industries; Metco Anti-Skid Aggregate.

2.08 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 8 oz. /sq. yd. when dry.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet weighing approximately 8 oz. / sq. yd. bonded to prevent separation during use.

C. Water: Potable.

D. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

2.09 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, 1/2" asphalt-saturated cellulosic fiber.

B. Bonding Agent: ASTM C 1059/C 1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

C. Epoxy Bonding Adhesive: three-component, solvent-free, moisture tolerant, epoxy modified cementitious product.

1. Product: Armatec 110 EpoCem as manufactured by Sika Corporation or specifically approved equal.
2. Types I and II, non-load bearing Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

D. Non-Shrink Grout: Premixed compound, free of chlorides, with non-metallic aggregate, cement water reducing and plasticizing agents; capable of minimum compressive strength of 2400 psi at 48 hours and 7000 psi at 28 days. Grout shall be suitable for contact with potable water. For equipment bases and pipe supports, use non-shrink grout by Master Builders, Embeco 636, Unisorb V-1 or equal.

E. Reglets: Fabricate reglets of galvanized-steel sheet. not less than 26 gauge material; in the longest lengths possible with alignment splines for joints; secure to formwork; Type CO as manufactured by Fry Reglet or approved equal. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.

F. Dovetail Anchor Slots: Hot-dip galvanized-steel sheet, not less than 0.034 inchesthick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.

G. PVC Waterstops: 6” wide Polyvinylchloride with Centerbulb, heat sealed joints, by Greenstreak Group, Inc. or equal.

H. Swellable Waterstop: one part polyurethane, extrudable swelling waterstop to create a compression seal; SikaSwell S-2 as manufactured by Sika Corp. or equal.

2.10 REPAIR MATERIALS

A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inchand that can be feathered at edges to match adjacent floor elevations.

1. Cement Binder: ASTM C 150, Portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by underlayment manufacturer.
4. Compressive Strength: Not less than 4000 psi at 28 days when tested according to ASTM C 109/C 109M.

2.11 CONCRETE MIXTURES, GENERAL

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

1. Use a qualified independent testing agency for preparing and reporting proposed mixture

designs based on laboratory trial mixtures.

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

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

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

2.12 CONCRETE MIXTURES FOR BUILDING ELEMENTS

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

1. Pier, Mat and Spread Footings; foundation walls, slab on grade and slab on metal deck: Minimum Compressive Strength: 4000 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.50 for all concrete building elements.
3. Slump Limits (Conventional Mix):

   a. Slabs: 4 inches plus or minus 1 inch.
   b. Piers, Foundation Walls and Footings: 3 inches plus or minus 1 inch.

4. Slump Limits (Pump Mix):

   a. Slabs: 7 inches plus or minus 1 inch.
   b. Piers, Foundation Walls and Footings: 6 inches plus or minus 1 inch.

5. Air Content:

   a. Piers, Mats and Spread Footings: 5.5 percent, plus or minus 1.0 percent at the point of delivery.
   b. Slabs: 2 percent, plus or minus 1.0 percent at point of delivery. Do not allow
   c. Air Content of trowel finished concrete floors to exceed 3 percent.

6. Large Aggregates: 3/4" crushed stone; ASTM C33, No. 67.
7. Use Admixtures only when approved by the Architect.
8. Mix Grout in accordance with the manufacturer's instructions and specifications. Foundation Walls: Proportion normal-weight concrete mixture as follows:

2.13 FABRICATING REINFORCEMENT

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

2.14 CONCRETE MIXING

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

1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.

1. For mixer capacity of 1 cu. yd.or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
2. For mixer capacity larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd.
3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity, and amount of water added. Record approximate location of final deposit in structure.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify lines, levels, and measurements before proceeding with formwork. Ensure that dimensions agree with the plans.

B. Inspect the formwork and reinforcing that it has been properly set and secured and that all items to be embedded, built-in or pass through concrete are at their proper locations and elevations.

C. The general contractor shall verify that all other prime contractors have installed concrete inserts, sleeves, and embedded elements of the project, such as conduit, and their work has been totally completed and inspected by the Architect.

D. Ensure that all points of contact with new grout are free from oil, grease and scale.

3.02 FORMWORK

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

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

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

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

a. Hand trim sides and bottom of earth forms and remove loose soil to the satisfaction of the Architect.
b. Remove water from forms and excavations and divert water flow to avoid washing over, under or though freshly placed concrete.

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

4. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.

    a. Install keyways, reglets, recesses, and the like, for easy removal.
    b. Do not use rust-stained steel form-facing material.

5. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
6. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
7. Provide 3/4" inch Chamfer on all exterior horizontal and vertical corners and edges of permanently exposed concrete.
8. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
9. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
10. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
11. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement. Do not apply form release agent where concrete surfaces are to receive special finishes or applied coatings that may be affected by the agent.
12. Where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack with non-metallic/ non-shrink grout. Prepare previously placed concrete by cleaning with steel brush and apply a Bonding Agent in accordance with the manufacturer's specifications and instructions.

3.03 EMBEDDED ITEMS

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

1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."
2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
3. Install dovetail anchor slots in concrete structures as indicated.
4. Ensure that all inserts and embedded items are not disturbed during concrete placement.

3.04 REMOVING AND REUSING FORMS

A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be

damaged by form-removal operations and curing and protection operations need to be maintained.

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

B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.

C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.05 SHORES AND RESHORES

A. Comply with ACI 318 and ACI 301 for design, installation, and removal of shoring and reshoring.

1. Do not remove shoring or reshoring until measurement of slab tolerances is complete.

B. In multistory construction, extend shoring or reshoring over a sufficient number of stories to distribute loads in such a manner that no floor or member will be excessively loaded or will induce tensile stress in concrete members without sufficient steel reinforcement.

C. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

3.06 VAPOR RETARDERS

A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions.

1. Lap joints 6 inches and seal with manufacturers recommended tape.

B. Granular Course: Cover vapor retarder with fine-graded granular material, moisten, and compact with mechanical equipment to elevation tolerances of plus 0 inch or minus 3/4 inch.

3.07 STEEL REINFORCEMENT

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

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

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

C. Accurately position, support, and secure reinforcement against displacement. Locate and

support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

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

D. Use reinforcing splices at minimum of locations and only at locations of minimum stress. Review locations of splices with the Architect. Splice locations shall be approved during Shop Drawings submission phase. Reinforcing bar splice overlap shall be the minimum length required by ACI 318.

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

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

G. Take necessary measures to ensure that reinforcement is not disturbed during the placement of concrete.

3.08 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
2. Form keyed joints as indicated. Embed keys at least 1-1/2 inchesinto concrete.
3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
5. Space vertical joints in walls as indicated or at 20' on center maximum. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
6. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:

    a. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 3/16"-inch-wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

7. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

    a. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.
    b. Terminate full-width joint-filler strips not less than 1/2 inchor more than 1 inchbelow

finished concrete surface where joint sealants, specified in Section 079200 "Joint Sealants," are indicated.

c. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

8. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.
9. Ensure joint fillers and devices are not disturbed during placement of concrete.
10. Install all joint fillers and devices in accordance with the manufacturer's instructions and specifications for floor and wall finish.
11. Install joint device anchors. Maintain correct position to allow joint cover flush with floor and wall finish.
12. Install joint covers in one-piece length when adjacent construction activity is complete.
13. Apply sealants in joint devices in accordance with the manufacturer's specifications and instructions.

3.09 CONCRETE PLACEMENT

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

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

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

1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
2. Place concrete with the aid of mechanical vibrators which are capable of transmitting to the concrete not less than 3,000 impulses per minute. Maintain at least three (3) vibrators in good working condition, ready for use when concrete placement begins in any one area.
3. Do not interrupt successive placement. Do not permit cold joints to occur. .

D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inchesinto preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

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

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

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

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

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

1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.
3. Maintain records of concrete placement. Record date, locations, quantity, air temperature and test samples taken.
4. In areas with floor drains, maintain floor elevations at walls; pitch surfaces uniformly to the drains maintaining a 1% slope.
5. Cure floor surfaces in accordance with ACI 308.
6. Apply curing compound in accordance with the manufacturer's specifications and instructions in two (2) coats with the second coat at right angles to the first.

3.10 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view.
2. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
3. Apply to concrete surfaces exposed to public view:

    a. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:

        1) Smooth-Rubbed Finish: Not later than one day after form removal,

moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.

4. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.11 FINISHING FLOORS AND SLABS

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

1. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch in one direction.
2. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Re-straighten, cut down high spots, and fill low spots. Repeat float passes and re-straightening until surface is left with a uniform, smooth, granular texture.

    a. Apply float finish to surfaces to receive trowel finish and to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.

3. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and re-straighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

    a. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, and ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
    b. Finish surfaces to the following tolerances, according to ASTM E 1155 , for a randomly trafficked floor surface:

        1) Specified overall values of flatness, F (F) 30; and of levelness, F (L) 20; with minimum local values of flatness, F (F) 24; and of levelness, F (L) 15; for suspended slabs.

    c. Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-ft.long straightedge resting on two high spots and placed anywhere on the surface does not exceed 3/16 inch.

4. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces where ceramic or quarry tile is to be installed by either thickset or thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom.

    a. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.

5. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.

a. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.
b. Uniformly spread 25 lb. /100 sq. ft. of dampened slip-resistive over surface in one or two applications. Tamp aggregate flush with surface, but do not force below surface.
c. After broadcasting and tamping, apply float finish.
d. After curing, lightly work surface with a steel wire brush or an abrasive stone and water to expose slip-resistive aluminum granules.

6. Finish exposed concrete as specified in Division 09 specifications of this project manual.

3.12 MISCELLANEOUS CONCRETE ITEMS

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

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

C. Equipment Bases and Foundations:

1. Coordinate sizes and locations of concrete bases with actual equipment provided.
2. Construct concrete bases 6 inches high unless otherwise indicated; and extend base not less than 6 inchesin each direction beyond the maximum dimensions of supported equipment unless otherwise indicated or unless required for seismic anchor support.
3. Minimum Compressive Strength: 4000 psi at 28 days.
4. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 12-inch centers around the full perimeter of concrete base.
5. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base, and anchor into structural concrete substrate.
6. Prior to pouring concrete, place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
7. Cast anchor-bolt inserts into bases. Install anchor bolts to elevations required for proper attachment to supported equipment.

D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items. Cast-in inserts and accessories as shown on Drawings. Screed, tamp, and trowel finish concrete surfaces.

E. Grout: Install grout in accordance with the manufacturer's specifications and instructions. Moisten concrete and grout surfaces and allow drying until damp. Remove all standing water. Pump or inject grout into tight spaces to ensure intimate contact with the existing grout. Cure grout with an appropriate membrane in accordance with the manufacturer's specifications and instructions.

3.13 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot

temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb./sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

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

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

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

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

    a. Water.
    b. Continuous water-fog spray.
    c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

    a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
    b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
    c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.

3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

    a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.

3.14 JOINT FILLING

A. Prepare, clean, and install joint filler according to manufacturer's written instructions.

1. Defer joint filling until concrete has aged at least three month(s). Do not fill joints until construction traffic has permanently ceased.

B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.

C. Install semi rigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.15 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

B. Immediately remove all rust spots that have developed during the construction period as soon as directed by the Architect. Remove all rust spots that have formed by the use of temporary handrails.

3.16 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage a special inspector and/or qualified testing and inspecting agency to perform field tests and inspections and prepare test reports. Contractor is responsible to notify the Owners representative at least 72 hours prior to the scheduled work that requires inspection / testing. The presence of the Inspector engaged by the Owner does not relieve the contractor of Quality Control Requirements.

B. Testing and Inspecting: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.

C. Inspections:

1. Steel reinforcement placement.
2. Steel reinforcement welding.
3. Concrete placement, including conveying and depositing.
4. Curing procedures and maintenance of curing temperature.
5. Verification of concrete strength before removal of shores and forms from beams and slabs.

D. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.

    a. Frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
    b. One (1) additional test cylinder shall be taken during cold weather and be cured under the same conditions as the concrete it represents.

2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture.

Perform additional tests when concrete consistency appears to change.

3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; ASTM C 173/C 173M, volumetric method, for structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
5. Unit Weight: ASTM C 567, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
6. Compression Test Specimens: ASTM C 31/C 31M.

    a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
    b. Cast and field cure two Insert number sets of two standard cylinder specimens for each composite sample.

7. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.

    a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
    b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.

8. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
9. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
10. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7 and 28-day tests.
11. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
12. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
13. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
14. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

E. Measure floor and slab flatness and levelness according to ASTM E 1155within 24 hours of finishing.

END OF SECTION 033000

SECTION 099744 - MECHANICAL PIPING COATING SYSTEMS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Exterior coating.

C. Piping, Valves and Fittings

1.02 RELATED SECTIONS

A. Section 013300 – Submittals

B. Section 016100 – Basic Product Requirements

C. Section 016500 – Product Delivery, Storage and Handling

D. Section 402323 – Large Piping and Fittings

E. Section 402324 – Valves and Valve Accessories

1.03 REFERENCES

A. ANSI/NSF 61 - Drinking Water System Components - Health Effects

B. AWWA – C115 – Standard for Flanged Pipe

C. NACE No. 2/SSPC SP10 - Near-white Blast Cleaning.

D. NACE No. 3/SSPC SP6 - Commercial Blast Cleaning.

E. SSPC PA – 1 – Shop, Field, and Maintenance Painting of Steel

F. SSPC PA 2 – Method for Measuring of Dry Paint Thickness with Magnetic Gages

G. SSPC VOL 1 - Good Painting Practices – 2002 4th Edition latest edition

H. SSPC VOL 2 – Systems and Specifications – 2005 Edition latest edition

I. SSPC SP 3 - Power Tool Cleaning

J. SSPC SP 2 – Hand Tool Cleaning

K. SSPC VIS 1-89 - Visual Standard for Abrasive Blast Cleaned Steel.

L. ASTM D4417–03 – Standard Test Methods for Field Measurement of Surface Profile of Blast Cleaned Steel

M. ASTM E1216-99(2005) - Standard Practice for Sampling for Particulate Contamination by Tape Lift

N. NACE RP0188-99 Discontinuity (Holiday) Testing of New Protective Coatings on Conductive Substrates

1.04 SUBMITTALS

A. Submit under provisions of Section 013300.

B. Product Data: Provide material data sheets (MDS) and material safety data sheets (MSDS), issued by the manufactures, for all materials and accessories that are to be used.

C. Samples: Provide a color chart for paint color selection by the Owner and Engineer for approval prior to all aspects of painting.

D. Manufacturer's instructions: Indicate surface preparation and paint application.

E. Submit a detailed plan on the method(s) to be employed to protect adjacent equipment and surfaces including, but not limited to, the following:

1. Method of surface preparation.
2. Method of paint application.
3. Quality Control Plan for all phases of construction operations.

F. Submit detailed daily reports weekly, to include the following:

1. The daily work location, date, start time and finish time, ambient conditions including wet bulb temperature, dry bulb temperature, and steel surface temperature, including hold point inspection observations.
2. All surface preparation operations including location, date, start time and finish time.
3. The date, start time and finish time for all painting operations, including location, wet bulb temperature, dry bulb temperature, and steel surface temperature, of the each coat applied.
4. The name, type, batch numbers, manufacturer's name and amount of coatings used for each application.

G. The Contractor shall submit to the Engineer letters from manufacturers certifying that the paint being supplied for this project conforms completely to specifications.

1.05 REGULATORY REQUIREMENTS

A. All coatings shall comply with VOC regulations as promulgated by the Ozone Transport Commission, effective January 2005.

1.06 CERTIFICATES

A. The Contractor shall submit to the Engineer, immediately upon completion of the job, certification from the manufacturer indicating that the quantity of each coating purchased was sufficient to properly coat all surfaces.

B. Certification shall make reference to the square footage figures provided to the manufacturer by the Contractor.

1.07 DELIVERY, STORAGE AND HANDLING

A. Deliver, store, protect and handle products to the site under provisions of Sections 016100 and 016500.

B. All materials furnished by the Contractor shall be brought to the job site in the original sealed and labeled containers of the paint manufacturer and shall be subject to inspection by the Engineer.

C. Every container of coatings materials shall have the batch number imprinted on the can, as well as the Federal Specification Number. Colors, where not specified, shall be as selected by the Engineer or Owner.

D. Store all materials as recommended by the manufacturer. Any materials stored improperly shall be removed from the site immediately. Maintain storage location and temperature log at storage site available for inspection.

E. The Contractor shall supply the Owner with two (2) one gallon paint kits of each of the exterior, intermediate and finished coats in each color.

1.08 WARRANTY

A. Provide a 1-year labor and manufacturer's materials warranty for the coating systems.

B. Warranties are to be submitted in writing to the Engineer prior to product delivery.

C. Any defects, failures, breakdowns, or discrepancies of the paint or coatings, that reveal themselves within the 1-year warranty period after acceptance of work shall be promptly repaired at no additional cost to the Owner.

D. Touch up procedures shall be issued by the engineer for areas of coating defects, breakdowns, or discrepancies to be repaired, only if the accumulative areas are less than five square feet, or if the engineer permits.

E. Remove the entire coating in the area where failure occurs. Touch-up work will not be permitted. The surface is to be prepared as originally scheduled

PART 2 - PRODUCTS

2.01 COATING REQUIREMENTS

A. All coating systems submitted for use shall be new for the project described. Two component coating materials shall be mixed in accordance with the manufacturer's data sheet. No partial kits shall be permitted to be used.

B. All coating systems submitted for use shall conform and meet the minimum requirements specified by the Engineer for:

1. Adhesion - ASTM-D-3359 and 4541

   a. Minimum 900 psi as measured with a Type 2 tester

2. Hardness - ASTM-D-3363, 2583, and 2240

   a. Exterior Finish Coating - No gouging or scratching with an 8H or less pencil

3. Flexibility – ASTM-D-522 and FED-STD-6221

   a. Exterior Finish Coating - No less than 34% elongation, average of three tests
   b. Impact Resistance – ASTM-D-2754
   c. Exterior Coating - No visible cracking or delamination of film after 34 inch pounds or less direct impact.

4. Abrasion Resistance - ASTM-D 968 and 4060

   a. No More than 100 mg loss after 1000 cycles

2.02 MANUFACTURERS

A. TNEMEC COMPANY, INC

B. PPG INDUSTRIES

C. SHERWIN WILLIAMS

D. Coating substitutions shall be permitted only after receiving written approval from the Engineer prior to bid.

2.03 MATERIALS - CARBON STEEL AND BLACK IRON PIPING

A. TNEMEC Paint System – Three full coats, one stripe coat.

1. Tnemec Series 94H2O, Hydro-Zinc, 2.5 - 3.5 mils DFT
2. Tnemec Series 27FC Typoxy Stripe Coat (Contrasting Color)
3. Tnemec Series 27FC Typoxy, 3.0 - 5.0 mils DFT
4. Tnemec Series 72 Low VOC Acrylic Urethane, 2.5 - 5.0 mils DFT

B. PPG Paint System – Three full coats, one stripe coat.

1. PPG Amercoat 68MCZ, 2.5 - 3.5 mils DFT
2. PPG Amerlock 2/400 Epoxy Stripe Coat (Contrasting Color)
3. PPG Amerlock 2/400 Epoxy, 3.0 - 5.0 mils DFT.
4. PPG Amercoat 450H, 2.5 - 5.0 mils DFT.

C. SHERWIN-WILLIAMS Paint System - Three full coats, one stripe coat.

1. Sherwin-Williams Corothane 1 Galvapac B65G11, 2.5 - 3.5 mils DFT
2. Sherwin-Williams Macropoxy 646 Stripe Coat (Contrasting Color)
3. Sherwin-Williams Macropoxy 646, 3.0 - 5.0 mils DFT
4. Sherwin-Williams Acrolon 218HS, 2.5 - 5.0 mils DFT

2.04 MATERIALS – DUCTILE IRON PIPING

A. TNEMEC Paint System – Two full coats, one stripe coat.

1. Tnemec Series 27FC Typoxy, 4.0 - 6.0 mils DFT
2. Tnemec Series 27FC Typoxy Stripe Coat (Contrasting Color)
3. Tnemec Series 72 Low VOC Acrylic Urethane, 3.0 - 5.0 mils DFT

B. PPG Paint System – Two full coats, one stripe coat

1. PPG Amerlock 2/400 Epoxy, 4.0 - 6.0 mils DFT
2. PPG Amerlock 2/400 Epoxy Stripe Coat (Contrasting Color)
3. PPG Amercoat 450H, 3.0 - 5.0 mils DFT

C. SHERWIN-WILLIAMS Paint System – Two full coats, one stripe coat

1. Sherwin-Williams Macropoxy 646, 4.0 - 6.0 mils DFT
2. Sherwin-Williams Macropoxy 646 Stripe Coat (Contrasting Color)
3. Sherwin-Williams Acrolon 218HS, 3.0 - 5.0 mils DFT

2.05 ACCESSORIES

A. Seam Sealer/Caulk: Shall be as recommended by the coating manufacturer.

2.06 TESTING

A. The Engineer shall have the right to take random samples of paint from the painter's bucket as it is being applied to the steel structure, tank or mechanical piping. These samples will be sent to the paint manufacturer for analysis to determine constituents and type of coating.

B. No material of any kind shall be used until it has been inspected and accepted by the Engineer. All materials rejected shall be immediately removed from the work and not again offered for inspection.

2.07 ACCESSORY MATERIALS

A. Provide all required ladders, scaffolding, drop cloths, maskings, scrapers, tools, sandpaper, cleaning solvents, and remove waste as required to perform the work to achieve the results specified herein. Materials not specifically indicated but required to achieve the finishes specified shall be of commercial quality and as recommended by the manufacturer.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Contractor shall verify existing ambient condition and substrate conditions prior to proceeding with any work and submit to Engineer's/representative's prior to requesting Engineer's/representative's verification.

B. Contractor shall verify substrate is properly prepared, properly cleaned, and or properly coated in accordance with project specifications prior to proceeding with any additional work and prior to requesting Engineer's/representative's verification.

C. Should the contractor request verification from Engineer's/representative's and work is not in conformance with requirements contractor shall pay $500 per occurrence to cover the costs to the owner.

3.02 PREPARATION - GENERAL

A. Surface Preparation Schedule:

1. Carbon Steel: Shall be abrasive blast cleaned to SSPC SP-6 (commercial blast cleaning) to achieve an angular surface profile between 1.5 - 3 mils.
2. Ductile Iron: All damaged primer and or connections shall be cleaned to SSPC SP-3 (Power Tool Cleaning)
3. Galvanized Steel: Shall be cleaned in accordance with SSPC SP-1 (Solvent Cleaning) and may also require SSPC SP-7 (Brush off Blasting) as deemed necessary by the engineer or owner.
4. Copper & PVC: Shall be cleaned in accordance with SSPC SP-1 (Solvent Cleaning) and SSPC SP-2 (Hand Tool Cleaning) to achieve a uniformly scarified surface.

B. Cleaned surfaces, when viewed without magnification, shall be free of all visible paint oil, grease, dirt, mill scale, rust, oxides, corrosion products and other foreign matter as noted in Chapter 2, SSPC Painting Manual Volume 2.

C. Pit filler shall be applied to all voids that are greater than ¼ of the original steel surface thickness.

D. The pit filler shall be applied prior to the application of the first coat and in accordance with manufacturer's instructions. If the manufacturer's instructions differ from the project specifications, the more stringent will apply.

E. All areas shall be cleaned prior to any coating application. All surfaces to be painted shall be dry.

F. Weld projections or irregular portions of welds, or any steel defects that would interfere with the proper coating shall be ground smooth, as directed.

3.03 APPLICATION

A. Apply coating in strict conformance with the manufacturer's instructions and requirements. If the manufacturer's instructions differ from the project specifications, the more stringent will apply.

B. Before coating is applied to surfaces, steps shall be taken, either by circulation of dry air or by the application of heat, to dry the metal surfaces completely.

C. No coatings shall be applied when the surface temperature is less than 5 degrees Fahrenheit (3 degrees Celsius) above the dew point.

D. No coatings shall be applied when the relative humidity is above 85% or as recommended by manufacturer.

E. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer. Do not apply exterior coatings when unfavorable weather conditions are forecast within 24 hours of application.

F. No surfaces shall be coated that are not in compliance with SSPC surface preparation standards or any other part of the project specifications.

G. All coatings shall be applied at the rate specified. Deficiencies in film thickness shall be corrected with the proper surface preparation and application of an additional coating or as directed by the engineer. Coatings in excess of the specified range shall be corrected at the direction of the engineer.

H. All coating applications shall be inspected and approved by the Engineer prior to the application of any succeeding coats. All coats shall be applied to the dry film thickness specified.

I. The minimum and maximum total dry film thickness shall be as indicated in this section. The Mil Gauge shall be calibrated in accordance with the National Institute of Standard and Technology. The Contractor shall have available on the job site a satisfactory magnetic type Mil Gauge for measuring film thickness.

J. A brush applied stripe coat, of different color, shall be applied to all weld seams, edges, seams, or any non conforming surfaces deemed necessary by the engineer. The stripe coat shall be applied after the first coat but prior to the second coat.

K. The coating shall be applied as a continuous film of uniform thickness. Any holidays or areas missed in the application shall be recoated within the maximum re-coat time or be corrected with the proper surface preparation and cleaning prior to the application of the subsequent coating.

L. All coatings that are specified shall only be acceptable in the number of coats specified in the contract documents.

M. Color Coding of Process Piping shall be in accordance with Ten States Standards as follows:

Service	Color
Raw Water	Olive Green

Potable water	Dark Blue
Caustic	Yellow w/green band
Blowoff/Waste	Light Brown
Chlorine	Yellow
Gas Supply Piping	Red
Drainage and Waste	Dark Gray
Tower Effluent Piping	Dark Blue with Olive Green Bands

3.04 CLEANING

A. All surfaces shall be free of all dirt, oil, debris, or any other foreign matter prior to the application of any coating.

B. The Contractor shall maintain his work area in a neat, orderly fashion. Accumulation of debris, muck, rust, scale, etc., shall be frequently (not to exceed 1 week) cleaned up and removed from the site. Thinners used to clean equipment shall be held in sealed containers and removed from the site to an approved disposal area by the Contractor. Provide certificates from the disposal site indicating that the material has been properly disposed of.

C. Upon completion of the work, all excess material, rigging, empty containers, cables, tarps, etc., shall be removed from the site. Buildings and grounds shall be left in as good condition as when work was started.

3.05 FIELD QUALITY CONTROL

A. The Engineer will inspect the painting as it is being performed.

B. The Engineer reserves the right to accept each phase of the work before further work may be conducted, to halt all Work deemed to be improper or not in compliance with project specifications, and to require the contractor to promptly correct all improper practices or deficient work. Contractor shall notify the Engineer's/representative's 24 hours minimum prior to the following:

1. Prior to the start of work
2. Immediately following surface preparation
3. Immediately prior to each coating or lining application
4. Following the application of each coat
5. Following the curing of the coating or lining

C. The Engineer reserves the right to conduct any testing, both destructive and nondestructive, at any time for inspection or evaluation purposes.

D. Any expenses incurred for corrective measures required as the result of improper practices and/or defective or deficient work shall be borne by the contractor and the extent of these corrective measures shall be at the discretion of the engineer.

E. The contractor shall provide safe access to all areas, including but not limited to, equipment, containers and spaces for inspection at any time as deemed necessary by the engineer or his representative

F. Sufficient lighting shall be provided to ensure proper safety conditions and permit inspection.

G. All manholes and other tank openings shall remain open as necessary during cleaning, painting and curing operations.

END OF SECTION 099744

SECTION 312319 - DEWATERING

PART 1 - GENERAL

1.01 - SECTION INCLUDES

A. Work of this Section includes dewatering for building construction, tank construction and all other underground pipelines and utilities. All costs associated with work of this Section, including all costs associated with satisfying the requirements of the NYSDEC, shall be solely borne by the Contractor.

B. No time extensions will be granted for the Contractor's failure to obtain the permit in accordance with the Contractor's own schedule and sequence of construction as may have been anticipated prior to the submission of the bid.

1.02 - RELATED SECTIONS

A. Section 312323.13 – Backfilling

B. Section 033000 – Concrete

1.03 - PROJECT CONDITIONS

A. Groundwater Levels: The Bidder shall be solely responsible to ascertain the exact level of groundwater prior to bid. Water levels, as shown on the Plans and listed in Appendix, solely represent the levels obtained at the times and specific locations of soil borings, monitoring wells, or test holes. They are not intended to be indicative of levels to be found at locations other than those shown. Separate payments will not be made to the Bidder / Contractor for the cost of ascertaining groundwater or surface water levels. Separate payments will not be made to the Contractor for dewatering operations. The Bidder shall contact the Engineer to request arrangements for access to the site to conduct explorations and investigations.

B. Subsoil Conditions: The Contractor shall be solely responsible to ascertain the exact nature of soils near the excavation(s), as it affects the design of the dewatering conditions. The results of test borings previously conducted have been included in the Appendix and Drawings for information only. The cost for any additional test borings shall be borne by the Contractor.

C. Noise Control: When dewatering systems utilizing well points or central pumping systems are used, acoustically shield pumping equipment from neighboring buildings. Use Styrofoam or other sound absorbing material on the inside of the enclosure surrounding the pump. Provide an

exhaust stack extension when required by the Engineer. The Engineer will not permit the use of loud pumps generating excessive emissions and/or noise. Comply with the requirements of Section 015680 – Environmental Protection.

D. The Contractor shall supply power to all dewatering equipment by use of a suitably sized portable generator. Temporary electric shall be furnished and installed as work of this contract.

E. Dewatering operations shall be conducted by companies regularly engaged in this type of work, are experienced, and are knowledgeable with governing health, labor, and environmental regulations associated with dewatering operations.

1.04 - REGULATORY REQUIREMENTS

A. Apply, obtain, and pay for permits required by regulatory agencies. All associated costs including reports, plans, applications, and engineering fees shall be borne by the Contractor.

B. The Contractor shall discharge water removed from trenches and excavations in compliance with the requirements of regulatory agencies and the Owner.

C. The Owner makes no representation that water removed from excavations can be disposed of readily or without expense associated with conveyance and/or treatment prior to discharge. The Contractor, by submitting a bid, has satisfied himself/herself that disposal of water can be discharged (returned to groundwater or surface water) in accordance with all regulatory requirements.

D. Well pointing shall be carried out by registered well drillers in accordance with Section 15-1525 of New York State Environmental Conservation Law.

E. The type of dewatering system shall be selected by the Contractor, as necessary to install the work. The method of dewatering to be used will depend upon subsoil conditions and the depth of water encountered. The method of dewatering and treatment system, if necessary, is at the sole discretion of the Contractor.

F. Conduct dewatering operations and groundwater recharge so as not to cause a harmful effect on adjoining wetlands in compliance with the requirements contained in Section 015680.

1.05 - SUBMITTALS

A. Prior to submitting information to the NYSDEC, the Contractor shall submit to the Engineer, for review and comment purposes only, the proposed layout of the dewatering system together with

proposed sampling protocols that are to be followed by the Contractor in order to secure the required permits and approvals.

B. Submit to the Engineer, for record purposes only, the proposed layout of the dewatering system together with any subsurface explorations, sampling and testing results, or studies that may have been conducted by the Contractor in order to secure the required permits and approvals.

C. The Contractor shall provide a copy of the dewatering permit as issued by the New York State Department of Environmental Conservation to the Engineer for record purposes. Any permit costs shall be the responsibility of Contract G and sghall be paid for out of the allowance.

PART 2 - MATERIALS

Not Used

PART 3- EXECUTION

3.01 - INSTALLATION

A. Dewater trenches and excavations when ground or surface water is encountered in the installation of pipe, foundations, structures, or appurtenances.

B. Furnish all piping, pumps, electrical systems and equipment, well pointing equipment, materials and labor required to properly well point or sump excavations in order to eliminate ground and surface water or precipitation from entering the excavation area during construction.

3.02 – PERFORMANCE

A. All water removed from the trenches or excavations by pumping, bailing, siphoning, well-points, or other means shall be disposed of in such a manner so as to avoid interference with wetlands, environment, plant operations, pedestrian and vehicular traffic and so to prevent damage to persons or property.

B. Unless otherwise permitted, groundwater encountered within the limits of excavation shall be depressed to an elevation not less than twelve inches below the bottom thereof before pipe laying or concreting is started, and shall be so maintained until concrete and joint material have attained adequate and specified strength. Dewatering operations shall be continuous (24 hours per day, 7 days per week) unless otherwise noted on the Contract Drawings. Dewatering operations shall be continued until the entire structure is backfilled to the grades required by the Contract Documents.

C. The Contractor shall not discharge water from dewatering operations directly into any live or intermittent stream, channel, wetlands, surface water or storm sewer without the approval of the NYSDEC.

D. Water from dewatering operations shall be treated by chemical treatment, physical treatment, filtration, settling basins, or other NYSDEC approved methods to reduce the amount of contaminates, sediment, and/or pollution contained in the water to allowable levels, as determined by the State.

E. Upon completion of the portion of the work wherein the operations have been performed, the Contractor shall remove from the catch basins, sumps, ditches or water courses, all mud, silt, debris and other accumulations discharged to these various locations. The Contractor is responsible for leaving them in a condition similar to that which existed prior to his operations to the satisfaction of the regulatory agency. Proper control measures shall be employed, to minimize siltation and erosion in and adjacent to the area of the Work at all times.

F. Locate dewatering pumps as far as possible from residential structures. The pumps shall be housed in noise suppression enclosures. If the operation noise levels, as determined by the Engineer, are still excessive, the Contractor shall, at the discretion and direction of the Engineer, apply damping compound to the external portion of the enclosure.

G. The Contractor is hereby advised that during the dewatering process, in some instances, as directed by the Engineer, the quantity of water to be discharged will have to be limited so that flooding will not occur.

H. Dewatering shall continue as required to avoid floatation to structures until completed, unless other positive measures, such as flooding sleeves, can be used.

3.03 – PROTECTION

A. Provide adequate protection from the affect of possible uplift due to storm or groundwater where buoyancy might lift installed work or cause joint or structure failure during construction. Provide back-up equipment where pump failure could result in damage to installed work.

B. Protect the interior of installed work from the entering and accumulation of liquids, ice, and snow. Immediately remove and dispose any accumulation that may occur.

3.04 - CLEANING

A. Upon completion of all work, remove from the gutters, catch basins, drains, and manholes all debris and other accumulations, leaving them in a condition equal to or better than that, which existed prior to the work. Restore any pavement, shoulder or other areas disturbed or damaged by the installation of the dewatering system.

END OF SECTION 312319

SECTION 312323 - BACKFILLING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Site piping backfilling to sub-grade elevations.

B. Site filling and backfilling.

C. Consolidation and compaction.

1.02 RELATED SECTIONS

A. Section 000010 – SMP Compliance

B. Section 315000 - Excavation Support & Protection.

1.03 REFERENCES

A. ANSI/ASTM C136 - Method for Sieve Analysis of Fine and Coarse Aggregates.

B. ANSI/ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb (4.54 kg) Rammer and 18-inch (457-mm) Drop.

1.04 QUALITY ASSURANCE

A. Do not backfill wet or frozen materials.

B. All fill shall be provided from a certified clean backfill source. See specification Section 000010 – SMP Compliance for more information and testing requirements.

PART 2 - PRODUCTS

2.01 FILL MATERIALS

A. Type C – Select Granular Fill - Sand: Natural river or bank sand; washed, free of silt, clay, loam, friable or soluble materials, or organic matter; graded in accordance with ANSI/ASTM C136, within the following limits:

Sieve Size	Percent Passing
¼”	100
No. 40	0 - 50
No. 200	0 - 8

B. Type D - Subsoil: Reused, excavated material, graded, free of lumps, rocks and gravel larger than 3 inches in size, debris and contaminants. If approved in writing by the Engineer, excavated material determined to be unsuitable for fill may be processed (i.e. screened and/or crushed) to produce select granular fill material or fill material. Such processed materials for backfill must be in compliance with the NYC DOT Standard Highway material specifications for either Select Granular Fill or for Fill.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify existing conditions and substrate.

B. Verify fill materials to be reused are acceptable.

C. Verify items to be buried during backfilling process have been inspected prior to backfilling.

D. Verify subgrade has been properly compacted and is ready to receive work of this section.

3.02 PREPARATION

A. Compact subgrade to 95 percent maximum dry density in accordance with ANSI/ASTM D1557.

B. Cut out soft areas of subgrade not capable of in situ compaction. Backfill with Type C fill and compact to density equal to or greater than requirements for subsequent backfill material.

3.03 COMPACTION - METHODS

A. Trench compaction on all water main trenches shall be by mechanical tamping methods. Jetting of trenches will not be permitted.

3.04 BACKFILLING - GUIDELINES

A. Backfill areas to contours and elevations with unfrozen materials.

B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy materials.

C. Place and compact materials in continuous layers not exceeding 6 inches (150 mm) compacted density.

D. All backfilled materials shall be compacted to 95 percent maximum dry density in accordance with ANSI/ASTM D1557. Maintain optimum moisture content to attain required density.

E. Employ a placement method that does not disturb or damage structures or other items against which material is backfilled.

F. Backfill against supported structures. Do not backfill against unsupported structures. Backfill simultaneously on each side of structure.

G. Make grade changes gradual. Blend slope into level areas.

H. Remove surplus backfill materials from site.

I. Remove temporary sheeting, as backfilling progresses, under provisions of Section 315000.

3.05 FIELD QUALITY CONTROL

A. Perform field tests and analysis of fill material in accordance with ANSI/ASTM D1557. If tests indicate work does not meet specified requirements, remove work, replace and retest at no cost to Owner.

3.06 PROTECTION

A. Recompact fills subjected to vehicular traffic.

END OF SECTION 312323

SECTION 312333 - TRENCHING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Trench excavation for piping and utilities.

B. Bedding for piping and utilities.

C. Backfilling and compaction.

1.02 RELATED SECTIONS

A. Section 315000 - Excavation Support & Protection.

1.03 REFERENCES

A. ANSI/ASTM C136 - Method for Sieve Analysis of Fine and Coarse Aggregates.

B. ANSI/ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb (4.54 kg) Rammer and 18-inch (457 mm) Drop.

1.04 QUALITY ASSURANCE

A. Do not excavate wet or frozen materials without written approval from the Engineer.

B. Do not backfill over or with wet or frozen materials.

C. Provide safety barricades around open excavations.

1.05 COORDINATION

A. Coordinate work under provisions of Section 013100.

B. Coordinate trenching with installation of pipe or conduit.

C. Coordinate trenching with installation and removal of sheeting.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Bedding: Select Granular Fill - Sand: Natural river or bank sand; washed, free of silt, clay, loam, friable or soluble materials, or organic matter; graded in accordance with ANSI/ASTM C136, within the following limits:

Sieve Size	Percent Passing
¼"	100
No. 40	0 - 50
No. 200	0 - 8

B. Type D - Subsoil: Reused, excavated material, graded, free of lumps, rocks and gravel larger than 3 inches in size, debris and contaminants. If approved in writing by the Engineer, excavated material determined to be unsuitable for fill may be processed (i.e. screened and/or crushed) to produce select granular fill material or fill material. Such processed materials for backfill must be in compliance with the NYC DOT Standard Highway material specifications for either Select Granular Fill or for Fill.

A. EXECUTION

2.02 EXAMINATION

A. Verify existing site conditions and substrate.

B. Verify fill materials to be reused are acceptable.

C. Verify items to be buried during backfilling process have been inspected prior to backfilling.

2.03 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Maintain and protect existing utilities remaining which pass through work area.

C. Protect plant life, lawns, rock outcropping and other features remaining as a portion of final landscaping.

D. Protect benchmarks, existing structures, fences, sidewalks, paving and curbs from excavation equipment and vehicular traffic. Any item damaged by the contractor shall be promptly repaired at the contractor's expense.

E. Protect above and below grade utilities which are to remain.

F. Cut out soft areas of subgrade not capable of in situ compaction. Backfill with subsoil fill and compact to density equal to or greater than requirements for subsequent backfill material.

2.04 EXCAVATION

A. Excavate subsoil required for piping.

B. Cut trenches to the dimensions shown on the plans.

C. Excavation shall not interfere with normal 45 degree bearing splay of foundations.

D. Hand trim excavation. Hand trim for bell and spigot pipe joints. Remove loose matter.

E. Maintain sides and slopes of excavations and trenches in a safe condition until completion of backfilling. Comply with Code of Federal Regulations Title 29-Labor, Part 1926-OSHA Standards.

F. Remove lumped subsoil, boulders, and rock.

G. For trenches made in solid rock, excavate to a depth of 1 foot (300 mm) below the proposed pipe invert.

H. Correct unauthorized excavation at no cost to Owner.

I. Stockpile excavated material in area designated on site and remove excess material not being used from site. Remove excavated material from site.

J. All trenches deeper than 5 feet (1.5 m) shall require sheeting. Sheeting is to be installed under provisions of Section 315000.

2.05 BACKFILLING

A. Support pipe and conduit during placement and compaction of fill material.

B. For trenches made in solid rock, place an additional 1 foot (300 mm) of fill material under pipe or conduit.

C. Place fill material to the dimensions and limits as shown on the plans.

D. Compact fill material to 95 percent maximum dry density in accordance with ANSI/ASTM D1557. Maintain optimum moisture content to attain required density.

E. Place fill material simultaneously on both sides of the pipe or conduit. Backfill to the dimensions and limits shown on the plans with reused subsoil.

F. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.

G. Place and compact material in continuous layers not exceeding 6 inches (150 mm) compacted depth.

H. Employ a placement method that does not disturb or damage conduit or pipe.

2.06 FIELD QUALITY CONTROL

A. Perform field tests and analysis of fill material in accordance with ANSI/ASTM D1557.

B. If tests indicate work does not meet specified requirements, remove work, replace and retest at no cost to Owner.

2.07 CLEANING

A. Remove surplus backfill materials from site.

2.08 PROTECTION

A. Recompact fills subjected to vehicular traffic.

END OF SECTION 312333

SECTION 315000 - EXCAVATION SUPPORT AND PROTECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Wood and steel sheeting.

B. Sheeting box.

1.02 RELATED SECTIONS

A. Section 312323 - Backfilling

B. Section 312333 - Trenching

1.03 REFERENCES

A. Occupational Safety and Health Standards - Excavations; Final Rule (29 CFR Part 1926) - OSHA Standards.

1.04 QUALITY ASSURANCE

A. Perform all work of this section in accordance with OSHA Standards and the New York City Department of Buildings Codes and Regulations.

B. Contractor shall make excavations and sheeting installations available for required permit inspections.

1.05 COORDINATION

A. Coordinate work under provisions of Section 013100.

B. Coordinate work with all other sections requiring excavation support and protection.

1.06 SUBMITTALS

A. Provide description of the sequence of work to perform the excavation and install the excavation support system where required, for submission to the New York City Department of Buildings BEST Squad for review and approval.

B. Provide shop drawings and calculations for excavation support system signed and sealed by a New York State Professional Engineer for submission to the New York City Department of Buildings BEST Squad for review and approval, where sheeting is required.

1.07 GEOTECHNICAL REPORT

A. A geotechnical report evaluating the soil at the location of each excavation has been provided in Appendix B of the specification.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Wood Sheeting: Hardwood species of size and dimensions capable of being driven to the required depths and capable of supporting excavation sides and soil pressures when braced; free from wormholes, wind shakes, loose knots, decayed or unsound portions or defects which would impair its strength or tightness; 2 inches (50 mm) thick minimum.

B. Steel Sheeting: Corrugated "Z" shape cross-section; of size and dimensions capable of being driven to the required depths and capable of supporting excavation sides and soil pressures when braced; structurally sound; special shapes for corner construction and transition points.

C. Sheeting Boxes: Steel, of size and dimensions capable of supporting excavation sides and soil pressures; structurally sound.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify existing substrate and site conditions.

B. Verify elevations and grades are as indicated on the plans.

C. Verify proposed locations of excavations are as indicated on the plans.

3.02 PREPARATION

A. Excavate to a depth no greater than 4 feet from existing grade.

B. Where excavations greater than 4 feet below existing grade are required, install the excavation support system in accordance with New York State Professional Engineer signed and sealed shop drawings that have been approved by the New York City Department of Buildings.

3.03 INSTALLATION - SHEETING

A. Drive sheeting in place to thoroughly support both sides of the excavation using a sheeting hammer. Use a steam or pneumatic hammer for steel sheeting.

B. Water jetting of sheeting will not be permitted. Do not loosen adjacent ground which might result in collapse.

C. Install walls and braces or shores tight and in accordance with New York State Professional Engineer sign and sealed shop drawings.

3.04 INSTALLATION - SHEETING BOX

A. Place box in trench utilizing a means which will not damage structural integrity of the box.

B. Excavate ahead of the sheeting box only enough to advance the sheeting box and only immediately prior to moving the sheeting box.

C. Backfill on both sides of the sheeting box as it is moved.

3.05 REMOVAL OF SHEETING

A. Remove sheeting only as backfilling progresses.

B. Carefully remove sheeting such that compacted backfill is not displaced. Add additional backfill to the areas vacated by the sheeting.

C. All sheeting is to be removed from the site once its use is no longer required.

3.06 CLEANING

A. Clean site of any debris from work of this section

END OF SECTION 315000

SECTION 321123 - AGGREGATE BASE COURSE

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Aggregate Base Course.

1.02 REFERENCES

A. ANSI/ASTM C88 - Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.

B. ANSI/ASTM C136 - Sieve Analysis of Fine and Coarse Aggregates.

C. ANSI/ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb Rammer and 18-inch Drop.

D. ASTM D4318 - Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

1.03 DELIVERY, STORAGE AND HANDLING

A. Do not handle aggregate in any manner which will cause segregation of large or fine particles.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Aggregate Base Course: Angular, crushed, stone; free of shale, clay, friable materials and debris; graded in accordance with ANSI/ASTM C136 within the following limits:

Sieve Size	Percent Passing
2 inches	100
1 inch	80-100
No. 4	25-60
No. 200	0-10

B. Coarse aggregate shall not have more than 10 percent by weight of flat or elongated pieces. A flat or elongated piece is defined as being three times greater in the largest dimension as compared to its least dimension.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify elevations of subgrade are as indicated on the plans.

B. Verify that subgrade is properly compacted and ready to receive work of this section.

3.02 PREPARATION

A. Fine grade and compact subgrade to 95 percent maximum dry density in accordance with ANSI/ASTM D1557.

3.03 AGGREGATE PLACEMENT

A. Spread course aggregate over prepared subgrade to a total compacted thickness as indicated on the plans.

B. Place aggregate in 3 inch layers and compact by roller.

C. Level and contour surfaces to elevations and gradients indicated.

D. Add small quantities of fine aggregate to coarse aggregate as appropriate to assist compaction.

E. Compact placed aggregate materials to achieve 95% maximum dry density in accordance with ANSI/ASTM D1557. Maintain optimum moisture content to attain required density.

F. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.

G. Use mechanical vibrating tamping in areas inaccessible to compaction equipment.

H. New pavement must be placed on the properly compacted aggregate base course within 24 hours of final compaction. If aggregate base course is left open for more than 24 hours, recompact and retest in accordance with ANSI/ASTM D1557.

3.04 TOLERANCES

A. Maximum Variation from Flatness: 1/4 inch measured with 10 foot straight edge.

B. Maximum Variation from Scheduled Compacted Thickness: 1/4 inch

C. Maximum Variation from True Elevation: 1/4 inch

3.05 FIELD QUALITY CONTROL

A. Perform compaction testing in accordance with ANSI/ASTM D1557.

B. If tests indicate work does not meet specified requirements, remove work, replace and retest at no cost to Owner.

END OF SECTION 321123

SECTION 321220 - ASPHALT PAVING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Asphaltic concrete paving; wearing and binder course.

B. Note: Asphalt paving within Kent Avenue shall comply with all NYC Department of Transportation requirements.

1.02 REFERENCES

A. AI MS-2 - Mix Design Methods for Asphalt Concrete and Other Hot Mix Types.

B. AI MS-8 - Asphalt Paving Manual.

C. ASTM D242 - Mineral Filler for Bituminous Paving Mixtures.

D. ASTM D546 - Test Method for Sieve Analysis of Mineral Filler for Road and Paving Materials.

E. NYC DOT – Standard Highway Specifications

1.03 SUBMITTALS

A. Submit under provisions of General Requirements.

B. Supplier: Submit name of asphalt supplier to be used on the project prior to placement of any asphalt on the project.

C. Design Data: Submit asphalt mix design for each asphalt type to be used.

1.04 QUALITY ASSURANCE

A. Obtain materials from the same supplier throughout the duration of the project.

B. Do not alter from mix design requirements.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle products to the site under provisions of General Requirements.

B. Deliver asphalt in sealed, tight, metal containers covered with suitable material to protect the asphalt from the elements.

C. Lightly lubricate the inside surface of the container with a thin oil or soap solution before loading asphalt.

D. All containers must be cleaned of all foreign materials prior to loading.

1.06 ENVIRONMENTAL REQUIREMENTS

A. Do not place asphalt when base surface temp is less than 40 F, or if surface is wet or frozen.

B. Do not place asphalt when precipitation is occurring.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Asphalt Cement: AC-20; homogeneous, and shall not foam when heated to 347 degrees F.

Fine Aggregate: Material passing the 1/8 inch sieve; natural sand of hard, strong, durable particles which are free from coatings or injurious amounts of clay, loam or other deleterious substances.

Coarse Aggregate: Material retained on the 1/8 inch sieve; crushed stone or gravel; clean, durable, sharp angled fragments of rock of uniform quality.

Mineral Filler: ASTM D242, finely ground particles of limestone, hydrated lime or other mineral dust, free of foreign matter; 100 percent shall pass the No. 30 sieve; a minimum of 85 percent shall pass the No. 80 sieve; and a minimum of 65 percent shall pass the No. 200 sieve as measured in accordance with ASTM D546.

2.02 EQUIPMENT

A. Rollers: Minimum weight of 10 tons; equipped with lubricating devices for the roller wheels.

B. Pavers: Equipped with a vibratory device.

2.03 ACCESSORIES

A. Tack Coat: Homogeneous, medium curing, liquid asphalt.

B. Wheel Lubricant: Oil-water mixture containing maximum 10 percent lubricating oil.

2.04 MIXES

Use dry material to avoid foaming. Mix uniformly.

A. Binder Course: NYCDOT Type 3 RA Plant Mix; 4.0 to 6.0 percent of asphalt cement by weight in mixture in accordance with the following gradation:

Sieve Size	Percent Passing
1½ inches	100
1 inch	95-100
¾ inch	74-93
½ inch	58-73
¼ inch	38-53
1/8 inch	26-40
No. 20	9-23
No. 40	4-18
No. 80	3-13
No. 200	2-6

B. Wearing Course: NYCDOT Type 6F RA Plant Mix; 5.0 to 8.0 percent of asphalt cement by weight in mixture in accordance with the following gradation:

Sieve Size	Percent Passing
¾ inch	100
½ inch	95-100
1/4 inch	58-72
1/8 inch	36-54
No. 20	15-32
No. 40	8-25
No. 80	4-16
No. 200	2-6

2.05 SOURCE QUALITY CONTROL

A. Obtain asphalt materials from same source throughout the project.

B. Provide asphalt in accordance with the approved mix design for each type of asphalt.

C. Test samples in accordance with AI MS-2.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify existing substrate and conditions.

B. Verify that compacted subbase is dry and ready to receive work of this section.

C. Verify gradients and elevations of base are correct.

D. Verify that all castings are properly installed and are at the correct elevations.

E. Beginning of installation means installer accepts existing conditions.

3.02 PREPARATION

A. Apply tack coat at uniform rate of 0.03 to 0.07 gal/sq yd to contact surfaces of curbs, gutters and any asphalt or concrete material.

B. Do not apply tack coat to wet or frozen surfaces.

C. Coat surfaces of manhole and catch basin frames with oil to prevent bond with asphalt pavement. Do not tack coat these surfaces.

3.03 INSTALLATION

A. Install work in accordance with AI MS-8.

B. Maintain asphalt temperature between 250 and 325 degrees F during placement.

C. Utilize vibratory device on paver at all times.

D. Place asphalt within 24 hours of applying tack coat.

E. Place asphalt to compacted thicknesses as identified on plans. If a multiple course pavement is to be used, place top course within 24 hours of placing bottom course. If more than 24 hours elapse, a tack coat will be required to be placed over the entire surface of the bottom course prior to any additional paving.

F. Compact pavement by rolling. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment.

G. Compact pavement to a minimum of 94% maximum density.

H. Develop rolling with consecutive passes to achieve even and smooth finish, without roller marks.

3.04 TOLERANCES

A. Maximum Variation From Flatness: 1/8 inch measured with 10 foot straight edge.

B. Maximum Variation From Scheduled Compacted Thickness: 1/8 inch.

C. Maximum Variation from True Elevation: 1/4 inch.

3.05 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under provisions of General Requirements.

B. Take samples and perform tests in accordance with AI MS-2.

C. Testing is to include gradation, percent compaction, and asphalt content.

3.06 PROTECTION

Protect finished work under provisions of Section 016500.

A. Immediately after placement, protect pavement from mechanical injury until project is accepted by the Owner.

END OF SECTION 321220

SECTION 321313 - PORTLAND CEMENT CONCRETE SIDEWALK

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Concrete sidewalks, handicap ramps, driveway aprons.

B. Formwork.

C. Note: Concrete curb adjacent to Kent Avenue shall comply with all NYC Department of Transportation requirements.

1.02 REFERENCES

A. ACI 301 - Structural Concrete for Buildings.

B. ANSI/ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement.

C. ANSI/ASTM D1751 - Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction.

D. ASTM C33 - Concrete Aggregates.

E. ASTM C94 - Ready Mix Concrete.

F. ASTM C150 - Portland Cement

G. ASTM C260 - Air-Entraining Admixtures for Concrete.

H. ASTM C309 - Liquid Membrane-Forming Compounds for Curing Concrete.

I. ASTM C494 - Chemical Admixtures for Concrete.

1.03 SUBMITTALS

A. Submit under provisions of Section 013300.

B. Product Data: Provide data on joint filler, admixtures and curing compounds.

C. Supplier: Submit name of concrete supplier prior to the placement of any concrete on the project.

D. Design Data: Provide a design mix for each type of concrete to be used on the project.

E. Certificates: Submit receipts of all concrete deliveries, indicating source, date, contractor, amount of concrete, concrete strength, truck number and time load was batched.

F. Testing Firm: Submit name of testing firm to be performing tests on concrete.

1.04 PROJECT RECORD DOCUMENTS

A. Accurately record locations of each day's concrete pour.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with ACI 301.

B. Obtain concrete only from approved suppliers and maintain the same source throughout the project.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver concrete in accordance with ASTM C94, Alternative No. 2.

B. Place all concrete within 90 minutes of time load was batched.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Do not place concrete when base surface temperature is less than 40 degrees F, or if surface is wet or frozen.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Cement: ASTM C150, air entraining, Type 1A Portland, gray color.

B. Aggregates: ASTM C33.

C. Water: Potable and not detrimental to concrete.

2.02 ACCESSORIES

A. Forms: Douglas Fir plywood type; solid, sound, undamaged sheets.

B. Joint Filler: ANSI/ASTM D1751; 1/2 inch thick.

C. Air Entraining Admixture: ASTM C260.

D. Chemical Admixture: ASTM C494, type as required.

E. Curing Compound: ASTM C309, Type 1, Class A.

F. Form Release Agent: Colorless material which will not stain concrete or absorb moisture.

G. Detectable Warning Surface: SAFTI-TRAX Mats or equal.

H. Joint Sealant: ASTM C920,,Type M, Grade P; SL-2 by Sonneborn or equal.

2.03 MIXES

A. Concrete shall be mixed and prepared in accordance with the approved mix design and ASTM C94, Alternative No. 2.

B. The mix shall be such that the concrete shall attain the following characteristics:

1. Compressive Strength (28 days): 4,000 psi.
2. Slump: 2½ to 3½ inches.
3. Air Entrainment: 6% ±1%.

C. Use chemical admixtures only when approved by the Engineer. Use of admixtures will not relax placement requirements.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify existing conditions and substrate.

B. Verify datum and all elevations are as indicated on the plans.

C. Verify compacted granular subbase has been properly prepared and is ready to receive work of this section.

D. Beginning of installation means installer accepts existing conditions.

3.02 PREPARATION

A. Compact base to minimum 95 percent maximum dry density in accordance with ANSI/ASTM D1557.

B. Moisten base to a minimum depth of 1/2 inch to minimize absorption of water from fresh concrete.

C. Coat surfaces of manhole and catch basin frames with oil to prevent bond with concrete pavement.

D. Place and secure forms to correct location, dimension and profile.

E. Assemble formwork to permit easy stripping and dismantling without damaging concrete. Coat forms with form release agent.

3.03 INSTALLATION

A. Place joint filler vertical in position in straight lines. Secure to formwork during concrete placement.

B. Place reinforcement as indicated on the plans. Interrupt reinforcement at expansion joints.

C. Place concrete in accordance with ACI 301.

D. Ensure reinforcement and formed joints are not disturbed during concrete placement.

E. Place concrete continuously between predetermined construction joints. Do not break or interrupt successive pours such that joints occur.

F. Vibrate concrete adjacent to forms.

G. Place concrete to pattern indicated.

H. Place expansion joints with joint filler at 20 foot intervals.

I. Place scored contraction joints at 4 foot intervals.

J. Place joint filler between paving components and building or other appurtenances and in expansion joints.

K. Apply a light broom finish perpendicular to traffic.

L. Place curing compound on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.

3.04 FIELD QUALITY CONTROL

A. Field inspection and testing shall be performed under provisions of Section 014500.

B. Take six concrete test cylinders for every 50 cu. yds. or fraction thereof of each class of concrete placed each day.

C. Cure test cylinders on site under same conditions as concrete sidewalk.

D. Take one slump test for each set of test cylinders taken.

E. Concrete not meeting slump requirements will be rejected.

F. Concrete represented by cylinders which do not meet required strength will be removed and replaced at no additional cost to the Owner.

3.05 PROTECTION

A. Immediately after placement, protect sidewalk from premature drying, excessive temperatures and mechanical injury.

B. Protect sidewalk from damage until project is accepted by the Owner.

END OF SECTION 321313

SECTION 321613 – PORTLAND CEMENT CONCRETE CURB

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Reinforced concrete curb.

B. Formwork.

C. Note: Concrete curb adjacent to Kent Avenue shall comply with all NYC Department of Transportation requirements.

1.02 REFERENCES

A. ACI 301 - Structural Concrete for Buildings.

B. ANSI/ASTM D1751 - Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction.

C. ASTM A615 - Deformed and Plain Billet Steel for Concrete Reinforcement.

D. ASTM C33 - Concrete Aggregates.

E. ASTM C94 - Ready Mix Concrete.

F. ASTM C150 - Portland Cement

G. ASTM C260 - Air-Entraining Admixtures for Concrete.

H. ASTM C309 - Liquid Membrane-Forming Compounds for Curing Concrete.

I. ASTM C494 - Chemical Admixtures for Concrete.

1.03 SUBMITTALS

A. Submit under provisions of Section 013300.

B. Product Data: Provide data on joint filler, admixtures and curing compounds.

C. Supplier: Submit name of concrete supplier prior to the placement of any concrete on the project.

D. Design Data: Provide a design mix for concrete to be used on the project.

E. Certificates: Submit receipts of all concrete deliveries, indicating source, date, contractor, amount of concrete, concrete strength, truck number and time truck load was batched.

F. Testing Firm: Submit name of testing firm to be performing tests on concrete.

1.04 PROJECT RECORD DOCUMENTS

A. Accurately record locations of each day's concrete pours.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with ACI 301.

B. Obtain concrete only from approved suppliers and maintain the same source throughout the project.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver concrete in accordance with ASTM C94, Alternative No. 2.

B. Place all concrete within 90 minutes of time load was batched.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Do not place concrete when base surface temperature is less than 40 degrees, or if surface is wet or frozen.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Cement: ASTM C150, Type 1 Portland, gray color.

B. Aggregates: ASTM C33.

C. Water: Potable and not detrimental to concrete.

D. Reinforcement: ANSI A615 steel; 60 ksi yield grade; deformed billet steel bars; uncoated finish.

E. Dowels: ASTM A615 steel; 60 ksi yield grade; plain steel, uncoated finish.

2.02 ACCESSORIES

A. Steel Forms: Minimum 16 gauge thick, stiffened to support weight of concrete with a minimum deflection.

B. Wood Forms: Douglas Fir species; solid, sound, undamaged sheets; minimum 2 inches thick.

C. Joint Filler: ANSI/ASTM D1751; 1/2 inch thick.

D. Air Entraining Admixture: ASTM C260.

E. Chemical Admixture: ASTM C494, type as required.

F. Curing Compound: ASTM C309, Type 1, Class A.

G. Form Release Agent: Colorless material which will not stain concrete or absorb moisture.

H. Joint Sealant: ASTM C920, Type S, Grade NS; NP-1 by Sonneborn or equal.

I. Steel Facing: ASTM A36.

2.03 MIXES

A. Concrete shall be mixed and prepared in accordance with the approved mix design and ASTM C94, Alternative No. 2.

B. The mix shall be such that the concrete shall attain the following characteristics:

1.	Compressive Strength (28 days):	4,000 psi.
2.	Slump:	2½ to 3½ inches.
3.	Air Entrainment:	6% ±1%.

C. Use chemical admixtures only when approved by the Engineer. Use of admixtures will not relax placement requirements.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify existing conditions and substrate.

B. Verify datum and all elevations are as indicated on the plans.

C. Verify compacted granular subbase has been properly prepared and is ready to receive work of this section.

D. Beginning of installation means installer accepts existing conditions.

3.02 PREPARATION

A. Excavate to the required depth and compact surface.

B. Place and secure forms to correct location, dimension and profile.

C. Assemble formwork to permit easy stripping and dismantling without damaging concrete.

D. Moisten base to a minimum depth of 1/2 inch to minimize absorption of water from fresh concrete.

E. Coat forms with form release agent.

3.03 INSTALLATION

A. Place joint filler vertical in position and at equal spaces not exceeding 20 feet. Secure to formwork during concrete placement.

B. Place dowels through joint filler as indicated on the plans. One end of dowel is to be greased or set in a capped sleeve to allow longitudinal movement.

C. Place reinforcement as indicated on the plans. Interrupt at expansion joints.

D. Place concrete in accordance with ACI 301.

E. Ensure reinforcement, dowels, joint filler or forms are not disturbed during concrete placement.

F. Place concrete continuously between construction joints. Do not break or interrupt successive pours such that cold joints occur.

G. Vibrate concrete adjacent to forms.

H. After concrete sets, but prior to curing, remove front forms without damaging concrete and apply a light broom finish to the top and face of the curb.

I. Place curing compound on exposed surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.

3.04 FIELD QUALITY CONTROL

A. Field inspection and testing shall be performed under provisions of Section 014500.

B. Take six concrete test cylinders for every 50 cu. yds. or fraction thereof of concrete placed each day.

C. Cure test cylinders on site under same conditions as curb.

D. Take one slump test for each set of cylinders taken.

E. Concrete not meeting slump requirements will be rejected.

F. Concrete represented by cylinders which do not meet required strength will be removed and replaced at no additional cost to the Owner.

3.05 PROTECTION

A. Protect finished work under provisions of Section 015000.

B. Immediately after placement, protect curb from premature drying, excessive temperatures, rain and mechanical injury.

C. Protect curb from damage until project is accepted by the Owner.

END OF SECTION 321613

SECTION 329119 - TOPSOIL PLACEMENT AND GRADING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Finish grade subsoil.

B. Place, level and compact topsoil.

1.02 RELATED SECTIONS

A. Section 329219 - Hydroseeding.

1.03 DELIVERY, STORAGE AND HANDLING

A. Deliver topsoil to the site in uncontaminated containers.

B. Do not stockpile topsoil over a height of 8 feet.

C. Cover stockpiled topsoil to protect from precipitation, erosion and contamination.

1.04 ENVIRONMENTAL REQUIREMENTS

A. Do not place wet or frozen topsoil.

B. Do not place topsoil on wet or frozen ground or when precipitation is occurring.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Topsoil: Fertile, agricultural soil, typical for locality, capable of sustaining vigorous plant growth, taken from drained site; friable loam; free of subsoil, clay or impurities, plants, weeds, roots, grass, stone and foreign matter; acidity range (pH) of 5.8 to 6.5; containing a minimum of 2.75 percent and a maximum of 25 percent organic matter. Topsoil may be reused from on-site if it meets these requirements.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify existing substrate and conditions.

B. Verify site conditions and note irregularities affecting work of this section.

C. Beginning work of this section means acceptance of existing conditions.

3.02 PREPARATION

A. Eliminate uneven areas and low spots. Remove and dispose of debris, roots, branches and stones in excess of 1/2 inch in size. Remove and dispose of subsoil contaminated with petroleum products.

B. Scarify subsoil to depth of 3 inches where topsoil is scheduled to be placed. Scarify in areas where equipment used for hauling and spreading topsoil has compacted subsoil. See notes on drawings for requirements of depth of topsoil.

3.03 INSTALLATION

A. Place topsoil in areas where seeding, sodding or planting is scheduled or where shown on the plans.

B. Place topsoil to the depths indicated.

C. Use topsoil in relatively dry state. Place during dry weather.

D. Fine grade topsoil eliminating rough or low areas. Maintain levels, profiles and contours of subgrade.

E. Remove and dispose stone, roots, grass, weeds, debris and foreign material while spreading.

F. Manually spread topsoil around trees, plants and building to prevent damage.

G. Lightly roll placed topsoil.

H. Remove surplus subsoil and topsoil from site. Do not remove surplus topsoil from the site prior to obtaining approval of the Engineer.

I. Leave stockpile area and site clean and raked, ready to receive landscaping.

3.04 PROTECTION

A. Protect landscaping and other features remaining as final work.

B. Protect existing structures, fences, roads, sidewalks, paving and curbs. Any damage caused by the Contractor to any of these items shall be repaired promptly by the Contractor at no additional cost to the Owner.

END OF SECTION 329119

SECTION 329219 - HYDROSEEDING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Seeding.

B. Mulch, fertilizer, hydromulch and other accessories.

C. Maintenance.

1.02 RELATED SECTIONS

A. Section 329119 - Topsoil Placement & Grading

1.03 REFERENCES

A. FS O-F-241 - Fertilizers, Mixed, Commercial.

1.04 DEFINITIONS

A. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel and Brome Grass.

1.05 SUBMITTALS

A. Submit under provisions of Section 013000.

B. Product Data: Provide data on seed mixtures, fertilizer and lime.

C. Certificates: Provide certificates indicating that all fertilizer, pesticides and herbicides comply with all applicable regulatory agency requirements.

1.06 QUALITY ASSURANCE

A. Seed: Provide seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.

1.07 REGULATORY REQUIREMENTS

A. Comply with applicable regulatory agencies for fertilizer, pesticide and herbicide composition.

B. All fertilizer, pesticides and herbicides to be used shall comply with all applicable regulatory agency requirements.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver grass seed mixture in original sealed containers. Seed in damaged packaging is not acceptable.

B. Deliver fertilizer in waterproof bags showing weight, chemical analysis and name of manufacturer.

C. Deliver Hydromulch in UV and weather resistant bags, showing weight, chemical analysis and name of manufacturer.

1.09 ENVIRONMENTAL REQUIREMENTS

A. Do not sow immediately following rain, during windy periods or if ground is frozen.

B. Do not sow when the ambient temperature is expected to drop below 40 degrees F (4 degrees C) or rise above 90 degrees F (32 degrees C) during the time in which the seed will establish itself.

C. Planting Season: April 1st through May 15th or September 1st through October 15th.

1.10 WARRANTY

A. Include coverage for one continuous growing season; reseed areas of dead or unhealthy grass at no additional cost to the Owner.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Seed: Dry, fresh, re-cleaned seed of the latest crops and of the following proportions:

MIX A		
Grass Type	**% of Mixture**	**Minimum % Germination**
Kentucky 31 Fescue	50	90
N.K. 100 Perennial Rye Grass	25	85
Penn Lawn Fescue	25	90

MIX B		
Grass Type	**% of Mixture**	**Minimum % Germination**
Merion Bluegrass	50	80
Penn Lawn Fescue	30	90
N.K. 106 Hybrid Rye Grass	20	85

2.02 ACCESSORIES

A. Mulching Material: Hemlock species wood cellulose fiber, dust form, free of growth or germination inhibiting ingredients.

B. Fertilizer: FS O-F-241, Type I, Grade A; recommended for grass, with fifty percent of the elements derived from organic sources; of proportion necessary to eliminate any deficiencies of topsoil, to the following proportions: Nitrogen 10 percent, phosphoric acid 6 percent, soluble potash 4 percent.

C. Limestone: Ground dolomitic limestone containing a minimum of 90 percent calcium and magnesium carbonates. One hundred percent (100%) shall pass a No. 10 (2 mm) mesh screen and a minimum of 70 percent shall pass a No. 100 (0.15 mm) mesh screen.

D. Hydromulch: 84 percent Mechanically processed straw, 15 percent Mechanically processed reclaimed cotton plant material and 1 percent of tackifier, activators and additives; minimum of 90 percent organic material; moisture content of 12 percent, total carbon to nitrogen ratio, 40:1. Color to be natural green.

E. Peat Moss: Shredded, loose, sphagnum moss; free of lumps, roots, inorganic material or acidic materials; minimum of 90 percent organic material measured by oven dry weight; pH range of 4 to 5 percent; moisture content of 30 percent; with moisture absorbtive capacity of 450 to 500 percent.

F. Water: Clean, fresh and free of substances or matter which could inhibit vigorous growth of grass.

G. Stakes: Softwood lumber, chisel pointed.

H. String: Inorganic fiber.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify existing substrate and site conditions.

B. Verify that prepared soil base is ready to receive the work of this section.

C. Beginning of installation means installer accepts existing conditions.

3.02 PREPARATION

A. Area to be seeded shall be cultivated with a scarifier to a depth of 4 inches. All stones, sticks and debris one inch and larger shall be removed. Area shall be smoothly graded to proper elevations.

3.03 APPLICATION

A. Fill tank of mechanically agitated hydroseeding machine with sufficient water to suspend seed and fertilizers.

B. Add water slowly while adding hydromulch. See manufacturer's recommendations to determine the proper application rate.

C. Agitate for a minimum of ten minutes after adding the last amount of water and hydromulch.

D. Apply hydromulch with a hydraulic seeder at a rate of 46 lbs per 1000 sq ft (2.0 kg per 100 sq m). Apply in a uniform layer from 2 opposing directions to ensure complete soil coverage.

E. Do not hydroseed areas in excess of that which can be mulched on same day.

F. Apply water with a fine spray immediately after each area has been mulched. Saturate to 4 inches (100 mm) of soil. Discontinue watering if washing begins to occur.

G. Clean all surfaces which have received hydroseeding overspray.

H. Identify seeded areas with stakes and string around area periphery. Set string height to 24 inches (610 mm). Space stakes at 8 feet (2.4 m) on center.

3.04 MAINTENANCE

A. Maintain grass until job is accepted by the Owner or until the grass exhibits a vigorous growing condition.

B. Water to prevent grass and soil from drying out.

C. Immediately reseed areas which show bare spots.

3.05 PROTECTION

A. Protect seeded areas with warning signs during maintenance period.

END OF SECTION 329219

SECTION 331100 - WATER UTILITY DISTRIBUTION PIPING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Cement-Lined Ductile Iron Pipe

B. Special Castings; Mechanical Joint Fittings

C. Buried Valves & Valve Boxes

D. Tapping Sleeves

1.02 RELATED SECTIONS

A. Section 17550 – Process Piping and Tank Testing

B. Section 312333 - Trenching

C. Section 312323 - Backfilling

D. Section 331300 - Disinfection of Water Utility Distribution

1.03 REFERENCES

A. ANSI/AWWA C104 - Cement-Mortar Lining for Ductile Iron Pipe and Fittings for Water.

B. ANSI/AWWA C105 - Polyethylene Encasement for Ductile Iron Pipe Systems

C. ANSI/AWWA C110 - Ductile Iron and Grey Iron Fittings.

D. ANSI/AWWA C111- Rubber Gasket Joints for Ductile Iron Pressure Pipe and Fittings.

E. ANSI/AWWA C150 - Thickness Design of Ductile Iron Pipes

F. ANSI/AWWA C151 - Ductile-Iron Pipe, Centrifugally Cast for Water Service.

G. ANSI/AWWA C509 - Resilient Seated Gate Valves for Water Supply Service.

H. ANSI/AWWA C600 - Installation of Ductile Iron Water Mains and Their Appurtenances.

1.04 SUBMITTALS

A. Submit under provisions of Section 013300.

B. Product Data: Provide data on pipe materials, pipe fitting, valves and accessories.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.05 PROJECT RECORD DOCUMENTS

A. Accurately record actual locations of piping mains, valves, connections, and invert elevations.

B. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.06 QUALITY ASSURANCE

A. Perform work in accordance with the local water utility company requirements.

B. The tone-out, mark-out, locating and verification of existing utilities on private property and within public Right-of-Ways are the responsibility of the contractor. All known utilities and facilities shall be verified by test holes or other means prior to commencing water main installation. No compensation will be paid to the contractor for lost time due to improper or inadequate utility investigation.

C. The contractor shall conform to the standard traffic requirements of the New York State Manual of Uniform Traffic Control Devices for work in Public Roadways.

D. Valves: Manufacturer's name and pressure rating marked on valve body.

1.07 DELIVERY, STORAGE AND HANDLING

A. Deliver, store, protect and handle products to ensure they are kept free from damage.

B. Store piping and valves to ensure that their interiors are kept free of debris, organics or animals.

C. Deliver and store valves in shipping containers with labeling in place.

PART 2 - PRODUCTS

2.01 CEMENT LINED DUCTILE IRON PIPE

A. Approved Manufacturers:
1. US PIPE
2. McWANE DUCTILE
3. Or Approved Equal

B. Cement-Lined Ductile Iron Pipe meeting AWWA C150/C151 :

1. Special Class 56 for all piping.

C. Interior lining shall be double-thick cement with a minimum thickness of 1/8" (125 mils) in accordance with AWWA C104.

D. Exterior of pipe shall have an exterior bituminous coating measuring 1 mil in thickness and be marked with the manufacturer name, date of casting and pressure class.

E. Pipe Accessories:

1. Joints: ANSI/AWWA C111, Field Lok gaskets by US Pipe Model 350 or approved equal shall be utilized on all push-on joints of a mechanical joint connection.
2. Lubricant for Joints: Nontoxic, NSF-61 certified, shall not support the growth of bacteria, and shall have no deteriorating effects on the gasket or pipe material.
3. Wedges: Bronze, two installed at each push-on joint.

2.02 SPECIAL CASTINGS

A. Manufacturers:

1. US PIPE
2. SIGMA CORP.
3. TYLER UNION
4. APPROVED EQUAL

B. Material:

1. Fittings shall be in accordance with

a. ANSI/AWWA C110 (full-bodied)

2. Fittings shall be ductile iron.
3. Ductile iron fittings shall have a pressure rating of 350 psi.
4. Fittings shall be cement lined.

C. Mechanical Joint fittings shall be used with "push-on" joint pipe with the joint conforming to AWWA Specification C111.

D. Push-on restraining rubber gaskets shall be used at each pipe connection. Rubber gaskets shall be vulcanized rubber that is free of porous areas, foreign materials and visible defects. No reclaimed rubber shall be used. The size, mold number, gasket manufacturer's mark, the letters "MJ" and the year of manufacture shall be molded in the rubber.

E. Wedge type restraining glands shall be required at all mechanical joints.

1. Manufacturer:

a. EBAA IRON WORKS
b. FORD METER BOX CO.
c. SIGMA CORPORATION
d. TYLER UNION
e. US PIPE

2. Glands shall be secured to fittings using alloy steel T-head bolts and hex-head nuts.

2.03 BURIED VALVES

A. Acceptable Manufacturers - **Gate Valves** (up to 12", unless otherwise noted on the drawings):

1. MUELLER COMPANY
2. CLOW VALVE COMPANY
3. KENNEDY VALVE CO.

B. Valves to be stamped “WSNY”.

C. All vertical gate valves up to and including 12-inch diameter shall conform to AWWA Specification C509 or latest revision, and shall be specified as follows:

1. Material: Iron body, bronze mounted.
2. Open to the right (clockwise).
3. Pressure: 250 psi minimum working pressure.
4. Wedge: Cast iron wedge with urethane rubber coating (encapsulated). The rubber/metal bond shall be tested to meet ASTM D429.
5. Stem: Forged bronze, non-rising stem with two "O" ring seals.
6. Wrench Nut: Two-inch square (at base) wrench nut
7. Mechanical Joint Ends: Mechanical joint ends complete with all joint accessories including rubber gaskets.
8. Painting: The body and bonnet shall be coated with a fusion coating both interior and exterior to meet AWWA Standard C550.
9. Markings: Markings shall be cast on the bonnet or body of each valve, and shall show the manufacturer's name or mark, the year the valve casting was made, the size of the valve, and the designation of working water pressure for 4 to 12-inch valves.
10. Affidavit of Compliance: The Contractor shall have the manufacturer provide an affidavit directly to the Engineer that all valves supplied on this project comply with all applicable provisions of AWWA Specification C509, and that each valve was subjected to and passed the 500 psi hydrostatic test without leakage. No final payment for valves will be made until this Affidavit of Compliance is received by the Engineer.

D. Acceptable Manufacturers - **Butterfly Valves** (16" and greater, unless otherwise noted on the drawings):

1. MUELLER COMPANY Lineseal XP II, Catalog No. B3211-20
2. Approved equal

E. All butterfly valves shall conform to AWWA Specification C504-06 or latest revision, and shall be specified as follows:

1. Material: Iron body, bronze mounted.
2. Open to the right (clockwise).
3. Pressure: 200 psi minimum working pressure.
4. Shaft: The valve shaft shall be a one-piece unit extending through the valve bearings into the valve disc. The shaft shall be 18-8 stainless steel, Type 302, 303, 304, 316, or if carbon steel, with 18-8 stainless steel journals.
5. Wrench Nut: Two-inch square (at base) wrench nut
6. The disc movement shall be 90 degrees open to shut. Discs shall be of cast iron conforming to ASTM A48, Class 40, or if alloy cast iron, conforming to ASTM A436, Type 1 or 2. Disc edge shall have Type 316 stainless steel seating surface.

7. Valve seats shall provide tight shutoff 200 psi upstream, zero psi downstream pressure differential. Rubber seats mounted on the disc and shall be retained without metal hardware. Rubber seats mounted on valve bodies shall be cemented and clamped, bonded or vulcanized into the valve body. Rubber seats shall be of new natural or synthetic rubber.
8. Valves shall be fitted with sleeve type bearings contained in the hubs of the valve body. A bearing shall be provided on the shaft outboard of the shaft seal or in the operator housing to protect the shaft seal from thrust forces developed in the operating mechanisms. Each valve shall be equipped with either one or two thrust bearings set to hold the valve disc securely in the center of the valve seat. Sleeve and other bearings fitted into the valve body proper shall be of self-lubricating materials and shall have a coefficient of friction not higher than 0.25.
9. Where shafts project through the valve body for operator connection, a shaft seal shall be provided. Seals shall be split "V" type or "O" ring type. "O" ring type shall be contained in a removable, corrosion-resistant recess. Seals shall be of a design allowing replacement without removing the valve shaft.
10. Manual operation shall be provided with totally enclosed gearing, with stop-limiting devices for the open and closed positions. Actuators shall be totally enclosed and shall produce full output torque requirements throughout the entire travel with an input torque no greater than 150 foot pounds.

F. Valve Boxes

1. Manufacturer:

   a. BINGHAM & TAYLOR
   b. SIGMA CORPORATION
   c. TYLER UNION

2. Valve boxes shall be three-piece ductile iron, sliding type with 8" x 5-1/4" flanged bottom section, 9" x 6-1/8" top section and 7" square drop lid with "WATER" cast on cover.

2.04 TAPPING SLEEVES

A. Manufacturers:

1. MUELLER COMPANY; Model H-304MJ
2. POWERSEAL PIPERLINE PRODUCTS; Model 3490MJ
3. Romac SST-MJ

B. Sleeves shall be constructed with integral mechanical joint outlet.

C. Material:

1. Shell Material: 304 Stainless Steel
2. Neck Material: Heavy Gage 304 Stainless Steel
3. Shell Hardware: 304 Stainless Steel
4. Mechanical Joint Hardware: High Strength Lowe Alloy Steel T-Bolts with hex nut and plastic or neoprene washer.
5. Gasket: Virgin SBR Reinforced Rubber.

D. Sleeves shall be rated with a maximum working pressure of 250 psi.

E. Use of a tapping sleeve requires pre-approval from the Owner and the Owner's representative. All tee connections shall be mechanical joint unless approved otherwise.

PART 3 - EXECUTION

3.01 PREPARATION

A. Remove scale and dirt, on inside and outside, before assembly.

B. Bevel plain ends of cut pipe at push-on joints.

3.02 BEDDING

A. Excavate pipe trench in accordance with Section 312333 for work of this section. Hand trim excavation for accurate placement of pipe to elevations indicated.

B. Place bedding material at trench bottom; level fill materials in one continuous layer not exceeding 6 inches compacted depth; compact to 95 percent maximum dry density.

C. Backfill around sides and to top of pipe with fill, tamped in place and compacted to 95 percent maximum dry density.

D. Maintain optimum moisture content of bedding material to attain required compaction density.

3.03 INSTALLATION - PIPE

A. The Contractor shall be responsible for verifying the location of the existing water mains and other utilities along the entire route of the project.

B. The Contractor must have experienced personnel in his employ to perform the cut-ins and connections to the existing water mains and have available equipment necessary for cutting ductile iron, cast iron, asbestos cement and miscellaneous piping in the existing distribution system.

C. Suitable facilities shall be available for proper dewatering, drainage and disposal of water removed from dewatered lines and excavations, without damage to adjacent properties. Exposed ends of the water main shall never be submerged either partially or fully.

D. Maintain a 10 foot horizontal separation and an 18 inch vertical separation of water main from all storm and sanitary sewer facilities. The Contractor shall install the water main with the minimum cover indicated in the Contract Documents. The Contractor shall verify the depth of any existing service laterals to the structures prior to crossing of same.

E. Pipe trenches shall be of minimum width and allow six (6) inches on each side of the bell with sufficient width to allow straight alignment of pipe and provide sufficient room for jointing as required and to allow the backfill to be placed as specified.

F. Only new full-lengths of pipe shall be delivered to and utilized on this project. Field cut pieces with bell ends shall be a minimum of 4 feet in length. Smaller pieces shall not be permitted for use and shall be removed from site.

G. Pipe shall be laid with the bell end facing in the direction of laying. Where pipe is laid on a grade of 10% or greater, the laying shall start at the bottom and shall proceed upward with the bell ends of the pipe up gradient.

H. Install pipe to indicated elevation to within tolerance of 1/2 inch.

I. Clean bell end of pipe prior to placing gasket. Apply lubricant to both gasket and plain end of pipe.

J. Do not field cut pipe within 24 inches of bell or 8 inches of spigot end. Verify the pipe diameter of cut end.

K. Route pipe in straight line where possible. Joint deflections are permitted as outlined in ANSI/AWWA C600.

L. Install and test ductile iron piping and fittings to ANSI/AWWA C600.

M. At each joint, two serrated silicon bronze wedges shall be driven into the rubber gasket after the pipe is pushed into place. The wedges shall be installed on opposite sides of the joint on a horizontal plane. Both wedges shall be started in together and driven with a hammer with blows on alternate sides so as not to displace the spigot end to one side of the pipe.

N. Establish elevations of buried piping to ensure not less than 4 feet of cover unless otherwise indicated on plans or specifically approved by Engineer or Owner in field.

O. Trench widths shall not exceed the following authorized widths prior to cut-back:

1. Less than 12-inches diameter mains: 30 inches
2. 12-inch & 16-inch diameter mains: 36 inches

P. Pavement removal shall be kept to a minimum and not exceed the preceding authorized widths. Sawing, drilling or chipping shall be used to ensure the breakage of pavement along straight lines. Final restoration limits shall include a 12-inch cut-back on all sides of the trench.

Q. Backfill trench in accordance with Section 312323.

R. The contractor shall restore, replace and/or reposition all decorative lawn ornaments, and miscellaneous items disturbed during water main installation including but not limited to the following: stones, brick driveway pavers, fences, signs, sprinklers, shrubs and trees.

3.04 PRESSURE TESTING

A. Expel all air from piping system, including pipe, valves and appurtenances. All new water mains shall be pressure tested at 150 psi or 1.5 times line pressure, whichever is greater. The pressure test shall be held for a minimum of two hours with no signs of leakage.

B. Remove and replace any defective pipe, fittings, valves, and appurtenances. Repeat pressure test until satisfactory to Engineer.

3.05 INSTALLATION - SPECIAL CASTINGS

A. Tighten glands in accordance with manufacturers direction.

B. Ensure that fittings are free of dirt and debris prior to installation.

C. Support fitting with solid blocking in areas of over excavation. Wood wedges, blocking and supports are prohibited.

3.06 INSTALLATION - VALVES

A. Set valves on solid bearing.

B. Contractor is responsible for ensuring that all valve boxes are plumb and centered over the operating nut until after final asphalt restoration is complete.

C. Contractor shall adjust boxes prior to final restoration. The use of "Rite-Hite" type adapters is not permitted on new construction.

3.07 INSTALLATION - TAPPING SLEEVES

A. Clean existing pipe thoroughly to remove dirt and scale prior to installation of gasket.

B. Ensure gasket is free from tears and debris.

C. Tighten hardware in accordance with manufacturer's recommendations.

D. Tapping valve shall be installed level to grade to ensure access with valve box. Support valve during tapping operations and afterwards with solid concrete blocking.

3.08 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

A. Flush and disinfect system in accordance with Section 331300.

B. Two consecutive negative sets of bacteriological samples are required. Following disinfection, the main shall be flushed prior to bacteriological testing. The mains shall be flushed again following satisfactory completion of the pressure test. The first sample(s) shall be taken a minimum of 24 hours after flushing operations are completed. The second sample(s) shall be taken at least 24 hours after the first, and shall be representative of the water that has been in the pipe for 24 hours.

3.09 NOTIFICATIONS

A. The Engineer and local water utility shall be notified at least 24 hours in advance and immediately prior to any of the following:

1. Commencing work or starting again after more than a 72-hour shutdown.
2. Admitting water to a new section.
3. Flushing or blowing off water mains.
4. Chlorination of water mains.
5. Shutting down water mains or service to consumers. Consumers should also be informed at least 24 hours in advance and immediately prior to shutting down service.
6. Disinfection and reconnection of house services.
7. The permanent shutting down of existing water mains or house services.

3.10 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed in accordance with BNYDC requirements.

B. Leakage testing shall be in accordance with ANSI/AWWA C600.

C. Compaction testing will be performed in accordance with ANSI/ASTM D1557.

D. If tests indicate work does not meet specified requirements, remove work, replace and retest at no cost to Owner.

END OF SECTION 331100

SECTION 331213 - BACKFLOW PREVENTION DEVICES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Double check valve

1.02 RELATED SECTIONS

A. Section 402323 – Potable Water Process Piping

1.03 REFERENCES

A. ANSI/ASSE 1013 - Backflow Preventers, Reduced Pressure Principle.

B. ANSI/ASSE 1015 - Backflow Preventers, Double Check Principle.

C. AWWA C506 - Backflow Prevention Devices - Reduced Pressure Principle and Double Check Valve Types.

D. ANSI/AWWA C511 - Standard for Reduced-Pressure Principle Backflow-Prevention Assembly

1.04 QUALITY ASSURANCE

A. All devices shall meet the requirements of ASSE Standard 1013 and 1015, AWWA Standard C506, AWWA Standard C511 and University of Southern California Foundation for Cross Connection Control and Hydraulic Research, Sixth Edition (or latest revision), and New York City Department of Protection Approved Backflow Prevention Assemblies.

B. Backflow Devices shall be installed by New York City Licensed master plumber in accordance with approved plans.

1.05 SUBMITTALS

A. Submit product data under provisions of Section 013300.Within thirty (30) days of installation, the contractor shall employ a New York State certified backflow prevention tester to test each backflow device and submit results on New York City Department of Environmental Protection a GEN 215B form, certifying the job.

PART 2 - PRODUCTS

2.01 BACKFLOW PREVENTION DEVICE

1. WATTS Model LF774

B. The Contractor shall furnish and install approved double check valve (DCV) devices, as shown on the contract drawings.

C. The DCV shall consist of two (2), internally spring-loaded check valves and two (2) OS&Y gate valves. The main body shall be cast iron construction with an FDA approved epoxy coating. The first and second checks shall be accessible for maintenance without removing the device from the line.

D. All check valve internal parts shall be easily accessible from the top of the device without removing the check valve body from the line. The device shall be suitable for installation in any position. The assembly shall be rated to 175 psi working pressure and shall withstand water temperatures to 140 degrees F.

E. All piping and branches not protected by the backflow prevention device shall be stenciled or otherwise marked with “DO NOT TAP TO THIS LINE”. Piping shall be marked with wrap around pipe markers at five foot intervals.

PART 3 - EXECUTION

3.01 INSTALLATION

A. The Contractor shall install the backflow device in the location indicated on the contract drawings. The installation shall conform to all clearances as required by the New York City Department of Environmental Protection Cross Connection Control Unit.

END OF SECTION 331213

SECTION 331300 - DISINFECTION OF WATER UTILITY DISTRIBUTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Disinfection of water piping and valves.

1.02 REFERENCES

A. ANSI/AWWA B300 - Standard for Hypochlorites.

B. ANSI/AWWA B301 - Standard for Liquid Chlorine.

C. ANSI/AWWA C651 - Disinfecting Water Mains.

1.03 SUBMITTALS

A. Submit proposed method for introducing disinfectant into water piping.

B. Test Reports: Indicate results comparative to specified requirements.

1.04 PROJECT RECORD DOCUMENTS

A. Disinfection Report: Record:

1. Type and form of disinfectant used.
2. Date and time of disinfectant injection start and time of completion.
3. Test and injection locations.
4. Initial and 24-hour disinfectant residuals (quantity in treated water) in ppm for each outlet tested.
5. Date and time of flushing start and completion.
6. Disinfectant residual after flushing in ppm for each outlet tested.

B. Bacteriological, Chemical and Organic Chemical Report: Record:

1. Date issued, project name and testing laboratory name, address and telephone number.
2. Time and date of water sample collection.
3. Name of person collecting samples.
4. Test locations.
5. 24-hour and 48-hour disinfectant residuals in ppm.
6. Coliform bacteria and chemical test results.
7. Certification that water conforms or fails to conform to New York State drinking water standards.
8. Laboratory Director's signature and authority.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with ANSI/AWWA C651.

1.06 QUALIFICATIONS

A. Water Treatment Firm: Company specializing in disinfecting potable water systems specified in this Section with minimum three (3) years experience.

B. Testing Firm: Laboratory specializing in testing potable water systems, approved by the New York State Department of Health.

1.07 REGULATORY REQUIREMENTS

A. Conform to Recommended Standards for Water Works and applicable codes or regulations for performing the work of this Section.

B. Water quality to conform to New York State drinking water standards after completion of disinfection.

PART 2 - MATERIALS

2.01 DISINFECTION CHEMICALS

A. ANSI/AWWA B300, Hypochlorite.

B. ANSI/AWWA B301, Liquid Chlorine.

PART 3 - DISINFECTION & TESTING

3.01 EXAMINATION

A. Verify that all piping systems have been cleaned, inspected and pressure tested.

3.02 EXECUTION

A. Provide required equipment to perform the work of this Section. The Owner will provide the water required for the initial disinfection and filling of the piping, and valves, etc. The Contractor shall pay for the water required for any subsequent filling of these systems based on the Owner's retail water rate.

B. The preferred method of chlorinating the new water mains is the continuous feed method using calcium hypochlorite granules in accordance with Section 4.4.3 of AWWA C651-05. Granules shall be placed at a minimum in accordance with Table 1 of the applicable Section. The slug method of chlorination is also acceptable and shall be performed in accordance with Section 4.4.4 of AWWA C651-05. The use of tablets for disinfection is prohibited.

C. The use of calcium hypochlorite granules specifically intended for swimming pool use is prohibited. The contractor shall utilize only those chemicals which are NSF 60/AWWA approved for disinfection.

D. The newly laid main shall be properly chlorinated to at least 200 ppm (mg/l) for a minimum of 24 hours, to ensure the chlorine residual at the pipe extremities and at other representative points after the retention period, is at least 200 ppm (mg/l). Treated water shall be retained in the pipe long enough to destroy all non-spore-forming bacteria.

E. After completion of retention period, new mains shall be flushed in order to eliminate residual chlorine with a suitable quantity of sodium bisulfite, sodium sulfide or sodium thiosulfate prior to disposal. Bacteria samples may not be collected until a chlorine residual representative of the existing distribution system is achieved. New mains shall be flushed at a velocity of no less than 2.5 ft/sec.

F. Collect samples 24 & 48-hours after flushing disinfectant and refilling with potable water. Samples shall not be collected if a chlorine residual inconsistent with that of the existing distribution system is present. Any portion of the sample set which tests positive for total coliform and/or e-coli bacteria constitutes failure of the entire set with no exceptions.

G. Field chlorine residual checks shall be performed for each sample and shall be recorded on the laboratory sampling form for inclusion in the sampling results report.

H. Two (2) consecutive sets of bacteriological samples, taken 24 hours apart, must be collected from every 1,200 ft of new main, the end of the line and from each branch. Samples should be collected after final flushing and when the chlorine concentration in the water leaving the main is no higher than that generally prevailing in the distribution system (ANSI/AWWA C651 Standard).

I. Sample tap locations shall be as directed by the Engineer. Taps shall be installed to sample at a frequency as described above.

J. If water quality in system does not meet the requirements of the Department of Health for potable water, the Contractor shall re-chlorinate or take other steps necessary to provide acceptable water quality. Samples shall be collected and analyzed after each attempt.

3.03 QUALITY CONTROL

A. Test samples in accordance with ANSI/AWWA C651 and Department of Health requirements.

END OF SECTION 331300

SECTION 402323 - POTABLE WATER PROCESS PIPING

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Large interior piping systems.

1.02 RELATED SECTIONS

A. Section 331300 - Disinfection of Water Utility Distribution

1.03 REFERENCES

A. ANSI B16.1 - Cast Iron Pipe Flanges and Flanged Fittings.

B. ANSI/AWWA C104 - Cement-Mortar Lining for Ductile Iron Pipe and Fittings.

C. ANSI/AWWA C110 - Ductile-Iron and Gray-Iron Fittings, 3 in. through 48 in., for Water and Other Liquids.

D. ANSI/AWWA - C115/A21.15 - American National Standard for Flanged Ductile Iron Pipe with Threaded Flanges.

E. ANSI/AWWA C150/A21.50 - American National Standard for Thickness Design of Ductile Iron Pipe.

F. ANSI/AWWA C600 - Installation of Ductile Iron Water Mains and Appurtenances.

G. ANSI B18.2.1 - Square and Hex Bolts and Screws Inch Series Including Hex Cap Screws and Lag Screws.

H. ANSI B18.2.2 - Square and Hex Nuts (Inch Series).

I. ASTM A307 - Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.

1.04 SUBMITTALS

A. Submit product data under provisions of Section 013300.

B. Product Data: Provide data on pipe material, pipe fittings, and accessories. Provide manufacturer's catalog information.

PART 2 - PRODUCTS

2.01 DUCTILE IRON PIPE AND FITTINGS

A. ANSI/AWWA C151/A21.51; double thickness cement lining minimum 3/16" in accordance with ANSI/AWWA C104/A21.04, bituminous coating inside; and epoxy primer outside; flanged joint for exposed pipe, thickness Class 56 minimum for all pipe diameters.
   1. Fittings: ANSI/AWWA C110, Ductile iron, standard thickness.
   2. Flanged Joints: ANSI B16.1, Class 125 with full face, 1/8" thick rubber gaskets.
   3. Bolts: ANSI B18.2.1 and ASTM A307 Grade B.
   4. Nuts: ANSI B18.2.2 and ASTM A307 Grade B.
   5. Lubricant for Joints: Nontoxic; shall not support growth of bacteria; shall have no deteriorating effects on gasket or pipe material.
   6. Manufacturer: TYLER UNION, SIGMA, U.S. PIPE & FOUNDRY CO., GRIFFIN PIPE PRODUCTS or specifically approved equal.

B. Flanged Adapters: Smith-Blair Style 911 for plain end steel or cast iron pipe with all bolts, rings, gaskets and accessories.

C. Couplings: Smith-Blair Style 471 for plain end steel or cast iron pipe with all bolts, rings, gaskets and accessories.

D. Piping extending outside buildings shall be mechanical joint.

2.02 PIPE ACCESSORIES

A. Joint Restrainers: Joint restrainers shall be Superstar tiebolt with Superstar tiebolts for flanged piping as manufactured by STAR NATIONAL PRODUCTS.

B. Pipe Supports: Pipe supports shall be manufactured by MATERIAL RESOURCES:
   1. Pipe Saddle Support: Model 592. Minimum Quantity: Two (2)/10'
   2. Pipe Flange Support: Model 589. Minimum Quantity: Two (2)/10'

PART 3 - EXECUTION

3.01 INSTALLATION

A. Clean inside of pipe before installation. Keep installed piping clean and protect ends from foreign matter by capping or plugging.

B. Install pipe so that it does not interfere with opening of doors or apparatus, access to equipment or any portion of electrical equipment. Group piping whenever practical at common elevations.

C. Run pipes in straight lines and square with building. Install rise plumb. Make offsets only where indicated and where necessary.

D. Install pipes so that expansion and contraction will not cause undue stress or strain to pipes or equipment. Provide loops, offsets and expansion joints as shown on drawings. If, in contractor's opinion, inadequate loops or offsets are shown, contact Engineer for instructions.

E. Provide flanges and unions throughout the pipe systems to make installation and removal of piping and equipment convenient. Make provisions for servicing and removal of equipment without dismantling piping.

F. Label piping after testing.

G. Provide non-conducting dielectric connections wherever jointing dissimilar metals.

H. Install valves with stems upright or horizontal, not inverted.

I. Core drill through existing walls and floors to provide clearance around pipe to be installed and install link seals.

J. Install ductile iron piping and fittings to ANSI/AWWA C600.

K. Install flanged adapters and couplings in accordance with manufacturer's installation instructions. Drawings show minimum required adapters and couplings. Contractor shall install additional coupling and adapters as required for installation and disassembly of the piping systems.

L. Install pipe saddle supports and pipe flange supports to brace piping systems in locations shown on contract plan or as directed by Engineer. Installation shall be in accordance with manufacturer's installation instructions.

3.02 PIPE JOINTING

A. Preparing pipe ends: Cut pipe ends square with pipe cutters only. Do not use hacksaws or torch. Ream pipe ends, after cutting, to full diameter. Where pipe is to be threaded, die-cut right hand, pipe stand, clean cut full depth, taper threads. Make threaded joints so that they will be leak proof without caulking. Apply a thin coat of approved pipe lubricant to make threads only.

B. Bracing joints: Provide braces and bridle rods as required to reinforce joints. Where large pipes underground are subject to shock because of sudden changes in liquid flow rate, provide concrete "kicker" blocks at joints, fittings and changes of pipe direction.

C. Flanged ductile iron pipe joints: Clean face of flange of all sand, grease, grit or other foreign matter. Center gasket before assembling joints. After alignment has been completed insert bolts and hand tighten nuts. Keep gap between flanges approximately uniform while tightening. Tighten bolts to required torque in several steps, alternating from one side to the other.

3.03 RECHECKING AND REPAIRING

A. Before piping is concealed, recheck it for leaks.

B. Rework or replace defective and leaking joints, and joints which are otherwise unsatisfactory. Peening, caulking and doping are not permitted.

END OF SECTION 402323

SECTION 402324 - VALVES AND VALVE ACCESSORIES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Gate Valves (vault interior)

1.02 RELATED SECTIONS

A. Section 402323 - Potable Water Process Piping

B. Section 099744 - Mechanical Piping Coating Systems.

1.03 REFERENCES

A. ASME/ANSI B16.1 - Cast Iron Pipe Flanges and Flanged Fittings.

B. ASME/ANSI B16.34 - 2004 Valves Flanged, Threaded and Welding End

C. ASTM A126 - Grey Iron Castings for Valves, Flanges and Pipe Fittings.

D. ASTM A536 - Ductile Iron Castings.

E. AWWA C504 - Standard for Rubber Seated Butterfly Valves.

F. AWWA C509 - Resilient Seated Gate Valves for Water Supply Service.

G. AWWA C550 - Protective Epoxy Interior Coatings for Valves and Hydrants.

H. ANSI/NSF Standard 61, Drinking Water System Components

1.04 SUBMITTALS

A. Submit product data under provisions of Section 013300.

B. Product Data: Provide data on materials and accessories.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.05 PROJECT RECORD DOCUMENTS

A. Submit product data under provisions of Section 017839.

B. Accurately record actual locations of valves, connections, and invert elevations.

1.06 QUALITY ASSURANCE

A. Perform work in accordance with the local water utility company requirements.

B. Valves: Manufacturer's name and pressure rating marked on valve body.

C. All brass valves and fittings installed on a potable water supply line shall be made of “low-lead” materials and have a maximum lead content of 0.25 percent by weight. All low lead brass fittings shall be stamped or embossed with a mark indicating that the product is manufactured from low-lead alloys.

1.07 DELIVERY, STORAGE AND HANDLING

A. Deliver, store, protect and handle products to site under provisions of Sections 016100 and 016500.

B. Deliver and store valves in shipping containers with labeling in place.

PART 2 - PRODUCTS

2.01 GATE VALVES

A. Manufacturers:
   a. Mueller Co., Model 2361-6
   b. Approved equal.

B. AWWA C509, ductile iron body, OS&Y type, resilient wedge gate fully encapsulated with rubber, bronze trim, forged rising manganese bronze stem, stuffing box shall be triple o-ring seal, opening to the:

   1. Right (clockwise)

C. Valve shall have nominal 10 mil fusion epoxy coated interior and exterior surfaces. Epoxy coating shall comply with ANSI/AWWA C550 and ANSI/NSF 61 standards.

D. Operator:
   1. Manual

      a. Handwheel

E. Buried gate valves shall be in accordance with Section 331116.

PART 3 - EXECUTION

3.01 INSTALLATION

A. All valves and valve accessories shall be installed by workers thoroughly experienced in such work and all valve work shall be properly supported and aligned and present a neat and workmanlike appearance. All other required temporary or permanent supports for the valves shall be included in this contract to the approval of the Engineer.

B. Secure all floor stands to support members using stainless steel hardware. Field touchup floor stands after installation.

C. Set valves in a plumb or level position, as applicable.

D. Install check valves for proper direction of flow. Adjust cushion chamber check valve to prevent water hammer at service conditions.

E. Assemble flanged joints by sequencing bolt tightening to make initial contact of flanges and gaskets as flat and parallel as possible. Use suitable lubricants on bolt threads. Tighten bolts gradually and uniformly with a torque wrench.

F. All flanged valves shall be furnished and installed with a Style 128 flange adapter by Dresser Industries, Inc. or equal.

G. Paint all installed valves and piping in accordance with Section 099744.

3.02 INSPECTION, HANDLING AND STORAGE

A. Inspection - All valves and accessories are subject to inspection by the Engineer at the point of delivery for manufacturer, direction of opening, freedom of operation, tightness of pressure-containing bolt, cleanliness of valve ports and especially seating surfaces, handling damage, cracks and any other damage.

B. Valves found to be either defective or damaged shall be rejected and immediately removed from the job site.

C. Handling - All valves shall be loaded and unloaded by lifting with hoists or skidding under control with ropes in order to avoid shock or damage. Under no circumstances shall valves and boxes be dropped.

D. Storage - Valves, joint accessories and other appurtenances, if stored, shall be kept safe from damage. The interior of the valve and the joint accessories shall be kept free from dirt or foreign matter at all times.

E. Perform operating tests on valves as per the manufacturers recommendations as may to determine they are in satisfactory operating condition and do not leak. All valves upon completion of the work shall be checked to determine they are in an open position, unless otherwise indicated.

END OF SECTION 402324

SECTION 402325 - PIPE PENETRATION SEALS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Pipe penetration seals.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Thunderline Corp

B. PSI Products

C. Approved equal

2.02 MATERIALS

A. Seals shall be modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill the annular space between the pipe and wall opening. Links shall be loosely assembled with bolts to form a continuous rubber belt around the pipe with a pressure plate under each bolt head and nut.

B. After the seal assembly is positioned in the sleeve, tightening of the bolts shall cause the rubber sealing elements to expand and provide a watertight seal between the pipe and wall opening under 40 feet of head. Seal shall be suitable for a temperature range of -40°F to 250°F and submergence in groundwater.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Determine the required inside diameter of each individual wall opening or sleeve. The inside diameter of each wall opening shall be sized as recommended by the manufacturer to fit the pipe and pipe penetration seal to assure a watertight joint. Sizing for correct pipe penetration seal model and number of links per seal may be obtained through manufacturer's catalog. If pipe outer diameter is nonstandard due to coating or insulation, consult manufacturer for engineering assistance and recommendation before proceeding with wall opening detail.

3.02 INSTALLATION

A. Install and tighten seal to provide a watertight pipe penetration in accordance with manufacturer's instructions.

END OF SECTION 402325

APPENDIX “A”

TR1 – LIST OF SPECIAL PERMIT INSPECTIONS

NYC Buildings

TR1: Technical Report
Statement of Responsibility

This form must be typewritten

Orient and affix BIS job number label here

1 Location Information *Required for all applications.*

House No(s) 63 Street Name Flushing Ave

Work on Floor(s)

2 Applicant Information *Required for all applications.*

Choose all that apply: ☒ Design Applicant *3A, 4A, 5* ☐ Special Inspections Applicant *3B-D, 6-9* ☐ Progress Inspections Applicant *4B-D, 6-9*

Last Name Lucas First Name Robert Middle Initial J

Business Name H2M Architects + Engineers Business Telephone 631-756-8000

Business Address 538 Broad Hollow Rd Business Fax

City Melville State NY Zip 11747 Mobile Telephone

License Type *choose one:* ☒ P.E. ☐ R.A. ☐ Other: License Number 81337

Special Inspection Agency Number

3 Special Inspection Categories *Required for all applications, continued on page 2;* ■ *indicates report required.*

3A ← Identification of Requirement				3B Identification of Responsibilities	3C Certificate of Complete Inspections / Tests	3D Withdraw Responsibilities
Y	N	Special Inspections	Code/Section	Initial & Date	Initial & Date	Initial & Date
☐	☒	Structural Steel – Welding	BC 1704.3.1			
☐	☒	Structural Steel – Details	BC 1704.3.2			
☐	☒	Structural Steel – High Strength Bolting	BC 1704.3.3			
☐	☒	Structural Cold-Formed Steel	BC 1704.3.4			
☒	☐	Concrete – Cast-In-Place	BC 1704.4			
☒	☐	Concrete – Precast	BC 1704.4			
☐	☒	Concrete – Prestressed	BC 1704.4			
☐	☒	Masonry	BC 1704.5			
☐	☒	Wood – Installation of High-Load Diaphragms	BC 1704.6.1			
☐	☒	Wood – Installation of Metal-Plate-Connected Trusses	BC 1704.6.2			
☐	☒	Wood – Installation of Prefabricated I-Joists	BC 1704.6.3			
☐	☒	Subgrade Inspection	BC 1704.7.1			
☐	☒	Subsurface Conditions – Fill Placement & In-Place Density	BC 1704.7.2 BC 1704.7.3			
☒	☐	Subsurface Investigations (Borings/Test Pits) ■ TR4	BC 1704.7.4			
☐	☒	Deep Foundation Elements ■ TR5	BC 1704.8			
☒	☐	Helical Piles (BB # 2014-020) ■ TR5H	BC 1704.8.5			
☐	☒	Vertical Masonry Foundation Elements	BC 1704.9			
☐	☒	Wall Panels, Curtain Walls, and Veneers ■	BC 1704.10			
☐	☒	Sprayed fire-resistant materials	BC 1704.11			
☐	☒	Mastic and Intumescent Fire-resistant Coatings	BC 1704.12			
☐	☒	Exterior Insulation and Finish Systems (EIFS)	BC 1704.13			
☐	☒	Alternative Materials - OTCR Buildings Bulletin # _____	BC 1704.14			
☐	☒	Smoke Control Systems	BC 1704.15			
☐	☒	Mechanical Systems	BC 1704.16			
☐	☒	Fuel-Oil Storage and Fuel-Oil Piping Systems	BC 1704.17			
☐	☒	High-Pressure Steam Piping (Welding)	BC 1704.18			
☐	☒	High Temperature Hot Water Piping (Welding)	BC 1704.18			
☐	☒	High-Pressure Fuel-Gas Piping (Welding)	BC 1704.19			
☒	☐	Structural Stability – Existing Buildings	BC 1704.20.1			
☒	☐	Excavations—Sheeting, Shoring, and Bracing	BC 1704.20.2			
☐	☒	Underpinning	BC 1704.20.3 BC 1814			
☐	☒	Mechanical Demolition	BC 1704.20.4			

NYC Buildings

TR1: Technical Report
Statement of Responsibility

This form must be typewritten

3 Special Inspection Categories (continued) *Required for all applications, continued on page 2;* ■ *indicates report required.*

3A ← Identification of Requirement				3B Identification of Responsibilities	3C Certificate of Complete Inspections / Tests	3D Withdraw Responsibilities
Y	N	Special Inspections	Code/Section	Initial & Date	Initial & Date	Initial & Date
☐	☒	Raising and Moving of a Building	BC 1704.20.5			
☐	☒	Soil Percolation Test - Private On-Site Storm Water Drainage Disposal Systems, and Detention Facilities ■	BC 1704.21.1.2			
☐	☒	Private On-Site Storm Water Drainage Disposal Systems, and Detention Facilities Installation	BC 1704.21.2			
☐	☒	Individual On-Site Private Sewage Disposal Systems Installation	BC 1704.22			
☐	☒	Soil Percolation Test - Individual On-Site Private Sewage Disposal Systems ■	BC 1704.22			
☐	☒	Sprinkler Systems	BC 1704.23			
☐	☒	Standpipe Systems	BC 1704.24			
☐	☒	Heating Systems	BC 1704.25			
☐	☒	Chimneys	BC 1704.26			
☐	☒	Fire-resistant Penetrations and Joints	BC 1704.27			
☐	☒	Aluminum Welding	BC 1704.28			
☒	☐	Flood Zone Compliance (attach FEMA elevation/dry floodproofing certificate where applicable)	BC 1704.29 BC G105			
☐	☒	Luminous Egress Path Markings ■ TR7	BC 1704.30 BC 1024.8			
☐	☒	Emergency and Standby Power Systems (Generators)	BC 1704.31			
☐	☒	Post-installed Anchors (BB# 2014-018, 2014-019)	BC 1704.32			
☐	☒	Seismic Isolation Systems	BC 1707.8			
☐	☒	Concrete Design Mix ■ TR3	BC 1905.3 BC 1913.5	Submit TR3 to complete this item		
☐	☒	Concrete Sampling and Testing ■ TR2	BC 1905.6 BC 1913.10	Submit TR2 to complete this item		

4 Progress Inspection Categories *Required for all applications.* ■ *indicates report required.*

4A ← Identification of Requirement				4B Identification of Responsibilities	4C Certificate of Complete Inspections / Tests	4D Withdraw Responsibilities
Y	N	Progress Inspections	Code/Section	Initial & Date	Initial & Date	Initial & Date
☐	☒	Preliminary	28-116.2.1, BC 110.2			
☐	☒	Footing and Foundation	BC 110.3.1			
☐	☒	Lowest Floor Elevation	BC 110.3.2			
☐	☒	Structural Wood Frame	BC 110.3.3			
☐	☒	Energy Code Compliance Inspections ■ TR8	BC 110.3.5	Submit TR8 to complete this item		
☐	☒	Fire-Resistance Rated Construction	BC 110.3.4			
☐	☒	Public Assembly Emergency Lighting	28-116.2.2			
☒	☐	Final*	28-116.2.4.2, BC 110.5, Directive 14 of 1975, and 1 RCNY §101-10			

** For column 4C, indicate date when the actual final inspection was performed*

5 Design Applicant's Statements and Signatures *P.E./R.A. responsible for plans, choose both below and sign/seal.*

☒ I have identified all of the special inspections, progress inspections and tests required for compliance.

☐ I certify that the Special Inspection and Approved Agencies engaged by the owner to supervise the work specified above are acceptable. (BC 1704.1)

Name (please print)

Robert J. Lucas, P.E.

Signature



Date 11/13/24

P.E. / R.A. Seal *(apply seal, then sign and date over seal)*

APPENDIX “B”

GEOTECHNICAL REPORT

CARLIN • SIMPSON & ASSOCIATES

Consulting Geotechnical and Environmental Engineers

61 Main Street, Sayreville, New Jersey 08872
Tel. (732) 432-5757
Fax. (732) 432-5717

Principal:
Robert B. Simpson, P.E.

Associates:
Meredith R. Anke, P.E.
Stephen Rossi, E.I.T.
Kurt W. Anke
Eric J. Shaw

24 May 2017

H2M Architects + Engineers
575 Broad Hollow Road
Melville, New York 11747

Att: Mr. Timothy J. McGuire, P.E.
Project Engineer

Re: Report On Subsurface Soil and Foundation Investigation
Proposed Backflow Prevention Vaults
Brooklyn Navy Yard
63 Flushing Avenue
Brooklyn, New York (CSA Job #16-177)

In accordance with our proposal revised 22 September 2016 and your subsequent authorization, we have completed a Subsurface Soil and Foundation Investigation for the referenced site. The purpose of this study was to determine the nature and engineering properties of the subsurface soil and the groundwater conditions for the new construction, to recommend a practical foundation scheme, and to determine the allowable bearing capacity of the site soils.

We understand that the proposed construction will consist of seven (7) new back flow prevention vaults and new utilities. We anticipate that the proposed construction will also include temporary excavation support systems. To guide us in our study, we have been provided with preliminary foundation designs from the structural engineer.

Our scope of work for this project included the following:

1. Reviewed the proposed construction, the existing site conditions, the expected soil conditions, and planned this study.

2. Retained General Borings Inc. to advance six (6) throughout the site.

3. Selected the boring locations in the field, visually identified the soil layers encountered, obtained soil samples, and prepared detailed boring logs and plans showing the boring locations.

4. Performed laboratory soil identification tests on selected soil samples obtained from the borings.

5. Analyzed the field and laboratory test data and prepared this report containing the results of this study.

SITE DESCRIPTION

The project sites are located throughout the Brooklyn Navy Yard in Brooklyn, NY. The proposed construction will occur at several locations throughout the site. The areas of the proposed construction generally consist of existing fill lots or asphalt paved driveways and parking lots. Grades throughout the site are relatively flat with the approximate ground surface elevation around elevation +10.0 to +14.0.

SUBSURFACE CONDITIONS

To determine the subsurface soil and groundwater conditions at the sites, six (6) test borings were advanced by General Borings, Inc. at the locations shown on the enclosed Boring Location Plan. An additional boring was previously performed by others in the area of Pit N. Our field engineer visually identified all of the soil samples obtained during the boring operations and selected samples were tested in our laboratory. The results of these tests are also included in this report.

Soil

The soil descriptions shown on the boring logs are based on the Burmister Classification System. In addition, we have provided the NYC Building Code material classification for each of the major soil stratum. In the Burmister Classification System, the soil is divided into three components: Sand (S), Silt ($) and Gravel (G). The major component is indicated in all capital letters, the lesser in lower case letters. The following modifiers indicate the quantity of each lesser component:

Modifier	Quantity
trace (t)	0 - 10%
little (l)	10% - 20%
some (s)	20% - 35%
and (a)	35% - 50%

The subsurface soil conditions encountered in the test borings may be summarized as follows:

Stratum 1A — Asphalt

The surface layer in borings SB-1, SB-2, SB-3, and B-7 consists of asphalt pavement that ranges from approximately 0’3” to 0’4” in thickness.

Stratum 1B
Pavers/Concrete

The surface layer in boring SB-5 consists of 4 inch thick pavers underlain by approximately 10" of concrete.

Stratum 2
Existing Fill
[NYC Class 7]
[SM]

At the surface in borings SB-4 and SB-6 and below the surface layer in the remainder of the borings is existing fill that generally consists of loose to very loose black, brown coarse to fine SAND, some Silt, some coarse to fine Gravel, with organics, brick, cinders, concrete, wood, cobbles and boulders. The existing fill extends to depths ranging from 6'0" to 19'0" below the existing ground surface.

Stratum 3
Peat or Organic Clayey Silt
[NYC Class 6]
[Pt, OL]

Below the existing fill in each of the borings except boring SB-1 is brown, black soft to very soft Peat or Organic Clayey SILT trace, coarse to fine Sand. The soft to very soft organic layer extends to depths ranging from 19'0" to 28'0" below the existing ground surface. Boring SB-3 was terminated in this stratum at a depth of 26'0" below the existing ground surface.

Stratum 4
Clayey SILT
[NYC Class 5b]
[CL, ML]

Below the peat in boring SB-6 is stiff Gray Clayey Silt, or Silt trace, medium to fine Sand. The Clayey Silt extends to a depth of 46'0" below the existing ground surface.

Stratum 5
Sand or Silty Sand with Gravel
[NYC Class 3a or 3b]
[SM, SP]

Underlying the soft organic layers and Clayey Silt throughout the site and below the existing fill in SB-1 is medium dense to dense brown, gray brown coarse to fine SAND, trace (to little) Silt, little (to some) coarse to fine Gravel. Each of the borings except SB-3 were terminated in this stratum at depths ranging from 30'0" to 47'0" below the existing ground surface. Boring B-7 was terminated in this stratum at a depth of 100'2" below the existing ground surface.

Groundwater

Groundwater was encountered throughout the site at depths ranging from 8'0" to 9'6" below the existing ground surface. Groundwater levels at the project site are influenced by tidal changes in the nearby East River In addition, variations in the location of the long-term water table may occur as a result of changes in precipitation, major storm events (tropical storms and nor'easters), and other factors not immediately apparent at the time of this exploration.

The bottom of the planned pits will be approximately 10 feet below the existing ground surface. Therefore, excavations for the backflow prevention pits will extend below the ground water table. Dewatering with sumps and pumps will be required to install the proposed structures. In addition, the bottom of the proposed vaults will be below the groundwater table so the effects of uplift forces on the pits must be accounted for in design.

EVALUATION

We understand that the planned construction will consist seven (7) new backflow prevention vaults. The proposed construction will also consist of the replacement and installation of additional water services lines that tie into existing water service lines. We anticipate that the proposed construction will also include temporary excavation support systems. The vaults will be approximately 10 feet in height.

The geotechnical recommendations provided in this report are based on the Dimensional Site Plans that were provided by H2M Architects + Engineers dated May 2016. We understand that the site plans are still being developed at this time. The recommendations provided below are preliminary in nature based on the provided information. Carlin-Simpson & Associates shall be given the opportunity to review the final drawing designs and site plans to determine if changes to the recommendations outlined in this report are needed.

The subsurface conditions vary at each proposed vault location. Due to the presence of loose existing fill and very soft organic soils, the site soils are generally unsuitable for support of the proposed vaults. These soils may cause damaging differential settlement to the proposed vaults, therefore each of the vaults must be supported by a pile foundation with the exception of the vault at Pit A. The vault at Pit A may bear in the existing virgin soils, but the stabilization of the wet subgrade in the area of Pit A with geotextile fabric and stone may be necessary. In addition, the bottom of the backflow vaults will extend below the groundwater table and must be designed for uplift forces.

A summary of the subsurface conditions for at each boring location is provided in Table 1 below. The approximate existing ground surface elevation was assumed to be at the top of the proposed manhole rim elevation that is shown on the provided drawings for each respective vault location. The elevations shown below are based off this assumption and must be adjusted for the actual existing ground surface elevation at each location. In addition, the recommended groundwater depth to be used for uplift design is provided.

Table 1 – Summary of Boring Observations

Boring No. (Ground Surface Elevation)*	Depth to Bottom of Existing Fill (Elevation)	Depth to Bottom of Soft Organic Soils (Elevation)	Depth to Observed Groundwater (Elevation)	Recommended Design Groundwater Depth Below Existing Ground Surface
SB-1 (+10.7)	6'0" (+4.7)	NE	9'0" (+1.7)	7'6"
SB-2 (+14.2)	19'0" (-4.7)	26'0" (-11.8)	9'0" (+5.2)	7'6"
SB-3 (+11.4)	14'0" (-2.6)	19'0" (-7.6)	7'0" (+4.4)	5'6"
SB-4 (+11.5)	11'6" (+0.0)	28'0" (-16.5)	7'0" (+4.5)	5'6"
SB-5 (+11.3)	19'0" (-7.7)	26'6" (-15.2)	9'6" (+1.8)	8'0"
SB-6 (+12.5)	18'0" (-5.5)	26'6" (-14.0)	9'6" (+3.0)	8'0"
B-7 (+10.0)	13'0" (-3.0)	28'0" (-15.0)	NWR	6'6"

* The approximate existing ground surface elevation is taken to be the top of the proposed manhole rim elevation shown in the provided drawings
NE – Not encountered
NWR – No Water Reading (elevation assumed to be 8'0" below existing ground surface)

Implications of Existing Fill and Soft Organic Soils

The boring data indicates that loose existing fill (Stratum 2) and soft organic soils (Stratum 3) are present throughout the sites. The existing fill and soft organic soils are considered NYC Class 7 and 6 soils, respectively. Where encountered in the test borings, the fill extends to depths ranging from 6'0" to 19'0" beneath the existing ground surface. The soft organic soil extends to depths ranging from 19'0" to 28'0" below the existing ground surface. The depth of the existing fill and soft organic soil is expected to be variable and may be deeper in unexplored areas of the property, such as the areas immediately adjacent to the existing site structures.

The existing fill and soft organic soils are not an acceptable bearing material for the proposed vault structures. The consistency and density of these soils are not predictable. Certain areas may contain clean dense soils while other areas may contain loose material, topsoil, and/or debris, as shown by the boring data. The existing fill and soft organic soils conditions create the possibility of intolerable differential settlements under loading. Therefore, where loose existing fill or soft organic soils extend below the planned vault subgrade elevations, the vault must be pile supported.

Handling Groundwater in the Structure Areas

As shown in Table 1, groundwater was encountered in each of the test borings at elevations ranging from approximately 7'0" to 9'6" below the existing ground surface. The bottom of the planned pits will be approximately 10 feet below the existing ground surface. Therefore, groundwater will be encountered during construction. Proper groundwater control measures (i.e. sumps and pumps) will be required in order to install the proposed structures.

Temporary groundwater control measures shall consist of one (1) or more sumps and pumps. The sumps shall consist of a perforated pipe at least eight (8) inches in diameter, surrounded by crushed stone and filter fabric. The sump pits must be installed just outside the planned excavation area and at least two (2) feet below the lowest anticipated subgrade elevation. The sumps and pumps must be set and in operation prior to excavating below the water table. The pumps shall be used to temporarily lower the surrounding groundwater level and keep the building excavation relatively dry. Electric pumps equipped with an automatic shut off and capable of operating 24 hours a day are recommended. Swales and ditches should be constructed to collect and direct the water seepage to the sump pits.

Support of Excavations

Based on the site conditions, we anticipate that some of vault structures will be constructed adjacent to the existing sidewalks and property lines. Depending upon the depth of the excavations required to remove unsuitable existing fill and/or to construct the new building foundations, temporary construction easements and sidewalk permits may be required from the City to permit the required excavations to extend beyond the property lines. In addition, temporary sheeting and shoring may be required during construction.

Temporary support (i.e. sheeting and shoring) should be used for any excavation that cannot be benched or sloped in accordance with the applicable regulations, where necessary to protect adjacent utilities and structures, and where water seepage or saturated soils are encountered within the excavation. In the event that water is encountered within the excavation, an evaluation of the excavation's stability must be performed. Perched water or groundwater encountered within the excavation will destabilize the sides of the excavation. Temporary support will be required to stabilize the excavation. Dewatering of the excavation will also be required.

For this project, drilled-in H-piles or steel pipe piles with timber lagging would be an appropriate temporary excavation support system for the building excavation. For the steel pile and timber lagging system, we expect that the "H" beams or pipe piles will be spaced about six (6) to eight (8) feet apart. As the excavation is made, wood lagging is inserted in the web of the H section or behind the pipe pile to complete the temporary wall.

A New York State licensed professional engineer must design all temporary and permanent support systems. The contractor will select the shoring type and submit design calculations for the proposed shoring method to Carlin-Simpson & Associates for review.

The soil adjacent to the temporary support system will exert a horizontal pressure against the system. This pressure is based on the soil density, the coefficient of active earth pressure (k_a), and the depth of the excavation. We estimate the in-situ soil has an in place density of about 130 pcf and an angle of internal friction (ϕ) of 28°. The active earth pressure coefficient (k_a) is therefore 0.36. In addition, the surcharge loads from adjacent sidewalks, streets, structures, construction equipment, or stored materials near the excavation must be incorporated into the design of the temporary support system. The

effects of hydrostatic pressure on the support of excavation system must also be considered.

It will be important to assure that the space between the lagging and the soil outside the excavation is filled immediately after the wood lagging is installed. This is necessary to prevent lateral movement of the soil around the excavation and especially adjacent to the existing building, sidewalks, or underground utilities.

Stabilizing Wet Subgrades in the Structure Areas

If the vault at Pit A is to bear on the virgin site soils instead of piles, the exposed subgrade will be wet. Stabilizing the subgrade surface with geotextile fabric and crushed stone may be required prior to the placement of new compacted fill. Carlin-Simpson & Associates or a qualified geotechnical engineer will determine this during construction as the conditions are exposed. Where needed, the subgrade should be stabilized with geotextile fabric, such as Mirafi 500X or equivalent, and 3/4-inch clean crushed stone.

To prepare the subgrade surface for the geotextile fabric and crushed stone, all surface water, loose soil, mud, topsoil and organic material must be removed from the area. After the subgrade is prepared, a layer of geotextile fabric (Mirafi 500X or equivalent) shall be laid out on the subgrade surface. Adjacent layers of geotextile fabric should be overlapped a minimum of six (6) inches. The excavation shall then be filled with 12 to 18 inches of 3/4-inch clean crushed stone. The crushed stone shall be placed in maximum 12-inch layers and compacted by several passes of a small vibratory drum roller. The crushed stone can then be used to support the proposed building foundations and floor slab. The area may also be brought to planned subgrade elevation with compacted backfill. If this is the case, the stone should be covered with a layer of geotextile fabric (Mirafi 500X or equivalent). The area may then be backfilled with new fill compacted to 95% of its Maximum Modified Dry Density (ASTM D1557) as described above.

Helical Piles

Helical piles should be used to support the proposed vault structures located at Pits B, E, F, H, I, and N. Helical piles shall be installed and designed in accordance with Section 1812 of the NYC building code. We recommend the helical piles consist of a 8-inch, 10-inch diameter double helix lead section with a 3½-inch diameter round shaft. The helical pile extensions shall be 3½-inch diameter round shaft extensions. The lead section and extension shafts shall have a minimum yield strength of 50 ksi.

The helical piles can be used to support net allowable design loads of 5 to 8 tons. The 5 to 8 ton helical piles are expected to achieve their desired allowable capacities at depths ranging from 30 to 40 feet below the existing ground surface. The helical piles in the area of Pit I are expected to extend a depth of 35 feet to 50 feet below the existing ground surface.

Each pile shall be turned into the soil to advance the helical lead section down through the existing fill and soft organic soils and into the underlying medium dense stiff Clayey Silt or Silty Sand with Gravel. The piles shall extend to a minimum depth such that

each helix is bearing below the very soft organic Clayey Silt or Peat layers. If the resistance encountered at the minimum depth indicates that the pile has not achieved the minimum required torque, the pile shall be extended until adequate bearing is achieved.

The required torque (T) for the helical pile installation is a function of the ultimate pile load (P_u) and the capacity to torque ratio (k_t), given by the equation, $T = (P_u / k_t)$. The capacity to torque ratio (k_t) value is dependent upon the size of the pile shaft. For a 3½-inch round shaft helical pile, k_t is 7 ft^{-1}. The required installation torque for a 5 ton (10 kip) allowable (working) capacity helical pile is 3,575 ft-lbs. The required installation torque for an 8 ton (20 kip) allowable (working) capacity helical pile is 5,720 ft-lbs. The minimum center-to-center pile spacing shall be four (4) times the diameter of the largest helix.

The top of the helical piles should be terminated with a new construction bracket or bearing plate that will be used to transfer the loads to the helical piles. The project structural engineer shall establish the required bracket or plate dimensions and thickness based on the anticipated loading. The project structural engineer shall also design the steel reinforcement for the pile cap and/or grade beam connection to the pile.

The helical piles shall be installed under the full time inspection of a representative from Carlin-Simpson & Associates or a qualified geotechnical engineer. Inspection shall be completed in accordance with Section 1812 of the NYC Building Code.

Uplift Force Considerations

The proposed backflow prevention vaults will extend below the groundwater table. The effects of hydrostatic uplift forces must be accounted for in the design of the vaults. If the weight of the proposed vaults is not sufficient to offset the expected uplift forces, uplift helical piles must be installed to prevent damaging uplift effects.

Settlement

Settlement of individual structures, designed in accordance with recommendations presented in this report, is expected to be within tolerable limits for the proposed structure. For structures placed on natural soils or new compacted fill approved by Carlin-Simpson & Associates or a qualified geotechnical engineer and constructed in accordance with the requirements outlined in this report, maximum total settlement is expected to be on the order of one half (1/2) inch or less.

It is our understanding that new water service lines that tie into the existing service lines will be installed as part of planned construction. The new service lines will bear in the loose existing fill with debris and organics. Settlement of the vaults bearing in the existing virgin site soils or on helical piles will be minimal while settlement of the proposed utilities is expected to vary from approximately one (1) to two (2) inches. This differential settlement must be accounted for in the design of the vault utility openings.

The above settlement values are based on our engineering experience with similar soil conditions and the anticipated structural loading, and are to guide the structural

engineer with his design. To minimize difficulties during the foundation installation phase, it is critical that Carlin-Simpson & Associates be retained to observe the building pad preparation and the canopy foundation excavations to confirm that the existing fill and unsuitable materials have been removed.

Utilities

We understand that the new utilities will bear in the existing site soils or new compacted fill. The bottom of all trenches should be excavated clean so a hard bottom is provided for the pipe support. If any soft areas or unsuitable existing fill conditions are encountered during construction, these materials must be removed and replaced with new compacted fill. The excavated material may be used as backfill provided that it meets the requirements outlined below. The new compacted fill should be placed in layers not exceeding one (1) foot in loose thickness and each layer shall be compacted to at least 92% of its Maximum Modified Dry Density (ASTM D-1557). The backfill must be free of all topsoil and debris.

There will be differential settlement between the pile supported vaults, new utility pipes, and existing utility piles. Since post-construction settlement may continue for several years, we recommend that all of the utility pipes which connect to the new vaults and existing utility pipes be designed with flexible connections or the differential accounted for in the vault openings.

In the event that water seepage is encountered in the utility trench excavations, the excavation should be extended six (6) inches below the bottom of the pipe and a six (6) inch layer of 3/4-inch crushed stone shall be placed on the bearing soil to provide a firm base for support of the pipe. Sump pits and pumps should be used to remove the water from the excavation.

Suitability of the In-Situ Soils for Use as Compacted Fill

Based on our laboratory testing, the existing fill (Stratum 2) does not conform to the NYC building code gradation requirement for structural fill. In addition, large amounts of debris was noted in the existing fill. Some of the existing fill may be suitable for backfill outside and around the proposed vault structures provided that it is relatively clean and free of debris. The geotechnical engineer shall evaluate the suitability of the excavated materials for use as compacted fill during the excavation and prior to its reuse. Potentially usable fill should be stockpiled and covered with tarps or plastic sheeting for protection from excess moisture. Any fill material that is wet must be dried prior to its reuse.

The excavated material will only be suitable for reuse as compacted fill if the material meets the NYC building code gradation requirements and is properly segregated and screened of debris and other unsuitable materials. Fill containing topsoil and debris is not suitable for use as compacted fill.

Proper moisture conditioning of the soil will be required. In the event that the on-site material is too wet at the time of placement and cannot be adequately compacted, the soil should be aerated and allowed to dry or the material removed and a drier cleaner fill

material used. In the event that the on-site material is too dry at the time of placement and cannot be adequately compacted, water may be needed to increase the soil moisture content for proper compaction.

GENERAL

The findings, conclusions and recommendations presented in this report represent our professional opinions concerning subsurface conditions at the site. The opinions presented are relative to the dates of our site work and should not be relied on to represent conditions at later dates or at locations not explored. The opinions included herein are based on information provided to us, the data obtained at specific locations during the study and our past experience. If additional information becomes available that might impact our geotechnical opinions, it will be necessary for Carlin-Simpson & Associates to review the information, reassess the potential concerns, and re-evaluate our conclusions and recommendations.

Regardless of the thoroughness of a geotechnical exploration, there is the possibility that conditions between borings will differ from those encountered at specific boring locations, that conditions are not as anticipated by the designers and/or the contractors, or that either natural events or the construction process have altered the subsurface conditions. These variations are an inherent risk associated with subsurface conditions in this region and the approximate methods used to obtain the data. These variations may not be apparent until construction.

The professional opinions presented in this geotechnical report are not final. Field observations and foundation installation monitoring by a qualified geotechnical engineer, as well as soil density testing and other quality assurance functions associated with site earthwork and foundation construction, are an extension of this report. Therefore, either Carlin-Simpson & Associates or a qualified geotechnical engineering firm should be retained by the owner to observe all earthwork and foundation construction, to document that the conditions anticipated in this study actually exist, and to finalize or amend our conclusions and recommendations. Carlin-Simpson & Associates is not responsible or liable for the conclusions and recommendations presented in this report if Carlin-Simpson & Associates does not perform these observation and testing services.

Full time geotechnical related monitoring and testing services shall be provided by a qualified geotechnical engineering firm during construction. These services shall include, but not be limited to, the observation and testing of the following: 1) the installation of helical piles; 3) subgrade stabilization and preparation; 3) the placement and compaction of controlled fill.

This report has been prepared in accordance with generally accepted geotechnical engineering practice. No other warranty is expressed or implied. The evaluations and recommendations presented in this report are based on the available project information, as well as on the results of the exploration. Carlin-Simpson & Associates should be given the opportunity to review the final drawings and site plans for this project to determine if changes to the recommendations outlined in this report are needed. Should the nature of the project change, these recommendations should be re-evaluated.

This report is provided for the exclusive use of the H2M Architects & Engineers and the project specific design team and may not be used or relied upon in connection with other projects or by other third parties. Carlin-Simpson & Associates disclaims liability for any such third party use or reliance without express written permission. Use of this report or the findings, conclusions or recommendations by others will be at the sole risk of the user. Carlin-Simpson & Associates is not responsible or liable for the interpretation by others of the data in this report, nor their conclusions, recommendations or opinions.

If the conditions encountered during construction vary significantly from those stated in this report, this office should be notified immediately so that additional recommendations can be made.

Thank you for allowing us to assist you with this project. Should you have any questions or comments, please contact this office.

Very truly yours,

CARLIN-SIMPSON & ASSOCIATES

Stephen Rossi

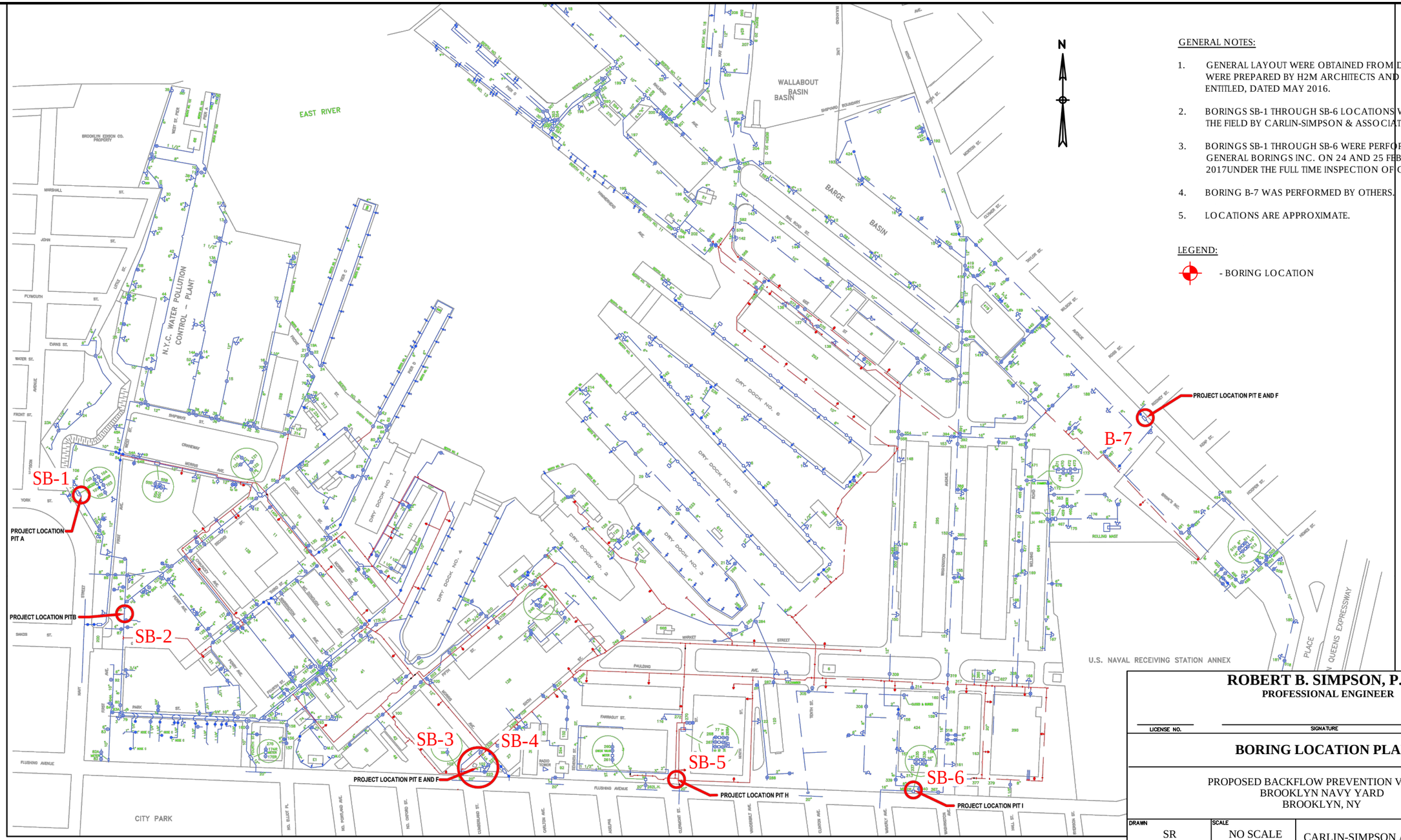
Stephen Rossi, E.I.T.
Project Manager

Robert Simpson

ROBERT B. SIMPSON, P.E.



File No. 16-177



GENERAL NOTES:

1. GENERAL LAYOUT WERE OBTAINED FROM DRAWINGS THAT WERE PREPARED BY H2M ARCHITECTS AND ENGINEERS ENTITLED, DATED MAY 2016.
2. BORINGS SB-1 THROUGH SB-6 LOCATIONS WERE LAID OUT IN THE FIELD BY CARLIN-SIMPSON & ASSOCIATES (CSA).
3. BORINGS SB-1 THROUGH SB-6 WERE PERFORMED BY GENERAL BORINGS INC. ON 24 AND 25 FEBRUARY 2017UNDER THE FULL TIME INSPECTION OF CSA.
4. BORING B-7 WAS PERFORMED BY OTHERS.
5. LOCATIONS ARE APPROXIMATE.

LEGEND:

⊕ - BORING LOCATION

ROBERT B. SIMPSON, P.E.
PROFESSIONAL ENGINEER

LICENSE NO. | SIGNATURE | DATE

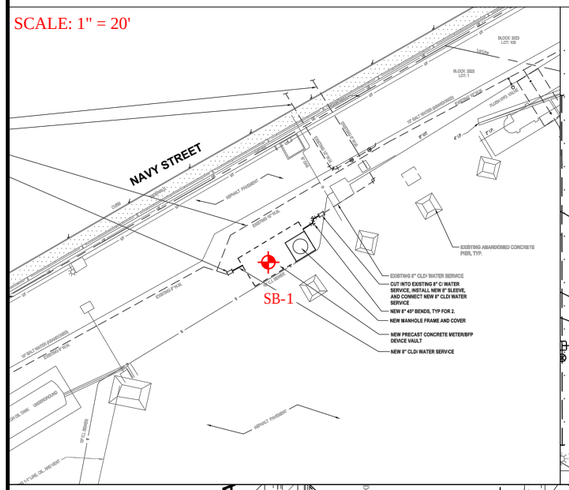
BORING LOCATION PLAN

PROPOSED BACKFLOW PREVENTION VAULTS
BROOKLYN NAVY YARD
BROOKLYN, NY

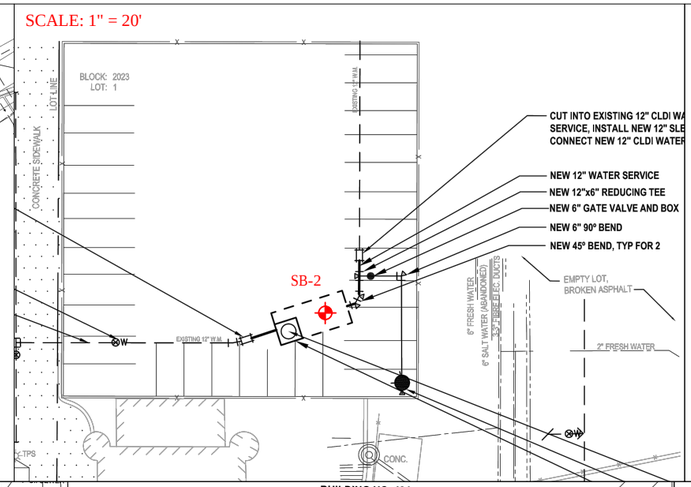
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CHECKED: RBS	DATE: 1-MAY-17
PROJECT NO.: 16-177	DWG NO.: FIG - 1
APPROVED:	

CARLIN-SIMPSON AND ASSOCIATES
61 Main Street
Sayreville, NJ 08872
Consulting Geotechnical and Environmental Engineers

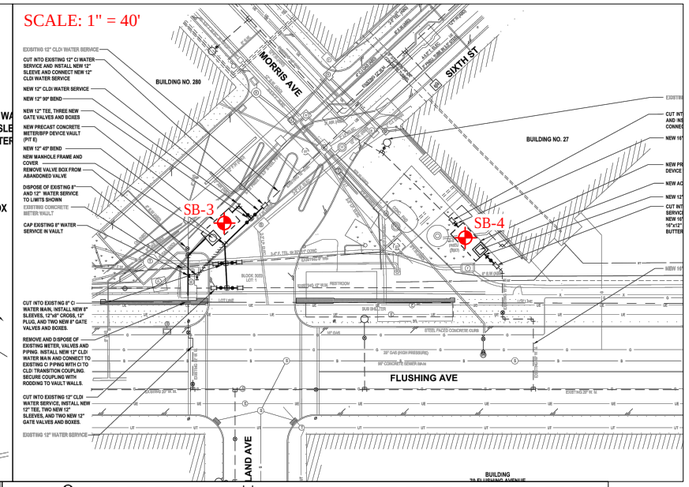
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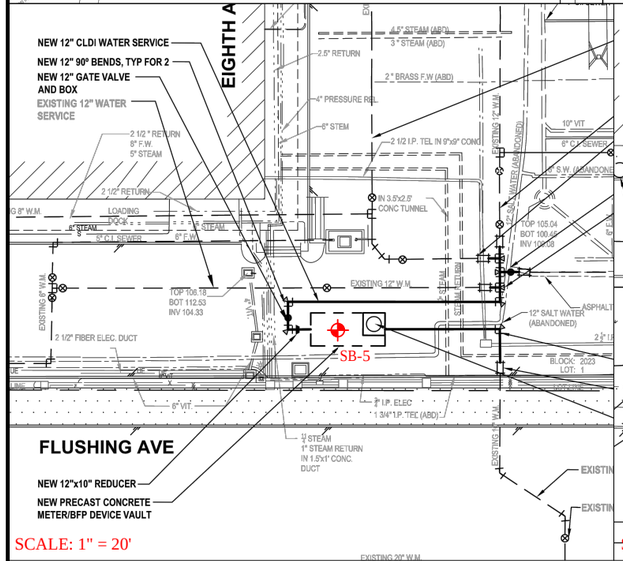
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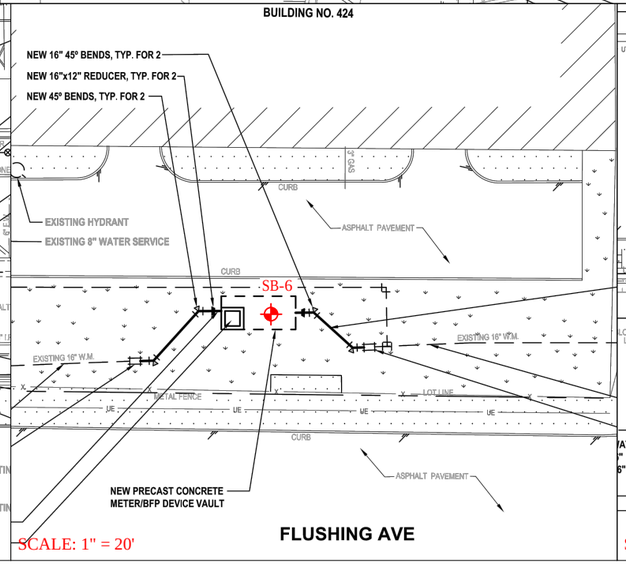
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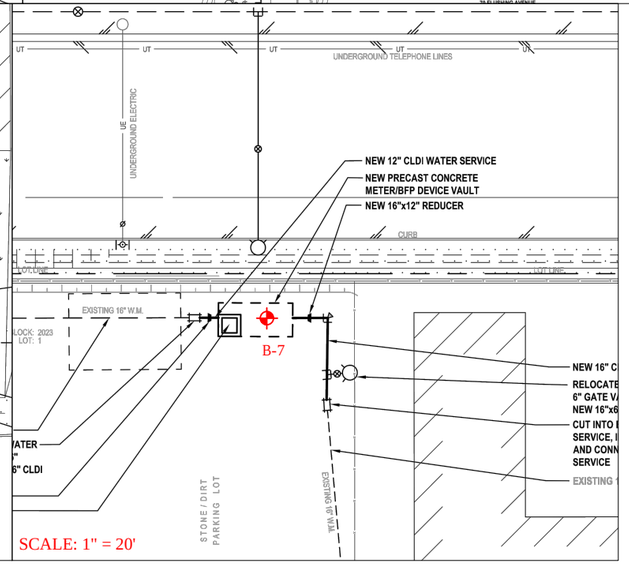
SCALE: 1" = 20'



SCALE: 1" = 20'



SCALE: 1" = 20'



GENERAL NOTES:

1. GENERAL LAYOUT WERE OBTAINED FROM DRAWINGS THAT WERE PREPARED BY H2M ARCHITECTS AND ENGINEERS ENTITLED, DATED MAY 2016.
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LEGEND:

- BORING LOCATION

ROBERT B. SIMPSON, P.E.
PROFESSIONAL ENGINEER

LICENSE NO. | SIGNATURE | DATE

BORING LOCATION PLAN

PROPOSED BACKFLOW PREVENTION VAULTS
BROOKLYN NAVY YARD
BROOKLYN, NY

DRAWN: SR	SCALE: AS NOTED
CHECKED: RBS	DATE: 1-MAY-17
PROJECT NO.: 16-177	DWG NO.: FIG - 2
APPROVED	

CARLIN-SIMPSON AND ASSOCIATES
61 Main Street
Sayreville, NJ 08872
Consulting Geotechnical and Environmental Engineers

CARLIN - SIMPSON & ASSOCIATES Sayreville, New Jersey					TEST BORING LOG					BORING NUMBER SB-1
Project:	Prop. Backflow Prevention Vaults, Brooklyn Navy Yard, Brooklyn, NY									SHEET NO.: 1 of 2
Client:	H2M									JOB NUMBER: 16-177
Drilling Contractor:	General Borings Inc									ELEVATION:
GROUNDWATER						CASING	SAMPLE	CORE	TUBE	DATUM:
DATE		TIME	DEPTH	CASING	TYPE	HSA	SS			START DATE: 24-Feb-17
24-Feb-17			9'0"	HSA	DIA.	3 1/4"	1 3/8"			FINISH DATE: 24-Feb-17
					WGHT		140#			DRILLER: T. McGovern
					FALL		30"			INSPECTOR: KWA

Depth (ft.)	Casing Blows pre Foot	Sample Number	Blows on Sample Spoon per 6"	Sym	IDENTIFICATION	REMARKS
					ASPHALT 0'3"	
1						
			5			
2		**S-1**	8		FILL (Bk cf S, s $, l cf G w/wood)	Rec = 12"
			8			moist
3			14		**FILL (Black coarse to fine SAND,**	obstructed @ 3'0"
					some Silt, little coarse to fine Gravel	(wood) moved hole 5' North
4					**with concrete, wood) [SM]**	
					[NYC Class 7]	
5						
			6			
6		**S-2**	9		FILL (same w/concrete) 6'0"	Rec = 15"
			12		Gr br cf S, t $	moist
7			13			
8						
9					**Gray brown coarse to fine SAND,**	
					(+) Silt [SP] [NYC Class 3b]	
10						
			7			
11		**S-3**	9		Br cf S, l (-) $, t (-) f G	Rec = 19"
			14			wet
12			14			
13						
14						
15						
			4			
16		**S-4**	16		Br Cy$ s (-), cf S 16'0"	Rec = 16"
			44		Br cf S, l (+) $, s cf G	wet
17			50/3"			
18						
19					**Brown coarse to fine SAND,**	
					little (+) Silt, some coarse to fine Gravel	
20					**[SM] [NYC Class 3a]**	
			7			
21		**S-5**	18		same	Rec = 11"
			22			wet
22			22			

CARLIN - SIMPSON & ASSOCIATES Sayreville, New Jersey		TEST BORING LOG		BORING NUMBER SB-1
Project:	Prop. Backflow Prevention Vaults, Brooklyn Navy Yard, Brooklyn, NY			**SHEET NO.:** 2 of 2
Client:	H2M			**JOB NUMBER:** 16-177

Depth (ft.)	Casing Blows pre Foot	Sample Number	Blows on Sample Spoon per 6"	Sym	IDENTIFICATION	REMARKS
23					**Brown coarse to fine SAND,**	
24					**trace (+) Silt, little coarse to fine Gravel**	
25					**[SP] [NYC Class 3a]**	
			20			
26		**S-6**	33		Br cf S, t (+) $, l cf G	Rec = 7"
			50/3"			wet
27						
28						
29						
30					30'0"	Running Sands
					End of Boring @ 30'0"	Abandon Hole
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						
41						
42						
43						
44						
45						
46						
47						

CARLIN - SIMPSON & ASSOCIATES Sayreville, New Jersey				TEST BORING LOG					BORING NUMBER SB-2
Project:	**Prop. Backflow Prevention Vaults, Brooklyn Navy Yard, Brooklyn, NY**								**SHEET NO.:** 1 of 2
Client:	**H2M**								**JOB NUMBER:** 16-177
Drilling Contractor:	**General Borings Inc**								**ELEVATION:**
GROUNDWATER					**CASING**	**SAMPLE**	**CORE**	**TUBE**	**DATUM:**
DATE	**TIME**	**DEPTH**	**CASING**	**TYPE**	**HSA**	**SS**			**START DATE:** 24-Feb-17
24-Feb-17		**9'0"**	**HSA**	**DIA.**	**3 1/4"**	**1 3/8"**			**FINISH DATE:** 24-Feb-17
				WGHT		**140#**			**DRILLER:** T. McGovern
				FALL		**30"**			**INSPECTOR:** KWA

Depth (ft.)	Casing Blows pre Foot	Sample Number	Blows on Sample Spoon per 6"	Sym	IDENTIFICATION	REMARKS
					ASPHALT 0'4"	
1						
			22			
2		**S-1**	16		FILL (Br bk cf S, s $, s cf G, w/cinders)	Rec = 10"
			12			moist
3			14			
			11			
4		**S-2**	13		FILL (same)	Rec = 3"
			11			moist
5			7			
			3			
6		**S-3**	3		FILL (same w/brick, concrete)	Rec = 10"
			7			moist
7			34		**FILL (Brown, black coarse to fine SAND, some Silt, some coarse to fine Gravel, with brick, cinders, concrete, wood) [SM] [NYC Class 7]**	
8						
9						
10						
			1			
11		**S-4**	1		FILL (same, wood)	Rec = 8"
			50/3"			wet
12						
13						
14						
15						
			6			
16		**S-5**	5		FILL (same)	Rec = 0"
			6			wet
17			8			
18						
19					19'0"	
20					**Gray coarse to fine SAND, trace Silt [SP] [NYC Class 3b]**	
			10			
21		**S-5**	9		Gr cf S, t $ 21'0"	Rec = 9"
			4		Br Pt **Brown Peat [Pt] [NYC Class 6]**	wet
22			3			

CARLIN - SIMPSON & ASSOCIATES Sayreville, New Jersey	TEST BORING LOG	BORING NUMBER SB-2
Project: Prop. Backflow Prevention Vaults, Brooklyn Navy Yard, Brooklyn, NY		**SHEET NO.:** 2 of 2
Client: H2M		**JOB NUMBER:** 16-177

Depth (ft.)	Casing Blows pre Foot	Sample Number	Blows on Sample Spoon per 6"	Sym	IDENTIFICATION	REMARKS
23						
24					**Brown Peat [Pt] [NYC Class 6]**	
25						
26		**S-7**	1 3		Br Pt 26'0"	Rec = 14"
27			7 10		Gr cf S, t (+) $	wet
28						
29						
30						
31		**S-8**	8 14		Br $ a, cf S, l mf G	Rec = 17"
32			19 23		**Gray coarse to fine SAND, little Silt [SM] [NYC Class 3b]**	wet
33						
34						
35						
36		**S-9**	6 10		Br cf S, l (-) $	Rec = 20"
37			10 20		37'0"	wet
38					**End of Boring @ 37'0"**	
39						
40						
41						
42						
43						
44						
45						
46						
47						

CARLIN - SIMPSON & ASSOCIATES Sayreville, New Jersey					TEST BORING LOG					BORING NUMBER SB-3
Project:	Prop. Backflow Prevention Vaults, Brooklyn Navy Yard, Brooklyn, NY									**SHEET NO.:** 1 of 2
Client:	H2M									**JOB NUMBER:** 16-177
Drilling Contractor:	General Borings Inc									**ELEVATION:**
GROUNDWATER						**CASING**	**SAMPLE**	**CORE**	**TUBE**	**DATUM:**
DATE	**TIME**	**DEPTH**	**CASING**		**TYPE**	**HSA**	**SS**			**START DATE:** 25-Feb-17
25-Feb-17	**1200**	**7'0"**	**NONE**		**DIA.**	**3 1/4"**	**1 3/8"**			**FINISH DATE:** 25-Feb-17
					WGHT		**140#**			**DRILLER:** T. McGovern
					FALL		**30"**			**INSPECTOR:** KWA

Depth (ft.)	Casing Blows pre Foot	Sample Number	Blows on Sample Spoon per 6"	Sym	IDENTIFICATION	REMARKS
					ASPHALT 0'4"	
1						
			9			
2		**S-1**	11		FILL (Bk, br cf S, s $, s cf G, w/ cobbbles, boulders)	Rec = 5"
			14			moist
3			22			
4						
5						
			9			
6		**S-2**	13		FILL (same w/brick)	Rec = 8"
			14			moist
7			19			
8					**FILL (Black, brown coarse to fine SAND, some Silt, some coarse to fine Gravel, with cobbles, boulders, brick, cinders) [SM] [NYC Class 7]**	
9						
10						
			7			
11		**S-3**	7		FILL (same w/cinders)	Rec = 9"
			11			wet
12			11			
13						
14					14'0"	
15						
			2			
16		**S-4**	3		Br Pt	Rec = 16"
			4		**Brown Peat [Pt] [NYC Class 6]**	wet
17			4			
18						
19					19'0"	
20					**Gray Clayey SILT trace, medium to fine Sand, slightly organic [OL] [NYC Class 6]**	
			1			
21		**S-5**	1		Gr Cy$ t, cf S, slightly organic	Rec = 22"
			1			wet
22			2			

CARLIN - SIMPSON & ASSOCIATES Sayreville, New Jersey	TEST BORING LOG	BORING NUMBER SB-3
Project: Prop. Backflow Prevention Vaults, Brooklyn Navy Yard, Brooklyn, NY		**SHEET NO.:** 2 of 2
Client: H2M		**JOB NUMBER:** 16-177

Depth (ft.)	Casing Blows pre Foot	Sample Number	Blows on Sample Spoon per 6"	Sym	IDENTIFICATION	REMARKS
23					**Gray Clayey SILT trace, medium to fine Sand, slightly organic [OL] [NYC Class 6]**	
24						
25						
			3			Rec = 6"
26		**S-6**	50/3"		Gr Cy$, slightly organic 26'0"	wet
					End of Boring @ 26'0"	Spoon bouncing on possible cobble
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						
41						
42						
43						
44						
45						
46						
47						

CARLIN - SIMPSON & ASSOCIATES Sayreville, New Jersey				TEST BORING LOG					BORING NUMBER SB-4
Project: Prop. Backflow Prevention Vaults, Brooklyn Navy Yard, Brooklyn, NY									SHEET NO.: 1 of 2
Client: H2M									JOB NUMBER: 16-177
Drilling Contractor: General Borings Inc									ELEVATION:
GROUNDWATER					CASING	SAMPLE	CORE	TUBE	DATUM:
DATE	TIME	DEPTH	CASING	TYPE	HSA	SS			START DATE: 25-Feb-17
25-Feb-17	1300	7'0"	HSA	DIA.	3 1/4"	1 3/8"			FINISH DATE: 25-Feb-17
				WGHT		140#			DRILLER: T. McGovern
				FALL		30"			INSPECTOR: KWA

Depth (ft.)	Casing Blows pre Foot	Sample Number	Blows on Sample Spoon per 6"	Sym	IDENTIFICATION	REMARKS
			2			
1		S-1	5		FILL (Br cf S, a $, l mf G w/ brick, slightly organic)	Rec =
			5			moist
2			11			
3						
4					**FILL (Brown coarse to fine SAND, and Silt, little medium to fine Gravel with brick, cinders, slightly organic) [SM] [NYC Class 7]**	
5						
			6			
6		S-2	8		FILL (same, w cinders)	Rec = 12"
			2			moist
7			6			
8						
9						
10						
			1			
11		S-3	1		FILL (same)	Rec = 13"
			1		11'6"	wet
12			1			
			2			
13		S-4	2		Br Pt	Rec = 16"
			1		**Brown Peat [Pt] [NYC Class 6]**	wet
14			2			
15					15'0"	
			1			
16		S-5	1		Dk gr O Cy$	Rec = 20"
			1			wet
17			3			
18						
					Dark gray Organic Clayey SILT [OL] [NYC Class 6]	
19						
20						
			W			
21		S-6	O		same	Rec = 20"
			H			wet
22			1			

CARLIN - SIMPSON & ASSOCIATES Sayreville, New Jersey					TEST BORING LOG	BORING NUMBER SB-4
Project:	**Prop. Backflow Prevention Vaults, Brooklyn Navy Yard, Brooklyn, NY**					**SHEET NO.:** 2 of 2
Client:	**H2M**					**JOB NUMBER:** 16-177
Depth (ft.)	**Casing Blows pre Foot**	**Sample Number**	**Blows on Sample Spoon per 6"**	**Sym**	**IDENTIFICATION**	**REMARKS**
23						
24					**Dark gray Organic Clayey SILT [Pt] [NYC Class 6]**	
25						
26		**S-7**	1 1 2		Dk gr O Cy$	Rec = 24" wet
27			4			
28					28'0"	
29						
30						
31		**S-8**	10 15 24		Gr br cf S, l (+) $, l (-) cf G	Rec = 16" wt
32			28			
33					**Gray brown coarse to fine SAND, little (+) Silt, little (-) coarse to fine Gravel [SM] [NYC Class 3a]**	
34						cobbles 33'-34' dense drilling
35						
36		**S-9**	55 50/3"		same 35'9"	Rec = 7" wet
37					**End of Boring @ 35'9"**	
38						
39						
40						
41						
42						
43						
44						
45						
46						
47						

CARLIN - SIMPSON & ASSOCIATES Sayreville, New Jersey					TEST BORING LOG					BORING NUMBER SB-5
Project:	Prop. Backflow Prevention Vaults, Brooklyn Navy Yard, Brooklyn, NY									**SHEET NO.:** 1 of 2
Client:	H2M									**JOB NUMBER:** 16-177
Drilling Contractor:	General Borings Inc									**ELEVATION:**
GROUNDWATER						**CASING**	**SAMPLE**	**CORE**	**TUBE**	**DATUM:**
DATE	**TIME**	**DEPTH**	**CASING**		**TYPE**	**HSA**	**SS**			**START DATE:** 25-Feb-17
25-Feb-17	**0930**	**9'6"**	**HSA**		**DIA.**	**3 1/4"**	**1 3/8"**			**FINISH DATE:** 25-Feb-17
					WGHT		**140#**			**DRILLER:** T. McGovern
					FALL		**30"**			**INSPECTOR:** KWA

Depth (ft.)	Casing Blows pre Foot	Sample Number	Blows on Sample Spoon per 6"	Sym	IDENTIFICATION	REMARKS
					PAVERS 0'4"	
1					**CONCRETE** 0'10"	
			10			
2		**S-1**	17		FILL (Br cf S, s (-) $, s (+) cf G)	Rec = 11"
			17			moist
3			26			
4						
5						
			8			
6		**S-2**	13		FILL (same)	Rec = 2"
			5			moist
7			4		**FILL (Brown coarse to fine SAND, some (-) Silt, some (+) coarse to fine Gravel) [SM] [NYC Class 7]**	
8						
9						
10						
			1/12"			
11		**S-3**			FILL (Gr br Cy$ s (-), cf G)	Rec = 10"
			5			wet
12			8			
			11			
13		**S-4**	16		FILL (Dk gr, bk cf S, s $)	Rec = 13"
			14			wet
14			12			
15						
			10			
16		**S-5**	5		FILL (same)	Rec = 9"
			3			wet
17			6			
18						
19					19'0"	
20						
			2		**Brown Peat [Pt] [NYC Class 6]**	
21		**S-6**	2		Br Pt	Rec 12"
			2			wet
22			7			

CARLIN - SIMPSON & ASSOCIATES Sayreville, New Jersey					TEST BORING LOG	BORING NUMBER SB-5
Project:	**Prop. Backflow Prevention Vaults, Brooklyn Navy Yard, Brooklyn, NY**					**SHEET NO.:** 2 of 2
Client:	**H2M**					**JOB NUMBER:** 16-177
Depth (ft.)	**Casing Blows pre Foot**	**Sample Number**	**Blows on Sample Spoon per 6"**	**Sym**	**IDENTIFICATION**	**REMARKS**
23						
24					**Brown Peat [Pt] [NYC Class 6]**	
25						
26		**S-7**	4 4 2		Br Pt 26'6"	Rec = 15" wet
27			16		Br cf S, l $	
28						
29						
30						
31		**S-8**	12 20 26		Br cf S, t $, t mf G	Rec = 13" wet
32			25		**Brown coarse to fine SAND, trace (+) Silt, trace medium to fine Gravel [SP] [NYC Class 3a]**	
33						
34						
35						
36		**S-9**	6 16 26		same	Rec = 14" wet
37			36		37'0"	
38					**End of Boring @ 37'0"**	
39						
40						
41						
42						
43						
44						
45						
46						
47						

CARLIN - SIMPSON & ASSOCIATES Sayreville, New Jersey				TEST BORING LOG					BORING NUMBER SB-6
Project:	Prop. Backflow Prevention Vaults, Brooklyn Navy Yard, Brooklyn, NY								**SHEET NO.:** 1 of 2
Client:	H2M								**JOB NUMBER:** 16-177
Drilling Contractor:	General Borings Inc								**ELEVATION:**
GROUNDWATER					**CASING**	**SAMPLE**	**CORE**	**TUBE**	**DATUM:**
DATE	**TIME**	**DEPTH**	**CASING**	**TYPE**	**HSA**	**SS**			**START DATE:** 24-Feb-17
24-Feb-17	1040	9'6"	NONE	**DIA.**	3 1/4"	1 3/8"			**FINISH DATE:** 24-Feb-17
				WGHT		140#			**DRILLER:** T. McGovern
				FALL		30"			**INSPECTOR:** KWA

Depth (ft.)	Casing Blows pre Foot	Sample Number	Blows on Sample Spoon per 6"	Sym	IDENTIFICATION	REMARKS
			6			
1		S-1	8		FILL (Bk cinders)	Rec = 11"
			10			moist
2			13			
			13			
3		S-2	12		FILL (same)	Rec = 0"
			14			moist
4			15			
5						
			5			
6		S-3	4		FILL (Br, bk cf S, s (+) $, s cf G w/cinders)	Rec = 10"
			4			moist
7			4			
			19			
8		S-4	7		FILL (same)	Rec = 0
			6			moist
9			5		**FILL (Black, brown Sand, Silt, and Gravel, with brick, cinders, wood, debris) [SM] [NYC Class 7]**	
10						
			2			
11		S-5	3		FILL (same)	Rec = 0
			2			wet
12			2			
			2			
13		S-6	1		FILL (Bk cinders)	Rec = 7"
			2			wet
14			3			
15						
			15			
16		S-7	9		FILL (same w/wood, brick) 16'0"	Rec = 13"
			10		FILL (Bk, br cf S, l (+) $)	wet
17			18		**FILL (Black, brown coarse to fine SAND, little (+) Silt) [SM]**	
18					**[NYC Class 7]** 18'0"	
19						
20					**Dark brown Peat [Pt] [NYC Class 6]**	
			1			
21		S-8	1		Dk br Pt	Rec = 20"
			1			wet
22			1			

CARLIN - SIMPSON & ASSOCIATES Sayreville, New Jersey					TEST BORING LOG		BORING NUMBER SB-6
Project:	**Prop. Backflow Prevention Vaults, Brooklyn Navy Yard, Brooklyn, NY**						**SHEET NO.:** 2 of 2
Client:	**H2M**						**JOB NUMBER:** 16-177
Depth (ft.)	**Casing Blows pre Foot**	**Sample Number**	**Blows on Sample Spoon per 6"**	**Sym**	**IDENTIFICATION**		**REMARKS**
			2				
23		**S-9**	3		Dk br Pt		Rec = 20"
			4		**Dark brown Peat [Pt] [NYC Class 6]**		wet
24			5				
25							
			2				
26		**S-10**	3		Dk gr Cy$ w/ Pt		Rec = 8"
			7			26'6"	wet
27			10				
28							
29							
30							
			4				
31		**S-11**	11		Gr Cy$ t (+), mf S		Rec = 17"
			10				wet
32			14				
33							
34							
35							
			2				
36		**S-12**	3		Gr $ t, mf S		Rec = 22"
			6				wet
37			7				
38					**Gray Clayey SILT trace (+), medium to fine Sand [CL] [NYC Class 5b]**		
39							
40							
			3				
41		**S-13**	5		same		Rec = 22"
			8				wet
42			10				
43							
44							
45							
			3				
46		**S-14**	7		same	**Brown coarse to fine SAND, trace** 46'0"	Rec = 17"
			14			**Silt [SP] [NYC Class 3a]**	wet
47			28			**End of Boring @ 47'0"** 47'0"	



LEGEND

⊕	B–1	BORING LOCATIONS
⊕	B–30W	BORING LOCATION W/ GROUNDWATER WELL
○	B–29	PROPOSED BORING NOT DRILLED
⊕	81	HISTORICAL BORINGS (1943)
⊕	BN2	HISTORICAL BORINGS (1988)
A A		SUB–SECTION

SCALE 1" = 100'

PROJECT NAME:

BROOKLYN NAVY YARD
KENT AVENUE LOT
BROOKLYN, NEW YORK

CLIENT NAME:

STEINER NYC
15 WASHINGTON AVENUE
BROOKLYN NAVY YARD, NY 11205

GEOTECHNICAL ENGINEER:

PILLORI ASSOCIATES, P.A.
Geotechnical Engineering
71 Route 35
Laurence Harbor, New Jersey 08879
Tel. 732.335.0059 Fax. 732.335.8515
One Harmon Plaza, 2nd Flr. Suite 4
Secaucus, New Jersey 07096
Tel. 201.558.0065 Fax. 201.558.0067
email : office@pilloriassociates.com

No.	DRAWINGS/REVISIONS	DATE

DRAWING TITLE:

BORING LOCATION PLAN

DRAWN :	CHECKED :	REVIEWED :
EV	GP	GP

DATE : 11-29-13
SCALE : AS NOTED
JOB NO. : 130811
DRAWING No. B-001.00
SHEET 1 OF 4

Project: **Brooklyn Navy Yard - Kent Avenue Lot**
Brooklyn, New York
Date: 11/20/2013 to 11/21/2013
Contractor: Warren George, Inc.

Boring No.: B-7
Sheet: 1 of 2
Ground El: 9.5'
Groundwater Depth: NA

Depth Feet	SAMPLES Number	Blows / 6"	Strata	SOIL DESCRIPTION	Classification Depth Elevation
	S-1	100/1"	F	4" Asphalt Gravel and cobbles to 5'	
5	S-2	10-29-21-18		Fill: Black and gray coarse to fine Sand, little to some Silt, trace to little fine Gravel	FILL (7)
10	S-3	5-2-2-1			13' 0"
			O		-3.5'
15	S-4	5-2-2-3			
20	S-5	W.O.H.		Gray organic Clayey Silt, little Peat	OH/Pt (7)
25	S-6	0-0-1-1			28' 0"
			GA		-18.5'
30	S-7	6-7-9-8		Gray fine Sand, some Silt	SM (3b)
					33' 0"
					-23.5'
35	S-8	8-12-23-20		Brown gray fine Sand, some Silt	SM (3a)
					38' 0"
					-28.5'
40	S-9	18-18-22-19			
45	S-10	16-14-15-15		Brown coarse to fine Sand, trace Silt	SW (3a)
50	S-11	25-24-25-25			

Project: **Brooklyn Navy Yard - Kent Avenue Lot**
Brooklyn, New York
Date: 11/20/2013 to 11/21/2013
Contractor: Warren George, Inc.

Boring No.: B-7
Sheet: 2 of 2
Ground El: 9.5'
Groundwater Depth: NA

Depth Feet	SAMPLES Number	Blows / 6"	Strata	SOIL DESCRIPTION	Classification Depth Elevation
	S-11	25-24-25-25		Brown coarse to fine Sand, trace Silt	SW (3a) 53' 0"
55	S-12	11-11-15-14			-43.5'
60	S-13	13-14-14-16			
65	S-14	12-11-14-13			
70	S-15	10-15-14-16			
75	S-16	11-12-13-15	G_A	Brown medium to fine Sand, trace Silt	SW (3b)
80	S-17	13-14-16-17			
85	S-18	12-11-15-16			
90	S-19	10-13-13-14			
95	S-20	12-13-15-15			
100	S-21	13-14-15-17		End of Boring	102' 0"

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EXHIBIT M
ADDITIONAL M/WBE PROVISIONS

A. Pre-award waiver of the Participation Goals.

1. A Bidder may seek a pre-award full or partial waiver of the Participation Goals in accordance with Section 6-129, which requests that BNYDC change the Participation Goal on the grounds that the Participation Goal is unreasonable in light of the availability of certified firms to perform the services required, or by demonstrating that it has legitimate business reasons for proposing a lower level of subcontracting in its M/WBE Utilization Plan.

2. To apply for a full or partial waiver of the Participation Goal, a bidder must complete Part B of Exhibit N and submit such request no later than seven (7) calendar days prior to the date and time the bids are due, in writing to the BNYDC by email at dmagdich@bnydc.org **and** mwbe@bnydc.org. Full or partial waiver requests that are received later than seven (7) calendar days prior to the date and time the bids are due may be rejected as untimely. Bidders who have submitted timely requests will receive a BNYDC response by no later than two (2) calendar days prior to the due date for bids; provided, however, that if that date would fall on a weekend or holiday, a BNYDC response will be provided by close-of-business on the business day before such weekend or holiday date.

3. If BNYDC determines that the Participation Goal is unreasonable in light of the availability of certified firms to perform the services required, it shall revise the solicitation and extend the deadline for bids.

4. BNYDC may grant a full or partial waiver of the Participation Goal to a bidder who demonstrates—before submission of the bid— that it has legitimate business reasons for proposing the level of subcontracting in its M/WBE Utilization Plan. In making its determination, BNYDC shall consider factors that shall include, but not be limited to, whether the bidder has the capacity and the bona fide intention to perform the Contract without any subcontracting, or to perform the Contract without awarding the amount of subcontracts represented by the Participation Goal. In making such determination, BNYDC may consider whether the M/WBE Utilization Plan is consistent with past subcontracting practices of the bidder whether the bidder has made efforts to form a joint venture with a certified firm, and whether the bidder has made good faith efforts to identify other portions of the Contract that it intends to subcontract.

B. Modification of M/WBE Utilization Plan.

1. A Contractor may request a modification of its M/WBE Utilization Plan (a "Modification") after award of this Contract. BNYDC may grant a request for Modification of a Contractor's M/WBE Utilization Plan if it determines that the Contractor has established, with appropriate documentary and other evidence, that it made reasonable, good faith efforts to meet the Participation Goal. In making such determination, BNYDC shall consider evidence of the following efforts, as applicable, along with any other relevant factors:

a. The Contractor advertised opportunities to participate in the Contract, where appropriate, in general circulation media, trade and professional association publications and small business media, and publications of minority and women's business organizations;
b. The Contractor provided notice of specific opportunities to participate in the Contract, in a timely manner, to minority and women's business organizations;
c. The Contractor sent written notices, by certified mail or facsimile, in a timely manner, to advise MBEs or WBEs that their interest in the Contract was solicited;
d. The Contractor made efforts to identify portions of the work that could be substituted for portions originally designated for participation by MBEs and/or WBEs in the M/WBE Utilization Plan, and for which the Contractor claims an inability to retain MBEs or WBEs;
e. The Contractor held meetings with MBEs and/or WBEs prior to the date their bids were due, for the purpose of explaining in detail the scope and requirements of the work for which their bids were solicited;
f. The Contractor made efforts to negotiate with MBEs and/or WBEs as relevant to perform specific subcontracts, or act as suppliers or service providers;
g. Timely written requests for assistance made by the Contractor to BNYDC's M/WBE liaison officer at mwbe@bnydc.org and to DSBS and DMWBD;
h. Description of how recommendations made by DSBS, DMWBD and BNYDC were acted upon and an explanation of why action upon such recommendations did not lead to the desired level of participation of MBEs and/or WBEs.

BNYDC's M/WBE liaison officer shall provide written notice to the Contractor of the determination.

2. BNYDC may modify the Participation Goal when the scope of the work has been changed by BNYDC in a manner that affects the scale and types of work that the Contractor indicated in its M/WBE Utilization Plan would be awarded to subcontractors.

C. Substitutions

Substitutions to the MBEs and/or WBEs that Contractor identified as firms they intended to use in connection with the performance of the Contract may only be made with the approval of BNYDC, which shall only be given when the Contractor has proposed to use a firm that would satisfy the Participation Goal to the same extent as the firm previously identified, unless BNYDC determines that the Contractor has established, with appropriate documentary and other evidence, that it made reasonable, good faith efforts. In making such determination, BNYDC shall require evidence of the efforts listed in Section B(1) above, as applicable, along with any other relevant factors.

D. Indefinite Quantity Contracts

If this Contract is for an indefinite quantity of construction or is a requirements type contract and the Contractor has submitted an M/WBE Utilization Plan and has committed to subcontract work to

MBEs and/or WBEs in order to meet the Participation Goal, the Contractor will not be deemed in violation of the M/WBE Program requirements for this Contract with regard to any work which was intended to be subcontracted to an MBE and/or WBE to the extent that BNYDC has determined that such work is not needed.

E. Progress Review, Evaluation and Assessment

At least once annually during the term of the Contract, BNYDC shall review the Contractor's progress toward attainment of its M/WBE Utilization Plan, including but not limited to, by reviewing the percentage of work the Contractor has actually awarded to MBE and/or WBE subcontractors and the payments the Contractor made to such subcontractors.

BNYDC shall evaluate and assess the Contractor's performance in meeting those goals, and such evaluation and assessment shall become part of the Contractor's overall contract performance evaluation.

F. Miscellaneous Provisions

1. The Contractor shall take notice that the resulting contract may be audited. Furthermore, such resulting contract may also be examined by the City's Comptroller to assess compliance with its M/WBE Utilization Plan.
2. DSBS and DMWBD are available to assist contractors and potential contractors in determining the availability of MBEs and/or WBEs to participate as subcontractors, and in identifying opportunities that are appropriate for participation by MBEs and/or WBEs in contracts.
3. Prospective contractors are encouraged to enter into qualified joint venture agreements with MBEs and/or WBEs as defined by Section 6-129(c)(30).
4. By submitting a bid the Contractor hereby acknowledges its understanding of the M/WBE Program requirements set forth herein, and if awarded this Contract, the Contractor hereby agrees to comply with the M/WBE Program requirements of this Contract, all of which shall be deemed to be material terms of this Contract. The Contractor hereby agrees to make all reasonable, good faith efforts to solicit and obtain the participation of MBEs and/or WBEs to meet the required Participation Goals.

G. Enforcement

1. If BNYDC determines that a bidder has, in relation to this procurement, violated the M/WBE Program requirements of this Contract, BNYDC may disqualify such bidder from competing for this Contract and BNYDC may revoke such bidder's prequalification status, if applicable.
2. Whenever BNYDC believes that the Contractor or a subcontractor is not in compliance with the M/WBE Program or its M/WBE Utilization Plan, BNYDC shall send a written notice to the Contractor describing the alleged noncompliance and offering the Contractor an opportunity to be heard. BNYDC shall then conduct an investigation to determine whether such Contractor or subcontractor is in compliance.
3. In the event that the Contractor has been found to have violated the M/WBE Program or

its M/WBE Utilization Plan, BNYDC may determine that one of the following actions should be taken:

a. entering into an agreement with the Contractor allowing the Contractor to cure the violation;

b. revoking the Contractor's pre-qualification to bid for future contracts;

c. making a finding that the Contractor is in default of the Contract;

d. terminating the Contract;

e. declaring the Contractor to be in breach of Contract;

f. withholding payment or reimbursement;

g. determining not to renew the Contract;

h. assessing actual and consequential damages;

i. assessing liquidated damages or reducing fees, provided that liquidated damages may be based on amounts representing costs of delays in carrying out the purposes of the M/WBE Program, or in meeting the purposes of the Contract, the costs of meeting utilization goals through additional procurements, the administrative costs of investigation and enforcement, or other factors set forth in the Contract;

j. exercising rights under the Contract to procure goods, services or construction from another contractor and charge the cost of such contract to the Contractor that has been found to be in noncompliance; or

k. taking any other appropriate remedy.

4. If the Contractor has been found to have failed to fulfill its Participation Goals contained in its M/WBE Utilization Plan or the Participation Goal as modified by BNYDC pursuant to Section B of this Exhibit N, BNYDC may assess liquidated damages in the amount of ten percent (10%) of the difference between the dollar amount of work required to be awarded to MBE and/or WBE firms to meet the Participation Goal and the dollar amount the Contractor actually awarded and paid, and/or credited, to MBE and/or WBE firms. In view of the difficulty of accurately ascertaining the loss which BNYDC will suffer by reason of Contractor's failure to meet the Participation Goal, the foregoing amount is hereby fixed and agreed as the liquidated damages that BNYDC will suffer by reason of such failure, and not as a penalty. BNYDC may deduct and retain out of any monies which may become due under this Contract the amount of any such liquidated damages; and in case the amount which may become due under this Contract shall be less than the amount of liquidated damages suffered by BNYDC, the Contractor shall be liable to pay the difference.

5. Whenever BNYDC has reason to believe that an MBE and/or WBE is not qualified for certification, or is participating in a contract in a manner that does not serve a commercially useful function (as defined in Section 6-129(c)(8)), BNYDC shall notify the Commissioner of DSBS or DMWBD, as applicable, who shall determine whether the certification of such business enterprise should be revoked.

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BrooklynNavyYard.org

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Brooklyn, NY 11205

6. Statements made in any instrument submitted to BNYDC pursuant to the M/WBE Program shall be submitted under penalty of perjury and any false or misleading statement or omission shall be grounds for the application of any applicable criminal and/or civil penalties for perjury. The making of a false or fraudulent statement by an MBE and/or WBE in any instrument submitted pursuant the M/WBE Program shall, in addition, be grounds for revocation of its certification.

7. The Contractor's record in implementing its M/WBE Utilization Plan shall be a factor in the evaluation of its performance. Whenever BNYDC determines that a Contractor's compliance with an M/WBE Utilization Plan has been unsatisfactory, BNYDC shall, after consultation with the BNYDC M/WBE liaison officer, file an advice of caution form for inclusion in PASSPort as caution data.

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EXHIBIT N
M/WBE UTILIZATION PLAN

EXHIBIT O

M/WBE Utilization Plan

(To be completed by the bidder/proposer unless granted a full waiver, which must be submitted with the bid/proposal in lieu of this form)

Project name: [PROJECT NAME]

Total MWBE Participation Goal for this Project: __[PARTICIPATION GOAL PERCENTAGE]%____

PART A

Section 1: Prime Contractor Contact Information

Tax ID# _____

FMS Vendor ID# _____

Business Name_____

Business Name Contact Person _____

Business Address_____ City _____State _____ ZIP_____

Telephone _____ Email _____

Section 2: M/WBE Utilization Goal Calculation

Prime Contractor Adopting M/WBE Participation Goals

For Prime Contractors (including Qualified Joint Ventures and M/WBE firms) adopting M/WBE Participation Goals.

Total Bid/Proposal Value $ _____

multiplied by x

Total Participation Goal ___[PARTICIPATION GOAL PERCENTAGE]_____% for this IFB

Calculated M/WBE Participation Amount $ _____

Section 3: Contractor M/WBE Utilization Plan

Please review the IFB for more information on how to obtain credit for M/WBE participation. Check applicable box. The Proposer or Bidder will fulfill the M/WBE Participation Goals:

☐ As an M/WBE Prime Contractor that will self-perform and/or subcontract to other M/WBE firms a portion of the contract the value of which is at least the Calculated M/WBE Participation Amount set forth in Section 2. The value of any work subcontracted to non-M/WBE firms will not be credited towards fulfillment of M/WBE Participation Goals.

Please check all that apply to Prime Contractor: ☐ MBE ☐ WBE

☐ As a Qualified Joint Venture with an M/WBE partner, in which the value of the M/WBE partner's participation and/or the value of any work subcontracted to other M/WBE firms is at least the Calculated M/WBE Participation Amount set forth in Section 2. The value of any work subcontracted to non-M/WBE firms will not be credited towards fulfillment of M/WBE Participation Goals.

☐ As a non-M/WBE Prime Contractor that will enter into subcontracts with M/WBE firms the value of which is at least the Calculated M/WBE Participation Amount set forth in Section 2.

Section 4: General Contract Information

Enter a brief description of the type(s) and dollar value of subcontracts for all services you plan to subcontract if awarded this contract, along with the anticipated start and end dates for such subcontracts. For each item, indicate whether the work is designated for participation by an M/WBE. **For all M/WBE subcontractors listed below, please also include as attachments to this M/WBE Utilization Plan, a printout of the certification by DSBS or DMWBD given to such subcontractor.**

What is the expected percentage of the total contract dollar value that you expect to award in subcontracts for services, regardless of M/WBE status? _____%

	Description of Work	Start Date	End Date	Planned	Designated for M/WBE?		Vendor Name	Address	Telephone
		(MM/YY)	(MM/YY)	$ Amount	Y	N			
1	_____	_____	_____	$_____	___	___	_____	_____	_____
2	_____	_____	_____	$_____	___	___	_____	_____	_____
3	_____	_____	_____	$_____	___	___	_____	_____	_____
4	_____	_____	_____	$_____	___	___	_____	_____	_____
5	_____	_____	_____	$_____	___	___	_____	_____	_____
6	_____	_____	_____	$_____	___	___	_____	_____	_____
7	_____	_____	_____	$_____	___	___	_____	_____	_____
8	_____	_____	_____	$_____	___	___	_____	_____	_____
9	_____	_____	_____	$_____	___	___	_____	_____	_____
10	_____	_____	_____	$_____	___	___	_____	_____	_____

Section 5: Vendor Certification and Required Affirmations

I hereby:

1. *acknowledge my understanding of the M/WBE participation requirements as set forth herein and the pertinent provisions of Section 6-129 of the Administrative Code of the City of New York ("Section 6-129"), and the rules promulgated thereunder;*
2. *affirm that the information supplied in support of this M/WBE Utilization Plan is true and correct;*
3. *agree, if awarded this Contract, to comply with the M/WBE participation requirements of this Contract, the pertinent provisions of Section 6-129, and the rules promulgated thereunder, all of which shall be deemed to be material terms of this Contract;*
4. *agree and affirm that it is a material term of this Contract that the Vendor will award the total dollar value of the M/WBE Participation Goals to certified MBEs and/or WBEs, unless a full waiver is obtained or such Goals are modified by BNYDC; and*
5. *agree and affirm, if awarded this Contract, to make all reasonable, good faith efforts to meet the M/WBE Participation Goals, or If a partial waiver is obtained or such Goals are modified by BNYDC, to meet the modified Participation Goals by soliciting and obtaining the participation of certified MBE and/or WBE firms.*

Signature _____ Date _____

Print Name _____ Title _____

REQUEST OF WAIVER OF M/WBE PARTICIPATION REQUIREMENTS

PART B – To be completed ONLY if requesting a full or partial waiver of the M/WBE Participation requirements. This waiver request must be submitted at least 7 calendar days prior to the Bid Submission Deadline.

Section 1. Contractor Contact Information

Tax ID# _____
FMS Vendor ID# _____
Business Name _____
Business Name Contact Person _____
Business Address_____ City _____State _____ ZIP_____
Telephone _____ Email _____
Bid Due Date _____

Section 2. Basis for Waiver Request

Check appropriate box & explain in detail below (attach additional pages if needed)

☐ Vendor does not subcontract services, and has the capacity and good faith intention to perform all such work itself with its own employees.

☐ Vendor subcontracts some of this type of work but at a lower % than bid/solicitation describes, and has the capacity and good faith intention to do so on this contract. Identify your subcontracting plan in Section 4, Vendor Certification below.

☐ Vendor has other legitimate business reasons for proposing the M/WBE Participation Goal requested here.

Explain below (or on additional pages, as needed)

_____

_____

_____

Section 3. Vendor Contract History

Vendor Contract History

List all contracts (for City and Non-City work) performed within the last 3 years below (attach additional pages if needed) and provide the requested information for each contract.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

From the list of all contracts, provide reference information below for the 5 most relevant contracts in size, scale and scope (performed for New York City or any other entity) to the bid or proposal for which you are submitting this waiver request. Provide the requested information for each subcontract awarded during the life of the listed reference contract.

Please make sure to highlight the 5 reference contracts provided below among the comprehensive list of all your contract awards.

Reference 1

Agency/Organization_____ Contract #_____

Reference Contact_____ Telephone_____ Email_____

Contract Start Date _____ Contract End Date_____ Total Contract Value $_____

Prime Contract description

Did the vendor perform as a Prime Contractor or as a Subcontractor? ☐ Prime Contractor ☐ Subcontractor

Was the Prime Contract subject to any Goals? ☐ City M/WBE Goals ☐ State Goals ☐ Federal Goals ☐ No Applicable Goals

Did the Prime Contractor meet Goal requirements? ☐ Yes ☐ No ☐ N/A

If the Prime Contractor did not meet Goal requirements or contract is still ongoing, please explain

If you performed as the Prime Contractor, please provide a description and value of all work subcontracted to other vendors.

_____ $_____

_____ $_____

_____ $_____

_____ $_____

_____ $_____

_____ $_____

_____ $_____

_____ $_____

Percentage of total contract value subcontracted to other vendors _____ %

If you performed as the Subcontractor, please provide a description and value of work areas you self-performed.

_____ $

Reference 2

Agency/Organization_____ Contract #_____

Reference Contact_____ Telephone_____ Email_____

Contract Start Date _____ Contract End Date_____ Total Contract Value $_____

Prime Contract description

Did the vendor perform as a Prime Contractor or as a Subcontractor? ☐ Prime Contractor ☐ Subcontractor

Was the Prime Contract subject to any Goals? ☐ City M/WBE Goals ☐ State Goals ☐ Federal Goals ☐ No Applicable Goals

Did the Prime Contractor meet Goal requirements? ☐ Yes ☐ No ☐ N/A

If the Prime Contractor did not meet Goal requirements or contract is still ongoing, please explain

If you performed as the Prime Contractor,

_____ $_____

_____ $

_____

_____

_____

please provide a description and value of all work subcontracted to other vendors.

_____ $_____
_____ $_____
_____ $_____
_____ $_____
_____ $_____
_____ $_____
_____ $_____

Percentage of total contract value subcontracted to other vendors _____ %

If you performed as the Subcontractor, please provide a description and value of work areas you self-performed.

_____ $_____

Reference 3

Agency/Organization_____ Contract #_____

Reference Contact_____ Telephone_____ Email_____

Contract Start Date _____ Contract End Date_____ Total Contract Value $_____

Prime Contract description

Did the vendor perform as a Prime Contractor or as a Subcontractor? ☐ Prime Contractor ☐ Subcontractor

Was the Prime Contract subject to any Goals? ☐ City M/WBE Goals ☐ State Goals ☐ Federal Goals ☐ No Applicable Goals

Did the Prime Contractor meet Goal requirements? ☐ Yes ☐ No ☐ N/A

If the Prime Contractor did not meet Goal requirements or contract is still ongoing, please explain

If you performed as the Prime Contractor, please provide a description and value of all work subcontracted to other vendors.

_____ $_____
_____ $_____
_____ $_____
_____ $_____
_____ $_____
_____ $_____
_____ $_____
_____ $_____
_____ $_____

Percentage of total contract value subcontracted to other vendors _____ %

If you performed as the Subcontractor, please provide a description and value of work areas you self-performed.

_____ $ _____

Reference 4

Agency/Organization _____ Contract # _____

Reference Contact _____ Telephone _____ Email _____

Contract Start Date _____ Contract End Date _____ Total Contract Value $ _____

Prime Contract description

Did the vendor perform as a Prime Contractor or as a Subcontractor? ☐ Prime Contractor ☐ Subcontractor

Was the Prime Contract subject to any Goals? ☐ City M/WBE Goals ☐ State Goals ☐ Federal Goals ☐ No Applicable Goals

Did the Prime Contractor meet Goal requirements? ☐ Yes ☐ No ☐ N/A

If the Prime Contractor did not meet Goal requirements or contract is still ongoing, please explain

If you performed as the Prime Contractor, please provide a description and value of all work subcontracted to other vendors.

_____ $ _____

_____ $ _____

_____ $ _____

_____ $ _____

_____ $ _____

_____ $ _____

Percentage of total contract value subcontracted to other vendors _____ %

If you performed as the Subcontractor, please provide a description and value of work areas you self-performed.

$ _____

Reference 5

Agency/Organization _____ Contract # _____

Reference Contact _____ Telephone _____ Email _____

Contract Start Date _____ Contract End Date _____ Total Contract Value $ _____

Prime Contract description

Did the vendor perform as a Prime Contractor or as a Subcontractor? ☐ Prime Contractor ☐ Subcontractor

Was the Prime Contract subject to any Goals? ☐ City M/WBE Goals ☐ State Goals ☐ Federal Goals ☐ No Applicable Goals

Did the Prime Contractor meet Goal requirements? ☐ Yes ☐ No ☐ N/A

If the Prime Contractor did not meet Goal requirements or contract is still ongoing, please explain

If you performed as the Prime Contractor, please provide a

_____ $ _____

_____ $ _____

_____ $

description and value of all work subcontracted to other vendors.

$ _____

$ _____

_____ $ _____

Percentage of total contract value subcontracted to other vendors _____ %

If you performed as the Subcontractor, please provide a description and value of work areas you self-performed.

_____ $ _____

Section 4. Vendor Certification

Identify/list all the work areas you intend on subcontracting on the current anticipated contract for which you are submitting this waiver request.

I hereby affirm that the information supplied in support of this waiver request is true and correct, and that this request is made in good faith. I further affirm that the work that I did not list as work that will be subcontracted on this contract for which I am submitting this waiver request is work that I have performed on past contracts and will not subcontract if awarded this contract.

Signature_____

Date_____

Print Name_____ Title_____