Department of Design and Construction

THE CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF INFRASTRUCTURE
30-30 THOMSON AVENUE
LONG ISLAND CITY, NY, 11101
TEL: 718.391.1000
WEB: www.nyc.gov/ddc

TO BE FILLED IN BY THE BIDDER:

BIDDER'S NAME:

PERFETTO CONTRACTING CO., INC.

BID SECURITY (CIRCLE ONE):

BID BOND / ~~CERTIFIED CHECK~~

NUMBER OF ADDENDUMS RECEIVED AND ATTACHED TO BID:

15 ADDENDUMS

DDC CLIENT AGENCY:

NEW YORK CITY DEPARTMENT OF PARKS AND RECREATION

PREPARED BY:

AKRF / KSE JV

DATE PREPARED:

OCTOBER 31, 2019

VOLUME 1 OF 3

BID BOOKLET

FOR FURNISHING ALL LABOR AND MATERIALS NECESSARY AND REQUIRED FOR:

PROJECT ID: SANDRESM2

INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET

TOGETHER WITH ALL WORK INCIDENTAL THERETO INCLUDING FLOOD PROTECTION SYSTEM, ROLLER AND SWING GATES, PARK RECONSTRUCTION, SEWER, STREET LIGHTING, AND TRAFFIC WORK

TOGETHER WITH ALL WORK INCIDENTAL THERETO

BOROUGH OF MANHATTAN

CITY OF NEW YORK

HUD FUNDED

20-053

Department of Design and Construction

Lorraine Grillo
Commissioner

Jamie Torres-Springer
First Deputy Commissioner

Justin Walter
Chief Administrative Officer
Administration

Nicholas Mendoza
Agency Chief Contracting Officer

Lorraine Holley
Deputy ACCO

July 27, 2020

CERTIFIED MAIL - RETURN RECEIPT REQUEST
PERFETTO CONTRACTING CO. INC.
152 41ST STREET
BROOKLYN, NY 11232

RE: FMS ID: SANDRESM2
E-PIN: 85020B0029001
DDC PIN: 8502020RC0002C
INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET-BOROUGH OF MANHATTAN
NOTICE OF AWARD

Dear Contractor:

You are hereby awarded the above referenced contract based upon your bid in the amount of $163,066,043.00 submitted at the bid opening on June 1, 2020. Within ten (10) days of your receipt of this notice of award, you are required to take the actions set forth in Paragraphs (1) through (3) below. For your convenience, attached please find a copy of Schedule A of the General Conditions to the Contract, which sets forth the types and amounts of insurance coverage required for this contract.

(1) Execute two copies of the Agreement. This will be done by completing the attached Signature Agreement pages. The Agreement must be signed by an officer of the corporation or a partner of the firm.

(2) Submit to the Contracts Unit two properly executed performance and payment bonds. If required for this contract, copies of performance and payment bonds are attached.

(3) Submit to the Contracts Unit the following insurance documentation: (a) original certificate of insurance for general liability in the amount required by Schedule A, and (b) original certificates of insurance or other proof of coverage for workers' compensation and disability benefits, as required by New York State Law. The insurance documentation specified in this paragraph is required for registration of the contract with the Comptroller's Office.

Department of Design and Construction

On or before the contract commencement date, you are required to submit all other certificates of insurance and/or policies in the types and amounts required by Schedule A. Such certificates of Insurance and/or policies must be submitted to the Agency Chief Contracting Office, Attention: Risk Manager, Fourth Floor at the above indicated department address.

Your attention is directed to the section of the Information for Bidders entitled "Failure to Execute Contract". As indicated in this section, in the event you fail to execute the contract and furnish the required bonds within the (10) days of your receipt of this notice of award, your bid security will be retained by the City and you will be liable for the difference between your bid price and the price for which the contract is subsequently awarded, less the amount of the bid security retained.

As of August 16, 2019, please be advised that Contract Site Safety Plans for DDC projects must be submitted through DDC's online Site Safety Plan (SSP) application (available via our Agency Portal – *DDC Anywhere*).

To create an account and begin your Site Safety Pan submission using SSP, click on the link below:

DDC Portal **https://ddcanywhere.nyc/Registration/Registration**

For questions regarding this web-based application, please contact DDC via email at: appsupport@ddc.nyc.gov.

Sincerely,

Lorraine Holley

Lorraine Holley

30 - 30 Thomson Ave L.I.C., NY 11101 Telephone: 718-391-2601 Facsimile: (718) 391-2627 www.nyc.gov/buildnyc

NOTICE TO BIDDERS -
NEW BID SUBMISSION PROCEDURES DUE TO COVID-19

The bid submission and opening procedures for this contract will follow the procedures set forth below. The Bid Due Date and the Bid Opening Date, as shown on the Bid Information page of the Bid Booklet (Attachment 1), will now be on different dates and different times.

THE BIDDER MUST CAREFULLY READ THE DATES AND TIMES ON ATTACHMENT 1, AS THEY NOW DIFFER FROM PREVIOUS DDC PROJECTS.

Bid Submission Procedures

1. The representative delivering the bid must maintain required social distancing measures – keep at least 6 feet away from others, and a mask or face covering must be worn.
2. All bids must be delivered by hand within the time shown on Attachment A. No bids will be accepted by mail or parcel service (USPS, FedEx, UPS, DHL, etc.).
3. Bid submissions must be in a single, sealed envelope and clearly labeled on the outside with the following:
    a. Project ID
    b. Project Name
    c. e-PIN no.
    d. Name of Contractor
    e. Contact person
    f. Email address
    g. Phone number
4. Bid submissions must not contain any staples or paper clips.
5. The representative delivering the bid will be required to fill out a sign-in sheet acknowledging delivery of the bid.
6. The ACCO staff will provide a time stamp sticker to be applied to the bid envelope.

Bid Opening Procedures

1. Using the information from the sign-in sheet, all bidders will receive an email with a link to view the bid opening live, in real-time.
2. The sealed bids will be opened and the bid prices will be read aloud.
3. The bids will be ranked and the apparent low bidder will be announced.
4. After the bid opening, the following will be posted to the City Record On Line (CROL) and the DDC website:
    a. A scanned copy of the bid submission sign-in sheet
    b. A link to view the video recording of the bid opening

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NOTICE TO BIDDERS

Pre-Bid Questions (PBQs)

Please be advised that PBQs should be submitted to the Agency Contact Person (CSB_projectinquiries@ddc.nyc.gov) at least five (5) business days (by 5:00 PM EST) prior to the bid opening date as indicated in BID INFORMATION, page A-5 and SCHEDULE B, page A-39, VOLUME 1 OF 3 of this BID BOOKLET.

All PBQs must reference the Project ID. If a bidder has multiple PBQs for the same Project ID, the PBQs must be numbered sequentially, even if they are submitted separately.

NYC Contract Financing Loan Fund

Loans at a 3% annual interest rate to perform on New York City contracts

If your business is working as a prime or subcontractor on a project with a City agency or City-funded entity, you may be eligible for a Contract Financing Loan from a participating lender coordinated with the NYC Department of Small Business Services (SBS). Loan repayment terms align with the contract payment schedule.

Loans of up to $500,000 at an annual interest rate of 3% are available to eligible* businesses to perform on New York City contracts. Closing fees apply.

*To be eligible for a loan, you must:

- ✓ Have an operating business, AND
- ✓ Be applying for financing as a prime or sub-contractor to use toward a contract with a City agency or City-funded entity.
- ✓ Additional Eligibility requirements may also apply.

How it works:
Step 1: Fill out the Contract Financing inquiry form at nyc.gov/contractfinancing
Step 2: If Eligible, a participating lender will contact you within two business days.
Step 3: Begin the loan application process

For more information: **Call 311** or visit **nyc.gov/contractfinancing**

(NO FURTHER TEXT ON THIS PAGE)

NYC Bond Collateral Assistance Fund

If your business is bidding or planning to bid on a project as a prime or subcontractor with a City agency or the NYC Economic Development Corporation (NYCEDC) and the project requires surety bonding, you may be eligible* to receive **up to $500,000 in Collateral Assistance to enhance your surety bond application** from a participating bond service provider coordinated with the NYC Department of Small Business Services (SBS).

*To be eligible, you must:

- ✓ Have an operating construction business, AND
- ✓ Be bidding or planning to bid **as a prime or subcontractor** on a contract with a City agency or NYCEDC that requires bonding
- ✓ Additional Eligiblity requirements may apply.

How it works:
Step 1: Fill out the Bond Collateral Assistance Fund inquiry form at nyc.gov/bondfund
Step 2: If Eligible, the bond service provider will contact you within two business days
Step 3: Begin the bond application process

For more information: **Call 311** or visit **nyc.gov/bondfund**

(NO FURTHER TEXT ON THIS PAGE)

CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF INFRASTRUCTURE

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CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF INFRASTRUCTURE

A. BID BOOKLET

BID INFORMATION

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SPECIAL NOTICE TO BIDDERS

BID SUBMISSION REQUIREMENTS

THE FOLLOWING DOCUMENTS ARE TO BE COMPLETED AND SUBMITTED WITH THE BID:

(1) Bid Schedule (Page B-3)
(2) Bid Form, including Affirmation (Page A-25)
(3) Bid Security (if required, see Bid Information on Page A-5)
(4) Schedule B: M/WBE Utilization Plan (Page A-37, if participation goals have been established)

FAILURE TO SUBMIT THE ITEMS LISTED ABOVE WILL RESULT IN THE DISQUALIFICATION OF THE BID.

(5) Bidder's Certification of Compliance with Iran Divestment Act (Page A-57)
(6) Special Experience Requirements (Page A-7 & A-8, if applicable)
(7) Apprenticeship Program Requirements (Page A-46, if applicable)
(8) Safety Questionnaire (Page A-53)
(9) Construction Employment Report (Page A-21 if bid is $1,000,000 or more)
(10) Any addenda issued prior to the receipt of bids

FAILURE TO SUBMIT THE ITEMS LISTED ABOVE MAY RESULT IN THE DISQUALIFICATION OF THE BID.

NOTES:

(1) All of the above referred to blank forms to be completed and submitted with the bid are included in the BID BOOKLET, page numbers as noted above.

(2) If the bidder has any questions or requires additional information, please contact the Agency Contact Person noted on Attachment 1 (Page A-5 of this Bid Booklet).

(3) PASSPort Compliance: The Bidder is advised that Vendex Questionnaires and procedures have been replaced by the PASSPort system. Compliance with PASSPort is mandatory for contract Award. PASSPort details are set forth on Page A-21 of this Bid Booklet.

(4) SPECIAL EXPERIENCE REQUIREMENTS: The Bidder is advised that Special Experience Requirements may apply to this contract. Such requirements are set forth beginning on Page A-7 of this Bid Booklet.

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BID INFORMATION (ATTACHMENT 1)

PROJECT ID: SANDRESM2
PIN: 8502020RC0002C

Description and Location of Work:

INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET

Together With All Work Incidental Thereto
BOROUGH OF MANHATTAN
CITY OF NEW YORK

Documents Available at: Online at https://biddocuments.ddcanywhere.nyc/

Submission of Bids to: 30-30 Thomson Avenue
First Floor Bid Procurement Room
Long Island City, New York 11101
Between **11:00 AM and 2:00 PM** on **May 28, 2020**

Bid Opening: Live web video stream per the NOTICE TO BIDDERS - NEW BID SUBMISSION PROCEDURES DUE TO COVID -19
Time and Date: **11:00 AM** on **June 1, 2020**

Pre-Bid Conference: Yes: _____ No: X
If Yes, Mandatory: ___ Optional: _____
Time and Date: _____
Location: _____

Bid Security: Bid Security is required in the amount set forth below; provided, however, bid security is not required if the TOTAL BID PRICE set forth on the Bid Form is less than $ 1,000,000.00.

(1) Bond in an amount not less than 10% of the TOTAL BID PRICE set forth on the Bid Form, OR

(2) Certified Check in an amount not less than 2% of the TOTAL BID PRICE set forth on the Bid Form.

Performance and Payment Security: Required for contracts in the amount of $1,000,000 or more. Performance Security and Payment Security shall each be in an amount equal to 100% of the Contract Price.

Agency Contact Person: Lorraine Holley
Phone: 718-391-2601 , Fax 718-391-2627
Email: CSB_projectinquiries@ddc.nyc.gov

For questions about site accessibility, please contact our disability services facilitator at (718) 391-2815 or via email at accessibility@ddc.nyc.gov.

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SPECIAL EXPERIENCE REQUIREMENTS

(A) SPECIAL EXPERIENCE REQUIREMENTS FOR THE BIDDER:

The Special Experience Requirements set forth below apply to the bidder. Compliance with such Special Experience Requirements will be determined solely by the City prior to an award of contract. Failure to comply with the Special Experience Requirements will result in rejection of the bid as non-responsive.

The requirements in this Section (A) apply to this contract where indicated by a blackened box (■).

■ The bidder must, within the last seven (7) consecutive years prior to the bid opening, have successfully completed in a timely fashion at least one (1) project similar in scope and type to the required work. Such prior project may have been performed as a prime contractor, subcontractor or sub-subcontractor.

The Special Experience Requirements next to the blackened box below apply to the bidder. If the bidder intends to perform such work itself, it must demonstrate compliance with the Special Experience Requirements. If the bidder intends to subcontract this work, the proposed subcontractor or sub-subcontractor must demonstrate compliance with the Special Experience Requirements. The contractor, subcontractor or sub-subcontractor (hereinafter referred to as the "Entity") that will perform any specific area of work indicated by the blackened box below, may have performed the required prior project(s) as a prime contractor, subcontractor or sub-subcontractor. Once approved, no substitution will be permitted, unless the qualifications of the proposed replacement have been approved in writing in advance by the City.

☐ **Trunk Water Main Work:** The Entity that will perform the trunk water main work must, within the last seven (7) consecutive years prior to the bid opening, have successfully completed in a timely fashion at least one (1) project similar in scope and type to the required work.

☐ **Best Management Practice Work:** Best Management Practice ("BMP") Work is any item of work in the Bid Schedule that begins with the prefix "BMP". The Entity that will perform any BMP Work must, within the last five (5) consecutive years prior to the bid opening, have successfully completed in a timely fashion at least three (3) projects similar in scope and type to the required work.

For professional services in connection with BMP Work (i.e., monitoring and reporting services), the individual who will perform the required services must, within the last five (5) consecutive years prior to the bid opening, have successfully completed in a timely fashion at least three (3) projects similar in scope and type to the required work. Additional requirements are set forth below.

- ☐ The individual serving as the Restoration Specialist (Construction Monitor) must be a Registered Landscape Architect licensed by the state of New York, or must have equivalent professional experience.
- ☐ The individual serving as the Erosion and Sediment Control Licensed/Certified Professional must be a Certified Professional in Erosion and Sediment Control (CPESC), certified by CPESC, Inc.

☐ **Micro-Tunneling/Pipe Jacking Work:** The Entity that will perform the micro-tunneling/pipe jacking work must, within the last five (5) consecutive years prior to the bid opening, have successfully completed in a timely fashion at least two (2) projects similar in scope and type to the required work.

☐ **OTHER:** _____

_____

(B) SPECIAL EXPERIENCE REQUIREMENTS FOR SPECIFIC AREAS OF WORK:

The requirements in this Section (B) apply to this contract where indicated by a blackened box (■).

The Special Experience Requirements set forth below apply to the Entity that will perform the specific area of work. **Compliance with such Special Experience Requirements will be determined solely by the City after an award of contract. Within two (2) weeks of award of contract, the contractor will be required to submit the qualifications of the Entity that will perform the specific area of work.** If the bidder intends to perform such work itself, it must demonstrate compliance with the Special Experience Requirements. If the bidder intends to subcontract this work, the proposed subcontractor or sub-subcontractor must demonstrate compliance with the Special Experience Requirements. Once approved, no substitution will be permitted, unless the qualifications of the proposed replacement have been approved in writing in advance by the City.

Special Experience Requirements apply to the Entity that will perform any specific area of work indicated by a blackened box. The Entity may have performed the required prior project(s) as a prime contractor, subcontractor or sub-subcontractor.

■ **Hazmat Work:** Hazmat Work is any item of work in the Bid Schedule that begins with the prefix 8.01. The Entity that will perform any Hazmat Work must, within the last three (3) consecutive years prior to the bid opening, have successfully completed in a timely fashion at least five (5) projects similar in scope and type to the required work.

■ **Pile and/or CFA Pile Work:** The Entity that will perform the Pile and/or CFA Pile Work must, within the last three (3) consecutive years prior to the bid opening, have successfully completed in a timely fashion at least two (2) projects similar in scope and type to the required work.

For professional services in connection with Pile Work (i.e., engineering and inspection services), the individual who will perform the required services must be a Professional Engineer licensed by the state of New York. Such individual must also comply with the above requirements for prior projects.

■ **Construction Report, Monitoring and Post-Construction Report, and Continuous Real-Time Monitoring For Vibrations and Movements and Post-Construction Report Work:** The Entity that will perform the Construction Report, Monitoring For Vibrations And Movements, and Post-Construction Report Work must, within the last three (3) consecutive years prior to the bid opening, have successfully completed in a timely fashion at least two (2) projects similar in scope and type to the required work.

For professional services in connection with Reporting and Monitoring Work (i.e., engineering and inspection services), the individual who will perform the required services must be a Professional Engineer licensed by the state of New York. Such individual must also comply with the above requirements for prior projects.

■ **OTHER (by specification section):**

1. ESCR 2: Entity performing jet grouting: have successfully completed in a timely fashion five (5) years' experience and five (5) projects of similar magnitude and complexity to the required work.
2. ESCR 9.30: Qualified Inspector - Professional Engineer or a Landscape Architect licensed to practice in New York State, or a Soil and Water Conservation Society Certified Professional in Erosion and Sediment Control (CPESC) who is independent from the Contractor.

3. ESCR 13: Entity performing architectural concrete textured finishes: five (5) years' experience and three (3) projects of similar magnitude and complexity to the required work.

4. ESCR-551.993: Entity performing micro piles: The Entity that will perform the Pile, CFA Pile and/or Mini-Pile Work must, within the last five (5) consecutive years prior to the bid opening, have successfully completed in a timely fashion at least three (3) projects similar in scope and type to the required work.
   For professional services in connection with Pile Work (i.e., engineering and inspection services), the individual who will perform the required services must be a Professional Engineer licensed by the state of New York. Such individual must also comply with the above requirements for prior projects.

5. PK-ESCR 025, PK-ESCR 099: Entity performing play equipment: The Entity to perform the installation work must have a minimum of three (3) years of experience working on installation of play equipment similar to the work specified in scope and complexity in accordance with ASTM F1487-Latest Rev. and CPSC guidelines.

6. PK-ESCR 036: Precast manufacturer: have successfully completed in a timely fashion twenty-five (25) years' experience and three (3) projects of similar magnitude and complexity to the required work. Additionally, have successfully completed in a timely fashion ten (10) years' experience of producing concrete with a sub 5% water absorption rate, seven (7) years' experience with Rhino computer modeling 3D CNC modeling and machining,

7. PK-ESCR 036: Precast installer: have successfully completed in a timely fashion five (5) years' experience of similar magnitude and complexity to the required work.

8. PK-ESCR 111: Synthetic turf installer: have successfully completed in a timely fashion at least five (5) projects similar in scope and type to the required work.

9. PK-ESCR 928: Entity performing masonry work: have successfully completed in a timely fashion three (3) years' experience of similar magnitude and complexity to the required work.

10. S-Pages, Article B1, Critical Path Method (CPM) Schedule: Project Scheduler: must have a minimum of five (5) years relevant experience in the use of Oracle P6 and a minimum of five (5) years relevant experience in construction, planning, scheduling, expediting and tracking the progress of the work for projects of a similar nature, size, and complexity.

11. S-Pages, Article B3, Special Conditions for Maritime, Waterfront, and Floating Plants: Marine Surveyors: Must be accredited by the National Association of Marine Surveyors (NAMS) or the Society of Accredited Marine Surveyors (SAMS) and have at least 5 years of experience in commercial marine plant and equipment.

(No Further Text on This Page)

(C) **SPECIFICATIONS:** In the event of any conflict, omission or inconsistency between (1) the Specifications and/or Contract Drawings, and (2) the Special Experience Requirements in Section (B) of the Special Notice to Bidders, the special experience listed in the Specifications and/or Contract Drawings shall be controlling. The Special Experience Requirements in Section (B) of this Special Notice to Bidders are only for the convenience of the bidders.

(D) **SUBMISSION REQUIREMENTS:** For each project submitted to demonstrate compliance with the Special Experience Requirements, the bidder must complete and submit the Qualification Form included in the Bid Booklet. The City will only evaluate a project if the following criteria are met: (1) the project is described on the Qualification Form, and (2) all information on the Qualification Form is provided. The City will not evaluate any project which does not comply with the criteria set forth herein, including any project which is referred to only on the resume of an individual.

If Special Experience Requirements are indicated for any specific area of work, the submission requirement set forth above shall apply to the entity that will perform the specific area of work.

(E) **CONDITIONS**: In determining compliance with the Special Experience Requirements for the bidder set forth above, the City may consider prior projects completed by principal(s) or other employees of the bidder while affiliated with another entity, subject to the conditions set forth below.

- Any principal or other employee on whose prior experience the bidder is relying to demonstrate compliance with this special experience requirement must have held the following: (a) a significant management role in the prior entity with which the principal or other employee was affiliated, and (b) a significant management role in the entity submitting the bid for a period of at least six (6) months, or from the inception of the bidding entity.

- The bidder may not rely on the experience of its principals or other employees to demonstrate compliance with any other requirements, including without limitation, financial requirements or requirements for a specified minimum amount of annual gross revenues.

(F) **JOINT VENTURES**: In the event the bidder is a joint venture, at least one firm in the joint venture must meet the above described experience requirements.

M/WBE PROGRAM: M/WBE UTILIZATION PLAN

M/WBE Program Requirements: The requirements for the M/WBE Program are set forth on the following pages of this Bid Booklet, in the section entitled "Notice to All Prospective Contractors."

Schedule B: M/WBE Utilization Plan: The M/WBE Utilization Plan for this Contract is set forth in this Bid Booklet starting on page A-37. The M/WBE Utilization Plan (Part I) indicates whether Participation Goals have been established for this Contract. If Participation Goals have been established for this Contract, the bidder must submit an M/WBE Utilization Plan (Part II) with its bid.

Waiver: The bidder may seek a full or partial pre-award waiver of the Participation Goals in accordance with the "Notice to All Prospective Contractors" (See Part A, Section 10). The bidder's request for a waiver must be submitted at least seven (7) calendar days prior to the bid date. Waiver requests submitted after the deadline will not be considered. The form for requesting a waiver of the Participation Goals is set forth in the M/WBE Utilization Plan (Part III).

Rejection of the Bid: The bidder must complete Schedule B: M/WBE Utilization Plan (Part II) set forth in this Bid Booklet starting on page A-39.

The bidder's submission of Schedule B must include both the Vendor Certification and Required Affirmations (see Section V of Part II). If the bidder does not provide a complete Schedule B submission at the time of bid, the Agency will deem the bid to be non-responsive, unless a full waiver of the Participation Goals is granted (Schedule B, Part III). In the event that the City determines that the bidder has submitted a Schedule B where the Vendor Certification and Required Affirmations are completed but other aspects of the Schedule B are not complete, or contain a copy or computation error that is at odds with the Vendor Certification and Required Affirmations, the bidder 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 completed Schedule B 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 date notice is emailed or faxed (if the bidder has provided an email address or fax number), or no later than five (5) calendar days from the date of mailing or upon delivery, if delivered.

Impact on LBE Requirements: If Participation Goals have been established for the participation of M/WBEs, the contractor is not required to comply with the Locally Based Enterprise Program ("LBE"). The LBE Program's requirements are set forth in Article 67 of the Contract.

NOTICE TO ALL PROSPECTIVE CONTRACTORS

PARTICIPATION BY MINORITY-OWNED AND WOMEN-OWNED BUSINESS ENTERPRISES IN CITY PROCUREMENT

ARTICLE I. M/WBE PROGRAM

Local Law No. 129 of 2005 added and Local Law 1 of 2013 amended Section 6-129 of the Administrative Code of the City of New York (hereinafter "Section 6-129"). Section 6-129 establishes the program for participation in City procurement ("M/WBE Program") by minority-owned business enterprises ("MBEs") and women-owned business enterprises ("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. The contract provisions contained herein are pursuant to Section 6-129, and the rules of the Department of Small Business Services ("DSBS") promulgated thereunder.

If this Contract is subject to the M/WBE Program established by Section 6-129, the specific requirements of MBE and/or WBE participation for this Contract are set forth in Schedule B of the Contract (entitled the "M/WBE Utilization Plan"), and are detailed below. The Contractor must comply with all applicable MBE and WBE requirements for this Contract.

All provisions of Section 6-129 are hereby incorporated in the Contract by reference and all terms used herein that are not defined herein shall have the meanings given such terms in Section 6-129. Article I, Part A, below, sets forth provisions related to the participation goals for construction, standard and professional services contracts. Article I, Part B, below, sets forth miscellaneous provisions related to the M/WBE Program.

PART A

PARTICIPATION GOALS FOR CONSTRUCTION, STANDARD AND PROFESSIONAL SERVICES CONTRACTS OR TASK ORDERS

1. The **MBE and/or WBE Participation Goals** established for this Contract or Task Orders issued pursuant to this Contract, ("**Participation Goals**"), as applicable, are set forth on Schedule B, Part I to this Contract (see Page 1, line 1 Total Participation Goals) or will be set forth on Schedule B, Part I to Task Orders issued pursuant to this Contract, as applicable.

The **Participation Goals** represent a percentage of the total dollar value of the Contract or Task Order, as applicable, that may be achieved by awarding subcontracts to firms certified with New York City Department of Small Business Services as MBEs and/or WBEs, and/or by crediting the participation of prime contractors and/or qualified joint ventures as provided in Section 3 below, unless the goals have been waived or modified by Agency in accordance with Section 6-129 and Part A, Sections 10 and 11 below, respectively.

2. If **Participation Goals** have been established for this Contract or Task Orders issued pursuant to this Contract, Contractor agrees or shall agree as a material term of the Contract that Contractor shall be subject to the **Participation Goals**, unless the goals are waived or modified by Agency in accordance with Section 6-129 and Part A, Sections 10 and 11 below, respectively.

3. If **Participation Goals** have been established for this Contract or Task Order issued pursuant to this Contract, a Contractor that is an MBE and/or WBE shall be permitted to count its own participation toward fulfillment of the relevant **Participation Goal**, provided that in accordance with Section 6-129 the value of Contractor's participation shall be determined by subtracting from the total value of the Contract or Task Order, as applicable, any amounts that the Contractor pays to direct subcontractors (as defined in Section 6-129(c)(13)), and provided

further that a Contractor 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.

A Contractor that is a qualified joint venture (as defined in Section 6-129(c)(30)) shall be permitted to count a percentage of its own participation toward fulfillment of the relevant **Participation Goal**. In accordance with Section 6-129, the value of Contractor's participation shall be determined by subtracting from the total value of the Contract or Task Order, as applicable, any amounts that Contractor 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.

4. A. If **Participation Goals** have been established for this Contract, a prospective contractor shall be required to submit with its bid or proposal, as applicable, a completed Schedule B, M/WBE Utilization Plan, Part II (see Pages 2-4) indicating: (a) whether the contractor is an MBE or WBE, or qualified joint venture; (b) the percentage of work it intends to award to direct subcontractors; and (c) in cases where the contractor 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. In the event that this M/WBE Utilization Plan indicates that the bidder or proposer, as applicable, does not intend to meet the **Participation Goals**, the bid or proposal, as applicable, shall be deemed non-responsive, unless Agency has granted the bidder or proposer, as applicable, a pre- award waiver of the Participation Goals in accordance with Section 6-129 and Part A, Section 10 below.

B. (i) If this Contract is for a master services agreement or other requirements type contract that will result in the issuance of Task Orders that will be individually registered ("Master Services Agreement") and is subject to M/WBE **Participation Goals**, a prospective contractor shall be required to submit with its bid or proposal, as applicable, a completed Schedule B, M/WBE Participation Requirements for Master Services Agreements That Will Require Individually Registered Task Orders, Part II (page 2) indicating the prospective contractor's certification and required affirmations to make all reasonable good faith efforts to meet participation goals established on each individual Task Order issued pursuant to this Contract, or if a partial waiver is obtained or such goals are modified by the Agency, to meet the modified **Participation Goals** by soliciting and obtaining the participation of certified MBE and/or WBE firms. In the event that the Schedule B indicates that the bidder or proposer, as applicable, does not intend to meet the **Participation Goals** that may be established on Task Orders issued pursuant to this Contract, the bid or proposal, as applicable, shall be deemed nonresponsive.

(ii) **Participation Goals** on a Master Services Agreement will be established for individual Task Orders issued after the Master Services Agreement is awarded. If **Participation Goals** have been established on a Task Order, a contractor shall be required to submit a Schedule B – M/WBE Utilization Plan For Independently Registered Task Orders That Are Issued Pursuant to Master Services Agreements, Part II (see Pages 2-4) indicating: (a) whether the contractor is an MBE or WBE, or qualified joint venture; (b) the percentage of work it intends to award to direct subcontractors; and (c) in cases where the contractor 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. The contractor must engage in good faith efforts to meet the **Participation Goals** as established for the Task Order unless Agency has granted the contractor a pre-award waiver of the Participation Goals in accordance with Section 6-129 and Part A, Section 10 below.

C. **THE BIDDER/PROPOSER MUST COMPLETE THE SCHEDULE B INCLUDED HEREIN (SCHEDULE B, PART II). A SCHEDULE B SUBMITTED BY THE BIDDER/PROPOSER WHICH DOES NOT INCLUDE THE VENDOR CERTIFICATION AND REQUIRED AFFIRMATIONS (SEE SECTION V OF PART II) WILL BE DEEMED TO BE NON-**

RESPONSIVE, UNLESS A FULL WAIVER OF THE PARTICIPATION GOALS IS GRANTED (SCHEDULE B, PART III). IN THE EVENT THAT THE CITY DETERMINES THAT THE BIDDER/PROPOSER HAS SUBMITTED A SCHEDULE B WHERE THE VENDOR CERTIFICATION AND REQUIRED AFFIRMATIONS ARE COMPLETED BUT OTHER ASPECTS OF THE SCHEDULE B ARE NOT COMPLETE, OR CONTAIN A COPY OR COMPUTATION ERROR THAT IS AT ODDS WITH THE VENDOR CERTIFICATION AND AFFIRMATIONS, THE BIDDER/PROPOSER 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 COMPLETED SCHEDULE B TO THE AGENCY. FAILURE TO DO SO WILL RESULT IN A DETERMINATION THAT THE BID/PROPOSAL IS NON-RESPONSIVE. RECEIPT OF NOTIFICATION IS DEFINED AS THE DATE NOTICE IS E-MAILED OR FAXED (IF THE BIDDER/PROPOSER HAS PROVIDED AN E-MAIL ADDRESS OR FAX NUMBER), OR NO LATER THAN FIVE (5) CALENDAR DAYS FROM THE DATE OF MAILING OR UPON DELIVERY, IF DELIVERED.

5. Where an **M/WBE** Utilization Plan has been submitted, the Contractor shall, within 30 days of issuance by Agency of a notice to proceed, submit a list of proposed persons or entities to which it intends to award subcontracts within the subsequent 12 months. In the case of multiyear contracts, such list shall also be submitted every year thereafter. The Agency 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)). **PLEASE NOTE: If this Contract is a public works project subject to GML §101(5) (i.e., a contract valued at or below $3M for projects in New York City) or if the Contract is subject to a project labor agreement in accordance with Labor Law §222, and the bidder is required to identify at the time of bid submission its intended subcontractors for the Wicks trades (plumbing and gas fitting; steam heating, hot water heating, ventilating and air conditioning (HVAC); and electric wiring), the Contractor must identify all those to which it intends to award construction subcontracts for any portion of the Wicks trade work at the time of bid submission, regardless of what point in the life of the contract such subcontracts will occur. In identifying intended subcontractors in the bid submission, bidders may satisfy any Participation Goals established for this Contract by proposing one or more subcontractors that are MBEs and/or WBEs for any portion of the Wicks trade work.** In the event that the Contractor's selection of a subcontractor is disapproved, the Contractor shall have a reasonable time to propose alternate subcontractors.

6. MBE and WBE firms must be certified by DSBS in order for the Contractor to credit such firms' participation toward the attainment of the **Participation Goals**. Such certification must occur prior to the firms' commencement of work. A list of MBE and WBE firms may be obtained 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 St., New York, New York, 10038, 7th floor. Eligible firms that have not yet been certified may contact DSBS in order to seek certification by visiting www.nyc.gov/getcertified, emailing MWBE@sbs.nyc.gov, or calling the DSBS certification helpline at (212) 513-6311. A firm that is certified as both an MBE and a WBE may be counted either toward the goal for MBEs or the goal for WBEs, but not both. No credit shall be given for participation by a graduate MBE or graduate WBE, as defined in Section 6-129(c)(20).

7. Where an **M/WBE** Utilization Plan has been submitted, the Contractor shall, with each voucher for payment, and/or periodically as Agency may require, submit statements, certified under penalty of perjury, which shall include, but not be limited to,: 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; 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 the dates and amounts paid to each MBE or WBE. The Contractor shall also submit, along with its voucher for final payment: 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 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.

8. If payments made to, or work performed by, MBEs or WBEs are less than the amount specified in the Contractor's **M/WBE** Utilization Plan, Agency shall take appropriate action, in accordance with Section 6-129 and Article II below, unless the Contractor has obtained a modification of its **M/WBE** Utilization Plan in accordance with Section 6-129 and Part A, Section 11 below.

9. Where an **M/WBE** Utilization Plan has been submitted, and the Contractor requests a change order the value of which exceeds the greater of 10 percent of the Contract or Task Order, as applicable, or $500,000, Agency 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.

10. Pre-award waiver of the **Participation Goals**. (a) A bidder or proposer, or contractor with respect to a Task Order, may seek a pre-award full or partial waiver of the **Participation Goals** in accordance with Section 6-129, which requests that Agency change one or more **Participation Goals** on the grounds that the **Participation Goals** are 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.

(b) To apply for a full or partial waiver of the **Participation Goals**, a bidder, proposer, or contractor, as applicable, must complete Part III (Page 5) of Schedule B and submit such request no later than seven (7) calendar days prior to the date and time the bids, proposals, or Task Orders are due, in writing to the Agency by email at zhangji@ddc.nyc.gov or via facsimile at (718) 391-1886. Bidders, proposers, or contractors, as applicable, who have submitted requests will receive an Agency response by no later than two (2) calendar days prior to the due date for bids, proposals, or Task Orders; provided, however, that if that date would fall on a weekend or holiday, an Agency response will be provided by close-of-business on the business day before such weekend or holiday date.

(c) If the Agency determines that the **Participation Goals** are 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 and proposals, or revise the Task Order, as applicable.

(d) Agency may grant a full or partial waiver of the **Participation Goals** to a bidder, proposer or contractor, as applicable, who demonstrates—before submission of the bid, proposal or Task Order, as applicable—that it has legitimate business reasons for proposing the level of subcontracting in its **M/WBE** Utilization Plan. In making its determination, Agency shall consider factors that shall include, but not be limited to, whether the bidder, proposer or contractor, as applicable, 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 Goals**. In making such determination, Agency may consider whether the **M/WBE** Utilization Plan is consistent with past subcontracting practices of the bidder, proposer or contractor, as applicable, whether the bidder, proposer or contractor, as applicable, has made efforts to form a joint venture with a certified firm, and whether the bidder, proposer, or contractor, as applicable, has made good faith efforts to identify other portions of the Contract that it intends to subcontract.

11. Modification of **M/WBE** Utilization Plan. (a) A Contractor may request a modification of its **M/WBE** Utilization Plan after award of this Contract. **PLEASE NOTE: If this Contract is a public works project subject to GML §101(5) (i.e., a contract valued at or below $3M for projects in New York City) or if the Contract is subject to a project labor agreement in accordance**

with Labor Law §222, and the bidder is required to identify at the time of bid submission its intended subcontractors for the Wicks trades (plumbing and gas fitting; steam heating, hot water heating, ventilating and air conditioning (HVAC); and electric wiring), the Contractor may request a Modification of its M/WBE Utilization Plan as part of its bid submission. The Agency 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 Goals.** In making such determination, Agency shall consider evidence of the following efforts, as applicable, along with any other relevant factors:

(i) 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;
(ii) The Contractor provided notice of specific opportunities to participate in the Contract, in a timely manner, to minority and women's business organizations;
(iii) 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;
(iv) 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;
(v) The Contractor held meetings with MBEs and/or WBEs prior to the date their bids or proposals were due, for the purpose of explaining in detail the scope and requirements of the work for which their bids or proposals were solicited;
(vi) The Contractor made efforts to negotiate with MBEs and/or WBEs as relevant to perform specific subcontracts, or act as suppliers or service providers;
(vii) Timely written requests for assistance made by the Contractor to Agency's M/WBE liaison officer and to DSBS;
(viii) Description of how recommendations made by DSBS and Agency 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.

Agency's M/WBE officer shall provide written notice to the Contractor of the determination.

(b) The Agency may modify the **Participation Goals** when the scope of the work has been changed by the Agency 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.

12. If this Contract is for an indefinite quantity of construction, standard or professional services 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 Goals**, 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 the Agency has determined that such work is not needed.

13. If **Participation Goals** have been established for this Contract or a Task Order issued pursuant to this Contract, at least once annually during the term of the Contract or Task Order, as applicable, Agency 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.

14. If **Participation Goals** have been established for this Contract or a Task Order issued pursuant to this Contract, Agency 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.

PART B: MISCELLANEOUS

1. The Contractor shall take notice that, if this solicitation requires the establishment of an **M/WBE** Utilization Plan, the resulting contract may be audited by DSBS to determine compliance with Section 6-129. See §6-129(e)(10). Furthermore, such resulting contract may also be examined by the City's Comptroller to assess compliance with the **M/WBE** Utilization Plan.

2. Pursuant to DSBS rules, construction contracts that include a requirement for an **M/WBE** Utilization Plan shall not be subject to the law governing Locally Based Enterprises set forth in Section 6-108.1 of the Administrative Code of the City of New York.

3. DSBS is 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.

4. Prospective contractors are encouraged to enter into qualified joint venture agreements with MBEs and/or WBEs as defined by Section 6-129(c)(30).

5. By submitting a bid or proposal the Contractor hereby acknowledges its understanding of the M/WBE Program requirements set forth herein and the pertinent provisions of Section 6-129, and any rules promulgated thereunder, and if awarded this Contract, the Contractor hereby agrees to comply with the M/WBE Program requirements of this Contract and pertinent provisions of Section 6-129, and any rules promulgated thereunder, 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**.

ARTICLE II. ENFORCEMENT

1. If Agency determines that a bidder or proposer, as applicable, has, in relation to this procurement, violated Section 6-129 or the DSBS rules promulgated pursuant to Section 6-129, Agency may disqualify such bidder or proposer, as applicable, from competing for this Contract and the Agency may revoke such bidder's or proposer's prequalification status, if applicable.

2. Whenever Agency believes that the Contractor or a subcontractor is not in compliance with Section 6-129 or the DSBS rules promulgated pursuant to Section 6-129, or any provision of this Contract that implements Section 6-129, including, but not limited to any **M/WBE** Utilization Plan, Agency shall send a written notice to the Contractor describing the alleged noncompliance and offering the Contractor an opportunity to be heard. Agency 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 Section 6-129, the DSBS rules promulgated pursuant to Section 6-129, or any provision of this Contract that implements Section 6-129, including, but not limited to, any **M/WBE** Utilization Plan, Agency 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 or make proposals 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 an **M/WBE** Utilization Plan has been submitted, and pursuant to this Article II, Section 3, the Contractor has been found to have failed to fulfill its **Participation Goals** contained in its **M/WBE** Utilization Plan or the **Participation Goals** as modified by Agency pursuant to Article I, Part A, Section 11, Agency 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 Goals** 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 the City will suffer by reason of Contractor's failure to meet the **Participation Goals**, the foregoing amount is hereby fixed and agreed as the liquidated damages that the City will suffer by reason of such failure, and not as a penalty. Agency 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 the City, the Contractor shall be liable to pay the difference.

5. Whenever Agency 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)), or has violated any provision of Section 6- 129, Agency shall notify the Commissioner of DSBS who shall determine whether the certification of such business enterprise should be revoked.

6. Statements made in any instrument submitted to Agency pursuant to Section 6-129 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 to Section 6-129 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 Agency determines that a Contractor's compliance with an **M/WBE** Utilization Plan has been unsatisfactory, Agency shall, after consultation with the City Chief Procurement Officer, file an advice of caution form for inclusion in PASSPort as caution data.

PRE-AWARD PROCESS

The bidder is advised that as part of the pre-award review of its bid, the Agency will require the three lowest apparent responsive and responsible bidders to submit the information described in Sections (A) through (D) below. These bidders will be notified by DDC (by email, facsimile, or in writing), and the Agency's notice will specify the types of information that the bidder must submit to the Agency. The types of information the bidder may be required to submit are described below. Once notified, the bidder must submit such information to the Agency within five (5) business days following receipt of notification from DDC that it is among the low bidders. In the event the bidder fails to submit the required information within the specified time frame, the Agency may reject the bid as being non-responsive.

In the event the bidder fails to submit the required information within the specified time frame, the Agency may reject the bid as being nonresponsive.

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(A) **Project Reference Form**: The bidder must complete and submit the Project Reference Form set forth starting on page A-49 of this Bid Booklet. The Project Reference Form consists of three (3) parts: (1) Contracts Completed by the Bidder, (2) Contracts Currently Under Construction by the Bidder, and (3) Pending Contracts Not Yet Started by the Bidder.

(B) **Copy of License**: The bidder must submit a copy of the license under which the bidder will be performing the work. Such license must clearly show the following: (1) Name of the Licensee, (2) License Number, and (3) Expiration date of the License. A copy of the license will be required from bidders for the following contracts: Plumbing Work, Electrical Work and Asbestos Abatement.

(C) **Financial Information**: The bidder must submit the financial information described below:

(1) Audited Financial Statements: Financial statements (Balance Sheet and Income Statement) of the entity submitting the bid, as audited by an independent auditor licensed to practice as a certified public accountant (CPA). Audited financial statements for the three (3) most recent fiscal years must be submitted. Each such financial statement must include the auditor's standard report.

If the bidder does not have audited financial statements, the bidder must submit an affidavit attesting to the fact that the bidder does not have such statements. In addition, the bidder must submit the following documentation covering the three (3) most recent fiscal years: signed federal tax returns, unaudited financial statements, and a "certified review letter" from a certified public accountant (CPA) verifying the unaudited financial statements.

Unless the most recent audited or unaudited financial statement was issued within ninety (90) days, the bidder must submit interim financial information that includes data on financial position and results of operation (income data) for the current fiscal year. Such information may be summarized on a monthly or quarterly basis or at other intervals.

(2) Schedule of Aged Accounts Receivable, including portion due within ninety (90) days.

(D) **Project Specific Information**: The bidder must submit the project specific information described below:

(1) Statement indicating the number of years of experience the bidder has had and in what type of construction.

(2) Resumes of all key personnel to be involved in the project, including the proposed project superintendent.

(3) List of significant pieces of equipment expected to be used for the contract, and whether such equipment is owned or leased.
(4) Description of work expected to be subcontracted, and to what firms, if known.
(5) List of key material suppliers.
(6) Preliminary bar chart time schedule
(7) The bidder's expected means of financing the project. This submission should be based on the assumption that the contractor is required to finance two times (2X) the average monthly billings for the project throughout the contract period.
(8) Any other issues the bidder sees as impacting the contractor's ability to complete the project according to the contract.

In addition to the information described in Sections (A) through (D) above, the bidder shall submit such additional information as the Commissioner may require, including without limitation, an explanation or justification for specific unit price items.

The bidder is further advised that it may be required to attend a pre-award meeting with DDC representatives. If such a meeting is convened, the bidder will be advised as to any additional material to be provided.

PASSPort COMPLIANCE

All vendors that intend to do business with the City of New York must complete a disclosure process in order to be considered for a contract. This disclosure process was formerly completed using Vendor Information Exchange System (VENDEX) paper-based forms. The City of New York has moved collection of vendor disclosure information online. In early August 2017, the New York City Mayor's Office of Contract Services (MOCS) launched the **Procurement and Sourcing Solutions Portal (PASSPort)**, a new online procurement system that replaced the paper-VENDEX process. In anticipation of awards, all bidders must create online accounts in the new PASSPort system, and file all disclosure information using PASSPort. **Paper submissions, including certifications of no changes to existing VENDEX packages, will not be accepted in lieu of complete online filings using PASSPort.**

All vendors that intend to do business with the City, but specifically those that fall into any of the following categories, are required to enroll:

- Have a pending award with a City Agency; or
- Hold a current contract with a City Agency and have either an expiring VENDEX or expiring Certificate of No Change.

The Department of Design and Construction (DDC) and MOCS hereby notifies all proposers that the PASSPort system is available, and that disclosure filing completion is required prior to any award through this competitive bid.

To enroll in PASSPort and to access the PASSPort website (including online training), please visit www.nyc.gov/passport. Contact MOCS at passport@mocs.nyc.gov for additional information and technical support.

CONSTRUCTION EMPLOYMENT REPORT

All bidders will be required to submit either a Construction Employment Report (CER) if the bid amount is $1,000,000 or greater.

The CER template form is available online at:
https://www1.nyc.gov/assets/sbs/downloads/pdf/businesses/DLS_Constru_Employ_Rpt.pdf

Instructions for completing the Construction Employment Report are available online at:
https://www1.nyc.gov/assets/sbs/downloads/pdf/businesses/DLS_Cons_Employ_Rpt_Inst.pdf

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CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF INFRASTRUCTURE

REQUIRED FORMS

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BID FORM

THE CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF INFRASTRUCTURE

BID FOR FURNISHING ALL LABOR AND MATERIAL NECESSARY AND REQUIRED FOR:

PROJECT ID: SANDRESM2

INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET

Together With All Work Incidental Thereto
BOROUGH OF MANHATTAN
CITY OF NEW YORK

Name of Bidder: Perfetto Contracting Co. Inc.

Date of Bid Opening: ~~3/5/2020~~ ~~5/22/20~~ B.F. 5/28/20 SH

Bidder is: (Check one, whichever applies) Individual ( ) Partnership ( ) Corporation (X)

Place of Business of Bidder: 152 41st Street Brooklyn, NY 11232

Bidder's Telephone Number: 718-858-8600 Fax Number: 718-858-8604

Bidder's E-Mail Address: BFranke@perfettocontracting.com

Residence of Bidder (If Individual): _____

If Bidder is a Partnership, fill in the following blanks:

Names of Partners	Residence of Partners
N/A	N/A

If Bidder is a Corporation, fill in the following blanks:

Organized under the laws of the State of New York

Name and Home Address of President: Cesare Perfetto
12 Gorge Road Staten Island, NY 10304

Name and Home Address of Secretary: Cesare Perfetto
12 Gorge Road Staten Island, NY 10304

Name and Home Address of Treasurer: Cesare Perfetto
12 Gorge Road Staten Island, NY 10304

The above-named Bidder affirms and declares:

1. The said bidder is of lawful age and the only one interested in this bid; and no person, firm or corporation other than hereinbefore named has any interest in this bid, or in the Contract proposed to be taken.

2. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief: (1) 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; (2) unless otherwise required by law, the prices quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and (3) No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

3. No councilman or other officer or employee or person whose salary is payable in whole or in part from the City Treasury 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.

4. The bidder is not in arrears to the City of New York upon debt or contract or taxes, and is not a defaulter, as surety or otherwise, upon any obligation of the City of New York, and has not been declared not responsible, or disqualified, by any agency of the City of New York or State of New York, nor is there any proceeding pending relating to the responsibility or qualification of the bidder to receive public contracts except as set forth on the Affirmation included as page C-6 of this Bid Booklet.

The bidder hereby affirms that it has paid all applicable City income, excise and other taxes for all years it has conducted business activities in New York City.

5. The bidder, as an individual, or as a member, partner, director or officer of the bidder, if the same be a firm, partnership or corporation, executes this document expressly warranting and representing that should this bid be accepted by the City and the Contract awarded to the bidder, the bidder and the bidder's subcontractors engaged in the performance: (1) will comply with the provisions of Section 6-108 of the Administrative Code of the City of New York and the non-discrimination provisions of Section 220a of the New York State Labor Law, as more expressly and in detail set forth in the Agreement; (2) will comply with Section 6-109 of the Administrative Code of the City of New York in relation to minimum wages and other stipulations as more expressly and in detail set forth in the Agreement; (3) have complied with the provisions of the aforesaid laws since their respective effective dates, and (4) will post notices to be furnished by the City, setting forth the requirements of the aforesaid laws 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 Contractor have been finally accepted by the City. In the event of any breach or violation of the foregoing, the Contractor may be subject to damages, liquidated or otherwise, cancellation of the Contract and suspension as a bidder for a period of three years. (The words, "the bidder" where used herein shall mean the individual bidder, firm, partnership or corporation executing this bid).

6. Compliance Report

The bidder, as an individual, or as a member, partner, director, or officer of the bidder, if the same be a firm, partnership, or corporation, (1) represents that the bidder's attention has been

specifically drawn to Executive Order No. 50, dated, April 25, 1980, on Equal Employment Compliance of the contract, and (2) warrants that the bidder will comply with the provisions of Executive Order No. 50. The Employment Report must be submitted as part of the bid.

The bidder, as an individual, or as a member, partner, director, or officer of the bidder, if the same be a firm, partnership, or corporation, executes this document expressly warranting that the bidder will comply with: (1) the provision of the contract on providing records, Chapter 8.

7. By submission of this bid, the bidder certifies that it now has and will continue to have the financial capability to fully perform the work required for this contract. Any award of this contract will be made in reliance upon such certification. Upon request therefor, the bidder will submit written verification of such financial capability in a form that is acceptable to the department.

8. In accordance with Section 165 of the State Finance Law, the bidder agrees that tropical hardwoods, as defined in Section 165 of the State Finance Law, shall not be utilized in the performance of this Contract, except as the same are permitted by the foregoing provision of law.

9. The bidder has visited and examined the site of the work and has carefully examined the Contract in the form approved by the Corporation Counsel, and will execute the Contract and perform all its items, covenants and conditions, and will provide, furnish and deliver all the work, materials, supplies, tools and appliances for all labor and materials necessary or required for the hereinafter named work, all in strict conformity with the Contract, for the prices set forth in the Bid Schedule.

10. M/WBE UTILIZATION PLAN: By signing its bid, the bidder agrees to the Vendor Certification and Required Affirmations set forth below, unless a full waiver of the Participation Goals is granted. The Vendor Certification and Required Affirmations will be deemed to satisfy the requirement to complete Section V of Part II of Schedule B: M/WBE Utilization Plan.

Section V - Vendor Certification and Required Affirmations:

I hereby:

1) acknowledge my understanding of the M/WBE participation requirements as set forth in this Contract and the pertinent provisions of Section 6-129 of the Administrative Code of the City of New York and the rules promulgated thereunder;

2) affirm that the information supplied in support of the 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 the Agency; 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 the Agency, to meet the modified Participation Goals by soliciting and obtaining the participation of certified MBE and/or WBE firms.

BID FORM

PROJECT ID. SANDRESM2

TOTAL BID PRICE: In the space provided below, the Bidder shall indicate its Total Bid Price in figures. Such Total Bid Price is set forth on the final page of the Bid Schedule.

TOTAL BID PRICE:
(a/k/a BID PROPOSAL)

$ 163,066,043.00
TL 6/1/2020

BIDDER'S SIGNATURE AND AFFIDAVIT

Bidder: Perfetto Contracting Co. Inc.

By: _____
(Signature of Partner or corporate officer)

_____

Attest:
(Corporate Seal)

Secretary of Corporate Bidder

Affidavit on the following page should be subscribed
and sworn to before a Notary Public

AFFIRMATION

PROJECT ID. SANDRESM2

The undersigned bidder affirms and declares that said bidder is not in arrears to the City of New York upon debt, contract or taxes and is not a defaulter, as surety or otherwise, upon obligation to the City of New York, and has not been declared not responsible, or disqualified, by any agency of the City of New York, nor is there any proceeding pending relating to the responsibility or qualification of the bidder to receive public contracts except:

None

(If none, the bidder shall insert the word "None" in the space provided above.)

Full Name of Bidder: Perfetto Contracting Co. Inc.
Address: 152 41st Street
City Brooklyn State NY Zip Code 11232

CHECK ONE BOX AND INCLUDE APPROPRIATE NUMBER:

/ / A - Individual or Sole Proprietorship*
SOCIAL SECURITY NUMBER

/ / B - Partnership, Joint Venture or other unincorporated organization
EMPLOYER IDENTIFICATION NUMBER

/X/ C- Corporation
EMPLOYER IDENTIFICATION NUMBER
11-2814026

By: _____
Signature

Title: President

If a corporation, place seal here

This affirmation must be signed by an officer or duly authorized representative.

*Under the Federal Privacy Act the furnishing of Social Security Numbers by bidders on City contracts is voluntary. Failure to provide a Social Security Number will not result in a bidder's disqualification. Social Security Numbers will be used to identify bidders, proposers or vendors to ensure their compliance with laws, to assist the City in enforcement of laws, as well as to provide the City a means of identifying of businesses which seek City contracts.

BID BONDS

BID BOND 1

FORM OF BID BOND

KNOW ALL MEN BY THESE PRESENTS. That we, Perfetto Contracting Co. Inc.
152 41st Street, Brooklyn, NY 11232

hereinafter referred to as the "Principal", and Fidelity and Deposit Company of Maryland
600 Red Brook Boulevard, Suite 600
Owings Mills, MD 21117

hereinafter referred to as the "Surety" are held and firmly bound to THE CITY OF NEW YORK, hereinafter referred to as the "CITY", or to its successors and assigns in the penal sum of

Ten Percent (10%) Of Amount Bid ----------

($ 10%), Dollars lawful money of the United States, for the payment of which said sum of money well and truly to be made, we, and each of us, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Whereas, the Principal is about to submit (or has submitted) to the City the accompanying proposal, hereby made a part hereof, to enter into a contract in writing for Project ID:SANDRESM2;

Installation of East Side Coastal Resiliency from East 15th Street to East 25th Street,

Manhattan, NY

NOW, THEREFORE, the conditions of this obligation are such that if the Principal shall not withdraw said Proposal without the consent of the City for a period of forty-five (45) days after the opening of bids and in the event of acceptance of the Principal's Proposal by the City, if the Principal shall:

(a) Within ten (10) days after notification by the City, execute in quadruplicate and deliver to the City all the executed counterparts of the Contract in the form set forth in the Contract Documents, in accordance with the proposal as accepted, and

(b) Furnish a performance bond and separate payment bond, as may be required by the City, for the faithful performance and proper fulfillment of such Contract, which bonds shall be satisfactory in all respects to the City and shall be executed by good and sufficient sureties, and

(c) In all respects perform the agreement created by the acceptance of said Proposal as provided in the Information for Bidders, bound herewith and made a part hereof, or if the City shall reject the aforesaid Proposal, then this obligation shall be null and void; otherwise to remain in full force and effect.

BID BOND 2

In the event that the Proposal of the Principal shall be accepted and the Contract be awarded to the Principal the Surety hereunder agrees subject only to the payment by the Principal of the premium therefore, if requested by the City, to write the aforementioned performance and payment bonds in the form set forth in the Contract Documents.

It is expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

There shall be no liability under this bond if, in the event of the acceptance of the Principal's Proposal by the City, either a performance bond or payment bond, or both, shall not be required by the City on or before the 30th day after the date on which the City signs the Contract.

The surety, for the value received, hereby stipulates and agrees that the obligations of the Surety and its bond shall in no way be impaired or affected by any postponements of the date upon which the City will receive or open bids, or by any extensions of the time within which the City may accept the Principal's Proposal, or by any waiver by the City of any of the requirements of the Information for Bidders, and the Surety hereby waives notice of any such postponements, extensions, or waivers.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers the 26th day of February, 2020.

(Seal)

Perfetto Contracting Co. Inc. (L.S.)
Principal

By: _____

(Seal)

Fidelity and Deposit Company of Maryland
Surety

By: _____
William D. Haas, Attorney-In-Fact

BID BOND 3

ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION

State of New York County of Kings ss:
On this 28 day of February, 2020, before me personally came Cesare Peretto to me known, who, being by me duly sworn, did depose and say that he/she/they resides at 12 George Road Staten Island, NY 10304 that he/she/they is the President of Peretto Contracting Co. Inc. the corporation described in and which executed the foregoing instrument; that he/she/they knows the seal of said corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the directors of said corporation, and that he/she/they signed his name thereto by like order.

BRITNEY M. FRANKE
Notary Public, State of New York
No. 01FR6382077
Qualified in Kings County
Commission Expires October 15, 2022

Notary Public

ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP

State of _____ County of _____ ss:
On this _____ day of _____, _____, before me personally appeared _____ to me known and known to me to be one of the members of the firm of _____ described in and who executed the foregoing instrument, and he/she/they acknowledged to me that he/she/they executed the same as and for the act and deed of said firm.

_____

Notary Public

ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL

State of _____ County of _____ ss:
On this _____ day of _____, _____, before me personally appeared _____ to me known and known to me to be the person described in and who executed the foregoing instrument and acknowledged that he/she/they executed the same.

_____

Notary Public

AFFIX ACKNOWLEDGMENTS AND JUSTIFICATION OF SURETIES

Individual Acknowledgment

State of _____

County of_____

On this _____day of_____, 20____, before me personally came _____to me known, and known to me to be the individual in and who executed the foregoing instrument, and acknowledged to me that he/she executed the same.

My commission expires_____ _____

Notary Public

Corporation Acknowledgment

State of NY
County of Kings

On the 28 day of Feb, 2020 before me personally came Cesare Perfetto to me known; who being by me duly sworn, did depose and say that he/she/they reside(s) in 12 Crooke Point Staten Island that he/she/they is (are) the President of the Perfetto Contracting Co. Inc. the corporation described in and which executed the above instrument; that he/she/they know(s) the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by authority of the board of directors of said corporation, and that he/she/they signed his/her/their name(s) thereto by like authority.

BRITNEY M. FRANKE
Notary Public, State of New York
No. 01FR6382077
Qualified in Kings County
Commission Expires October 15, 2022

My commission expires _____

Notary Public

Surety Acknowledgment

State of **New York**

County of **Westchester**

On the 26th day of **February, 2020** personally came William D. Haas to me known , who being by me duly sworn did depose and say that he/she is an Attorney-in-Fact of **Fidelity and Deposit Company of Maryland** in and which executed the above Instrument know(s) the corporate seal of said corporation; that the seal affixed to the within instrument is such corporate seal, and that he/she/they signed the said instrument and affixed the said seal as Attorney-in-fact by authority of the Board of Directors of said corporation and by authority of this office under the standing resolution thereof.

MAUREEN A KITTRICK
NOTARY PUBLIC STATE OF NEW YORK
LIC. #01KI4986881
COMMISSION EXPIRES 09-30-2021

My commission expires _____

Notary Public

ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND
POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That the ZURICH AMERICAN INSURANCE COMPANY, a corporation of the State of New York, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, a corporation of the State of Illinois, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND a corporation of the State of Illinois (herein collectively called the "Companies"), by **ROBERT D. MURRAY, Vice President,** in pursuance of authority granted by Article V, Section 8, of the By-Laws of said Companies, which are set forth on the reverse side hereof and are hereby certified to be in full force and effect on the date hereof, do hereby nominate, constitute, and appoint **William D. HAAS, Denese THOMPSON, Marnie GINSBURG and Benedict J. TOCKARSHEWSKY, all of White Plains, New York, EACH** its true and lawful agent and Attorney-in-Fact, to make, execute, seal and deliver, for, and on its behalf as surety, and as its act and deed: **any and all bonds and undertakings,** and the execution of such bonds or undertakings in pursuance of these presents, shall be as binding upon said Companies, as fully and amply, to all intents and purposes, as if they had been duly executed and acknowledged by the regularly elected officers of the ZURICH AMERICAN INSURANCE COMPANY at its office in New York, New York., the regularly elected officers of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at its office in Owings Mills, Maryland., and the regularly elected officers of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at its office in Owings Mills, Maryland., in their own proper persons.

The said Vice President does hereby certify that the extract set forth on the reverse side hereof is a true copy of Article V, Section 8, of the By-Laws of said Companies, and is now in force.

IN WITNESS WHEREOF, the said Vice-President has hereunto subscribed his/her names and affixed the Corporate Seals of the said **ZURICH AMERICAN INSURANCE COMPANY, COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and FIDELITY AND DEPOSIT COMPANY OF MARYLAND**, this 22nd day of April, A.D. 2019.

ATTEST:

ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND

By: _____
Assistant Secretary
Dawn E. Brown

_____
Vice President
Robert D. Murray

State of Maryland
County of Baltimore

On this 22nd day of April, A.D. 2019, before the subscriber, a Notary Public of the State of Maryland, duly commissioned and qualified, **ROBERT D. MURRAY, Vice President, and DAWN E. BROWN, Assistant Secretary,** of the Companies, to me personally known to be the individuals and officers described in and who executed the preceding instrument, and acknowledged the execution of same, and being by me duly sworn, deposeth and saith, that he/she is the said officer of the Company aforesaid, and that the seals affixed to the preceding instrument are the Corporate Seals of said Companies, and that the said Corporate Seals and the signature as such officer were duly affixed and subscribed to the said instrument by the authority and direction of the said Corporations.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my Official Seal the day and year first above written.

_____
Constance A. Dunn, Notary Public
My Commission Expires: July 9, 2019

EXTRACT FROM BY-LAWS OF THE COMPANIES

"Article V, Section 8, Attorneys-in-Fact. The Chief Executive Officer, the President, or any Executive Vice President or Vice President may, by written instrument under the attested corporate seal, appoint attorneys-in-fact with authority to execute bonds, policies, recognizances, stipulations, undertakings, or other like instruments on behalf of the Company, and may authorize any officer or any such attorney-in-fact to affix the corporate seal thereto; and may with or without cause modify of revoke any such appointment or authority at any time."

CERTIFICATE

I, the undersigned, Vice President of the ZURICH AMERICAN INSURANCE COMPANY, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, do hereby certify that the foregoing Power of Attorney is still in full force and effect on the date of this certificate; and I do further certify that Article V, Section 8, of the By-Laws of the Companies is still in force.

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the ZURICH AMERICAN INSURANCE COMPANY at a meeting duly called and held on the 15th day of December 1998.

RESOLVED: "That the signature of the President or a Vice President and the attesting signature of a Secretary or an Assistant Secretary and the Seal of the Company may be affixed by facsimile on any Power of Attorney...Any such Power or any certificate thereof bearing such facsimile signature and seal shall be valid and binding on the Company."

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at a meeting duly called and held on the 5th day of May, 1994, and the following resolution of the Board of Directors of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at a meeting duly called and held on the 10th day of May, 1990.

RESOLVED: "That the facsimile or mechanically reproduced seal of the company and facsimile or mechanically reproduced signature of any Vice-President, Secretary, or Assistant Secretary of the Company, whether made heretofore or hereafter, wherever appearing upon a certified copy of any power of attorney issued by the Company, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seals of the said Companies, this 26th day of February, 20 20.

Brian M. Hodges, Vice President

TO REPORT A CLAIM WITH REGARD TO A SURETY BOND, PLEASE SUBMIT ALL REQUIRED INFORMATION TO:

Zurich American Insurance Co.
Attn: Surety Claims
1299 Zurich Way
Schaumburg, IL 60196-1056

THE FIDELITY AND DEPOSIT COMPANY

OF MARYLAND
1299 Zurich Way Schaumburg, IL 60196

Statement of Financial Condition
As Of December 31, 2018

ASSETS

Bonds		$ 245,255,635
Stocks		22,855,569
Cash and Short Term Investments		3,092,872
Reinsurance Recoverable		73,242,781
Federal Income Tax Recoverable		42,258
Other Accounts Receivable		4,801,363
TOTAL ADMITTED ASSETS		$ 349,290,278

LIABILITIES, SURPLUS AND OTHER FUNDS

Reserve for Taxes and Expenses		$ 106,785
Ceded Reinsurance Premiums Payable		46,727,605
Remittances and Items Unallocated		125,000
Payable to parents, subs and affiliates		28,621,373
Securities Lending Collateral Liability		0
TOTAL LIABILITIES		$ 75,580,762
Capital Stock, Paid Up	$ 5,000,000	
Surplus	268,709,716	
Surplus as regards Policyholders		273,709,716
TOTAL		$ 349,290,478

Securities carried at $162,739,508 in the above statement are deposited with various states as required by law.

Securities carried on the basis prescribed by the National Association of Insurance Commissioners. On the basis of market quotations for all bonds and stocks owned, the Company's total admitted assets at December 31, 2018 would be $349,736,423 and surplus as regards policyholders $274,155,661.

I, DENNIS F. KERRIGAN, Corporate Secretary of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, do hereby certify that the foregoing statement is a correct exhibit of the assets and liabilities of the said Company on the 31st day of December, 2018.

Corporate Secretary

State of Illinois
City of Schaumburg } SS:

Subscribed and sworn to, before me, a Notary Public of the State of Illinois, in the City of Schaumburg, this 20th day of March, 2019.

Notary Public

KATHERINE R SCHULTZ
Official Seal
Notary Public - State of Illinois
My Commission Expires Nov 16, 2019

QUALIFICATION FORM

List previous projects completed to meet the special experience requirements for this contract. Please photocopy this form for submission of all required projects.

Name of Contractor: Perfetto Contracting Co. Inc.

Name of Project: Construction of Storm Sanitary Sewers at Neptune Ave. (CONISPH2A)

Location of Project: Neptune Ave b/t West 20th Screet and West 22nd Street; Wesc 21st Street

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: NYC Department of Design and Construction

Title: Robert Yueh, P.E. - Brookyln Director Phone Number: 718-391-1110

Brief description of the Project completed or the Project in progress: All work included sewers, water mains, installation and final pavement restoration in West 21st Street between Surf Ave and Mermaid, Borough of Brooklyn.

Was the Project performed as a prime, a subcontractor or a sub-subcontractor: Prime

Amount of Contract, Subcontract or Sub-subcontract: $23,883,663.50

Start Date and Completion Date: May 2015 - May 2017

****

Name of Contractor: Perfetto Contracting Co. Inc.

Name of Project: Distribution Water Mc.ins Extensions/Replacement (RED-371)

Location of Project: Various Locations Brooklyn & Staten Island

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: NYC Department of Design and Construction

Title: Adam Alweiss, P.E. - Staten Island Director Phone Number: 718-391-1357

Brief description of the Project completed or the Project in progress: Installation of Water Mains and final pavement restoration in Brooklyn and Staten Island, NY

Was the Project performed as a prime, a subcontractor or a sub-subcontractor: Prime

Amount of Contract, Subcontract or Sub-subcontract: $3,496,317.76

Start Date and Completion Date: June 2014 - June 2015

QUALIFICATION FORM

Name of Contractor: Perfetto Contracting Co. Inc.

Name of Project: Reconstruction of Collapsed or otherwise Defective Storm Sanitary or Combined Virtied Pipe Sewers

Location of Project: Various Locations, Staten Island, NY

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: NYC Department of Design and Construction (SER00201Y)

Title: Fathi Husein, Supervising R.E. Phone Number: 718-595-4184

Brief description of the Project completed or the Project in progress: Emergency sewer thru task orders, excavation and installation of underground utilities and final restoration of roadway and surrounding areas.

Was the Project performed as a prime, a subcontractor or a sub-subcontractor: Prime

Amount of Contract, Subcontract or Sub-subcontract: $6,261,402.50

Start Date and Completion Date: May 2016 - May 2017

****

Name of Contractor: Perfetto Contracting Co. Inc.

Name of Project: Construction of Sanitary and Storm Sewers

Location of Project: Amboy Road, Staten Island, NY

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: NYC Department of Design and Construction (SER00208)

Title: Monzer Shahin, EIC Phone Number: 917-337-6031

Brief description of the Project completed or the Project in progress: Excavation and installation of underground utitlties, and final restoration of roadway and surrounding areas.

Was the Project performed as a prime, a subcontractor or a sub-subcontractor: Prime

Amount of Contract, Subcontract or Sub-subcontract: $4,957,000.00

Start Date and Completion Date: October 2014 - October 2015

QUALIFICATION FORM

Name of Contractor: Perfetto Contracting Co. Inc.

Name of Project: Flatbush Streetscape - NYC EDC

Location of Project: Downtown Brooklyn - Flatbush

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: Paul Cons - NYC EDC

Title: Resident Engineer Phone Number: 631-300-5598

Brief description of the Project completed or the Project in progress: Streetscape work, sidewalk, median, bed ramps and restoration along Flatbush Ave from Tillary Street to Hanson Place, Brooklyn

Was the Project performed as a prime, a subcontractor or a sub-subcontractor: Prime

Amount of Contract, Subcontract or Sub-subcontract: $11,000,000.00

Start Date and Completion Date: December 2011

****

Name of Contractor: Perfetto Contracting Co. Inc.

Name of Project: Relocation of Utilties (NY Thruway Authority)

Location of Project: From North Ave Bridge to a new Ped/Bridge - New Rochelle

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: Gregory White

Title: Engineer in Charge Phone Number: 845-222-4749

Brief description of the Project completed or the Project in progress: Relocating utilities in New Rochelle

Was the Project performed as a prime, a subcontractor or a sub-subcontractor: Prime

Amount of Contract, Subcontract or Sub-subcontract: $2,385,505.50

Start Date and Completion Date: May 2013

QUALIFICATION FORM

Name of Contractor: Perfetto Contracting Co. Inc.

Name of Project: Reconstruction of Collapsed or Otherwise Defective Sanitation Storm and Combined vitrified Clay Pipe Sewers in Various Locations of Staten Island

Location of Project: Various Locations in Staten Island

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: NYC Department of Design and Construction

Title: Pathi Husein (Resident Engineer) Phone Number: 718-595-4201

Brief description of the Project completed or the Project in progress: Excavation and installation of underground utilities water, and final restoration of roadway and surrounding area.

Was the Project performed as a prime, a subcontractor or a sub-subcontractor: Prime

Amount of Contract, Subcontract or Sub-subcontract: $4,629,881.50

Start Date and Completion Date: August 2012 - August 2013

****

Name of Contractor: Perfetto Contracting Co. Inc.

Name of Project: Construction of Storm & Sanitary Sewers and Appurtenances in Peru Street, Staten Island

Location of Project: Peru Street between Morse Ave & Ocean Terrace, Staten Island

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: NYC Department of Design and Construction (SER200214)

Title: Sam Riad, EIC Phone Number: 718-605-3264

Brief description of the Project completed or the Project in progress: Excavation and installation of underground utilities, sewer water mains and final restoration of roadway and surrounding areas.

Was the Project performed as a prime, a subcontractor or a sub-subcontractor: Prime

Amount of Contract, Subcontract or Sub-subcontract: $5,876,486.80

Start Date and Completion Date: December 2012 - May 2014

QUALIFICATION FORM

Name of Contractor: Perfetto Contracting Co. Inc.

Name of Project: Reconstruction of Collapsed of Otherwise Defective Sanitary Storm and Reconstruction of Collapsed or otherwise Defective Storm Sanitary or Combined Virtied Clay Pipes
Location of Project: Various Locations in the Borough of Brooklyn

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: NYC Department of Design and Construction (SEK201A0)

Title: Fathi husein, R.E. Phone Number: 718-595-4201

Brief description of the Project completed or the Project in progress: Excavation, installaion of undergrounc utitlites (sewer, water) and final restoration of roadyway and surrounding area.

Was the Project performed as a prime, a subcontractor or a sub-subcontractor: Prime

Amount of Contract, Subcontract or Sub-subcontract: $4,727,462.06

Start Date and Completion Date: April 2008 - July 2009

****

Name of Contractor: Perfetto Contracting Co. Inc.

Name of Project: Reconstruction of Collapsed of Otherwise Defective Sanitary Storm and Combined Vitrified Clay Pipe Sewers
Location of Project: Various Locations in the Borough of Staten Island

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: NYC Department of Design and Construction (SER00201R)

Title: Fathi Husein, R.E. Phone Number: 718-595-4201

Brief description of the Project completed or the Project in progress: Excavation and installtion of underground utilities (sewer, water) and final restoration of roadyway and surrounding areas.

Was the Project performed as a prime, a subcontractor or a sub-subcontractor: Prime

Amount of Contract, Subcontract or Sub-subcontract: $4,200,000.00

Start Date and Completion Date: April 2008 - July 20019

QUALIFICATION FORM

Name of Contractor: Perfetto Contracting Co. Inc.

Name of Project: Gateway Estates (HD-161D)

Location of Project: Gateway Estates Area (Nehemiah Creek) along Vandalia Ave & Schroeder's Ave (between Elton St & Gateway Dr) in Brooklyn, NY.

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: NYC Department of Design and Construction

Title:_____ Phone Number: _____

Brief description of the Project completed or the Project in progress: The project scope consisted of new utilities including sewer, watermain, street lighting, and traffic work. This included the building of new streets for the purpose affordable housing.

Was the Project performed as a prime, a subcontractor or a sub-subcontractor: Prime

Amount of Contract, Subcontract or Sub-subcontract: _____

Start Date and Completion Date: _____

****

Name of Contractor: _____

Name of Project: _____

Location of Project: _____

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: _____

Title:_____ Phone Number: _____

Brief description of the Project completed or the Project in progress: _____

_____

Was the Project performed as a prime, a subcontractor or a sub-subcontractor:_____

Amount of Contract, Subcontract or Sub-subcontract: _____

Start Date and Completion Date: _____

NYC Mayor's Office of Contract Services

SCHEDULE B – M/WBE Utilization Plan

Part 1: M/WBE Participation Goals

Contract Overview (To be completed by contracting agency)

APT E-Pin# 85020B0042 FMS Project ID# SANDRESM2

Project Title INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO Agency PIN# 8502020RC0002C

Contracting Agency Department of Design and Bid/Proposal Opening Date

Agency Address 30-30 Thomson Ave. City Long Island City State NY ZIP 11101

Contact Person Janelle Husain Title MWBE Outreach & Compliance Analyst

Telephone (718) 391-1322 Email Husainja@ddc.nyc.gov

Project Description (attach additional pages if necessary)

INSTALLATION OF EAST SIDE COASTAL RESILENCY FROM MONTGOMERY STREET TO EAST 15TH STREET

TOGETHER WITH ALL WORK INCIDENTAL THERETO

INCLUDING FLOOD PROTECTION SYSTEM, ROLLER AND SWING GATES, PARK RECONSTRUCTION, SEWER, PEDESTRIAN BRIDGES, PARK,

Bidder or proposer ☐ is required OR ☒ is not required to specifically identify the contact information of all M/WBE firms they intend to use as a subcontractor on this contract, including the M/WBE vendor name, address and telephone number in the space provided below in Part 2 Section 4.

M/WBE Participation Goals for Services

Enter the percentage amount for each category or for an unspecified Goal.

Prime Contract Industry:

Category and Breakdown:

Unspecified 12.00 %

Black American %

Hispanic American %

Asian American %

Women %

Total Participation Goals 12.00 %

Line 1

Part 2: M/WBE Participation 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)

Section 1: Prime Contractor Contact Information

Tax ID# 11-28814026 FMS Vendor ID#

Business Name Perfetto Contracting Co. Inc. Contact Person Britney Franke

Business Address 152 41st Street City Brooklyn State NY ZIP 11232

Telephone 718-858-8600 Email BFranke@perfettocontracting.com

Section 3: Contractor M/WBE Utilization Plan

Please review the Notice to Prospective Contractors 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 amount located on Lines 2 or 3 in the panels in Section 2, as applicable. 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 amount located on Lines 2 or 3 in the panels in Section 2, as applicable. 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 amount located on Lines 2 or 3 in the panels in Section 2, as applicable.

Section 2: M/WBE Utilization Goal Calculation

Prime Contractor Adopting Agency Participation Goals

For Prime Contractors (including Qualified Joint Ventures and M/WBE firms) adopting Agency M/WBE Participation Goals.

Total Bid/Proposal Value $ 163,066,043.00

multiplied by x

Total Participation Goals 12.00 %

(Line 1 above)

Calculated M/WBE Participation Amount $ 19,567,925.16

Line 2

OR

Prime Contractor With Partial Waiver Approval Adopting Revised Participation Goals

For Prime Contractors (including Qualified Joint Ventures and M/WBE firms) adopting Revised M/WBE Participation Goals.

Total Bid/Proposal Value $

multiplied by x

Total Revised Participation Goals %

Calculated M/WBE Participation Amount $

Line 3

Tax ID# 11-28814026 APT E-Pin# 8502020RC0002C

Section 4: General Contract Information

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? 12.00 %

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. Where the contracting agency's solicitation has indicated a requirement that the bidder or proposer specifically identify the contact information of all M/WBEs they intend to use on this contract, vendors must also include the M/WBE vendor name, address and telephone number in the space provided below. Use additional sheets if necessary.

	Description of Work	Start Date (MM/YY)	End Date (MM/YY)	Planned $ Amount	Designated for M/WBE Y	Designated for M/WBE N	M/WBE Vendor Name	M/WBE Address	M/WBE Telephone
1.	T&D Contaminated Soil	07 / 20	07 / 24	$ 737,006.00	☐	☐	ENP Environmental	507A W Broadway, Long Beach, NY 11561	516 835 9918
2.	Trucking w/ Teamster	07 / 20	07 / 24	$ 2,480,336.00	☐	☐	Phantom Carting Inc.	3 South Drive, Valley Stream, NY 11581	347 278 7708
3.	CPM Scheduling	07 / 20	07 / 24	$ 102,475.00	☐	☐	LB Consulting	296 Sport Hill Rd, Easton, CT 06612	203 373 1195
4.	Inst/Monitoring	07 / 20	07 / 24	$ 627,825	☐	☐	Wang Technology	1095 Cranbury S River Rd, Jamesburg, NJ 08831	609 750 8860
5.	Lab Testing	07 / 20	07 / 24	$ 309,865	☐	☐	Distinct Engineering Solutions	425 Old Georges Rd, North Brunswick, NJ 08902	732 658 1052
6.	Landscaping	07 / 20	07 / 24	$ 1,460,422	☐	☐	Aspen Landscaping Contracting, Inc	1121 Springfield Rd, Union NJ 07083	908 964 8883
7.	Pavement Marking	07 / 20	07 / 24	$ 79,717	☐	☐	JP Marking Inc	664D Bluepoint Rd, Holtsville, NY 11742	516 744 1440
8.	Photo / Videographer	07 / 20	07 / 24	$ 463,248	☐	☐	Bernstein Associates	828 S Broadway, Tarrytown, NY 10591	914 674 9100
9.	Plumbing	07 / 20	07 / 24	$ 1,175,590	☐	☐	Akela Contracting LLC	732 Garrison Ave, Bronx, NY 10474	718 328 4900
10.	Sign Fence Rail	07 / 20	07 / 24	$ 3,983,060	☐	☐	Triton Builders Inc	645 Broadway Ste T, Amityville, NY 11701	631 841 2534
		/	/	$	☐	☐			( ) -

(continued on next page)

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 the Agency; 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 the Agency, to meet the modified Participation Goals by soliciting and obtaining the participation of certified MBE and/or WBE firms.*

Signature [signature] Date 5/28/2020

Print Name Cesare Perfetto Title Pres

Tax ID# 11-28814026 APT E-Pin# 8502020RC0002C

Section 4: General Contract Information

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? 12.00 %

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. Where the contracting agency's solicitation has indicated a requirement that the bidder or proposer specifically identify the contact information of all M/WBEs they intend to use on this contract, vendors must also include the M/WBE vendor name, address and telephone number in the space provided below. Use additional sheets if necessary.

	Description of Work	Start Date (MM/YY)	End Date (MM/YY)	Planned $ Amount	Designated for M/WBE Y	Designated for M/WBE N	M/WBE Vendor Name	M/WBE Address	M/WBE Telephone
1.	Rebar Installer	07/20	07/24	$1,572,023.00	☒	☐	Lashay's Construction and Development Grou	540 Nepperhan Ave, Ste 562, Yonkers, NY 10701	(914) 290-2365
2.	Rodent Control	07/20	07/24	$168,400.00	☒	☐	Joe's Pest Control	1007 Carroll St, Brooklyn, NY 11225	(718) 493-1845
3.	Vactor Cleaning & TV Sewer	07/20	07/24	$44985	☒	☐	11 Enviro Group	246 Freeman St, Brooklyn, NY 11222	(201) 523-0799
4.	Land Survey	07/20	07/24	$337,036	☒	☐	50 States	43 Moonachie Rd, Hackensack, NJ 07601	(201) 507-8283
5.	Sawcutting/Sealing	07/20	07/24	$128,562	☒	☐	JP Hogan Coring & Sawcutting Group	680 Gulf Ave, Staten Island, NY 10314	(718) 761-7014
6.	Misc Civil Work	07/20	07/24	$5,897,375.16	☒	☐			( ) -
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 the Agency; 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 the Agency, to meet the modified Participation Goals by soliciting and obtaining the participation of certified MBE and/or WBE firms.*

Signature [signature] Date 5/28/2020

Print Name Cesare Perfetto Title Pres

NYC Mayor's Office of Contract Services

SCHEDULE B – Part 3

Request for Waiver of M/WBE Participation Requirement

Contract Overview

Tax ID#_____ FMS Vendor ID#_____

Business Name_____ Contact Name_____

Email_____ Telephone_____

Contracting Agency_____

APT E-Pin#_____ Bid/Proposal Due Date_____

M/WBE Participation Goals for Services

Defined by AGENCY in bid/ solicitation documents
Percent of the total contract value to be subcontracted to M/WBE vendors for services and/or credited to an M/WBE Qualified Joint Venture.

Unspecified _____ %
Black American _____ %
Hispanic American _____ %
Asian American _____ %
Women _____ %

Total Participation Goals _____ %

Proposed by VENDOR seeking waiver
Percent of the total contract value anticipated in good faith by the bidder/ proposer to be subcontracted to M/WBE businesses for services. Or if M/WBE Qualified Joint Venture, percent of total contract value anticipated to be credited to M/WBE vendor(s).

Unspecified _____ %
Black American _____ %
Hispanic American _____ %
Asian American _____ %
Women _____ %

Total Participation Goals _____ %

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 the vendor certification section below.

☐ Vendor has other legitimate business reasons for proposing the M/WBE Participation Goal requested here. Explain under separate cover.

Vendor Contract History

Using the attached Excel template, list all contracts (for City and Non-City work) performed within the last 3 years 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 within the attached Excel template.

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.

_____ $_____

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_____

Approvals (for Agency completion only)

ACCO Signature_____ Date_____

CCPO Signature_____ Date_____

Waiver Determination

☐ Full Waiver Approved
☐ Waiver Denied
☐ Partial Waiver Approved
Revised Participation Goal _____%

(NO TEXT ON THIS PAGE)

APPRENTICESHIP PROGRAM REQUIREMENTS

Bidders are advised that the Apprenticeship Program Requirements set forth below apply to each contract for which a "X" is indicated before the word "Yes". Compliance with these requirements will be determined solely by the City.

__X__ YES _____ NO

(1) Apprenticeship Program Requirements

Notice to Bidders: Please be advised that, pursuant to the authority granted to the City under Labor Law Section 816-b, the Department of Design and Construction hereby requires that the contractor awarded a contract as a result of this Invitation for Bids, and any of its subcontractors with subcontracts worth two million dollars or over, have, prior to entering into such contract or subcontract, apprenticeship agreements appropriate for the type and scope of work to be performed that have been registered with, and approved by, the New York State Commissioner of Labor. In addition, the contractor and its subcontractors will be required to show that such apprenticeship program/s have successfully passed the two year Probation period following the initial registration date of such program/s with the New York State Department of Labor.

The failure to prove, upon request, that these requirements have been met shall result in the contract not being awarded to the contractor or the subcontract not being approved.

Please be further advised that, pursuant to Labor Law Section 220, the allowable ratio of apprentices to journeypersons in any craft classification shall not be greater than the ratio permitted to the contractor as to its workforce on any job under the registered apprenticeship program.

(2) Apprenticeship Program Questionnaire

The bidder must submit a completed and signed Apprenticeship Program Questionnaire. The Questionnaire is set forth on the following pages of the Bid Booklet.

APPRENTICESHIP PROGRAM QUESTIONNAIRE ("APQ")

Bidder Name: Perfetto Contracting Co. Inc.

Project ID Number:SANDRESM2

The Bidder MUST complete, sign and submit this Apprenticeship Program Questionnaire with its bid.

1. Does the bidder have any Apprenticeship Program agreement(s) appropriate for the type and scope of work to be performed? (Note: Participation may be by either direct sponsorship or through collective bargaining agreement(s).)

   _X_ YES _____ NO

2. Has/have the bidder's Apprenticeship Program agreement(s) been registered with, and approved by the New York State Commissioner of Labor ("NYSDOL Commissioner")?

   _X_ YES _____ NO

3. Has/have the bidder's Apprenticeship Program successfully passed the two-year Probation period following its initial registration with the New York State Department of Labor ("NYSDOL")?

   _X_ YES _____ NO

If the answers to Questions 1, 2, and 3 are "Yes". The bidder shall, in the space below (and/or attached herewith where applicable), provide the contact information for such Apprenticeship Program(s) as well as information demonstrating that such Apprenticeship Program(s) have passed the two-year Probation period following its initial registration with the NYSDOL. (The bidder may attach additional pages if necessary).

- **Where the bidder directly sponsors any such apprenticeship Program(s),** the bidder shall provide the following:
  - The trade classification(s) covered by such program(s), and the date(s) such program(s) was/were approved by the NYSDOL Commissioner; and/or
  - A copy of a letter(s) from the NYSDOL, on NYSDOL's letterhead, executed by an official thereof, which verifies/verify the trade classification(s) covered by such program(s), and the date(s) such program(s) was/were approved by the NYSDOL Commissioner and the Active status of such program(s).

- **Where the bidder participates in any such Apprenticeship Program(s) through its membership in an employer organization(s) that directly sponsors such program(s) or where the employer association(s) participates in such program(s) through collective bargaining,** the bidder shall provide the following:
  - The contact information for the employer organization(s), and the apprenticeable trade(s) covered pursuant to the bidder's affiliation therewith, and the date such program(s) was/were approved by the NYSDOL Commissioner; or
  - A letter(s) from such employer organization(s), on letterhead of such organization(s), executed by an officer, delegate or official thereof, which verifies/verify the trade classification(s) covered by such program(s) was/were approved by the NYSDOL Commissioner, and that the bidder is both a member in good standing of the identified employer organization and is subject to the provisions of the Apprenticeship Program agreement(s) sponsored thereby.

APPRENTICESHIP PROGRAM QUESTIONNAIRE ("APQ")

- **Where the bidder participates in any such Apprenticeship Programs through collective bargaining agreements,** the bidder shall provide the following:
    - The contact information for such collective bargaining entity(ies) and the apprenticeable trade(s) covered pursuant to the bidder's affiliation therewith;
    - A letter(s) from such collective bargaining entity(ies), on letterhead of such entity(ies), executed by an officer, delegate or official thereof, which verifies/verify the bidder's status as a signatory/participant in good standing to such collective bargaining entity(ies) Apprenticeship Program Agreements.

We are governing the Apprenticeship Programs through the Local Unions when available.

Bidder: Perfetto Contracting Co. Inc.

By: _____ Title: President

(Signature of Partner or Corporate Officer)

Date: 2/17/2020

A. **PROJECT REFERENCES – CONTRACTS COMPLETED BY THE BIDDER**

List all contracts substantially completed within the last 4 years, up to a maximum of 10, in descending order of date of substantial completion.

Project & Location	Contract Type	Contract Amount ($000)	Date Completed	Owner Reference & Tel. No.	Architect/Engineer Reference & Tel. No. if different from owner
CONISPH2A Storm and Sanitary Sewers - Neptune Avenue	Public Work City Contract	$20,625,003	08/22/2017	NYC DDC Jatin Upadhyay 718-391-3161	Same as Owner
RED-371 Distribution Water Mains Extension/Replacement Brooklyn & Staten Island	Public Work City Contract	$3,496,317	06/30/2015	NYC DDC Adam Alweiss 718-391-1357	Same as Owner
HWD005K01 Fulton Street Improvements	Public Work City Contract	$1,515,000	05/07/2018	NYC DDC Marie Brandao 718-391-2430	Same as Owner
HWD104-05 Reconstruction of Amboy Road	Public Work City Contract	$2,323,124	11/14/2017	NYC DDC Mansukh Mavani 917-939-6792	Same as Owner
SER00208 Construction Sanitary Sewers Amboy Road, State Island	Public Work City Contract	$4,957,000	10/30/2015	NYC DDC Monzer Shahin 917-337-6031	Same as Owner
SER00201Y Emergecny Sanitary Sewers Various Locations SI	Public Work City Contract	$6,261,402.50	05/31/2017	NYC DEP Fathi Husein 718-595-4201	Same as Owner
SER200214 Sanitary Sewers at Peru Street Staten Island	Public Work City Contract	$5,876,486	05/01/2014	NYC DDC Sam Riad 718-605-3264	Same as Owner

B. PROJECT REFERENCES – CONTRACTS CURRENTLY UNDER CONSTRUCTION BY THE BIDDER

List all contracts currently under construction similar to the contract being awarded.

Project & Location	Contract Type	Contract Amount ($000)	Date Completed	Owner Reference & Tel. No.	Architect/Engineer Reference & Tel. No. (if different from owner)
SANDHW13 Reconstruction of Rockaway Beach Blvd - 88th to 73rd St	**Public city contract**	**$22,742,000.00**	**expected June 2020**	**NYC DDC - Donald Grainger 917-939-7854**	**Same as Owner**
HWK1048 Reconstruction of Kent Ave South Section of Bk Waterfront	**Public city contract**	**$18,060,000.00**	**expected Oct 2020**	**NYC DDC - Bob Yueh 718-391-1937**	**Same as Owner**
HWBARUCH Reconstruction of E 25th St Plaza btwn Lex & 3rd Ave	**Public city contract**	**$6,466,000.00**	**expected Sep 2020**	**NYC DDC - John Delucia 212-313-3558**	**Same as Owner**
SANDHW12 Reconstruction of Rockaway Beach Blvd - 49th to 54th St	**Public city contract**	**$23,318,000.00**	**expected July 2021**	**NYC DDC - Donald Grainger 917-939-7854**	**Same as Owner**
HBX163 Filling of Five Bridges over CSX Line, Melrose, Bronx	**Public city contract**	**$12,372,000.00**	**expected Nov 2020**	**NYS DOT - Mohamed Arain 212-839-4610**	**Same as Owner**
D263814 Restoration of FDR Drive Highway/Bridge	**Public city contract**	**$8,083,000.00**	**expected July 2020**	**NYS DOT - Frank Forti 917-502-8526**	**Same as Owner**
D263994 Pavement Restoration NY-9A & I-278	**Public city contract**	**$10,141,000.00**	**expected Dec 2020**	**NYS DOT - Bishem Greer 917-387-7886**	**Same as Owner**
S136-367 DSNY S.I. Garage Phase 1	**Public city contract**	**$15,497,000.00**	**expected Mar 2021**	**NYC DDC - Wasmiya Tan, Proj. Manager 646-478-6570**	**Same as Owner**

C. PROJECT REFERENCES – PENDING CONTRACTS NOT YET STARTED BY THE BIDDER

List all contracts awarded to or won by the bidder but not yet started.

Project & Location	Contract Type	Contract Amount ($000)	Date Completed	Owner Reference & Tel. No.	Architect/Engineer Reference & Tel. No. (if different from owner)

(NO TEXT ON THIS PAGE)

SAFETY QUESTIONNAIRE

The Bidder must include, with its bid, all information requested on this Safety Questionnaire. Failure to provide a completed and signed Safety Questionnaire at the time of bid opening may result in disqualification of the bid as non-responsive. This Safety Questionnaire will be reviewed as per Section V of the Safety Requirements for Construction Contracts, found in Volume 2 of the Contract.

1. Bidder Information:

Company Name: Perfetto Contracting Co. Inc.

DDC Project Number: SANDRESM2

Company Size: ☐ Ten (10) employees or less

☒ Greater than ten (10) employees

Company has previously worked for DDC: ☒ YES ☐ NO

2. Type(s) of Construction Work:

Identify the types of work that the Bidder has performed in the last three years, and the types of work that are part of this Contract.

TYPE OF WORK	LAST 3 YEARS	THIS PROJECT
General Building Construction	☐	☐
Residential Building Construction	☐	☐
Nonresidential Building Construction	☐	☐
Heavy Construction, except building	☐	☐
Highway and Street Construction	☒	☒
Heavy Construction, except highways	☒	☒
Plumbing, Heating, HVAC	☐	☐
Painting and Paper Hanging	☐	☐
Electrical Work	☐	☐
Masonry, Stonework and Plastering	☐	☐
Carpentry and Floor Work	☐	☐
Roofing, Siding, and Sheet Metal	☐	☐
Concrete Work	☐	☐
Specialty Trade Contracting	☐	☐
Asbestos Abatement		
Other (specify) Sewer/Watermain	☒	☒

3. Experience Modification Rate:

The Experience Modification Rate (EMR) is a rating generated by the National Council of Compensation Insurance (NCCI). This rating is used to determine the contractor's premium for worker's compensation insurance. The Bidder / Contractor may obtain its EMR by contacting its insurance broker or the NCCI. If the Bidder cannot obtain its EMR, it must submit a written explanation as to why.

The Bidder must indicate its Intrastate and Interstate EMR for the past three years. [Note: For contractors with less than three years of experience, the EMR will be considered to be 1.00].

YEAR	INTRASTATE RATE	INTERSTATE RATE
BF ~~2018~~ 2019		~~1.19~~ 1.33 BF
BF ~~2017~~ 2018		~~.940~~ 1.19 BF
BF ~~2016~~ 2017		~~1.060~~ .940 BF

If the Intrastate and/or Interstate EMR for any of the past three years is greater than 1.00, the Bidder / Contractor must attach, to this questionnaire, a written explanation for the rating and identify what corrective action was taken to correct the situation resulting in that rating.

4. OSHA Information:

☐ YES ☒ NO Contractor has received a willful violation issued by OSHA or a New York City Department of Buildings (NYCDOB) construction-related violation within the last three years.

☒ YES ☐ NO Contractor has had an incident requiring OSHA notification within 8 hours (all work-related fatalities) or an incident requiring OSHA notification within 24 hours (work-related in-patient hospitalization, amputation and all loss of an eye).

The OSHA Form 300 "Log of Work-Related Injuries and Illnesses" and OSHA Form 300A "Summary of Work-Related Injuries and Illnesses" must be submitted for the last three years for Contractors with more than ten employees.

The Bidder / Contractor must indicate the total number of hours worked by its employees, as reflected in payroll records for the past three (3) years.

The Bidder / Contractor must submit the Incident Rate for Lost Time Injuries (the Incident Rate) for the past three (3) years. The Incident Rate is calculated in accordance with the formula set forth below. For each given year, the total number of incidents is the total number of non-fatal injuries and illnesses reported on the OSHA Form 300 and OSHA Form 300A. The 200,000 hours represents the equivalent of 100 employees working forty hours a week, fifty (50) weeks per year.

Incident Rate = $\frac{\text{Total Number of Incidents X 200,000}}{\text{Total Number of Hours Worked by Employees}}$

YEAR	TOTAL NUMBERS OF HOURS WORKED BY EMPLOYEES	INCIDENT RATE
BF ~~2018~~ 2019	BF ~~274,946~~ 232,606	0 1.720 BF
BF ~~2017~~ 2018	BF 208,324 274,946 MH 6/3/20	~~4.80~~ 0 BF
BF ~~2016~~ 2017	176,117 ~~176,117~~ 208,324	~~2.26~~ 4.80 BF

If the Bidder's / Contractor's Incident Rate for any of the past three years is one point higher than the Incident Rate for the type of construction it performs (listed below), the Bidder / Contractor must attach, to this questionnaire, a written explanation for the relatively high rate.

General Building Construction	8.5
Residential Building Construction	7.0
Nonresidential Building Construction	10.2
Heavy Construction, except building	8.7
Highway and Street Construction	9.7
Heavy Construction, except highways	8.3
Plumbing, Heating, HVAC	11.3
Painting and Paper Hanging	6.9
Electrical Work	9.5
Masonry, Stonework and Plastering	10.5
Carpentry and Floor Work	12.2
Roofing, Siding, and Sheet Metal	10.3
Concrete Work	8.6
Specialty Trade Contracting	8.6

5. Safety Performance on Previous DDC Project(s)

☐ YES ☒ NO Fatality or an incident requiring OSHA notification within 24 hours (work-related in-patient hospitalization, amputation and all loss of an eye) on DDC Project(s) within the last three (3) years.

DDC Project Number(s): _____, _____, _____

The Bidder hereby affirms that all the information provided in this Safety Questionnaire and all additional pages and/or attachments, if applicable, consist of accurate representations.

Date: 2/18/2020 By: _____
(Signature of Bidder: Owner, Partner, Corporate Officer)

Title: President

(NO TEXT ON THIS PAGE)

IRAN DIVESTMENT ACT COMPLIANCE RIDER

FOR NEW YORK CITY CONTRACTORS

The Iran Divestment Act of 2012, effective as of April 12, 2012, is codified at State Finance Law ("SFL") §165-a and General Municipal Law ("GML") §103-g. The Iran Divestment Act, with certain exceptions, prohibits municipalities, including the City, from entering into contracts with persons engaged in investment activities in the energy sector of Iran. Pursuant to the terms set forth in SFL §165-a and GML §103-g, a person engages in investment activities in the energy sector of Iran if:

(a) The person provides goods or services of twenty million dollars or more in the energy sector of Iran, including a person that provides oil or liquefied natural gas tankers, or products used to construct or maintain pipelines used to transport oil or liquefied natural gas, for the energy sector of Iran; or

(b) The person is a financial institution that extends twenty million dollars or more in credit to another person, for forty-five days or more, if that person will use the credit to provide goods or services in the energy sector in Iran and is identified on a list created pursuant to paragraph (b) of subdivision three of Section 165-a of the State Finance Law and maintained by the Commissioner of the Office of General Services.

A bid or proposal shall not be considered for award nor shall any award be made where the bidder or proposer fails to submit a signed and verified bidder's certification.

Each bidder or proposer must certify that it is not on the list of entities engaged in investment activities in Iran created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the State Finance Law. In any case where the bidder or proposer cannot certify that they are not on such list, the bidder or proposer shall so state and shall furnish with the bid or proposal a signed statement which sets forth in detail the reasons why such statement cannot be made. The City of New York may award a bid to a bidder who cannot make the certification on a case by case basis if:

(1) The investment activities in Iran were made before the effective date of this section (i.e., April 12, 2012), the investment activities in Iran have not been expanded or renewed after the effective date of this section and the person has adopted, publicized and is implementing a formal plan to cease the investment activities in Iran and to refrain from engaging in any new investments in Iran: or

(2) The City makes a determination that the goods or services are necessary for the City to perform its functions and that, absent such an exemption, the City would be unable to obtain the goods or services for which the contract is offered. Such determination shall be made in writing and shall be a public document.

BIDDER'S CERTIFICATION OF COMPLIANCE WITH IRAN DIVESTMENT ACT

Pursuant to General Municipal Law Section 103-g, which generally prohibits the City from entering into contracts with persons engaged in investment activities in the energy sector of Iran, the bidder/proposer submits the following certification:

[*Please Check One*]

BIDDER'S CERTIFICATION

☒ By submission of this bid or proposal, each bidder/proposer and each person signing on behalf of any bidder/proposer certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief, that each bidder/proposer is not on the list created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the State Finance Law.

☐ I am unable to certify that my name and the name of the bidder/proposer does not appear on the list created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the State Finance Law. I have attached a signed statement setting forth in detail why I cannot so certify.

SIGNATURE

Cesare Perfetto
PRINTED NAME

President
TITLE

Sworn to before me this
18 day of Feb, 20 20

Notary Public

Dated:
2/18/2020

BRITNEY M. FRANKE
Notary Public, State of New York
No. 01FR6382077
Qualified in Kings County
Commission Expires October 15, 2022

B. BID SCHEDULE (B-PAGES)

The following pages contain the Bid Schedule. Items listed in the Bid Schedule shall comply with the requirements of the corresponding sections of the specifications detailed in the table below. All references to the Standard Specifications, Details, Standards and Drawings shall be to the version in effect at the time of bid.

NOTES:

- "XXX" in the table below signifies any possible combination of characters and spaces.
- The table below may contain item formats which are not included in the Bid Schedule. ***Please refer to the Bid Schedule to determine which specifications apply.***

Item Number Format	Applicable Specifications
4.XXX 6.XXX 7.XXX 8.XXX *(Except 8.01 XXX; see below)* 9.XXX HW-XXX PK-XXX PK-ESCR XXX ESCR-XXX	NYC Department of Transportation ("DOT") Standard Highway Specifications, as amended in the R-Pages, located in Volume 3 of 3 herein; ***AND*** NYC DOT Standard Details of Construction; ***OR,*** ***if the item is not contained within the Standard Specifications***, then see the applicable New Sections in the PARKS-Pages, FLOODWALL-Pages, FLOODGATE-Pages, or GENERAL-Pages, located in Volume 3 of 3 herein.
1.XXX 50.XXX through 55.XXX 60.XXX through 66.XXX 70.XXX through 79.XXX *(Except 79.11XXX; see below)* DSS XXX DSW XXX	NYC Department of Environmental Protection ("DEP") Standard Sewer and Water Main Specifications, as amended in the R-Pages and SW-Pages, located in Volume 3 of 3 herein; ***AND*** NYC DEP Specifications for Trunk Main Work; ***AND*** NYC DEP Sewer Design Standards; ***AND*** NYC DEP Water Main Standard Drawings; ***OR,*** ***if the item is not contained within the Standard Specifications,*** then see the Amendments to the Standard Sewer and Water Main Specifications in the SW-Pages, located in Volume 3 of 3 herein.
GI-XXX PM-XXX ROW XXX	New Sections in the I-Pages, located in Volume 3 of 3 herein ***AND*** NYC DEP Standards for Green Infrastructure.

Item Number Format	Applicable Specifications
UTL-XXX	Gas Cost Sharing Standard Specifications in the EP7-Pages, located in Volume 3 of 3 herein.
XXX.XXX *(where the leading XXX is a 3-digit number)*	NYSDOT Specification. See the PROJECT DESCRIPTION section, located in Volume 3.
SL-XXX	NYC DOT Division of Street Lighting Specifications ***AND*** NYC Division of Street Lighting Standard Drawings.
T-XXX	NYC DOT Specifications for Traffic Signals and Intelligent Transportation Systems ***AND*** NYC DOT Traffic Signal Standard Drawings.
JB XXX	Joint Bid Specifications in the JB-Pages, located in Volume 3 of 3 herein.
8.01 XXX	Specifications for Handling, Transportation and Disposal of Nonhazardous and Potentially Hazardous Contaminated Materials in the HAZ-Pages, located in Volume 3 of 3 herein.

(NO FURTHER TEXT ON THIS PAGE)

BID SCHEDULE

NOTE: (1) The Agency may reject a bid if it contains unbalanced bid prices. An unbalanced bid is considered to be one containing lump sum or unit items which do not reflect reasonable actual costs plus a reasonable proportionate share of the Bidder's anticipated profit, overhead costs, and other indirect costs, anticipated for the performance of the items in question.

(2) The following bid prices on Unit Price Contracts are to be paid for the actual quantities of the item numbers in the completed work or structure, and they cover the cost of all work, labor, material, tools, plant and appliances of every description necessary to complete the entire work, as specified, and the removal of all debris, temporary work and appliances.

(3) PLEASE BE SURE A LEGIBLE BID IS ENTERED, IN INK, FOR EACH ITEM.
Alterations must be initialed in ink by the bidder.

(4) The Extended Amount entered in Column 6 shall be the product of the Estimated Quantity in Column 3 times the Unit Price Bid in Column 5.

(5) Prospective bidders must examine the Bid Schedule carefully and, before bidding, must advise the Commissioner, in writing, if any pages are missing, and must request that such missing pages be furnished them. The pages of this Bid Schedule are numbered consecutively, as follows:
B - 3 Through B - 78

PLEASE BE SURE A LEGIBLE BID IS ENTERED FOR EACH ITEM.
THE BIDDER SHALL INSERT THE TOTAL BID PRICE IN
THE BID FORM IN THIS BID BOOKLET.

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0001	4.01 RAG ASPHALT MACADAM PAVEMENT, 6" THICK	2,241.00	S.Y.	50	00	112,050	00
0002	4.02 AB-R ASPHALTIC CONCRETE WEARING COURSE, 1-1/2" THICK	367.00	S.Y.	28	00	10,276	00
0003	4.02 AG ASPHALTIC CONCRETE WEARING COURSE, 3" THICK	15,543.00	S.Y.	23	00	357,489	00
0004	4.02 CB ASPHALTIC CONCRETE MIXTURE	873.00	TONS	225	00	196,425	00
0005	4.03 TEMPORARY SURFACING ROADWAYS	470.00	S.Y.	55	00	25,850	00
0006	4.04 AC CONCRETE BASE FOR PAVEMENT, 6" THICK, CLASS B-32	100.00	C.Y.	434	00	43,400	00
0007	4.04 H CONCRETE BASE FOR PAVEMENT, VARIABLE THICKNESS FOR TRENCH RESTORATION, (HIGH-EARLY STRENGTH)	93.00	C.Y.	346	00	32,178	00
0008	4.04 HC CONCRETE BASE FOR PAVEMENT, 8" THICK (HIGH-EARLY STRENGTH)	420.00	C.Y.	750	00	315,600	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0009	**4.04 HD** CONCRETE BASE FOR PAVEMENT, 9" THICK (HIGH-EARLY STRENGTH)	966.00	C.Y.	230	00	222,180	00
0010	**4.04 HE** CONCRETE BASE FOR PAVEMENT, 10" THICK (HIGH-EARLY STRENGTH)	697.00	C.Y.	300	00	209,100	00
0011	**4.05 A** NON-REINFORCED CONCRETE PAVEMENT	25.00	C.Y.	441	00	11,025	00
0012	**4.05 BX** HIGH-EARLY STRENGTH REINFORCED CONCRETE PAVEMENT (FULL WIDTH PAVEMENT)	75.00	C.Y.	428	00	32,100	00
0013	**4.09 AD** STRAIGHT STEEL FACED CONCRETE CURB (18" DEEP)	1,900.00	L.F.	118	00	224,200	00
0014	**4.09 AEA** STRAIGHT STEEL FACED CONCRETE CURB (22" DEEP)	885.00	L.F.	118	00	104,430	00
0015	**4.09 BD** DEPRESSED STEEL FACED CONCRETE CURB (18" DEEP)	230.00	L.F.	152	00	34,960	00
0016	**4.09 CD** CORNER STEEL FACED CONCRETE CURB (18" DEEP)	250.00	L.F.	142	00	35,500	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0017	4.09 CEA CORNER STEEL FACED CONCRETE CURB (22" DEEP)	70.00	L.F.	164	00	11,480	00
0018	4.11 CC SELECT GRANULAR FILL, PLACE MEASUREMENT	300.00	C.Y.	149	00	44,700	00
0019	4.13 AAS 4" CONCRETE SIDEWALK (UNPIGMENTED)	10,604.00	S.F.	21	00	222,684	00
0020	4.13 BAS 7" CONCRETE SIDEWALK (UNPIGMENTED)	23,860.00	S.F.	34	00	811,240	00
0021	4.13 BR 7" REINFORCED CONCRETE SIDEWALK (UNPIGMENTED)	14,028.00	S.F.	24	00	336,672	00
0022	4.13 DE EMBEDDED PREFORMED DETECTABLE WARNING UNITS	207.00	S.F.	29	00	6,003	00
0023	4.14 STEEL REINFORCEMENT BARS	250.00	LBS.	2	00	500	00
0024	50.11CS036050 3'-6"W X 5'-0"H SINGLE BARREL FLAT TOP REINFORCED CONCRETE COMBINED SEWER	114.00	L.F.	3,000	00	342,000	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0025	**50.11CS040040** 4'-0"W X 4'-0"H SINGLE BARREL FLAT TOP REINFORCED CONCRETE COMBINED SEWER	18.00	L.F.	3,000	00	54,000	00
0026	**50.21C3C042D** 42" R.C.P. CLASS III COMBINED SEWER, ON CONCRETE CRADLE	55.00	L.F.	3,000	00	165,000	00
0027	**50.21C4C054D** 54" R.C.P. CLASS IV COMBINED SEWER, ON CONCRETE CRADLE	80.00	L.F.	3,000	00	240,000	00
0028	**50.21M4C024D** 24" R.C.P. CLASS IV STORM SEWER, ON CONCRETE CRADLE	30.00	L.F.	1,500	00	45,000	00
0029	**50.31CC15** 15" E.S.V.P. COMBINED SEWER, ON CONCRETE CRADLE	47.00	L.F.	1,080	00	50,760	00
0030	**50.31CC18** 18" E.S.V.P. COMBINED SEWER, ON CONCRETE CRADLE	90.00	L.F.	1,750	00	157,500	00
0031	**50.31MS18** 18" E.S.V.P. STORM SEWER, ON CRUSHED STONE BEDDING	25.00	L.F.	1,250	00	31,250	00
0032	**50.41M6C12** 12" D.I.P. CLASS 56 STORM SEWER, ON CONCRETE CRADLE	173.00	L.F.	1,500	00	259,500	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0033	50.41M6S12 12" D.I.P. CLASS 56 STORM SEWER, ON CRUSHED STONE BEDDING	203.00	L.F.	1,200	00	243,600	00
0034	51.11C015 CHAMBER NO. 15	1.00	EACH	800,000	00	800,000	00
0035	51.11C016 CHAMBER NO. 16	1.00	EACH	800,000	00	800,000	00
0036	51.11C017 CHAMBER NO. 17	1.00	EACH	500,000	00	500,000	00
0037	51.11P004 STANDARD 4'-0" DIAMETER PRECAST MANHOLE	9.00	EACH	25,000	00	225,000	00
0038	51.11P004.L37 51.11P004.L37 STANDARD 4'-0" DIAMETER PRECAST MANHOLE L-37	1.00	EACH	25,000	00	25,000	00
0039	51.11P004.L38 STANDARD 4'-0" DIAMETER PRECAST MANHOLE L-38	1.00	EACH	25,000	00	25,000	00
0040	51.11P008.L35 STANDARD 8'-0" DIAMETER PRECAST MANHOLE L-35	1.00	EACH	30,000	00	30,000	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0041	51.21LL27000V SPECIAL MANHOLE L-27 ON NEW AND EXISTING SEWER	1.00	EACH	75,000	00	75,000	00
0042	51.21LL32000V SPECIAL MANHOLE L-32 ON EXISTING AND NEW SEWER	1.00	EACH	75,000	00	75,000	00
0043	51.21LL34000V SPECIAL MANHOLE L-34 ON EXISTING AND NEW SEWER	1.00	EACH	75,000	00	75,000	00
0044	51.21LL36000V SPECIAL MANHOLE L-36 ON EXISTING AND NEW SEWER	1.00	EACH	75,000	00	75,000	00
0045	51.21S0C1054R STANDARD MANHOLE TYPE C-1 ON 54" R.C.P. SEWER	1.00	EACH	75,000	00	75,000	00
0046	51.21S0C1060C STANDARD MANHOLE TYPE C-1 ON 60" WIDE F.T.R.C. SEWER	1.00	EACH	45,000	00	45,000	00
0047	51.21S0D1060C STANDARD MANHOLE TYPE D-1 ON 60" WIDE F.T.R.C. SEWER	1.00	EACH	50,000	00	50,000	00
0048	51.22RM.L04 51.22RM.L04 RECONSTRUCTION OF EXISTING MANHOLE ON EXISTING SEWER	1.00	EACH	300,000	00	300,000	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0049	**51.22RM.L05** 51.22RM.L05 RECONSTRUCTION OF EXISTING MANHOLE ON EXISTING SEWER	1.00	EACH	300,000	00	300,000	00
0050	**51.22RM.L19** 51.22RM.L19 RECONSTRUCTION OF EXISTING MANHOLE ON EXISTING SEWER	1.00	EACH	300,000	00	300,000	00
0051	**51.22RM.L23** 51.22RM.L23 RECONSTRUCTION OF EXISTING MANHOLE ON EXISTING SEWER	1.00	EACH	300,000	00	300,000	00
0052	**51.22RM.M03** 51.22RM.M03 RECONSTRUCTION OF EXISTING MANHOLE ON EXISTING SEWER	1.00	EACH	300,000	00	300,000	00
0053	**51.22RM.M06** 51.22RM.M06 RECONSTRUCTION OF EXISTING MANHOLE ON EXISTING SEWER	1.00	EACH	200,000	00	200,000	00
0054	**51.23RF** REPLACEMENT OF EXISTING MANHOLE FRAME AND COVER	1.00	EACH	10,000	00	10,000	00
0055	**51.23RF.N01** 51.23RF.N01 REPLACEMENT OF EXISTING MANHOLE FRAME AND COVER	1.00	EACH	25,000	00	25,000	00
0056	**51.23RF.N02** 51.23RF.N02 REPLACEMENT OF EXISTING MANHOLE FRAME AND COVER	1.00	EACH	25,000	00	25,000	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0057	**51.23RF.N03** 51.23RF.N03 REPLACEMENT OF EXISTING MANHOLE FRAME AND COVER	1.00	EACH	25,000	00	25,000	00
0058	**51.23RF.N04** 51.23RF.N04 REPLACEMENT OF EXISTING MANHOLE FRAME AND COVER	1.00	EACH	25,000	00	25,000	00
0059	**51.23RF.N05** 51.23RF.N05 REPLACEMENT OF EXISTING MANHOLE FRAME AND COVER	1.00	EACH	25,000	00	25,000	00
0060	**51.23RF.N06** 51.23RF.N06 REPLACEMENT OF EXISTING MANHOLE FRAME AND COVER	1.00	EACH	25,000	00	25,000	00
0061	**51.23RF.Q02** 51.23RF.Q02 REPLACEMENT OF EXISTING MANHOLE FRAME AND COVER	1.00	EACH	200,000	00	200,000	00
0062	**51.23RF.Q03** 51.23RF.Q03 REPLACEMENT OF EXISTING MANHOLE FRAME AND COVER	1.00	EACH	25,000	00	25,000	00
0063	**51.41S001** STANDARD CATCH BASIN, TYPE 1	2.00	EACH	20,000	00	40,000	00
0064	**51.41S002** STANDARD CATCH BASIN, TYPE 2	10.00	EACH	12,000	00	120,000	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0065	51.71C00M37 TIDE GATE REPLACEMENT FOR CHAMBER M-37	1.00	EACH	800,000	00	800,000	00
0066	51.71C00M38 MODIFICATION OF EXISTING CHAMBER M-38	1.00	EACH	500,000	00	500,000	00
0067	51.71C00M38A MODIFICATION OF EXISTING CHAMBER M-38A	1.00	EACH	400,000	00	400,000	00
0068	51.71C00M38B MODIFICATION OF EXISTING CHAMBER M-38B	1.00	EACH	400,000	00	400,000	00
0069	51.71C00M39 MODIFICATION OF EXISTING CHAMBER M-39	1.00	EACH	400,000	00	400,000	00
0070	51.71C00M39A MODIFICATION OF EXISTING CHAMBER M-39A	1.00	EACH	400,000	00	400,000	00
0071	51.71M00000 MODIFICATION OF EXISTING MANHOLE	3.00	EACH	50,000	00	150,000	00
0072	51.71M00L26 MODIFICATION OF EXISTING MANHOLE L-26	1.00	EACH	25,000	00	25,000	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0073	51.71M00L27 MODIFICATION OF EXISTING MANHOLE L-27	1.00	EACH	60,000	00	60,000	00
0074	51.71M00L31 MODIFICATION OF EXISTING MANHOLE L-31	1.00	EACH	20,000	00	20,000	00
0075	51.71M00L32 MODIFICATION OF EXISTING MANHOLE L-32	1.00	EACH	60,000	00	60,000	00
0076	51.71M00L36 MODIFICATION OF EXISTING MANHOLE L-36	1.00	EACH	60,000	00	60,000	00
0077	51.71M00Q04 FURNISH AND INSTALL 18" FLAP GATE IN MANHOLE Q04	1.00	EACH	30,000	00	30,000	00
0078	51.71M00Q07 FURNISH AND INSTALL 12" FLAP GATE IN MANHOLE Q07	1.00	EACH	30,000	00	30,000	00
0079	52.11D12 12" DUCTILE IRON PIPE BASIN CONNECTION	430.00	L.F.	350	00	150,500	00
0080	54.11SC SEWER CLEANING	1,100.00	L.F.	3	00	3,300	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0081	54.12CS CLEANING OF DRAINAGE STRUCTURES	70.00	C.Y.	1,070	00	74,900	00
0082	551.014089 STEEL H-PILES (HP 14X89)	14,862.00	FOOT	114	00	1,694,268	00
0083	551.13 FURNISHING EQUIPMENT FOR DRIVING PILES	1.00	L.S.	50,000	00	50,000	00
0084	551.14000111 DYNAMIC PILE MONITORING	18.00	EACH	10,000	00	180,000	00
0085	551.50220017 STATIC PILE LOAD TEST	5.00	EACH	10,000	00	50,000	00
0086	551.98020017 TRIAL SHAFTS	3.00	EACH	50,000	00	150,000	00
0087	551.99492017 DRILLED SHAFTS, 2.0 FEET	8,373.00	FOOT	300	00	2,511,900	00
0088	551.99493017 DRILLED SHAFTS, 3.0 FEET	2,991.00	L.F.	400	00	1,196,400	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0089	551.99502017 DRILLED SHAFTS (LOW OVERHEAD CLEARANCE), 2.0 FEET	11,617.00	L.F.	450	00	5,227,650	00
0090	551.99503017 DRILLED SHAFTS (LOW OVERHEAD CLEARANCE), 3.0 FEET	4,580.00	L.F.	600	00	2,748,000	00
0091	557.2001 STRUCTURAL APPROACH SLAB WITH INTEGRAL WEARING SURFACE - TYPE 1 FRICTION	20.00	S.Y.	804	00	16,080	00
0092	586.0201 DRILLING AND GROUTING BOLTS OR REINFORCEMENT BARS	210.00	EACH	78	00	16,380	00
0093	587.21 THRIE BEAM BRIDGE RAIL - NEW POST INSTALLATION MOUNTED ON CONCRETE SURFACES	33.00	L.F.	100	00	3,300	00
0094	6.01 AC CLEARING AND GRUBBING	2,627.00	S.Y.	60	00	157,620	00
0095	6.02 AAN UNCLASSIFIED EXCAVATION	9,882.00	C.Y.	120	00	1,185,840	00
0096	6.03 AA STRIPPING PAVEMENT SURFACE (ASPHALTIC CONCRETE)	4,134.00	S.Y.	25	00	103,350	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0097	6.22 F ADDITIONAL HARDWARE	6,776.00	LBS.	5	00	33,880	00
0098	6.24 ASPHALTIC CONCRETE SIDEWALK	270.00	S.F.	200	00	54,000	00
0099	6.25 RS TEMPORARY SIGNS	9,073.00	S.F.	20	00	181,460	00
0100	6.26 TIMBER CURB	2,280.00	L.F.	24	00	54,720	00
0101	6.28 AA LIGHTED TIMBER BARRICADES	524.00	L.F.	66	00	34,584	00
0102	6.28 AB UNLIGHTED TIMBER BARRICADES	76.00	L.F.	65	00	4,940	00
0103	6.28 BA LIGHTED TYPE III BREAKAWAY BARRICADES	360.00	L.F.	68	00	24,480	00
0104	6.28 BB UNLIGHTED TYPE III BREAKAWAY BARRICADES	631.00	L.F.	57	00	35,967	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0105	**6.31 WS** PRECAST CONCRETE WHEEL STOPS	195.00	EACH	120	00	23,400	00
0106	**6.34 AC** CHAIN LINK FENCE, 6'-0" HIGH	49.00	L.F.	127	00	6,223	00
0107	**6.34 ACT** TEMPORARY CHAIN LINK FENCE, 6'-0" HIGH	10,845.00	L.F.	35	00	379,575	00
0108	**6.34 ACTP** TEMPORARY CHAIN LINK FENCE, 6'-0" HIGH (WITH TOP AND BOTTOM RAILS AND POSTS MOUNTED ON STEEL PLATES)	1,900.00	L.F.	35	00	66,500	00
0109	**6.34 ADT** TEMPORARY CHAIN LINK FENCE, 8'-0" HIGH	530.00	L.F.	69	00	36,570	00
0110	**6.34 AI** CHAIN LINK FENCE, 18'-0" HIGH	264.00	L.F.	403	00	106,392	00
0111	**6.34 BCT** TEMPORARY CHAIN LINK FENCE GATE FOR 6'-0" HIGH FENCE	288.00	L.F.	35	00	10,080	00
0112	**6.34 BDT** TEMPORARY CHAIN LINK FENCE GATE FOR 8'-0" HIGH FENCE	50.00	L.F.	58	00	2,900	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0113	6.34 X REMOVE AND DISPOSE OF EXISTING CHAIN LINK FENCE	1,369.00	L.F.	32	00	43,808	00
0114	6.36 DR STRUCTURAL REPAIR AND ADJUSTMENT OF UTILITY STRUCTURES	9.00	C.Y.	7,530	00	67,770	00
0115	6.40 CR ENGINEER'S FIELD OFFICE (COASTAL RESILIENCY)	52.50	MONTH	16,000	00	840,000	00
0116	6.41 LINE AND GRADE SURVEYS	1.00	L.S.	500,000	00	500,000.	00
0117	6.43 D DIGITAL PHOTOGRAPHS	31,500.00	SETS	3	00	94,500	00
0118	6.44 THERMOPLASTIC REFLECTORIZED PAVEMENT MARKINGS (4" WIDE)	32,025.00	L.F.	1	00	32,025	00
0119	6.49 TEMPORARY PAVEMENT MARKINGS (4" WIDE)	12,203.00	L.F.	1	00	12,203	00
0120	6.52 FED UNIFORMED FLAGPERSON PRICE BID SHALL BE FOR THE FIXED SUM OF $ 6,348,000.00	1.00	F.S.	6,348,000	00	$6,348,000	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0121	6.53 REMOVE EXISTING LANE MARKINGS (4" WIDE)	30,450.00	L.F.	1	00	30,450	00
0122	6.55 SAWCUTTING EXISTING PAVEMENT	13,545.00	L.F.	3	00	40,635	00
0123	6.59 C CONCRETE BARRIER, HALF SECTION	5,580.00	L.F.	175	00	976,500	00
0124	6.59 P TEMPORARY CONCRETE BARRIER	1,140.00	L.F.	58	00	66,120	00
0125	6.59 PF TEMPORARY CONCRETE BARRIER WITH FENCE	1,310.00	L.F.	92	00	120,520	00
0126	6.60 B FURNISH AND INSTALL ASPHALT BLOCK PAVERS	125.00	S.Y.	398	00	49,750	00
0127	6.67 SUBBASE COURSE, SELECT GRANULAR MATERIAL	75.00	C.Y.	117	00	8,775	00
0128	6.75 GRINDING EXISTING ASPHALTIC CONCRETE WEARING COURSE	3,033.00	C.Y.	87	00	263,871	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0129	6.82 A REMOVING EXISTING TRAFFIC AND STREET NAME SIGNS	14.00	S.F.	16	00	224	00
0130	6.82 B REMOVING EXISTING TRAFFIC AND STREET NAME SIGN POSTS	85.00	L.F.	31	00	2,635	00
0131	6.83 AA FURNISHING NEW NON-REFLECTORIZED TRAFFIC SIGNS	14.00	S.F.	24	00	336	00
0132	6.83 AB FURNISHING NEW TRAFFIC SIGN POSTS	95.00	L.F.	57	00	5,415	00
0133	6.83 AR FURNISHING NEW REFLECTORIZED TRAFFIC SIGNS	41.00	S.F.	63	00	2,583	00
0134	6.83 BA INSTALLING TRAFFIC SIGNS	41.00	S.F.	38	00	1,558	00
0135	6.83 BB INSTALLING TRAFFIC SIGN POSTS	95.00	L.F.	55	00	5,225	00
0136	6.85 A TRAFFIC ENFORCEMENT AGENTS PRICE BID SHALL BE FOR THE FIXED SUM OF $ 2,567,448.00	1.00	F.S.	2,567,448	00	$2,567,448	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0137	6.86 AA FURNISHING NEW STREET NAME SIGNS	14.00	S.F.	62	00	868	00
0138	6.86 AB FURNISHING NEW STREET NAME SIGN POSTS	85.00	L.F.	22	00	1,870	00
0139	6.86 BA INSTALLING STREET NAME SIGNS	14.00	S.F.	37	00	518	00
0140	6.86 BB INSTALLING STREET NAME SIGN POSTS	85.00	L.F.	30	00	2,550	00
0141	6.87 PLASTIC BARRELS	1,374.00	EACH	40	00	54,960	00
0142	6.91 REFLECTIVE CRACKING MEMBRANE (18" WIDE)	4,770.00	L.F.	7	00	33,390	00
0143	6.99 AUDIO AND VIDEO DOCUMENTATION SURVEY	1.00	L.S.	100,000	00	100,000	00
0144	60.11R606 FURNISHING AND DELIVERING 6-INCH DUCTILE IRON RESTRAINED JOINT PIPE (CLASS 56)	57.00	L.F.	64	00	3,648	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0145	60.11R612 FURNISHING AND DELIVERING 12-INCH DUCTILE IRON RESTRAINED JOINT PIPE (CLASS 56)	388.00	L.F.	100	00	38,800	00
0146	60.12D06 LAYING 6-INCH DUCTILE IRON PIPE AND FITTINGS	77.00	L.F.	170	00	13,090	00
0147	60.12D12 LAYING 12-INCH DUCTILE IRON PIPE AND FITTINGS	375.00	L.F.	190	00	71,250	00
0148	60.13M0A24 FURNISHING AND DELIVERING DUCTILE IRON MECHANICAL JOINT 24 -INCH DIAMETER AND SMALLER FITTINGS, INCLUDING WEDGE TYPE RETAINER GLANDS	1.80	TONS	9,200	00	16,560	00
0149	603.98101204 POLYVINYL CHLORIDE (PVC) SEWER PIPE & FITTINGS 12" DIAMETER	48.00	L.F.	11	00	528	00
0150	606.30330008 CONCRETE MEDIAN BARRIER (MODIFIED)	13.80	L.F.	424	00	5,851	20
0151	606.3053 SINGLE-SLOPE CONCRETE MEDIAN BARRIER - EXTRA-WIDE (CAST-IN-PLACE)	20.00	L.F.	446	00	8,920	00
0152	606.3061 SINGLE-SLOPE CONCRETE HALF SECTION BARRIER (OPTIONAL)	260.00	L.F.	350	00	91,000	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0153	606.3063 SINGLE-SLOPE CONCRETE HALF SECTION BARRIER (CAST IN PLACE)	819.00	L.F.	351	00	287,469	00
0154	606.90000011 CONCRETE MEDIAN BARRIER TRANSITION (CAST-IN-PLACE)	40.00	L.F.	363	00	14,520	00
0155	61.11DMM06 FURNISHING AND DELIVERING 6-INCH MECHANICAL JOINT DUCTILE IRON GATE VALVE COMPLETE WITH WEDGE TYPE RETAINER GLANDS	3.00	EACH	1,730	00	5,190	00
0156	61.11DMM12 FURNISHING AND DELIVERING 12-INCH MECHANICAL JOINT DUCTILE IRON GATE VALVE COMPLETE WITH WEDGE TYPE RETAINER GLANDS	3.00	EACH	5,000	00	15,000	00
0157	61.12DMM06 SETTING 6-INCH MECHANICAL JOINT DUCTILE IRON GATE VALVE COMPLETE WITH WEDGE TYPE RETAINER GLANDS	3.00	EACH	822	00	2,466	00
0158	61.12DMM12 SETTING 12-INCH MECHANICAL JOINT DUCTILE IRON GATE VALVE COMPLETE WITH WEDGE TYPE RETAINER GLANDS	3.00	EACH	1,230	00	3,690	00
0159	619.01991308 BARRIER/SHADOW VEHICLE	464.00	DAY	425	00	197,200	00
0160	619.1802 TEMPORARY IMPACT ATTENUATOR	7.00	EACH	31,710	00	221,970	00

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0161	619.1812 TEMPORARY IMPACT ATTENUATOR - GATING (TEST LEVEL 2)	7.00	EACH	10,790	00	75,530	00
0162	619.3610 QUICK-CHANGE MOVEABLE CONCRETE BARRIER TRANSFER VEHICLE (QMCBTV) - LEASE & MAINTAIN	11.00	MONTH	75,000	00	825,000	00
0163	619.3614 QUICK-CHANGE MOVEABLE CONCRETE BARRIER (QMCB) - PURCHASE & DELIVERY	1,906.00	L.F.	350	00	667,100	00
0164	619.37 QUICK-CHANGE MOVEABLE CONCRETE BARRIER (QMCB) - OPERATION	3,190.00	L.F.	66	00	210,540	00
0165	62.11SD FURNISHING AND DELIVERING HYDRANTS	2.00	EACH	8,170	00	16,340	00
0166	62.12SG SETTING HYDRANTS COMPLETE WITH WEDGE TYPE RETAINER GLANDS	5.00	EACH	1,780	00	8,900	00
0167	62.13RH REMOVING HYDRANTS	4.00	EACH	900	00	3,600	00
0168	62.14FS FURNISHING, DELIVERING AND INSTALLING HYDRANT FENDERS	6.00	EACH	600	00	3,600	00

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COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0169	623.12 CRUSHED STONE (IN- PLACE MEASURE)	282.00	C.Y.	136	00	38,352	00
0170	63.11VC FURNISHING AND DELIVERING VARIOUS CASTINGS	1.30	TONS	1,500	00	1,950	00
0171	644.11 ANCHOR BOLTS	1,710.00	LBS.	10	00	17,100	00
0172	644.20 DRILLED SHAFT FOR OVERHEAD SIGN STRUCTURES	88.00	C.Y.	3,000	00	264,000	00
0173	644.421525 TRUSSED ARM CANTILEVER SIGN STRUCTURE (15YD ARM, 25SY AREA)	1.00	EACH	50,000	00	50,000	00
0174	644.434590 SINGLE SPAN SIGN STRUCTURE (45YD SPAN, 90SY AREA)	1.00	EACH	50,000	00	50,000	00
0175	645.62 OVERHEAD SIGN PANELS WITH HIGH-VISIBILITY SHEETING	292.00	S.F.	52	00	15,184	00
0176	647.20 REMOVAL OF CANTILEVER OVERHEAD SIGN PANEL(S), STRUCTURE, AND FOUNDATIONS	1.00	EACH	16,200	00	16,200	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0177	**647.21** REMOVAL OF SINGLE SPAN OVERHEAD SIGN PANEL(S), STRUCTURE, AND FOUNDATIONS	1.00	EACH	20,000	00	20,000	00
0178	**65.11BR** FURNISHING, DELIVERING AND INSTALLING BANDS, RODS, WASHERS, ETC., COMPLETE, FOR RESTRAINING JOINTS	7,417.00	LBS.	11	00	81,587	00
0179	**65.21PS** FURNISHING AND PLACING POLYETHYLENE SLEEVE	20.00	L.F.	44	00	880	00
0180	**65.31FF** FURNISHING, DELIVERING AND PLACING FILTER FABRIC	9,175.00	S.F.	1	00	9,175	00
0181	**65.41PS06** FURNISHING, DELIVERING AND INSTALLING 6-INCH PIPE-TO-WALL PENETRATION SEAL, INCLUDING STEEL SLEEVE AND ANCHOR/WATER STOP PLATE	1.00	EACH	2,120	00	2,120	00
0182	**65.41PS12** FURNISHING, DELIVERING AND INSTALLING 12-INCH PIPE-TO-WALL PENETRATION SEAL, INCLUDING STEEL SLEEVE AND ANCHOR/WATER STOP PLATE	16.00	EACH	2,420	00	38,720	00
0183	**65.41PS16** FURNISHING, DELIVERING AND INSTALLING 16-INCH PIPE-TO-WALL PENETRATION SEAL, INCLUDING STEEL SLEEVE AND ANCHOR/WATER STOP PLATE	7.00	EACH	4,000	00	28,000	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0184	65.41PS20 FURNISHING, DELIVERING AND INSTALLING 20-INCH PIPE-TO-WALL PENETRATION SEAL, INCLUDING STEEL SLEEVE AND ANCHOR/WATER STOP PLATE	3.00	EACH	4,420	00	13,260	00
0185	65.71SG FURNISHING, DELIVERING AND PLACING SCREENED GRAVEL OR SCREENED BROKEN STONE BEDDING	44.00	C.Y.	126	00	5,544	00
0186	654.5032 EXPENDABLE IMPACT ATTENUATOR, TL 3, >2 FT OBSTRUCTION WIDTH<= 5 FT	1.00	EACH	43,150	00	43,150	00
0187	698.05 FUEL PRICE ADJUSTMENT PRICE BID SHALL BE FOR THE FIXED SUM OF $ 100,000.00	1.00	F.S.	100,000	00	$100,000	00
0188	698.06 STEEL/IRON PRICE ADJUSTMENT PRICE BID SHALL BE FOR THE FIXED SUM OF $ 1,000,000.00	1.00	F.S.	1,000,000	00	$1,000,000	00
0189	7.12 A PROCTOR ANALYSIS	60.00	EACH	319	00	19,140	00
0190	7.12 B IN-PLACE SOIL DENSITY TEST	60.00	EACH	101	00	6,060	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0191	7.13 B MAINTENANCE OF SITE Unit price bid shall not be less than: $ 21,670.00	46.50	MONTH	21,670	00	1,007,655	00
0192	7.16 D TEST PITS	800.00	C.Y.	800	00	640,000	00
0193	7.36 PEDESTRIAN STEEL BARRICADES	295.00	L.F.	11	00	3,245	00
0194	7.88 AA RODENT INFESTATION SURVEY AND MONITORING Unit price bid shall not be less than: $ 81,265.00	1.00	L.S.	81,265	00	81,265	00
0195	7.88 AB RODENT BAIT STATIONS Unit price bid shall not be less than: $ 81.00	200.00	EACH	81	00	16,200	00
0196	7.88 AC BAITING OF RODENT BAIT STATIONS Unit price bid shall not be less than: $ 11.00	18,000.00	EACH	11	00	198,000	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0197	7.88 AD WATERBUG BAIT APPLICATIONS Unit price bid shall not be less than: $ 81.00	20.00	BLOCK	81	00	1,620	00
0198	70.11SH STRUCTURAL STEEL H PILES	436.00	V.F.	120	00	52,320	00
0199	70.11TT TIMBER PILES (TREATED)	1,925.00	V.F.	60	00	115,500	00
0200	70.81CB CLEAN BACKFILL Unit price bid shall not be less than: $ 16.45	4,160.00	C.Y.	36	00	149,760	00
0201	70.91SW12 FURNISHING AND PLACING SHEETING AND BRACING IN TRENCH FOR WATER MAIN PIPE 12-INCH IN DIAMETER AND LESS	775.00	S.F.	9	00	6,975	00
0202	72.11HF HYDRAULIC FILL FOR ABANDONED SEWERS AND WATER MAINS	69.00	C.Y.	280	00	19,320	00
0203	73.21AC ADDITIONAL CONCRETE	38.50	C.Y.	300	00	11,550	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0204	73.41AG ADDITIONAL SELECT GRANULAR BACKFILL	25.00	C.Y.	90	00	2,250	00
0205	73.51AS ADDITIONAL STEEL REINFORCING BARS	2,280.00	LBS.	2	00	4,560	00
0206	76.11CR-L CONSTRUCTION REPORT FOR REACH L	1.00	L.S.	25,000	00	25,000	00
0207	76.11CR-M CONSTRUCTION REPORT FOR REACH M	1.00	L.S.	25,000	00	25,000	00
0208	76.11CR-N CONSTRUCTION REPORT FOR REACH N	1.00	L.S.	25,000	00	25,000	00
0209	76.11CR-O CONSTRUCTION REPORT FOR REACH O	1.00	L.S.	25,000	00	25,000	00
0210	76.11CR-Q CONSTRUCTION REPORT FOR REACH Q	1.00	L.S.	25,000	00	25,000	00
0211	76.21MR-L MONITORING AND POST-CONSTRUCTION REPORT FOR REACH L	1.00	L.S.	150,000	00	150,000	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0212	**76.21MR-M** MONITORING AND POST-CONSTRUCTION REPORT FOR REACH M	1.00	L.S.	100,000	00	100,000	00
0213	**76.21MR-N** MONITORING AND POST-CONSTRUCTION REPORT FOR REACH N	1.00	L.S.	250,000	00	250,000	00
0214	**76.21MR-O** MONITORING AND POST-CONSTRUCTION REPORT FOR REACH O	1.00	L.S.	250,000	00	250,000	00
0215	**76.21MR-Q** MONITORING AND POST-CONSTRUCTION REPORT FOR REACH Q	1.00	L.S.	150,000	00	150,000	00
0216	**8.02 A** SPECIAL CARE EXCAVATION AND RESTORATION FOR SIDEWALK WORK	2,500.00	S.F.	8	00	20,000	00
0217	**8.02 B** SPECIAL CARE EXCAVATION AND RESTORATION FOR CURB WORK	520.00	L.F.	80	00	41,600	00
0218	**8.08** VARIABLE MESSAGE BOARD	15.00	EACH	25,000	00	375,000	00
0219	**9.06 HW** ALLOWANCE FOR DECORATIVE MESH FABRIC **PRICE BID SHALL BE FOR THE FIXED SUM OF $ 150,000.00**	1.00	F.S.	150,000	00	$150,000	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0220	9.99 FLASHING ARROW BOARD	10.00	EACH	7,000	00	70,000	00
0221	9.99 A FLASHING ARROW BOARD WITH IMPACT ATTENUATOR	6.00	EACH	50,250	00	301,500	00
0222	ESCR 6.01 AB CLEARING AND GRUBBING	5.20	ACRE	25,000	00	130,000	00
0223	ESCR 9.30 STORM WATER POLLUTION PREVENTION	1.00	L.S.	50,000	00	50,000	00
0224	ESCR-10 AIR QUALITY MONITORING	48.00	MONTH	2,000	00	96,000	00
0225	ESCR-11 NOISE MONITORING	48.00	MONTH	5,000	00	240,000	00
0226	ESCR-2 TP JET GROUT TEST PROGRAM	1.00	L.S.	1,000,000	00	1,000,000	00
0227	ESCR-2.A JET GROUTING FOR UTILITY CROSSING SEEPAGE BARRIER - ANGLED	429.00	C.Y.	2,150	00	922,350	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0228	**ESCR-2.AO** ANGLED JET GROUTING FOR UTILITY CROSSINGS FOR FLOODWALLS AND FLOODWALL FOUNDATIONS WITH OBSTRUCTIONS (SEWER UTILITY CROSSINGS ONLY)	23.00	C.Y.	2,115	00	48,645	00
0229	**ESCR-2.FD** JET GROUTING FOR GATE AND FLOODWALL FOUNDATION	4,011.00	C.Y.	1,500	00	6,016,500	00
0230	**ESCR-2.FDO** VERTICAL JET GROUTING FOR UTILITY CROSSINGS FOR FLOODWALLS AND FLOODWALL FOUNDATIONS WITH OBSTRUCTIONS	199.00	C.Y.	2,100	00	417,900	00
0231	**ESCR-2.GC** JET GROUTING FOR GATE CROSSING SEEPAGE BARRIER	338.00	C.Y.	2,100	00	709,800	00
0232	**ESCR-2.GCO** JET GROUTING FOR FLOOD GATE FOUNDATIONS AND SEEPAGE BARRIER WITH OBSTRUCTIONS	18.00	C.Y.	2,100	00	37,800	00
0233	**ESCR-4.06 HP FL** CONCRETE FOR FLOODWALL AND GATES	7,840.00	C.Y.	2,006	00	15,727,040	00
0234	**ESCR-4.06 PF** CONCRETE PARK FEATURES	687.00	C.Y.	1,700	00	1,167,900	00
0235	**ESCR-4.06 UC** CONCRETE FOR UTILITY CROSSINGS AND GATE SEEPAGE WALL CLOSURE POURS	134.00	C.Y.	500	00	67,000	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0236	**ESCR-4.11 AS** EARTH EXCAVATION FOR STRUCTURES	7,326.00	C.Y.	300	00	2,197,800	00
0237	**ESCR-4.11 CA** FILL, PLACE MEASUREMENT	9,203.00	C.Y.	45	00	414,135	00
0238	**ESCR-4.11 CC** SELECT GRANULAR FILL, PLACE MEASUREMENT	27.00	C.Y.	85	00	2,295	00
0239	**ESCR-4.14** EPOXY-COATING STEEL REINFORCEMENT	1,637,219.00	LBS.	2	00	3,274,438	00
0240	**ESCR-4.25 HAZ** HAZARDOUS INVESTIGATION DERIVED WASTE	100.00	DRUMS	396	00	39,600	00
0241	**ESCR-4.25 IDW** INVESTIGATION DERIVED WASTE (NON-HAZARDOUS)	100.00	DRUMS	229	00	22,900	00
0242	**ESCR-4.25 MGP** MGP-CONTAMINATED INVESTIGATION DERIVED WASTE (NON-HAZARDOUS)	112.00	DRUMS	1,060	00	118,720	00
0243	**ESCR-4.25 PFT** ADD/DEDUCT PRICE FOR ADDITIONAL/REDUCED RECOVERY WELL FOOT (BEYOND/LESS THAN THE BASE 35 FOOT RECOVERY WELL UNDER 4.23 RW)	665.00	FOOT	125	00	83,125	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS	
0244	**ESCR-4.25 RW** RECOVERY WELL INSTALLED TO 35 FEET BELOW GRADE	19.00	EACH	15,540	00	295,260	00	
0245	**ESCR-50.L.1** ESCR 50.L.1 FURNISH AND INSTALL FABRICATED STEEL FLOODGATE	1.00	L.S.	250,000	00	250,000	00	
0246	**ESCR-50.L.2** ESCR 50.L.2 FURNISH AND INSTALL FABRICATED STEEL FLOODGATE	1.00	L.S.	1,000,000	00	1,000,000	00	
0247	**ESCR-50.N.1** ESCR 50.N.1 FURNISH AND INSTALL FABRICATED STEEL FLOODGATE	1.00	L.S.	1,798,017 ~~2,000,000~~	34 00	1,798,017 ~~2,000,000~~	34 ~~00~~	A.E
0248	**ESCR-50.N.2** ESCR 50.N.2 FURNISH AND INSTALL FABRICATED STEEL FLOODGATE	1.00	L.S.	1,500,000	00	1,500,000	00	
0249	**ESCR-50.N.3** ESCR 50.N.3 FURNISH AND INSTALL FABRICATED STEEL FLOODGATE	1.00	L.S.	3,500,000	00	3,500,000	00	
0250	**ESCR-50.N.4** ESCR 50.N.4 FURNISH AND INSTALL FABRICATED STEEL FLOODGATE	1.00	L.S.	3,500,000	00	3,500,000	00	
0251	**ESCR-50.N.5** ESCR 50.N.5 FURNISH AND INSTALL FABRICATED STEEL FLOODGATE	1.00	L.S.	3,500,000 ~~4,750,000~~	00 ~~00~~	3,500,000 ~~4,750,000~~	00 ~~00~~	A.E

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0252	**ESCR-50.O.1** ESCR 50.O.1 FURNISH AND INSTALL FABRICATED STEEL FLOODGATE	1.00	L.S.	1,750,000	00	1,750,000	00
0253	**ESCR-50.Q.1** ESCR 50.Q.1 FURNISH AND INSTALL FABRICATED STEEL FLOODGATE	1.00	L.S.	~~3,500,000~~ 1,750,000	~~00~~ 00	~~3,500,000~~ 1,750,000	~~00~~ 00
0254	**ESCR-50.Q.2** ESCR 50.Q.2 FURNISH AND INSTALL FABRICATED STEEL FLOODGATE	1.00	L.S.	1,000,000	00	1,000,000	00
0255	**ESCR-50.Q.3** ESCR 50.Q.3 FURNISH AND INSTALL FABRICATED STEEL FLOODGATE	1.00	L.S.	2,000,000	00	2,000,000	00
0256	**ESCR-50.Q.4** ESCR 50.Q.4 FURNISH AND INSTALL FABRICATED STEEL FLOODGATE	1.00	L.S.	~~3,500,000~~ 1,750,000	~~00~~ 00	~~3,500,000~~ 1,750,000	~~00~~ 00
0257	**ESCR-50.SL** FURNISH AND INSTALL FABRICATED STEEL LADDER	10.00	EACH	4,330	00	43,300	00
0258	**ESCR-551.24.05 DT** 24 IN. DIAMETER X 0.5 IN. WALL THICKNESS STEEL PIPE PILE - DYNAMIC PILE LOAD TESTING	1.00	PER TEST	14,000	00	14,000	00
0259	**ESCR-551.24.05 LT** 24 IN. DIAMETER X 0.5 IN. WALL THICKNESS STEEL PIPE PILE - LATERAL PILE LOAD TESTING	1.00	PER TEST	44000	00	44,000	00

A.E

Department of Design and Construction

5/26/2020 12:21 PM

NEW YORK CITY DEPARTMENT OF DESIGN AND CONSTRUCTION

DIVISION OF INFRASTRUCTURE - BUREAU OF DESIGN

PROJECT ID: SANDRESM2
CONTRACT PIN: 8502020RC0002C
REBID: N/A

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0260	**ESCR-551.24.05 RS** ROCK SOCKET FOR 24 IN. DIAMETER X 0.5 IN. WALL THICKNESS STEEL PIPE PILE	4.00	EACH	16,000	00	64,000	00
0261	**ESCR-551.24.05 ST** 24 IN. DIAMETER X 0.5 IN. WALL THICKNESS STEEL PIPE PILE - STATIC COMPRESSION TESTING	1.00	PER TEST	118,000	00	118,000	00
0262	**ESCR-551.24.05.C** COATED 24 IN. DIAMETER X 0.5 IN. WALL THICKNESS STEEL PIPE PILE	853.00	L.F.	320	00	272,960	00
0263	**ESCR-551.24.05.CJG** COATED 24 IN. DIAMETER X 0.5 IN. WALL THICKNESS STEEL PIPE PILE PLACED IN THE JET GROUT COLUMN	676.00	L.F.	331	00	223,756	00
0264	**ESCR-551.30.01.CJG** COATED 30 IN. DIAMETER X 1.0 IN. WALL THICKNESS STEEL PIPE PILE PLACED IN THE JET GROUT COLUMN	550.00	L.F.	457	00	251,350	00
0265	**ESCR-551.30.1 LT** 30 IN. DIAMETER X 1.0 IN. WALL THICKNESS STEEL PIPE PILE - LATERAL PILE LOAD TESTING	1.00	PER TEST	43,000	00	43,000	00
0266	**ESCR-551.30.1 ST** STATIC COMPRESSION TESTING	1.00	PER TEST	105,000	00	105,000	00
0267	**ESCR-551.993.9625** 9.625 IN. O.D. X 0.54 IN. WALL THICKNESS MICROPILE	4,928.00	L.F.	500. ~~350~~	00 ~~00~~	2,464,000. ~~1,724,800~~	00 ~~00~~ AE

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS	
0268	**ESCR-551.993.9625C** PILE LOAD TESTING FOR 9.625 IN. O.D. X 0.54 IN. WALL THICKNESS MICROPILE - STATIC COMPRESSION TEST	2.00	PER TEST	61,000	00	122,000	00	
0269	**ESCR-551.993.9625T** PILE LOAD TESTING FOR 9.625 IN. O.D. X 0.54 IN. WALL THICKNESS MICROPILE - STATIC TENSION TEST	2.00	PER TEST	26,000	00	52,000	00	
0270	**ESCR-552.11 19 CPI** COATED AZ-19-700 OR EQUAL STEEL SHEET PILE INSTALLED USING THE PRESS-IN METHOD	36,760.00	S.F.	~~82~~ 100	~~00~~ 00	~~3,014,320~~ 3,676,000	~~00~~ 00	AE
0271	**ESCR-552.11 46 CPI** COATED AZ-46-700N OR EQUAL STEEL SHEET PILE INSTALLED USING THE PRESS-IN METHOD	73,843.00	S.F.	60 ~~55~~	00 ~~00~~	4,430,580 ~~4,061,365~~	00 ~~00~~	A.E
0272	**ESCR-6.25 GS** FURNISH AND INSTALL GREENWAY REROUTING SIGN AND POST	115.00	EACH	50	00	5,750	00	
0273	**ESCR-6.25 GSX** REMOVE GREENWAY REROUTING SIGN AND POST	115.00	EACH	108	00	12,420	00	
0274	**ESCR-6.27 CB** DEMOLITION OF THE EXISTING CONCRETE BARRIER	916.00	L.F.	200	00	183,200	00	
0275	**ESCR-6.27 S** DEMOLITION OF STRUCTURES	250.00	C.Y.	400	00	100,000	00	

BID SCHEDULE FORM

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0276	**ESCR-6.27 TC** DEMOLITION OF EXISTING ROCK FILLED TIMBER CRIBBING ON GRAVITY WALL	250.00	C.Y.	350	00	87,500	00
0277	**ESCR-7.18** CONTROLLED LOW STRENGTH MATERIAL	2,088.00	C.Y.	350	00	730,800	00
0278	**ESCR-8.01 C1** HANDLING, TRANSPORTING, AND DISPOSAL OF NON-HAZARDOUS CONTAMINATED SOIL	1,000.00	TONS	34	00	34,000	00
0279	**ESCR-8.01 C1MGP** HANDLING, TRANSPORTING, AND DISPOSAL OF NON-HAZARDOUS MGP CONTAMINATED SOIL	1,000.00	TONS	66	00	66,000	00
0280	**ESCR-8.01 C2** SAMPLING AND TESTING OF CONTAMINATED/POTENTIALLY HAZARDOUS SOIL FOR DISPOSAL PURPOSES	100.00	SETS	1,110	00	111,000	00
0281	**ESCR-8.01 H** HANDLING, TRANSPORTING, AND DISPOSAL OF HAZARDOUS SOIL	1,000.00	TONS	201	00	201,000	00
0282	**ESCR-8.01 S** HEALTH AND SAFETY	1.00	L.S.	150,000	00	150,000	00

BID SCHEDULE FORM

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0283	ESCR-8.01 W1 REMOVAL, TREATMENT, AND DISCHARGE/DISPOSAL OF CONTAMINATED WATER	180.00	DAY	1,200.	00	216,000	00
0284	ESCR-8.01 W2-1 NYCDEP - SAMPLING AND TESTING OF CONTAMINATED WATER	50.00	SETS	960	00	48,000	00
0285	HW-900 ALLOWANCE FOR MAXIMUM INCENTIVE FOR EARLY COMPLETION PRICE BID SHALL BE FOR THE FIXED SUM OF $ 1,900,000.00	1.00	F.S.	1,900,000	00	$1,900,000	00
0286	HW-900H ALLOWANCE FOR CITY WORK ACCELERATION PRICE BID SHALL BE FOR THE FIXED SUM OF $ 1,400,000.00	1.00	F.S.	1,400,000	00	$1,400,000	00
0287	HW-900P ALLOWANCE FOR MAXIMUM INCENTIVE FOR EARLY PHASE COMPLETION PRICE BID SHALL BE FOR THE FIXED SUM OF $ 1,900,000.00	1.00	F.S.	1,900,000	00	$1,900,000	00
0288	HW-908 ALLOWANCE FOR EXTRA WORK DUE TO ARCHAEOLOGICAL DISCOVERIES PRICE BID SHALL BE FOR THE FIXED SUM OF $ 1,000,000.00	1.00	F.S.	1,000,000	00	$1,000,000	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0289	JB 100.1(ECS) UTILITIES CROSSING TRENCH FOR CATCH BASIN CHUTE CONNECTION AND/OR TEST PIT (TYPE .1) Unit price bid shall not be less than: $ 595.00	5.00	EACH	600	00	3,000	00
0290	JB 101.1(CE) UTILITIES CROSSING TRENCH FOR SEWERS OVER 12" TO 24" DIAMETER (TYPE .1) Unit price bid shall not be less than: $ 3,021.00	3.00	EACH	3,767	00	11,301	00
0291	JB 101.2(CE) UTILITIES CROSSING TRENCH FOR SEWERS OVER 12" TO 24" DIAMETER (TYPE .2) Unit price bid shall not be less than: $ 3,777.00	1.00	EACH	4,828	00	4,828	00
0292	JB 103.1(ECS) SUPPORT OF FACILITIES UP TO & INCULDING 0.75 S.F. CROSSING SEWERS OVER 36" UP TO & INCLUDING 48" IN DIAMETER Unit price bid shall not be less than: $ 3,971.00	5.00	EACH	6,170	00	30,850	00
0293	JB 105.1(CE) UTILITIES CROSSING TRENCH FOR SEWERS OVER 54" TO 60" DIAMETER (TYPE .1) Unit price bid shall not be less than: $ 4,220.00	2.00	EACH	9,280	00	18,560	00
0294	JB 105.2(CE) UTILITIES CROSSING TRENCH FOR SEWERS OVER 54" TO 60" DIAMETER (TYPE .2) Unit price bid shall not be less than: $ 4,989.00	2.00	EACH	9,280	00	18,560	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0295	JB 117A.1(CE) UTILITIES CROSSING DRILLED SHAFT PILES FOR FLOOD WALL/GATE (TYPE .1) **Unit price bid shall not be less than: $ 4,771.00**	3.00	EACH	5,080	00	15,240	00
0296	JB 117A.2(CE) UTILITIES CROSSING DRILLED SHAFT PILES FOR FLOOD WALL/GATE (TYPE .2) **Unit price bid shall not be less than: $ 5,764.00**	1.00	EACH	5,800	00	5,800	00
0297	JB 117A.3(CE) UTILITIES CROSSING DRILLED SHAFT PILES FOR FLOOD WALL/GATE (TYPE .3) **Unit price bid shall not be less than: $ 7,019.00**	1.00	EACH	7,019	00	7,019	00
0298	JB 117B.1(CE) UTILITIES CROSSING SHEET PILES FOR FLOOD WALL/GATE (TYPE .1) **Unit price bid shall not be less than: $ 4,771.00**	1.00	EACH	5,160	00	5,160	00
0299	JB 117B.2(CE) UTILITIES CROSSING SHEET PILES FOR FLOOD WALL/GATE (TYPE .2) **Unit price bid shall not be less than: $ 5,764.00**	1.00	EACH	5,764	00	5,764	00
0300	JB 117B.3(CE) UTILITIES CROSSING SHEET PILES FOR FLOOD WALL/GATE (TYPE .3) **Unit price bid shall not be less than: $ 7,019.00**	1.00	EACH	7,019	00	7,019	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0301	**JB 118A.1(CE)** UTILITIES CROSSING THROUGH FLOOD WALL/GATES ON DRILLED SHAFT PILES (TYPE.1) **Unit price bid shall not be less than: $ 6,202.00**	12.00	EACH	6,910	00	82,920	00
0302	**JB 118A.2(CE)** UTILITIES CROSSING THROUGH FLOOD WALL/GATES ON DRILLED SHAFT PILES (TYPE.2) **Unit price bid shall not be less than: $ 7,493.00**	3.00	EACH	7,493	00	22,479	00
0303	**JB 118A.3(CE)** UTILITIES CROSSING THROUGH FLOOD WALL/GATES ON DRILLED SHAFT PILES (TYPE.3) **Unit price bid shall not be less than: $ 9,125.00**	2.00	EACH	9,125	00	18,250	00
0304	**JB 118B.1(CE)** UTILITIES CROSSING THROUGH FLOOD WALL/GATES ON SHEET PILES (TYPE.1) **Unit price bid shall not be less than: $ 6,202.00**	11.00	EACH	6,202	00	68,222	00
0305	**JB 118B.2(CE)** UTILITIES CROSSING THROUGH FLOOD WALL/GATES ON SHEET PILES (TYPE.2) **Unit price bid shall not be less than: $ 7,493.00**	7.00	EACH	7,493	00	52,451	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0306	**JB 118B.3(CE)** UTILITIES CROSSING THROUGH FLOOD WALL/GATES ON SHEET PILES (TYPE.3) **Unit price bid shall not be less than: $ 9,125.00**	1.00	EACH	9,125	00	9,125	00
0307	**JB 225(ECS)** INSTALLATION AND REMOVAL OF CATCH BASINS WITH UTILITY INTERFERENCES **Unit price bid shall not be less than: $ 2,925.00**	4.00	EACH	4,300	00	17,200	00
0308	**JB 300(CE)** SPECIAL CARE EXCAVATION AND BACKFILLING **Unit price bid shall not be less than: $ 231.00**	80.00	C.Y.	277	00	22,160	00
0309	**JB 301(CE)** SPECIAL CARE EXCAVATION AND BACKFILLING FOR OIL-O-STATIC PIPE **Unit price bid shall not be less than: $ 285.00**	360.00	C.Y.	344	00	123,840	00
0310	**JB 302(CE)** FIELD COATING OF OIL-O-STATIC FEEDER PIPES **Unit price bid shall not be less than: $ 35.00**	300.00	L.F.	116	00	34,800	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0311	JB 303(CE) FURNISH, DELIVER AND INSTALL TYPE 3/8 CLEAN SAND BACKFILL Unit price bid shall not be less than: $ 38.25	500.00	C.Y.	50	00	25,000	00
0312	JB 330E.1(CE) SUPPORT AND PROTECTION OF ELECTRIC AND GAS FACILITIES DURING EXCAVATION OF CITY TRENCH WHEN FACILITIES LIE WITHIN TRENCH LIMITS (TYPE .1) Unit price bid shall not be less than: $ 24.75	320.00	L.F.	166	00	53,120	00
0313	JB 330E.2(CE) SUPPORT AND PROTECTION OF ELECTRIC AND GAS FACILITIES DURING EXCAVATION OF CITY TRENCH WHEN FACILITIES LIE WITHIN TRENCH LIMITS (TYPE .2) Unit price bid shall not be less than: $ 30.00	210.00	L.F.	169	00	35,490	00
0314	JB 330T1(ECS) SUPPORT AND PROTECTION OF COMMUNICATION UTILITY FACILITIES DURING EXCAVATION OF CITY TRENCH WHEN PARALLELING COMMUNICATION FACILITIES LIE COMPLETELY IN THE PROPOSED TRENCH Unit price bid shall not be less than: $ 115.00	250.00	L.F.	212	00	53,000	00
0315	JB 400(CE) TEST PITS FOR UTILITY FACILITIES Unit price bid shall not be less than: $ 197.00	60.00	C.Y.	244	00	14,640	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0316	JB 400(ECS) TEST PITS FOR UTILITY FACILITIES Unit price bid shall not be less than: $ 218.00	40.00	C.Y.	255	00	10,200	00
0317	JB 400A(CE) SURVEYED AND DRAFTED TEST PITS FOR UTILITY FACILITIES Unit price bid shall not be less than: $ 297.00	100.00	C.Y.	897	00	89,700	00
0318	JB 401(CE) TRENCH EXCAVATION FOR ADJUSTMENT OF UTILITY FACILITIES Unit price bid shall not be less than: $ 237.00	80.00	C.Y.	297	00	23,760	00
0319	JB 401(ECS) TRENCH EXCAVATION FOR ADJUSTMENT OF UTILITY FACILITIES Unit price bid shall not be less than: $ 228.00	450.00	C.Y.	310	00	139,500	00
0320	JB 402.1A(CE) EXISTING CONCRETE ENCASED CONDUITS PLACED IN FINAL POSITION WITH CONCRETE ENCASEMENT Unit price bid shall not be less than: $ 75.00	400.00	L.F.	100	00	40,000	00
0321	JB 402.2A(CE) EXISTING NON-CONCRETE ENCASED CONDUITS PLACED IN FINAL POSITION WITH CONCRETE ENCASEMENT Unit price bid shall not be less than: $ 48.75	400.00	L.F.	61	00	24,400	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0322	**JB 402T.1A(ECS)** EXISTING CONCRETE ENCASED TELECOMMUNICATION CONDUITS PLACED IN FINAL POSITION WITH CONCRETE ENCASEMENT **Unit price bid shall not be less than: $ 57.63**	1,500.00	L.F.	58	00	87,000	00
0323	**JB 402T.R2A(ECS)** EXISTING NON - CONCRETE ENCASED STEEL/IRON CONDUITS PLACED IN FINAL POSITION WITH CONCRETE ENCASEMENT **Unit price bid shall not be less than: $ 37.54**	160.00	L.F.	56	00	8,960	00
0324	**JB 402T.V1A(ECS)** EXISTING VACANT CONCRETE ENCASED TELECOMMUNICATION CONDUITS PLACED IN FINAL POSITION WITH CONCRETE ENCASEMENT **Unit price bid shall not be less than: $ 53.00**	220.00	L.F.	56	00	12,320	00
0325	**JB 403(CE)** PLACING STEEL PROTECTION PLATES FOR UTILITY FACILITIES **Unit price bid shall not be less than: $ 2.25**	600.00	S.F.	5	00	3,000	00
0326	**JB 403T.1(ECS)** PLACING STEEL PROTECTION PLATES FOR UTILITY FACILITIES (1/4" THICK) **Unit price bid shall not be less than: $ 12.37**	200.00	S.F.	60	00	12,000	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0327	**JB 405.1(CE)** TRENCH EXCAVATION FOR INSTALLATION OF UTILITY FACILITIES WITH TOTAL DEPTHS LESS THAN FIVE FEET **Unit price bid shall not be less than: $ 203.00**	450.00	C.Y.	298	00	134,100	00
0328	**JB 405.1(ECS)** TRENCH EXCAVATION FOR INSTALLATION OF UTILITY FACILITIES WITH TOTAL DEPTHS LESS THAN FIVE FEET **Unit price bid shall not be less than: $ 361.10**	100.00	C.Y.	362	00	36,200	00
0329	**JB 405.2(CE)** TRENCH EXCAVATION FOR INSTALLATION OF UTILITY FACILITIES WITH TOTAL DEPTHS EQUAL TO OR GREATER THAN FIVE FEET, REQUIRING SHEETING **Unit price bid shall not be less than: $ 294.00**	820.00	C.Y.	356	00	291,920	00
0330	**JB 405.2(ECS)** TRENCH EXCAVATION FOR INSTALLATION OF UTILITY FACILITIES WITH TOTAL DEPTHS EQUAL TO OR GREATER THAN FIVE FEET, REQUIRING SHEETING **Unit price bid shall not be less than: $ 408.59**	20.00	C.Y.	409	00	8,180	00
0331	**JB 406(CE)** EXCAVATION FOR UTILITY STRUCTURE **Unit price bid shall not be less than: $ 229.00**	180.00	C.Y.	330	00	59,400	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0332	**JB 410.1(CE)** MASS TRENCH EXCAVATION FOR UTILITY FACILITIES UP TO AND INCLUDING 20% (TYPE .1) **Unit price bid shall not be less than: $ 280.00**	510.00	C.Y.	280	00	142,800	00
0333	**JB 410.2(CE)** MASS TRENCH EXCAVATION FOR UTILITY FACILITIES OVER 20% AND UP TO AND INCLUDING 40% (TYPE .2) **Unit price bid shall not be less than: $ 354.00**	230.00	C.Y.	354	00	81,420	00
0334	**JB 450.1(CE)** CONSTRUCTION FIELD SUPPORT - SURVEY CREW (TYPE .1) **Unit price bid shall not be less than: $ 274.00**	10.00	CREW/HR	858	00	8,580	00
0335	**JB 450.2(CE)** CONSTRUCTION FIELD SUPPORT - SMALL SIZE CREW (TYPE .2) **Unit price bid shall not be less than: $ 270.00**	480.00	CREW/HR	420	00	201,600	00
0336	**JB 450.3(CE)** CONSTRUCTION FIELD SUPPORT - MEDIUM SIZE CREW (TYPE .3) **Unit price bid shall not be less than: $ 770.00**	480.00	CREW/HR	1,160	00	556,800	00
0337	**JB 500(CE)** REMOVAL OF ABANDONED UTILITY CONDUITS (NON-CONCRETE ENCASED) **Unit price bid shall not be less than: $ 3.00**	18,416.00	L.F.	5	00	92,080	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0338	**JB 501(CE)** REMOVAL OF ABANDONED MASONRY FOR UTILITY FACILITIES **Unit price bid shall not be less than: $ 297.00**	10.00	C.Y.	390	00	3,900	00
0339	**JB 603E.1(CE)** INSTALL UTILITY CONDUITS PLACED IN FINAL POSITION WITHOUT CONCRETE ENCASEMENT **Unit price bid shall not be less than: $ 4.50**	6,043.00	L.F.	8	00	48,344	00
0340	**JB 603E.2(CE)** INSTALL UTILITY CONDUITS PLACED IN FINAL POSITION WITH CONCRETE ENCASEMENT **Unit price bid shall not be less than: $ 7.50**	7,386.00	L.F.	12	00	88,632	00
0341	**JB 603T.2(ECS)** INSTALL 2 EACH 2", 4" OR 1-1/4" QUAD CONDUITS (PVC OR STEEL) IN ANY COMBINATION **Unit price bid shall not be less than: $ 11.00**	250.00	L.F.	14	00	3,500	00
0342	**JB 603T.3(ECS)** INSTALL 4 EACH 4" OR 1-1/4" QUAD CONDUITS (PVC OR STEEL) IN ANY COMBINATION **Unit price bid shall not be less than: $ 22.00**	250.00	L.F.	22	00	5,500	00
0343	**JB 636 EA(CE)** ADJUSTMENT OF UTILITY HARDWARE (UNDER 7" WIDTH) **Unit price bid shall not be less than: $ 265.00**	1.00	EACH	290	00	290	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0344	JB 636 EB(CE) ADJUSTMENT OF UTILITY HARDWARE (7" TO UNDER 14" WIDTH) Unit price bid shall not be less than: $ 302.25	1.00	EACH	390	00	390	00
0345	JB 636 EC(CE) ADJUSTMENT OF UTILITY HARDWARE (14" TO UNDER 30" WIDTH) Unit price bid shall not be less than: $ 769.50	1.00	EACH	820	00	820	00
0346	JB 636 ED(CE) ADJUSTMENT OF UTILITY HARDWARE (30" TO UNDER 34" WIDTH) Unit price bid shall not be less than: $ 774.75	1.00	EACH	945	00	945	00
0347	JB 636 EE(CE) ADJUSTMENT OF UTILITY HARDWARE (34" TO UNDER 41" WIDTH) Unit price bid shall not be less than: $ 893.25	1.00	EACH	1,100	00	1,100	00
0348	JB 636 EG RD (ECS) ADJUSTMENT OF UTILITY HARDWARE (41" TO UNDER 75" WIDTH) IN ROADWAY Unit price bid shall not be less than: $ 540.00	3.00	EACH	1,250	00	3,750	00
0349	JB 636 R(CE) REPAIR TO UTILITY STRUCTURES Unit price bid shall not be less than: $ 208.00	10.00	C.Y.	6,000	00	60,000	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0350	**JB 636 SA(CE)** CONCRETE COLLAR AROUND STEAM CASTINGS **Unit price bid shall not be less than: $ 12.75**	200.00	S.F.	46	00	9,200	00
0351	**JB 638 N(CE)** INSTALLATION OF FIELD CONSTRUCTED UTILITY STRUCTURE **Unit price bid shall not be less than: $ 967.00**	250.00	C.Y.	1,425	00	356,250	00
0352	**JB 638 NT(ECS)** INSTALLATION OF FIELD CONSTRUCTED TELEPHONE UTILITY STRUCTURE **Unit price bid shall not be less than: $ 2,576.00**	30.00	C.Y.	2,600	00	78,000	00
0353	**JB 638 R(CE)** BREAK OUT AND REMOVE UTILITY STRUCTURE **Unit price bid shall not be less than: $ 780.00**	220.00	C.Y.	1,800	00	396,000	00
0354	**JB 638 R(ECS)** BREAK OUT AND REMOVE UTILITY STRUCTURE **Unit price bid shall not be less than: $ 5,088.59**	30.00	C.Y.	5,100	00	153,000	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0355	**JB 700(CE)** SPECIAL MODIFICATION OF WORK METHODS TO ACCOMMODATE/PROTECT UNDERGROUND FACILITIES WITH LIMITED COVER **Unit price bid shall not be less than: $ 46.00**	120.00	C.Y.	105	00	12,600	00
0356	**JB 700(ECS)** SPECIAL MODIFICATION OF WORK METHODS TO ACCOMMODATE/PROTECT UNDERGROUND FACILITIES WITH LIMITED COVER **Unit price bid shall not be less than: $ 95.00**	75.00	C.Y.	105	00	7,875	00
0357	**JB 711(CE)** USE SHEETING LINE AS FORM **Unit price bid shall not be less than: $ 7.50**	100.00	L.F.	11	00	1,100	00
0358	**JB 800(CE)** MODIFICATION OF TROLLEY STRUCTURE REMOVAL WHEN CROSSING UTILITY FACILITIES **Unit price bid shall not be less than: $ 158.00**	200.00	L.F.	220	00	44,000	00
0359	**JB 801(CE)** MODIFICATION OF TROLLEY STRUCTURE REMOVAL PARALLEL TO UTILITY FACILITIES **Unit price bid shall not be less than: $ 147.00**	420.00	L.F.	190	00	79,800	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0360	**JB 803.2(CE)** LINE CUT BY PNEUMATIC TOOLS IN LIEU OF SAW CUT ASSOCIATED WITH ROADWAY REMOVAL OPERATIONS (LINE CUT ANY COMBINATION OF ASPHALT AND CONCRETE ROADWAY) **Unit price bid shall not be less than: $ 8.25**	870.00	L.F.	12	50	10,875	00
0361	**JB 850(CE)** PLACING RUBBER SHEETS FOR UTILITY FACILITIES **Unit price bid shall not be less than: $ 3.00**	144.00	S.F.	16	00	2,304	00
0362	**JB 900(CE)** EXTRA UTILITY WORK COSTS ALLOWANCE **PRICE BID SHALL BE FOR THE FIXED SUM OF $ 780,758.00**	1.00	F.S.	780,758	00	$780,758	00
0363	**JB 900(ECS)** EXTRA UTILITY WORK COSTS ALLOWANCE **PRICE BID SHALL BE FOR THE FIXED SUM OF $ 100,000.00**	1.00	F.S.	100,000	00	$100,000	00
0364	**PK-10** BROKEN STONE, LOOSE MEASURE	148.00	C.Y.	260	02	38,482	96
0365	**PK-227B ADA** GRANITE BLOCK ON SAND- ACCESSIBLE	4,032.00	S.F.	70	00	282,240	00

BID SCHEDULE FORM

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0366	PK-305 CHAIN LINK FENCE 8'-0" HT.	183.00	L.F.	155	00	28,365	00
0367	PK-306 CHAIN LINK FENCE 10'-0" HT	6.00	L.F.	165	00	990	00
0368	PK-308 CHAIN LINK FENCE 12'-0" HT., 2" MESH	165.00	L.F.	201	00	33,165	00
0369	PK-316 SINGLE GATE FOR CHAIN LINK FENCE 8' HT. & OVER	2.00	EACH	5520	00	11,040	00
0370	PK-319 DOUBLE GATE FOR CHAIN LINK FENCE 8' HT.	1.00	EACH	9,660	00	9660	00
0371	PK-320 DOUBLE GATE FOR CHAIN LINK FENCE 10' HT. & OVER	1.00	EACH	10,120	00	10,120	00
0372	PK-667 TEMPORARY SHEETING	1,415.00	S.F.	20	00	28,300	00
0373	PK-669 PARKS LEAF CATCH BASIN COVER & FRAME	5.00	EACH	1,450	00	7,250	00

BID SCHEDULE FORM

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0374	**PK-685** DUCTILE IRON SEWER PIPE - 12" DIA.	80.00	L.F.	400	00	32,000	00
0375	**PK-ESCR 025** PLAY EQUIPMENT - MURPHY'S BROTHER'S	1.00	L.S.	300,000	00	300,000	00
0376	**PK-ESCR 028 A** 5" CONCRETE SIDEWALK WITH SPECIAL SCORING AND EXPOSED AGGREGATE SURFACE TREATMENT (SAW CUT TYPE JOINTS)	79,988.00	S.F.	25	00	1,999,700	00
0377	**PK-ESCR 028 B** 6" CONCRETE SIDEWALK WITH SPECIAL SCORING AND EXPOSED AGGREGATE SURFACE TREATMENT (SAW CUT TYPE JOINTS)	8,000.00	S.F.	30	00	240,000	00
0378	**PK-ESCR 031** GALVANIZED ESPLANADE SEA RAIL	1,375.00	L.F.	776	00	1,067,000	00
0379	**PK-ESCR 039** BENCH, 1939 WF RPL SLATS, 4' LENGTH	116.00	L.F.	428	00	49,648	00
0380	**PK-ESCR 044** PNEUMATIC EXCAVATION AROUND TREES	61.00	C.Y.	294	00	17,934	00
0381	**PK-ESCR 045 A** CIRCULAR TABLES AND CHAIRS TYPE 1	5.00	EACH	4,610	00	23,050	00

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0382	**PK-ESCR 045 B** CIRCULAR TABLE AND CHAIRS TYPE 1, ACCESSIBLE	3.00	EACH	4,520	00	13,560	00
0383	**PK-ESCR 070** CHAIN LINK FENCE 16'-0" HT.	110.00	L.F.	288	00	31,680	00
0384	**PK-ESCR 071** SINGLE GATE FOR CHAIN LINK FENCE 4' HT.	5.00	EACH	2,880	00	14,400	00
0385	**PK-ESCR 0712** TREE REMOVAL (6" - 12" DBH)	54.00	EACH	615	00	33,210	00
0386	**PK-ESCR 0712S** STUMP REMOVAL 6" TO 12" DIAMETER	1.00	EACH	362	00	362	00
0387	**PK-ESCR 073** DOUBLE GATE FOR CHAIN LINK FENCE 4' HT.	2.00	EACH	4,030	00	8,060	00
0388	**PK-ESCR 077** PIPE RAIL FENCE TYPE B 2 RAIL	3,000.00	L.F.	213	00	639,000	00
0389	**PK-ESCR 099** PLAY EQUIPMENT - ASSER LEVY	1.00	L.S.	209,300	00	209,300	00

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0390	**PK-ESCR 100** SWING - 7'-0" WITH INCLUSIVE SEAT AND TOT BUCKET SEAT - TYPE 2	2.00	EACH	27,940	00	55,880	00
0391	**PK-ESCR 105** THERMOPLASTIC EXTRUDED LINE 4" WIDTH	3,435.00	L.F.	1	00	3,435	00
0392	**PK-ESCR 106** THERMOPLASTIC HFPRM LINES, SYMBOLS	87.00	EACH	100	00	8,700	00
0393	**PK-ESCR 110 C10-12** CONIFER TREE PLANTING 10-12 FT. HEIGHT	3.00	EACH	1,240	00	3,720	00
0394	**PK-ESCR 110 C8-10** CONIFER TREE PLANTING 8-10 FT. HEIGHT	14.00	EACH	816	00	11,424	00
0395	**PK-ESCR 110 D2G** SHRUB 2 GALLON	482.00	EACH	55	00	26,510	00
0396	**PK-ESCR 110 D30-36** SHRUB 30-36 IN. HEIGHT	80.00	EACH	90	00	7,200	00
0397	**PK-ESCR 110 D3G** SHRUB 3 GALLON	239.00	EACH	73	00	17,447	00

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0398	**PK-ESCR 110 D5G** SHRUB 5 GALLON	1,248.00	EACH	89	00	111,072	00
0399	**PK-ESCR 110 M12-14** MULTI-STEM TREE PLANTING 12-14 FT. HEIGHT	14.00	EACH	1,110	00	15,540	00
0400	**PK-ESCR 110 M8-10** MULTI-STEM TREE PLANTING 8-10 FT. HEIGHT	12.00	EACH	646	00	7,752	00
0401	**PK-ESCR 110 OG1G** ORNAMENTAL GRASS 1 GALLON	10,682.00	EACH	22	00	235,004	00
0402	**PK-ESCR 110 OG1QT** ORNAMENTAL GRASS 1 QUART	3,537.00	EACH	16	00	56,592	00
0403	**PK-ESCR 110 PG1G** PERENNIAL/GROUNDCOVER 1 GALLON	4,593.00	EACH	20	00	91,860	00
0404	**PK-ESCR 110 T10G** TREE PLANTING 10 GALLON CONTAINER	11.00	EACH	460	00	5,060	00
0405	**PK-ESCR 110 T25-30** TREE PLANTING 2.5"-3.0" CALIPER	40.00	EACH	801	00	32,040	00

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0406	**PK-ESCR 110 T30-35** TREE PLANTING 3.0"-3.5" CALIPER	62.00	EACH	1,070	00	66,340	00
0407	**PK-ESCR 110 T6-8** TREE PLANTING 6-8 FT. HEIGHT	1.00	EACH	878	00	878	00
0408	**PK-ESCR 111** SYNTHETIC TURF-INFILL TYPE ON STONE BASE	19,995.00	S.F.	5	00	99,975	00
0409	**PK-ESCR 1318** TREE REMOVAL (12" - 18" DBH)	19.00	EACH	904	00	17,176	00
0410	**PK-ESCR 132** COLOR SEAL COAT SYSTEM	1,127.00	S.Y.	15	00	16,905	00
0411	**PK-ESCR 149** GEOTEXTILES-SEPARATION	143.00	S.Y.	22	00	3,146	00
0412	**PK-ESCR 152** BENCH, 1964 WORLD'S FAIR W/ RPL SLATS W/ ARMS, 4' LENGTH	116.00	L.F.	260	00	30,160	00
0413	**PK-ESCR 155** BENCH, TYPE "C" (SPORTS) W/ RPL SLATS - BACKLESS	84.00	L.F.	312	00	26,208	00

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0414	**PK-ESCR 156** BICYCLE RACK "HOOP"	8.00	EACH	1,250	00	10,000	00	
0415	**PK-ESCR 158** PICNIC TABLE - FIXED	3.00	EACH	2,310	00	6,930	00	
0416	**PK-ESCR 161** PUBLIC SPACE RECEPTACLE BINS	30.00	EACH	2,230	00	66,900	00	
0417	**PK-ESCR 167** CHAIN LINK FENCE 4'-0" HT.	643.00	L.F.	104	00	66,872	00	
0418	**PK-ESCR 170** STEEL FENCE 4'-0" HIGH	1,801.00	L.F.	230	00	414,230	00	
0419	**PK-ESCR 171** SINGLE GATE FOR STEEL FENCE 4'-0" HIGH	2.00	EACH	4,830	00	9,660	00	
0420	**PK-ESCR 173** DOUBLE GATE FOR STEEL FENCE 4'-0" HIGH	2.00	EACH	10,120	00	20,240 S.W. ~~20,420~~	00 00	S.W.
0421	**PK-ESCR 180** BASKETBALL BACKSTOP SINGLE POST (PC BACKBOARD)	4.00	EACH	4,730	00	18,920	00	

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0422	**PK-ESCR 185** PAINT LINES 4" SYNTHETIC TURF	502.00	L.F.	5	00	2,510	00
0423	**PK-ESCR 188P** POLYETHYLENE CORRUGATED PIPE (12")	1,025.00	L.F.	81	00	83,025	00
0424	**PK-ESCR 1924** TREE REMOVAL (18" - 24" DBH)	5.00	EACH	1,160	00	5,800	00
0425	**PK-ESCR 201** CHAIN LINK FABRIC FOR BASEBALL BACKSTOP	2,662.00	S.F.	17	00	45,254	00
0426	**PK-ESCR 202** DECORATIVE STEEL SPRAY FIXTURES, MURPHY'S BROTHER'S PLAYGROUND	1.00	L.S.	60,000	00	60,000	00
0427	**PK-ESCR 2530** TREE REMOVAL (24" - 30" DBH)	5.00	EACH	1,730	00	8,650	00
0428	**PK-ESCR 402** CATCH BASIN COVER & FRAME WITH BALLAST SCREEN	7.00	EACH	4520	00	31,640	00
0429	**PK-ESCR 619** SPORT STEEL SPRAY FIXTURE	2.00	EACH	56,300	00	112,600	00

BID SCHEDULE FORM

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0430	**PK-ESCR 621** WATER TAP 2" DIA.	3.00	EACH	2,140	00	6,420	00
0431	**PK-ESCR 623** CURB AND PROPERTY LINE VALVES - 2" DIA.	3.00	SETS	2,120	00	6,360	00
0432	**PK-ESCR 625** RPZ & WATER METER W/REMOTE AND STRUCTURE - 2" DIA.	2.00	EACH	20,290	00	40,580	00
0433	**PK-ESCR 626** PLUG VALVE - 1" DIA.	8.00	EACH	1,530	00	12,240	00
0434	**PK-ESCR 628** PLUG VALVE - 1-1/2" DIA.	32.00	EACH	2,000	00	64,000	00
0435	**PK-ESCR 630** TYPE "K" COPPER TUBING - 1" DIA.	510.00	L.F.	75	00	38,250	00
0436	**PK-ESCR 631** TYPE "K" COPPER TUBING - 1-1/4" DIA.	120.00	L.F.	75	00	9,000	00
0437	**PK-ESCR 632** TYPE "K" COPPER TUBING - 1-1/2" DIA.	4,300.00	L.F.	75	00	322,500	00

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0438	**PK-ESCR 633** TYPE "K" COPPER TUBING - 2" DIA.	2,250.00	L.F.	76	00	171,000	00
0439	**PK-ESCR 634** CAST IRON VALVE BOX, 5 1/4" DIA.	46.00	EACH	738	00	33,948	00
0440	**PK-ESCR 637** BOTTLE FILLER W/ HI-LO DRINKING FOUNTAIN BASINS	7.00	EACH	9,220	00	64,540	00
0441	**PK-ESCR 639** FIRE STANDPIPE SIAMESE MODIFICATIONS AT CON-ED EAST 15TH STREET	1.00	L.S.	50,000	00	50,000	00
0442	**PK-ESCR 640** GROUND HYDRANT - 1" DIA.	22.00	EACH	3,140	00	69,080	00
0443	**PK-ESCR 644** SERVICE CAST IRON SOIL PIPE - 4" DIA.	70.00	L.F.	90	00	6,300	00
0444	**PK-ESCR 646** MISCELLANEOUS IRON AND STEEL	215.00	LBS.	17	00	3,655	00
0445	**PK-ESCR 659** ELECTRIC SERVICE AND DISTRIBUTION WORK AT MURPHY'S BROTHER'S PARK	1.00	L.S.	52,000	00	52,000	00

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0446	**PK-ESCR 669** 2" DIA. HIGH DENSITY POLYETHYLENE (HDPE) SCHEDULE 80 CONDUIT	5,200.00	L.F.	27	00	140,400	00
0447	**PK-ESCR 670** 3/4" DIA. HOT DIPPED/HEAVY GAUGE GALVANIZED RIGID STEEL CONDUIT	500.00	L.F.	39	00	19,500	00
0448	**PK-ESCR 671** 1-1/2" DIA. HOT DIPPED/HEAVY GAUGE GALVANIZED RIGID STEEL CONDUIT	650.00	L.F.	46	00	29,900	00
0449	**PK-ESCR 672** 2" DIA. HOT DIPPED/HEAVY GAUGE GALVANIZED RIGID STEEL CONDUIT	160.00	L.F.	51	00	8,160	00
0450	**PK-ESCR 676** PULLBOXES WITH FRAME AND COVER 24"L X 18" W X 26" D, TYPE 2418 (2-R)	3.00	EACH	3,710	00	11,130	00
0451	**PK-ESCR 680** #12 AWG COPPER, 600V WIRE	1,250.00	L.F.	3	00	3,750	00
0452	**PK-ESCR 681** #6 AWG COPPER, 600V WIRE	3,980.00	L.F.	5	00	19,900	00
0453	**PK-ESCR 687** TEMPORARY WALKWAY LIGHTING AND POWER FOR STUYVESANT COVE 20TH STREET FERRY TERMINAL	1.00	L.S.	50,000	00	50,000	00

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0454	**PK-ESCR 690** CONDUIT INTERIOR SEALING FITTING	2.00	EACH	258	00	516	00
0455	**PK-ESCR 691** BRICK MASONRY/PRECAST CONCRETE FOR DRAINAGE STRUCTURE	75.00	C.Y.	1,310	00	98,250	00
0456	**PK-ESCR 701 C** SAFETY SURFACE 8' FALL HEIGHT, OTHER COLOR	10,000.00	S.F.	20	00	200,000	00
0457	**PK-ESCR 707** MESH FOR CHAIN LINK FENCE - 1" (HANDBALL)	4,720.00	S.F.	23	00	108,560	00
0458	**PK-ESCR 708** MESH FOR CHAIN LINK FENCE - 2"	4,812.00	S.F.	9	00	43,308	00
0459	**PK-ESCR 710** PAINT CLF FRAMEWORK	2,866.00	L.F.	5	00	14,330	00
0460	**PK-ESCR 714** PIPE RAIL FENCE TYPE B 3 RAIL	64.00	L.F.	85	00	5,440	00
0461	**PK-ESCR 717** SHREDDED BARK MULCH	442.00	C.Y.	88	00	38,896	00

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0462	PK-ESCR 719 PICNIC TABLE - FIXED, ACCESSIBLE	2.00	EACH	2,870	00	5,740	00
0463	PK-ESCR 721 BENCH, 1964 WORLD'S FAIR W/ RPL SLATS, BACKLESS, 8' LENGTH	24.00	L.F.	321	00	7,704	00
0464	PK-ESCR 722 BENCH, 1964 WORLD'S FAIR W/ RPL SLATS W/ ARMS, 8' LENGTH	216.00	L.F.	308	00	66,528	00
0465	PK-ESCR 725 PAINT HOODED BASEBALL BACKSTOP	2.00	EACH	3,000	00	6,000	00
0466	PK-ESCR 733 REPLACE FENCE POST	2.00	EACH	575	00	1,150	00
0467	PK-ESCR 734 REPLACE RAIL	464.00	L.F.	12	00	5,568	00
0468	PK-ESCR 735 SUPPLY PORTAL IN EXISTING CHAIN LINK FENCE	2.00	EACH	1,730	00	3,460	00
0469	PK-ESCR 747A FULL DEPTH ASPHALT PAVEMENT	2,972.00	S.Y.	55	00	163,460	00

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0470	**PK-ESCR 749** FOUNDATION MATERIAL FOR ASPHALT (TRUCK MEASURE)	742.00	C.Y.	135	00	100,170	00
0471	**PK-ESCR 753** TOPSOIL FOR PLANTING PITS & BEDS	1,505.00	C.Y.	85	00	127,925	00
0472	**PK-ESCR 764 A** TEMPORARY WOODEN TREE GUARD	2.00	EACH	698	00	1,396	00
0473	**PK-ESCR 764 B** TEMPORARY WOODEN TREE GUARD FOR GROVES	719.00	L.F.	32	00	23,008	00
0474	**PK-ESCR 923 A** STUYVESANT COVE PRE-CAST SEATWALL MODULE A	100.00	EACH	1,100	00	110,000	00
0475	**PK-ESCR 923 B** STUYVESANT COVE PRE-CAST SEATWALL MODULE B	5.00	EACH	2,000	00	10,000	00
0476	**PK-ESCR 923 C** STUYVESANT COVE PRE-CAST SEATWALL MODULE C	4.00	EACH	2,000	00	8,000	00
0477	**PK-ESCR 923 D** STUYVESANT COVE PRE-CAST SEATWALL MODULE D	18.00	EACH	1,300		23,400	00

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0478	**PK-ESCR 923 E** STUYVESANT COVE PRE-CAST SEATWALL MODULE E	8.00	EACH	1700	00	13,600	00
0479	**PK-ESCR 923 F** STUYVESANT COVE PRE-CAST SEATWALL MODULE F	80.00	EACH	1,500	00	120,000	00
0480	**PK-ESCR 923 G** STUYVESANT COVE PRE-CAST SEATWALL MODULE G	112.00	EACH	1,300	00	145,600	00
0481	**PK-ESCR 930 C** REMOVE, SALVAGE, STORE AND REINSTALL - STUYVESANT COVE PARK	1.00	L.S.	176,000	00	176,000	00
0482	**PK-ESCR 937 A** HORTICULTURAL DRAINAGE LAYER	541.00	C.Y.	125	00	67,625	00
0483	**PK-ESCR 937 B** HORTICULTURAL SUBSOIL	1,345.00	C.Y.	120	00	161,400	00
0484	**PK-ESCR 937 C** PLANTING SOIL FOR BEDS & PITS	1,406.00	C.Y.	100	00	140,600	00
0485	**PK-ESCR 937 CM** SOURCING AND APPROVAL OF COMPONENT MATERIALS	1.00	L.S.	~~4560~~ 4,650	00	~~4560~~ 4,650	00

SW.

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0486	**PK-ESCR 937 PM** APPROVAL OF PLANT SOIL MIXES	1.00	L.S.	31000	00	31,000	00
0487	**PK-ESCR 937 SP** FIRST PHASE STOCKPILING OF SOIL MATERIALS FOR PROJECT AREA	1.00	L.S.	100,000	00	100,000	00
0488	**PK-ESCR 942** TOP DRESS	30.00	C.Y.	300	00	9,000	00
0489	**PK-ESCR 943 A** FIXED BOLLARD TYPE 1	9.00	EACH	4,990	00	44,910	00
0490	**PK-ESCR 943 B** FIXED BOLLARD TYPE 2	21.00	EACH	4,850	00	101,850	00
0491	**PK-ESCR 943 C** SECURITY GATE	5.00	EACH	5,750	00	28,750	00
0492	**PK-ESCR 943 D** REMOVABLE BOLLARD	12.00	EACH	5,430	00	65,160	00
0493	**PK-ESCR 944** COMPOST	13.00	C.Y.	83	00	1,079	00

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0494	**PK-ESCR 945** BIOCHAR	43.50	C.Y.	439	00	19,096	50
0495	**PK-ESCR 946** GEOCOMPOSITE DRAINAGE BOARD	6,762.00	S.F.	5	00	33,810	00
0496	**PK-ESCR 948** DOG RUN STEEL STORAGE BOX	1.00	EACH	855	00	855	00
0497	**PK-ESCR 950 A** SITE PROTECTION - MURPHY'S BROTHER'S	1.00	L.S.	65,970	00	65,970	00
0498	**PK-ESCR 950 B** SITE PROTECTION - STUYVESANT COVE	1.00	L.S.	107,600	00	107,600	00
0499	**PK-ESCR 950 C** SITE PROTECTION - ASSER LEVY	1.00	L.S.	78,930	00	78,930	00
0500	**PK-ESCR 951 A** COMPOST TEA - SHRUBS & PERENNIALS	1.30	ACRE	3,310	00	4,303	00
0501	**PK-ESCR 955A** 5 IN. CONCRETE SIDEWALK AT DOG RUN	2,854.00	S.F.	30	00	85,620	00

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0502	**PK-ESCR 955B** CONCRETE MOUND AT DOG RUN	236.00	S.F.	60	00	14,160	00
0503	**PK-ESCR 956** DOG BAG DISPENSER	2.00	EACH	2,110	00	4,220	00
0504	**PK-ESCR 963** STUYVESANT COVE CONCRETE SEA WALL CAP	1,375.00	L.F.	900	00	1,237,500	00
0505	**PK-ESCR 964** STUY COVE CONCRETE SEA WALL CAP DEMOLITION	1,375.00	L.F.	300	00	412,500	00
0506	**SL-20.01.01** FURNISH AND INSTALL FOUNDATION FOR TYPE "B" OR "B12" POST WITH INTERNAL FLANGE, AS PER DRAWING E-3884	9.00	EACH	3,120	00	28,080	00
0507	**SL-20.01.02** FURNISH AND INSTALL FOUNDATION FOR TYPE "WF" LAMPPOST, AS PER DRAWING E-5124	41.00	EACH	1,360	00	55,760	00
0508	**SL-20.02.02** FURNISH AND INSTALL STANDARD TYPE ANCHOR BOLT FOUNDATION, AS PER DRAWING E-3788	3.00	EACH	3,760	00	11,280	00
0509	**SL-20.02.10** FURNISH AND INSTALL STANDARD TYPE ANCHOR BOLT FOUNDATION AS PER DWG J-5253 FOR INSTALLING TYPE "BC", "M", LYRE AND "5TH AVENUE" ,"GCPW", LAMPPOST.	17.00	EACH	4,220	00	71,740	00

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0510	SL-20.08.01 REMOVE STANDARD TYPE ANCHOR BOLT CONCRETE FOUNDATION	17.00	EACH	991	00	16,847	00
0511	SL-21.01.07 FURNISH AND INSTALL TYPE "B" LAMPPOST WITH INTERNAL FLANGE	9.00	EACH	975	00	8,775	00
0512	SL-21.03.02 FURNISH AND INSTALL TYPE 2S, 4S, 6S, 8S OR 12S LAMPPOST WITH TRANSFORMER BASE	6.00	EACH	2490	00	14,940	00
0513	SL-21.04.14 FURNISH AND INSTALL TYPE "M" LAMPPOST WITH P.E.C. RECEPTACLE, AS PER DRAWING H-5260.	12.00	EACH	9,550	00	114,600	00
0514	SL-21.04.55 FURNISH AND INSTALL TYPE "FLUSHING MEADOWS PARK" LAMPPOST AS PER STD. DWG. H-5305.	41.00	EACH	2,970	00	121,770 (SM) ~~121,700~~	00
0515	SL-21.09.01 REMOVE PARK TYPE LAMPPOST ON FOUNDATION, WITH ALL ATTACHMENTS, IF ANY.	8.00	EACH	635	00	5,080	00
0516	SL-21.09.05 REMOVE STANDARD FABRICATED STEEL, SPUN ALUMINUM NO. 10, ETC. WITH ARM(S), LUMINAIRE(S), CONTROL(S) WITH ALL ATTACHMENTS, IF ANY.	17.00	EACH	813	00	13,821	00

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0517	SL-21.09.06 REMOVE ORNAMENTAL LAMPPOST (TYPE "BC", "M", "F", "5TH AVENUE", "LYRE" GRAND CENTRAL) ON FOUNDATION, WITH ALL ATTACHMENTS, IF ANY. REMOVE PORTION OF FOUNDATION.	14.00	EACH	1,270	00	17,780	00
0518	SL-22.06.19 FURNISH AND INSTALL MAXIMUM 150 WATT LED TYPE "TEAR DROP" LUMINAIRE	15.00	EACH	952	00	14,280	00
0519	SL-22.08.01 INSTALL FLOODLIGHT. LAMP FURNISHED BY CONTRACTOR.	6.00	EACH	498	00	2,988	00
0520	SL-22.15.03 FURNISH AND INSTALL 75 WATT LED "RIVERSIDE PARK" TYPE LUMINAIRE	10.00	EACH	1,290	00	12,900	00
0521	SL-22.15.05 FURNISH AND INSTALL 70 WATT MAX LED "FLUSHING MEADOW PARK" TYPE LUMINAIRE AS PER SPECIFICATION 474	35.00	EACH	1,470	00	51,450	00
0522	SL-22.16.05 FURNISH AND INSTALL ROADWAY TYPE LED FIXTURE AS PER SPECIFICATION 466 WITH PEC RECEPTACLE AND PEC	35.00	EACH	315	00	11,025	00
0523	SL-22.17.03 FURNISH LED FLOODLIGHT	7.00	EACH	447	00	3,129	00

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0524	SL-24.02.02 FURNISH AND INSTALL FABRICATED STEEL 8 Ft. ARM ON LAMPPOST OR "M-2" TRAFFIC POLE SHAFT EXTENSION.	4.00	EACH	1260	00	5040	00
0525	SL-24.02.09 FURNISH AND INSTALL TROUGH FOR THREE FLOODLIGHTS OR THREE PHOTOELECTRIC CONTROLS, AS PER DRAWING J-5229	10.00	EACH	487	00	4,870	00
0526	SL-24.02.22 FURNISH AND INSTALL 2 Ft. STEEL ARM ON METAL LAMPPOST.	26.00	EACH	725	00	18,850	00
0527	SL-26.01.04 FURNISH AND INSTALL LONG LIFE PHOTO ELECTRIC CONTROL WITH SURGE PROTECTION FOR LED LIGHT	19.00	EACH	102	00	1,938	00
0528	SL-27.01.01 FURNISH AND INSTALL ALUMINUM TAG ON A LAMPPOST, AS PER DRAWING D-2861	84.00	EACH	96	00	8,064	00
0529	SL-28.01.02 FURNISH AND INSTALL COPPER WELD GROUND ROD AND CLAMP IN DIRT AREA, BURIED BOX, SIDEWALK OR ROADWAY BOX, AS PER DRAWING H-5019.	14.00	EACH	300	00	4,200	00
0530	SL-29.01.03 FURNISH, INSTALL, MAINTAIN AND REMOVE EQUIPMENT FOR TEMPORARY LIGHTING, AS PER DRAWING J-5226	89.00	EACH	10,000	00	890,000	00
0531	SL-32.01.03 FURNISH AND INSTALL AN IN-LINE FUSED CONNECTOR KIT.	79.00	EACH	109	00	8,611	00

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0532	**SL-33.01.01** FURNISH AND INSTALL NO. 12 AWG XLP COPPER WIRE OR EQUAL IN CONDUIT	1,750.00	L.F.	4	00	7,000	00
0533	**SL-33.01.02** FURNISH AND INSTALL NO. 6 AWG XLP COPPER CABLE OR EQUAL IN CONDUIT	6,080.00	L.F.	17	00	103,360	00
0534	**SL-33.01.03** FURNISH AND INSTALL NO. 2 AWG XLP COPPER CABLE OR EQUAL IN CONDUIT	18,920.00	L.F.	5	00	94,600	00
0535	**SL-33.02.01** REMOVE TEMPORARY OR PERMANENT OVERHEAD ELECTRICAL CONDUCTORS	750.00	L.F.	6	00	4,500	00
0536	**SL-33.02.08** FURNISH AND INSTALL #6 COPPER TRIPLEX CABLE FOR OVERHEAD INSTALLATION.	750.00	L.F.	8	00	6.000	00
0537	**SL-33.03.01** FURNISH AND INSTALL #6 BARE COPPER CONDUCTOR IN CONDUIT OR OVERHEAD.	7,650.00	L.F.	12	00	91,800	00
0538	**SL-35.03.04** FURNISH AND INSTALL 2" HOT DIPPED GALVANIZED STEEL CONDUIT IN UNPAVED AREA	1,000.00	L.F.	43	00	43,000	00
0539	**SL-35.09.01** FURNISH AND INSTALL 3/4" HOT DIPPED GALVANIZED STEEL CONDUIT ON STRUCTURE.	2,000.00	L.F.	29	00	58,000	00

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0540	**SL-35.09.03** FURNISH AND INSTALL 1-1/2" HOT DIPPED GALVANIZED STEEL CONDUIT ON STRUCTURE.	550.00	L.F.	37	00	20,350	00
0541	**SL-35.09.04** FURNISH AND INSTALL 2" HOT DIPPED GALVANIZED STEEL CONDUIT ON STRUCTURE	1,850.00	L.F.	45	00	83,250	00
0542	**SL-35.10.05** FURNISH AND INSTALL 3" PVC COATED HOT DIPPED GALVANIZED STEEL CONDUIT ON STRUCTURE.	750.00	L.F.	92	00	69,000	00
0543	**SL-35.11.01** REMOVE CONDUIT(S) WITH OR WITHOUT CONDUCTORS AND ASSOCIATED EQUIPMENT ON STRUCTORE OR BUILDING.	1,750.00	L.F.	24	00	42,000	00
0544	**SL-37.03.03** FURNISH AND INSTALL A STEEL BOX MOUNTED ON STRUCTURE UP TO 5184 CUBIC INCHES MAXIMUM.	26.00	EACH	2,330	00	60,580	00
0545	**SL-37.04.05** FURNISH AND INSTALL A CAST IRON BOX, OVER 5184 CUBIC INCHES MOUNTED ON STRUCTURE.	1.00	EACH	2,330	00	2,330	00
0546	**SL-37.05.06** FURNISH AND INSTALL TYPE 3624 SIDEWALK CONCRETE BOX WITH CAST IRON FRAME AND COVER WITH TAMPER PROOF BOLTS AS PER DWG J-3179A.	3.00	EACH	2,240	00	6,720	00
0547	**SL-37.05.09** FURNISH AND INSTALL TYPE 2418 ROADWAY CONCRETE BOX WITH CAST IRON FRAME AND COVER WITH TAMPER PROOF BOLTS AS PER DWG J-3179B.	22.00	EACH	2,970	00	65,340	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0548	**SL-38.02.01** FURNISH AND INSTALL POLE MOUNTED THREE (3) RELAY CONTROL CABINET AS PER DWGS H-5107, H-5212A.	2.00	EACH	12,230	00	24,460	00
0549	**T-1.1** INSTALL TYPE "S" OR "T" FOUNDATION	13.00	EACH	805	00	10,465	00
0550	**T-1.18** REMOVE TYPE "A", "B", "S" OR "T" SERIES FOUNDATION	3.00	EACH	2,340	00	7,020	00
0551	**T-1.2** INSTALL TYPE "F-1" FOUNDATION	3.00	EACH	1,410	00	4,230	00
0552	**T-1.20** REMOVE TYPE "M" SERIES FOUNDATION	1.00	EACH	2,840	00	2,840	00
0553	**T-1.23** REMOVE STREET LIGHT FOUNDATION	3.00	EACH	2,070	00	6,210	00
0554	**T-1.29** RAISE OR LOWER FOUNDATION TO GRADE	1.00	EACH	991	00	991	00
0555	**T-1.3** INSTALL TYPE "M2-5S" FOUNDATION	5.00	EACH	1,680	00	8,400	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0556	T-1.32 FURNISH AND INSTALL ONE STANDARD STREET LIGHT TYPE ANCHOR BOLT FOUNDATION, PER DRAWING E-3788	6.00	EACH	1,090		6,540	00
0557	T-2.1 INSTALL TYPE "S-1" OR "T-1" SERIES POST	14.00	EACH	669		9,366	00
0558	T-2.16 FURNISH, INSTALL, MAINTAIN AND REMOVE TEMPORARY POST OR PYLON WITH SIGNALS	3.00	EACH	2,490	00	7,470	00
0559	T-2.2 INSTALL TYPE "S-14" POST	5.00	EACH	669	00	3,345	00
0560	T-2.22 REMOVE TYPE "S-1" OR "T-1" SERIES POST	4.00	EACH	317	00	1,268	00
0561	T-2.23 REMOVE TYPE "S-10", "T-10" OR "S-14" SERIES POST	3.00	EACH	318	00	954	00
0562	T-2.24 REMOVE TYPE "M" SERIES POST	1.00	EACH	1,270	00	1,270	00
0563	T-2.31 REMOVE STREET LIGHT ARM AND POST, AND RESTORE AREA TO MATCH EXISTING	3.00	EACH	635	00	1,905	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0564	**T-2.38** INSTALL ONE STREET LIGHT POLE	3.00	EACH	1,110	00	3,330	00
0565	**T-2.4** INSTALL TYPE "M-2" POST	5.00	EACH	1680	00	8,400	00
0566	**T-2.45** INSTALL FIVE FOOT TALL GALVANIZED STEEL ACCESSIBLE PEDESTRIAN SIGNAL (APS) POLE	3.00	EACH	533	00	1,599	00
0567	**T-2.6** INSTALL 5 FOOT MAST ARM EXTENSION W/CUSTOM FINISH	2.00	EACH	635	00	1,270	00
0568	**T-20000** FURNISH TEN FOOT ALUMINUM SIGNAL POST TYPE "S-1"	14.00	EACH	509	00	7,126	00
0569	**T-20001** FURNISH 5' GALVANIZED STEEL ACCESSIBLE PEDESTRIAN SIGNAL (APS) POLE	3.00	EACH	595	00	1,785	00
0570	**T-20020** a) FURNISH 3/4" ANCHOR BOLT ASSEMBLIES FOR S-1 (EACH) (3 REQUIRED PER POST)	39.00	EACH	23	00	897	00
0571	**T-20021** b) FURNISH 1" ANCHOR BOLT ASSEMBLIES FOR F-1 (EACH) (4 REQUIRED PER POST)	24.00	EACH	34	00	816	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0572	**T-20184** a) FURNISH 5' EXTENSION ARM ASSEMBLY WITH FITTINGS	5.00	EACH	222	00	1,110	00
0573	**T-20220** c) FURNISH 1-1/4" ANCHOR BOLT ASSEMBLIES FOR M-2 (EACH) (4 REQUIRED PER POST)	20.00	EACH	50	00	1,000	00
0574	**T-20640** FURNISH ALUMINUM TRAFFIC SIGNAL POST TYPE "S-14"	5.00	EACH	885	00	4,425	00
0575	**T-3.1** INSTALL "ONE-WAY" SIGNAL UNIT ON MAST ARM OR TOP OF TRAFFIC POST	9.00	EACH	386	00	3,474	00
0576	**T-3.12** FURNISH AND INSTALL LOUVERS ON SIGNAL UNIT	4.00	EACH	153	00	612	00
0577	**T-3.15** HOOD ONE SIGNAL HEAD	16.00	EACH	371	00	5,936	00
0578	**T-3.18** REMOVE SIGNAL HEAD FROM ANY TYPE POST	17.00	EACH	379	00	6,443	00
0579	**T-3.19** REMOVE SIGNAL HEAD FROM OTHER STRUCTURES	9.00	EACH	410	00	3,690	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0580	T-3.2 INSTALL "ONE-WAY" SIGNAL UNIT ON THE SHAFT OF ANY POST	5.00	EACH	533	00	2,665	00
0581	T-3.21 REMOVE PEDESTRIAN SIGNAL OR SIGN UNIT OR OTHER ILLUMINATED SIGNS FROM ANY POST	17.00	EACH	396	00	6,732	00
0582	T-3.22 REMOVE PEDESTRIAN SIGNAL OR SIGN UNIT OR OTHER ILLUMINATED SIGNS FROM OTHER STRUCTURES	6.00	EACH	513	00	3,078	00
0583	T-3.28 INSTALL LONG VISORS ON SIGNAL UNITS	17.00	EACH	84	00	1,428	00
0584	T-3.4 INSTALL "ONE-WAY" SIGNAL UNIT OR PEDESTRIAN SIGNAL ON STEEL STRUCTURE (PER FACE)	8.00	EACH	556	00	4,448	00
0585	T-3.40 FURNISH AND INSTALL AUDIBLE PEDESTRIAN SIGNALS UNIT	24.00	EACH	1,170	00	28,080	00
0586	T-3.6 INSTALL PEDESTRIAN SIGNAL ON ANY TYPE POST	30.00	EACH	379	00	11,370	00
0587	T-30013L FURNISH ADJUSTABLE 3 SECTION 1-WAY, DIE CAST ALUMINUM TRAFFIC SIGNALS 8" - W/LED LENS	24.00	EACH	410	00	9,840	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0588	T-30014-A FURNISH 8" AMBER LED (AS PER NYC SPEC).	4.00	EACH	170	00	680	00
0589	T-30014-G FURNISH 8 INCH GREEN LED (AS PER NYC SPECIFICATION)	4.00	EACH	170	00	680	00
0590	T-30014-R FURNISH 8 INCH RED LED (AS PER ITE SPECIFICATION 1/1/98)	6.00	EACH	170	00	1,020	00
0591	T-30080 FURNISH TUNNEL-TYPE VISORS FOR 8" & 12" VEHICULAR TRAFFIC SIGNAL.	20.00	EACH	142	00	2.840	00
0592	T-31150 FURNISH "1SA" ALUMINUM DIE CASTINGS AND ASSEMBLY FOR POST SIGNAL MOUNTING	6.00	EACH	74	00	444	00
0593	T-31200 e) "VB" ASSEMBLY *ASSEMBLY IS EQUAL TO ONE PAIR	9.00	EACH	62	00	558	00
0594	T-31205 FURNISH MAST ARM SIGNAL MOUNTING ASSEMBLY - a) "1MS"	4.00	EACH	34	00	136	00
0595	T-31210 h) "HUB" ASSEMBLY *ASSEMBLY IS EQUAL TO ONE PAIR	34.00	EACH	34	00	1,156	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0596	T-31215 b) "2MS"	3.00	EACH	215	00	645	00
0597	T-31245 FURNISH RIGID MOUNT SIGNAL BRACKETS	4.00	EACH	181	00	724	00
0598	T-31340 f) "VB-P" ASSEMBLY *ASSEMBLY IS EQUAL TO ONE PAIR	24.00	EACH	85	00	2,040	00
0599	T-31351 g) "VB-2P" ASSEMBLY *ASSEMBLY IS EQUAL TO ONE PAIR	4.00	EACH	215	00	860	00
0600	T-31500AL FURNISH 12" LENS & SIGNAL SECTION (LED AMBER ARROWS)	6.00	EACH	215	00	1,290	00
0601	T-31500GL FURNISH 12" LENS & SIGNAL SECTION (LED GREEN ARROWS)	6.00	EACH	215	00	1,290	00
0602	T-31500RL FURNISH 12" LENS & SIGNAL SECTION (LED RED ARROW)	2.00	EACH	215	00	430	00
0603	T-31501AA FURNISH 12" AMBER ARROW LED (AS PER NYC SPEC)	1.00	EACH	233	00	233	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0604	**T-31501GA** FURNISH 12 INCH GREEN ARROW LED (AS PER NYC SPECIFICATION)	1.00	EACH	233	00	233	00
0605	**T-31501-RA** FURNISH 12 INCH RED ARROW LED (AS PER ITE SPECIFICATION 1/1/98)	1.00	EACH	232	00	232	00
0606	**T-33000L** FURNISH POLYCARBONATE INCANDESCENT PED SIGNAL W/LED LENS	7.00	EACH	345	00	2,415	00
0607	**T-33001-L** FURNISH POLYCARBONATE PEDESTRIAN SIGNAL (16 X 16) W/LED COUNT LENS (SPECIFICATION A-L)	18.00	EACH	371	00	6,678	00
0608	**T-33002** FURNISH AUDIBLE PEDESTRIAN SIGNAL UNIT	24.00	EACH	736	00	17,664	00
0609	**T-4.1** INSTALL ONE CONTROL BOX AND CONTROLLER ON ANY POST OR SUPPORT	2.00	EACH	1,590	00	3,180	00
0610	**T-4.22** INSTALL ANY TYPE OF ADVANCED SOLID STATE TRAFFIC SIGNAL CONTROLLER AND CABINET ON METAL POLE	1.00	EACH	2,630	00	2,630	00
0611	**T-4.4** INSTALL CONTROL BOX ON ANY POST	1.00	EACH	1,780	00	1,780	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0612	T-4.8 REMOVE ONE CONTROL BOX AND CONTROLLER FROM ANY POST OR SUPPORT	1.00	EACH	1,780	00	1,780	00
0613	T-4.9 REMOVE CONTROL BOX FROM ANY POST OR SUPPORT	1.00	EACH	1,280	00	1,280	00
0614	T-5.18 FURNISH AND INSTALL 2" RIGID CONDUIT ON "ELEVATED" STRUCTURE	30.00	L.F.	49	00	1,470	00
0615	T-5.2 FURNISH AND INSTALL 2" RIGID UNDERGROUND CONDUIT IN PAVED ROADWAY	125.00	L.F.	79	00	9,875	00
0616	T-5.3 FURNISH AND INSTALL 2" RIGID UNDERGROUND CONDUIT IN PAVED SIDEWALK	15.00	L.F.	51	00	765	00
0617	T-5.31 FURNISH AND INSTALL 2" FLEXIBLE BEND IN EXISTING FOUNDATION	2.00	EACH	1,080	00	2,160	00
0618	T-5.32 RESTORING PERMANENT ROADWAY (INCLUDING SAWCUT)	125.00	L.F.	94	00	11,750	00
0619	T-5.34 RESTORING PERMANENT SIDEWALK	50.00	S.F.	286	00	14,300	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0620	T-5.37 REMOVE CONDUIT FROM "ELEVATED" STRUCTURE	60.00	L.F.	24	00	1,440	00
0621	T-5.50 FURNISH AND INSTALL 2" HDPE UNDERGROUND CONDUIT IN PAVED ROADWAY	780.00	L.F.	65	00	50,700	00
0622	T-5.51 FURNISH AND INSTALL 2" HDPE UNDERGROUND CONDUIT IN PAVED SIDEWALK	20.00	L.F.	45	00	900	00
0623	T-5.52 FURNISH AND INSTALL 2" HDPE UNDERGROUND CONDUIT IN UNPAVED AREA	70.00	L.F.	42	00	2,940	00
0624	T-5.54 PERMANENT RESTORATION OF PAVED ROADWAY	780.00	L.F.	93	00	72,540	00
0625	T-5.57 FURNISH AND INSTALL 1-1/4" HDPE UNDERGROUND CONDUIT IN PAVED ROADWAY	50.00	L.F.	42	00	2,100	00
0626	T-6.1 INSTALL CABLE (INCLUDES OVERHEAD)	1,055.00	L.F.	9	00	9,495	00
0627	T-6.10 REMOVE CABLE (INCLUDES OVERHEAD)	1,000.00	L.F.	5	00	5,000	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0628	**T-6.11** REMOVE OVERHEAD CABLE AND SUPPORTS	220.00	L.F.	8	00	1,760	00
0629	**T-6.2** INSTALL MULTIPLE CABLE (INCLUDES OVERHEAD)	1,570.00	L.F.	12	00	18,840	00
0630	**T-6.3** INSTALL CABLE AND SUPPORTS ON STRUCTURE	250.00	L.F.	10	00	2,500	00
0631	**T-6.7** INSTALL MULTIPLE CABLE AND SUPPORTS ON STRUCTURE	550.00	L.F.	13	00	7,150	00
0632	**T-60000B** FURNISH 2 c # 10B (BREAKDOWN = 2#10 WITH 3RD WIRE FOR GROUNDING).	1,505.00	L.F.	3	00	4,515	00
0633	**T-60040** c) 7 CONDUCTOR, 14 A.W.G.	700.00	L.F.	5	00	3,500	00
0634	**T-60190** e) 13 CONDUCTOR, 14 A.W.G.	2,330.00	L.F.	6	00	13,980	00
0635	**T-7.11** INSTALL FLASHER MECHANISM	2.00	EACH	317	00	634	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS
0636	T-7.18 FURNISH ONE JUNCTION BOX (10" X 8" X 4")	1.00	EACH	150	00	150	00
0637	T-7.19 FURNISH ONE JUNCTION BOX (16" X 14" X 6")	1.00	EACH	204	00	204	00
0638	T-7.21 INSTALL JUNCTION BOX ON "ELEVATED" STRUCTURE	2.00	EACH	635	00	1,270	00
0639	T-7.43 REMOVE FLASHER MECHANISM	2.00	EACH	317	00	634	00
0640	T-7.47 REMOVE JUNCTION BOX	1.00	EACH	170	00	170	00
0641	T-8.8 INSTALL CONCRETE PYLON	6.00	EACH	1,830	00	10,980	00
0642	T-8.9 REMOVE CONCRETE PYLON	5.00	EACH	2,350	00	11,750	00
0643	T-81000 FURNISH CONCRETE PYLON	6.00	EACH	1,120	00	6,720	00

BID SCHEDULE FORM

COL. 1 SEQ. NO	COL. 2 ITEM NUMBER and DESCRIPTION	COL. 3 ENGINEER'S ESTIMATE OF QUANTITY	COL. 4 UNIT	COL. 5 UNIT PRICE (IN FIGURES) DOLLARS	CTS	COL. 6 EXTENDED AMOUNT (IN FIGURES) DOLLARS	CTS

SUB-TOTAL: $ 151,116,043.00

0644	6.39 B MOBILIZATION BID PRICE OF MOBILIZATION SHALL NOT EXCEED 8% OF THE ABOVE SUB-TOTAL PRICE.	1.00	L.S.	11,950,000	00	11,950,000	00

TOTAL BID PRICE: $ 163,066,043.00

PLEASE BE SURE A LEGIBLE BID IS ENTERED FOR EACH ITEM.
THE BIDDER SHALL INSERT THE TOTAL BID PRICE IN
THE BID FORM IN THIS BID BOOKLET.

C. DRAWINGS

Contract Drawings

DWG NO.	SHEET TITLE
G001	TITLE SHEET
G002	KEY MAP SHEET 1 OF 2
G003	KEY MAP SHEET 2 OF 2
G004	TABLE OF CONTENTS SHEET 1 OF 10
G005	TABLE OF CONTENTS SHEET 2 OF 10
G006	TABLE OF CONTENTS SHEET 3 OF 10
G007	TABLE OF CONTENTS SHEET 4 OF 10
G008	TABLE OF CONTENTS SHEET 5 OF 10
G009	TABLE OF CONTENTS SHEET 6 OF 10
G010	TABLE OF CONTENTS SHEET 7 OF 10
G011	TABLE OF CONTENTS SHEET 8 OF 10
G012	TABLE OF CONTENTS SHEET 9 OF 10
G013	TABLE OF CONTENTS SHEET 10 OF 10
G014	LEGENDS AND ABBREVIATIONS SHEET 1 OF 2
G015	LEGENDS AND ABBREVIATIONS SHEET 2 OF 2
G016	GENERAL NOTES SHEET 1 OF 3
G017	GENERAL NOTES SHEET 2 OF 3
G018	GENERAL NOTES SHEET 3 OF 3
G019	RECORD OF BORINGS SCHEDULE
G020	RECORD OF BORINGS LOCATION PLAN REACH L
G021	RECORD OF BORINGS LOCATION PLAN REACH M
G022	RECORD OF BORINGS LOCATION PLAN REACH N
G023	RECORD OF BORINGS LOCATION PLAN REACH O
G024	RECORD OF BORINGS LOCATION PLAN REACH Q
PH001	PHASING OF STUYVESANT COVE PARK
AM001	ACCESS RESTRAINT AND MILESTONE PLAN - 1
AM002	ACCESS RESTRAINT AND MILESTONE PLAN - 2
AM003	ACCESS RESTRAINT AND MILESTONE PLAN - 3
AM004	ACCESS RESTRAINT AND MILESTONE PLAN - 4
ESC200	EROSION AND SEDIMENT CONTROL
ESC201	EROSION AND SEDIMENT CONTROL

DWG NO.	SHEET TITLE
ESC202	EROSION AND SEDIMENT CONTROL
ESC203	EROSION AND SEDIMENT CONTROL
ESC204	EROSION AND SEDIMENT CONTROL
ESC205	EROSION AND SEDIMENT CONTROL
ESC206	EROSION AND SEDIMENT CONTROL
ESC207	EROSION AND SEDIMENT CONTROL
ESC208	EROSION AND SEDIMENT CONTROL
ESC209	EROSION AND SEDIMENT CONTROL
ESC210	EROSION AND SEDIMENT CONTROL
ESC211	EROSION AND SEDIMENT CONTROL
ESC212	EROSION AND SEDIMENT CONTROL
ESC213	EROSION AND SEDIMENT CONTROL
ESC214	EROSION AND SEDIMENT CONTROL
ESC215	EROSION AND SEDIMENT CONTROL
ESC216	EROSION AND SEDIMENT CONTROL
F000	FLOOD PROTECTION TABLE OF CONTENTS
F001	FLOOD PROTECTION GENERAL NOTES
F002	FLOOD PROTECTION GENERAL NOTES
F003	FLOOD PROTECTION GENERAL NOTES
F004	FLOOD PROTECTION ALIGNMENT STATIONING SHEET 1 OF 2
F005	FLOOD PROTECTION ALIGNMENT STATIONING SHEET 2 OF 2
F111	FLOOD PROTECTION DEMOLITION PLAN SEGMENT 4 - REACH L STA. 97+94 - 156+14
F112	FLOOD PROTECTION DEMOLITION PLAN SEGMENT 4 - REACH M STA. 156+14 - 163+29
F113	FLOOD PROTECTION DEMOLITION PLAN SEGMENT 5 - REACH N STA. 163+29 - 209+16
F114	FLOOD PROTECTION DEMOLITION PLAN SEGMENT 5 - REACH O STA. 209+16 - 217+13
F115	FLOOD PROTECTION DEMOLITION PLAN SEGMENT 6 - REACH Q STA. 217+13 - 224+51
F120	FLOOD PROTECTION DEMOLITION TYPICAL SECTION
FD313A	FOUNDATION PLAN SEGMENT 5 - REACH N STA. 163+29 - 209+16 SHEET 1 OF 2
FD313B	FOUNDATION PLAN SEGMENT 5 - REACH N STA. 163+29 - 209+16 SHEET 2 OF 2

DWG NO.	SHEET TITLE
FD314A	FOUNDATION PLAN SEGMENT 5 - REACH O STA. 209+16 - 217+13 SHEET 1 OF 2
FD314B	FOUNDATION PLAN SEGMENT 5 - REACH O STA. 209+16 - 217+13 SHEET 2 OF 2
FD315A	FOUNDATION PLAN SEGMENT 6 - REACH Q STA. 217+13 - 224+51 SHEET 1 OF 2
FD315B	FOUNDATION PLAN SEGMENT 6 - REACH Q STA. 217+13 - 224+51 SHEET 2 OF 2
F311	FLOODWALL STRUCTURAL PLAN SEGMENT 4 - REACH L STA. 97+94 - 156+14
F312	FLOODWALL STRUCTURAL PLAN SEGMENT 4 - REACH M STA. 156+14 - 163+29
F313	FLOODWALL STRUCTURAL PLAN SEGMENT 5 - REACH N STA. 163+29 - 209+16
F314	FLOODWALL STRUCTURAL PLAN SEGMENT 5 - REACH O STA. 209+16 - 217+13
F315	FLOODWALL STRUCTURAL PLAN SEGMENT 6 - REACH Q STA. 217+13 - 224+51
F411	FLOOD PROTECTION PROFILE SEGMENT 4 - REACH L STA. 97+94 - 156+14
F412	FLOOD PROTECTION PROFILE SEGMENT 4 - REACH M STA. 156+14 - 163+29
F413	FLOOD PROTECTION PROFILE SEGMENT 5 - REACH N STA. 163+29 - 209+16
F414	FLOOD PROTECTION PROFILE SEGMENT 5 - REACH O STA. 209+16 - 217+13
F415	FLOOD PROTECTION PROFILE SEGMENT 6 - REACH Q STA. 217+13 - 224+51
F611	FLOOD PROTECTION CROSS SECTIONS REACH L
F612	FLOOD PROTECTION CROSS SECTIONS REACH M
F613	FLOOD PROTECTION CROSS SECTIONS REACH N SHEET 1 OF 5
F614	FLOOD PROTECTION CROSS SECTIONS REACH N SHEET 2 OF 5
F615	FLOOD PROTECTION CROSS SECTIONS REACH N SHEET 3 OF 5
F616	FLOOD PROTECTION CROSS SECTIONS REACH N SHEET 4 OF 5
F617	FLOOD PROTECTION CROSS SECTIONS REACH N SHEET 5 OF 5
F618	FLOOD PROTECTION CROSS SECTIONS REACH O SHEET 1 OF 4
F619	FLOOD PROTECTION CROSS SECTIONS REACH O SHEET 2 OF 4
F620	FLOOD PROTECTION CROSS SECTIONS REACH O SHEET 3 OF 4
F621	FLOOD PROTECTION CROSS SECTIONS REACH O SHEET 4 OF 4
F622	FLOOD PROTECTION CROSS SECTIONS REACH Q SHEET 1 OF 3

DWG NO.	SHEET TITLE
F623	FLOOD PROTECTION CROSS SECTIONS REACH Q SHEET 2 OF 3
F624	FLOOD PROTECTION CROSS SECTIONS REACH Q SHEET 3 OF 3
FD350	L WALL FOUNDATION PLAN DETAILS REACH N, O & Q SHEET 1 OF 8
FD351	L WALL FOUNDATION PLAN DETAILS REACH N, O & Q SHEET 2 OF 8
FD352	L WALL FOUNDATION PLAN DETAILS REACH N, O & Q SHEET 3 OF 8
FD353	L WALL FOUNDATION PLAN DETAILS REACH N, O & Q SHEET 4 OF 8
FD354	L WALL FOUNDATION PLAN DETAILS REACH N, O & Q SHEET 5 OF 8
FD355	L WALL FOUNDATION PLAN DETAILS REACH N, O & Q SHEET 6 OF 8
FD356	L WALL FOUNDATION PLAN DETAILS REACH N, O & Q SHEET 7 OF 8
FD357	L WALL FOUNDATION PLAN DETAILS REACH N, O & Q SHEET 8 OF 8
FS700	STRUCTURAL FLOOD PROTECTION CROSS SECTIONS REACH N, O & Q SHEET 1 OF 3
FS701	STRUCTURAL FLOOD PROTECTION CROSS SECTIONS REACH N, O & Q SHEET 2 OF 3
FS702	STRUCTURAL FLOOD PROTECTION CROSS SECTIONS REACH N, O & Q SHEET 3 OF 3
FS703	TYPICAL DRILLED SHAFT DETAILS
FS704	TYPICAL WATERSTOP JOINT DETAILS SHEET 1 OF 2
FS705	TYPICAL WATERSTOP JOINT DETAILS SHEET 2 OF 2
F700	UTILITY CROSSINGS TYPE A
F701	UTILITY CROSSINGS TYPE B
F703	UTILITY CROSSINGS TYPE D
F704	UTILITY CROSSINGS TYPE E
F705	UTILITY CROSSINGS TYPE F
F706	UTILITY CROSSINGS TYPE G
F712	UTILITY CROSSING SCHEDULE SHEET 1 OF 2
F713	UTILITY CROSSING SCHEDULE SHEET 2 OF 2
F715	CON EDISON TIE IN DETAILS
F880	BULKHEAD CROSSINGS - CROSSING TYPE #1
F881	BULKHEAD CROSSINGS - CROSSING TYPE #1 MONOLITH DETAILS SHEET 1 OF 2
F882	BULKHEAD CROSSINGS - CROSSING TYPE #1 MONOLITH DETAILS SHEET 2 OF 2
F885	BULKHEAD CROSSINGS - CROSSING TYPE #2 SHEET 1 OF 3
F886	BULKHEAD CROSSINGS - CROSSING TYPE #2 SHEET 2 OF 3
F887	BULKHEAD CROSSINGS - CROSSING TYPE #2 SHEET 3 OF 3

DWG NO.	SHEET TITLE
B-F-001	RECORD OF BORINGS - BORING PLAN SEGMENT 4 - REACH L STA. 97+94 - 156+14
B-F-002	RECORD OF BORINGS - BORING LOG P2L-1
B-F-003	RECORD OF BORINGS - BORING LOG P2L-2 & P2L-3
B-F-004	RECORD OF BORINGS - BORING PLAN SEGMENT 4 - REACH M STA. 156+14 - 163+29
B-F-005	RECORD OF BORINGS - BORING LOGS P2M-1 & P2M-2
B-F-006	RECORD OF BORINGS - BORING LOG P2M-3
B-F-007	RECORD OF BORINGS - BORING LOG P2M-4
B-F-008	RECORD OF BORINGS REACH N SHEET 1 OF 3
B-F-009	RECORD OF BORINGS REACH N SHEET 2 OF 3
B-F-010	RECORD OF BORINGS REACH N SHEET 3 OF 3
B-F-011	RECORD OF BORINGS REACH O SHEET 1 OF 4
B-F-012	RECORD OF BORINGS REACH O SHEET 2 OF 4
B-F-013	RECORD OF BORINGS REACH O SHEET 3 OF 4
B-F-014	RECORD OF BORINGS REACH O SHEET 4 OF 4
B-F-015	RECORD OF BORINGS REACH Q SHEET 1 OF 3
B-F-016	RECORD OF BORINGS REACH Q SHEET 2 OF 3
B-F-017	RECORD OF BORINGS REACH Q SHEET 3 OF 3
FW002	FORM-LINED WALLS PA2 KEY PLAN AND GENERAL NOTES
FW100	FORM-LINED WALLS MODULE TYPES
FW101	FORM-LINED WALLS GENERAL FINISH DETAILS SHEET 1 OF 3
FW102	FORM-LINED WALLS GENERAL FINISH DETAILS SHEET 2 OF 3
FW103	FORM-LINED WALLS GENERAL FINISH DETAILS SHEET 3 OF 3
FW104	FORM-LINED WALLS TYPICAL LAYOUT PLAN AND ELEVATION
FW105	FORM-LINED WALLS WALL TYPES
FW311	FORM-LINED WALLS FINISH LAYOUT SEGMENT 4 - REACH L STA. 97+94 - 156+14
FW312	FORM-LINED WALLS FINISH LAYOUT SEGMENT 4 - REACH M STA. 156+14 - 163+29
FW313	FORM-LINED WALLS FINISH LAYOUT SEGMENT 5 - REACH N STA. 163+29 - 209+16
FW314	FORM-LINED WALLS FINISH LAYOUT SEGMENT 5 - REACH O STA. 209+16 - 217+13
FW315	FORM-LINED WALLS FINISH LAYOUT SEGMENT 6 - REACH Q STA. 217+13 - 224+51
FW358	FORM-LINED WALLS ENLARGEMENTS REACH L THRU REACH N

DWG NO.	SHEET TITLE
FW359	FORM-LINED WALLS ENLARGEMENTS ASSER LEVY PLAYGROUND
FM308	MONOLITH PLAN SEGMENT 4 - REACH L STA. 97+94 - 156+14 SHEET 1 OF 2
FM309	MONOLITH PLAN SEGMENT 4 - REACH L STA. 97+94 - 156+14 SHEET 2 OF 2
FM310	MONOLITH PLAN SEGMENT 4 - REACH M STA. 156+14 - 163+29 SHEET 1 OF 2
FM311	MONOLITH PLAN SEGMENT 4 - REACH M STA. 156+14 - 163+29 SHEET 2 OF 2
FM700	CONCRETE I-WALL CAP REINFORCING
FM701	I-WALL MONOLITH SECTIONS AND DETAILS - SHEET 1 OF 11
FM702	I-WALL MONOLITH SECTIONS AND DETAILS - SHEET 2 OF 11
FM703	MONOLITH DETAILS SHEET 1 OF 4
FM704	MONOLITH DETAILS SHEET 2 OF 4
FM705	MONOLITH DETAILS SHEET 3 OF 4
FM706	MONOLITH DETAILS SHEET 4 OF 4
FG000	FLOOD GATES TABLE OF CONTENTS
FG001	CLOSURE STRUCTURES SCHEDULE AND GENERAL NOTES
FG002	TYPICAL PAVEMENT SECTION AND DETAILS
FG260	PEDESTRIAN SWING GATES - GATE FABRICATION CLOSED ELEVATION
FG261	PEDESTRIAN SWING GATES - GATE FABRICATION OPEN ELEVATION
FG262	PEDESTRIAN SWING GATES - GATE FABRICATION SECTIONS
FG300	CLOSURE STRUCTURES 15TH STREET PEDESTRIAN SWING GATE PLANS
FG301	CLOSURE STRUCTURES 15TH STREET PEDESTRIAN SWING GATE SECTIONS AND DETAILS
FG302	CLOSURE STRUCTURES 15TH STREET PEDESTRIAN SWING GATE REINFORCING PLANS AND SECTIONS SHEET 1 OF 2
FG303	CLOSURE STRUCTURES 15TH STREET PEDESTRIAN SWING GATE REINFORCING PLANS AND SECTIONS SHEET 2 OF 2
FG320	CLOSURE STRUCTURES 15TH STREET VEHICULAR SWING GATE GENERAL PLAN
FG321	CLOSURE STRUCTURES 15TH STREET VEHICULAR SWING GATE PARTIAL PLAN
FG322	CLOSURE STRUCTURES 15TH STREET VEHICULAR SWING GATE SECTIONS
FG323	CLOSURE STRUCTURES 15TH STREET VEHICULAR SWING GATE MONOLITH PILE LAYOUT AND PLAN
FG324	CLOSURE STRUCTURES 15TH STREET VEHICULAR SWING GATE REINFORCING AND DETAILS 1 OF 3

DWG NO.	SHEET TITLE
FG325	CLOSURE STRUCTURES 15TH STREET VEHICULAR SWING GATE REINFORCING AND DETAILS 2 OF 3
FG326	CLOSURE STRUCTURES 15TH STREET VEHICULAR SWING GATE REINFORCING AND DETAILS 3 OF 3
FG330	15TH STREET SWING GATE - GATE FABRICATION CLOSED ELEVATION
FG331	15TH STREET SWING GATE - GATE FABRICATION OPEN ELEVATION
FG332	15TH STREET SWING GATE - GATE FABRICATION SECTIONS
FG333	15TH STREET SWING GATE - GATE FABRICATION SECTION AND DETAILS
FG340	FDR DRIVE 15TH STREET EXIT ROADWAY RECONSTRUCTION PLAN SHEET 1 OF 2
FG341	FDR DRIVE 15TH STREET EXIT ROADWAY RECONSTRUCTION PLAN SHEET 2 OF 2
FG342	FDR DRIVE S/B SIDEWALK RECONSTRUCTION PLAN SHEET 1 OF 2
FG343	FDR DRIVE S/B SIDEWALK RECONSTRUCTION PLAN SHEET 2 OF 2
FG344	FDR DRIVE 15TH STREET EXIT ROADWAY RECONSTRUCTION PROFILES SHEET 1 OF 2
FG345	FDR DRIVE 15TH STREET EXIT ROADWAY RECONSTRUCTION PROFILES SHEET 2 OF 2
FG350	FDR DRIVE 15TH STREET EXIT ROADWAY RECONSTRUCTION SECTIONS AND DETAILS SHEET 1 OF 3
FG351	FDR DRIVE 15TH STREET EXIT ROADWAY RECONSTRUCTION SECTIONS AND DETAILS SHEET 2 OF 3
FG352	FDR DRIVE 15TH STREET EXIT ROADWAY RECONSTRUCTION SECTIONS AND DETAILS SHEET 3 OF 3
FG353	FDR DR 15TH STREET EXIT TRAFFIC BARRIER AND ATTENUATOR DETAILS AND SECTIONS SHEET 1 OF 3
FG354	FDR DR 15TH STREET EXIT TRAFFIC BARRIER AND ATTENUATOR DETAILS AND SECTIONS SHEET 2 OF 3
FG355	FDR DR 15TH STREET EXIT TRAFFIC BARRIER AND ATTENUATOR DETAILS AND SECTIONS SHEET 3 OF 3
FG356	FDR DR 15TH STREET EXIT GENERAL DETAILS
FG360	CON EDISON 15TH STREET PARKING RESTORATION PLAN
FG362	CON EDISON 15TH STREET PARKING DETAILS 1 OF 2
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FG370	EAST 15TH STREET CON-ED PLANT SPRINKLER NOTES, LEGEN AND SIAMESE INSTALLATION DETAILS
FG372	EAST 15TH STREET CON-ED FIRE STANDPIPE DETAIL SHEET

DWG NO.	SHEET TITLE
FG400	CLOSURE STRUCTURES EAST 18TH STREET FDR ON RAMP & OCME GATE GENERAL PLAN
FG401	CLOSURE STRUCTURES MURPHY BROTHERS & OCME SWING GATES ELEVATION
FG402	CLOSURE STRUCTURES EAST 18TH STREET FDR ON RAMP & OCME GATE GATE SECTIONS
FG403	CLOSURE STRUCTURES EAST 18TH STREET FDR ON RAMP GATE CONCRETE MONOLITH SHEET 1 OF 2
FG404	CLOSURE STRUCTURES EAST 18TH STREET FDR ON RAMP GATE CONCRETE MONOLITH SHEET 2 OF 2
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FG407	CLOSURE STRUCTURES EAST 18TH STREET FDR ON RAMP GATE PLAN & ELEVATION SHEET 3 OF 3
FG408	CLOSURE STRUCTURES EAST 18TH STREET FDR ON RAMP GATE CONCRETE MONOLITH PILE LAYOUT AND SCHEDULE
FG409	CLOSURE STRUCTURES EAST 18TH STREET OCME GATE CONCRETE MONOLITH SHEET 1 OF 2
FG410	CLOSURE STRUCTURES EAST 18TH STREET OCME GATE CONCRETE MONOLITH SHEET 2 OF 2
FG411	CLOSURE STRUCTURES EAST 18TH STREET OCME GATE PLAN & ELEVATION SHEET 1 OF 2
FG412	CLOSURE STRUCTURES EAST 18TH STREET OCME GATE PLAN & ELEVATION SHEET 2 OF 2
FG413	CLOSURE STRUCTURES EAST 18TH STREET OCME GATE CONCRETE MONOLITH PILE LAYOUT AND SCHEDULE
FG414	EAST 18TH STREET FDR ON RAMP ROADWAY AND SIDEWALK RECONSTRUCTION PLAN
FG415	EAST 18TH STREET FDR ON RAMP REGRADING PROFILES (1 OF 2)
FG416	EAST 18TH STREET FDR ON RAMP REGRADING PROFILES (2 OF 2)
FG450	CLOSURE STRUCTURES EAST 18TH STREET FDR EXIT GATE GENERAL PLAN
FG451	CLOSURE STRUCTURES FDR EXIT GATE SECTION
FG452	CLOSURE STRUCTURES STUYVESANT COVE SOUTH GATE GENERAL PLAN
FG453	CLOSURE STRUCTURES FDR EXIT & STUY COVE SOUTH ROLLER GATE ELEVATION
FG454	CLOSURE STRUCTURES STUY COVE SOUTH ROLLER GATE SECTIONS

DWG NO.	SHEET TITLE
FG455	CLOSURE STRUCTURES FDR EXIT & STUY COVE SOUTH ROLLER GATE REGRADING OVERALL PLAN
FG456	CLOSURE STRUCTURES EAST 18TH STREET FDR EXIT GATE & STUYVESANT COVE SOUTH GATE CONCRETE MONOLITH SHEET 1 OF 3
FG457	CLOSURE STRUCTURES EAST 18TH STREET FDR EXIT GATE & STUYVESANT COVE SOUTH GATE CONCRETE MONOLITH SHEET 2 OF 3
FG458	CLOSURE STRUCTURES EAST 18TH STREET FDR EXIT GATE & STUYVESANT COVE SOUTH GATE CONCRETE MONOLITH SHEET 3 OF 3
FG459	CLOSURE STRUCTURES EAST 18TH STREET FDR EXIT GATE PLAN & ELEVATION SHEET 1 OF 2
FG460	CLOSURE STRUCTURES EAST 18TH STREET FDR EXIT GATE PLAN & ELEVATION SHEET 2 OF 2
FG461	CLOSURE STRUCTURES STUYVESANT COVE SOUTH GATE PLAN & ELEVATION SHEET 1 OF 2
FG462	CLOSURE STRUCTURES STUYVESANT COVE SOUTH GATE PLAN & ELEVATION SHEET 2 OF 2
FG463	CLOSURE STRUCTURES EAST 18TH STREET FDR EXIT GATE & STUYVESANT COVE SOUTH GATE CONCRETE MONLITH PILE LAYOUT AND SCHEDULE
FG464	CLOSURE STRUCTURES EAST 18TH STREET FDR EXIT GATE CONCRETE STORAGE MONOLITH
FG465	CLOSURE STRUCTURES EAST 18TH STREET FDR EXIT GATE SILL PLATE AND TRACK SUPPORT PLAN
FG466	CLOSURE STRUCTURES STUYVESANT COVE SOUTH GATE CONCRETE STORAGE MONOLITH
FG467	CLOSURE STRUCTURES STUYVESANT COVE SOUTH GATE SILL PLATE AND TRACK SUPPORT PLAN
FG468	EAST 18TH STREET FDR OFF RAMP ROADWAY AND SIDEWALK RECONSTRUCTION PLAN
FG469	EAST 18TH STREET FDR OFF RAMP REGRADING PROFILES (1 OF 2)
FG470	EAST 18TH STREET FDR OFF RAMP REGRADING PROFILES (2 OF 2)
FG471	CLOSURE STRUCTURES STUYVESANT COVE SOUTH GATE STORAGE MONOLITH DRAINAGE PLAN AND DETAILS
FG472	CLOSURE STRUCTURES STUYVESANT COVE EAST 18TH STREET FDR EXIT GATE HIGHWAY CONSTRUCTION PLAN
FG473	CLOSURE STRUCTURES STUYVESANT COVE EAST 18TH STREET FDR EXIT GATE UTILITY PLAN & PROFILE
FG474	CLOSURE STRUCTURES STUYVESANT COVE EAST 18TH STREET FDR EXIT GATE HIGHWAY CONSTRUCTION PARTIAL PLAN

DWG NO.	SHEET TITLE
FG475	CLOSURE STRUCTURES STUYVESANT COVE EAST 18TH STREET FDR EXIT GATE HIGHWAY CONSTRUCTION DETAILS
FG476	CLOSURE STRUCTURES STUYVESANT COVE EAST 18TH STREET FDR EXIT GATE HIGHWAY CONSTRUCTION DETAILS
FG477	CLOSURE STRUCTURES STUYVESANT COVE EAST 18TH STREET FDR EXIT GATE HIGHWAY CONSTRUCTION DETAILS
FG478	CLOSURE STRUCTURES STUYVESANT COVE EAST 18TH STREET FDR EXIT GATE HIGHWAY CONSTRUCTION DETAILS
FG500	CLOSURE STRUCTURES EAST 20TH STREET GATE GENERAL PLAN
FG501	CLOSURE STRUCTURES EAST 20TH STREET GATE ELEVATION
FG502	CLOSURE STRUCTURES EAST 20TH STREET GATE REGRADING OVERALL PLAN
FG503	CLOSURE STRUCTURES EAST 20TH STREET GATE CONCRETE MONLITH SHEET 1 OF 2
FG504	CLOSURE STRUCTURES EAST 20TH STREET GATE CONCRETE MONLITH SHEET 2 OF 2
FG505	CLOSURE STRUCTURES EAST 20TH STREET GATE PLAN & ELEVATION SHEET 1 OF 2
FG506	CLOSURE STRUCTURES EAST 20TH STREET GATE PLAN & ELEVATION SHEET 2 OF 2
FG507	CLOSURE STRUCTURES EAST 20TH STREET GATE CONCRETE MONLITH PILE LAYOUT AND SCHEDULE
FG508	CLOSURE STRUCTURES EAST 20TH STREET GATE CONCRETE STORAGE MONOLITH
FG509	CLOSURE STRUCTURES EAST 20TH STREET GATE SILL PLATE AND TRACK SUPPORT PLAN
FG510	CLOSURE STRUCTURES EAST 20TH STREET GATE STORAGE MONOLITH DRAINAGE PLAN AND DETAILS
FG525	CLOSURE STRUCTURES STUYVESANT COVE NORTH SWING GATE GENERAL PLAN
FG526	CLOSURE STRUCTURES STUYVESANT COVE NORTH GATE SECTION
FG527	CLOSURE STRUCTURES STUYVESANT COVE NORTH GATE REGRADING OVERALL PLAN
FG528	CLOSURE STRUCTURES STUYVESANT COVE NORTH GATE CONCRETE MONLITH SHEET 1 OF 2
FG529	CLOSURE STRUCTURES STUYVESANT COVE NORTH GATE CONCRETE MONLITH SHEET 2 OF 2
FG530	CLOSURE STRUCTURES STUY COVE NORTH GATE PLAN & ELEVATION SHEET 1 OF 3

DWG NO.	SHEET TITLE
FG531	CLOSURE STRUCTURES STUY COVE NORTH GATE PLAN & ELEVATION SHEET 2 OF 3
FG532	CLOSURE STRUCTURES STUY COVE NORTH GATE PLAN & ELEVATION SHEET 3 OF 3
FG533	CLOSURE STRUCTURES STUYVESANT COVE NORTH GATE CONCRETE MONLITH PILE LAYOUT AND SCHEDULE
FG534	CLOSURE STRUCTURES STUYVESANT COVE NORTH GATE CONCRETE STORAGE MONOLITH
FG550	CLOSURE STRUCTURES EAST 23RD STREET SOUTH AND NORTH GATE GENERAL PLAN
FG551	CLOSURE STRUCTURES EAST 23RD STREET CROSSING ELEVATION
FG552	CLOSURE STRUCTURES EAST 23RD STREET CROSSING SECTIONS
FG553	CLOSURE STRUCTURES EAST 23RD STREET SOUTH AND NORTH GATE CONCRETE MONLITH SHEET 1 OF 2
FG554	CLOSURE STRUCTURES EAST 23RD STREET SOUTH AND NORTH GATE CONCRETE MONLITH SHEET 2 OF 2
FG555	CLOSURE STRUCTURES EAST 23RD STREET SOUTH GATE PLAN & ELEVATION SHEET 1 OF 2
FG556	CLOSURE STRUCTURES EAST 23RD STREET SOUTH GATE PLAN & ELEVATION SHEET 2 OF 2
FG557	CLOSURE STRUCTURES EAST 23RD STREET NORTH GATE PLAN & ELEVATION SHEET 1 OF 2
FG558	CLOSURE STRUCTURES EAST 23RD STREET NORTH GATE PLAN & ELEVATION SHEET 2 OF 2
FG559	CLOSURE STRUCTURES EAST 23RD STREET SOUTH AND NORTH GATE CONCRETE MONLITH PILE LAYOUT AND SCHEDULE
FG560	CLOSURE STRUCTURES EAST 23RD STREET SOUTH GATE CONCRETE STORAGE MONOLITH
FG561	CLOSURE STRUCTURES EAST 23RD STREET SOUTH GATE SILL PLATE AND TRACK SUPPORT PLAN
FG562	EAST 23RD STREET CROSSING ROADWAY AND SIDEWALK RECONSTRUCTION PLAN
FG563	CLOSURE STRUCTURES EAST 23RD STREET SOUTH GATE HIGHWAY CONSTRUCTION PLAN
FG564	CLOSURE STRUCTURES EAST 23RD STREET SOUTH GATE HIGHWAY CONSTRUCTION PARTIAL PLAN
FG565	CLOSURE STRUCTURES EAST 23RD STREET SOUTH GATE UTILITY PLAN & PROFILE
FG566	CLOSURE STRUCTURES EAST 23RD STREET SOUTH GATE TEMPORARY HIGHWAY CONSTRUCTION PLAN

DWG NO.	SHEET TITLE
FG567	CLOSURE STRUCTURES EAST 23RD STREET SOUTH GATE HIGHWAY CONSTRUCTION DETAILS
FG568	CLOSURE STRUCTURES EAST 23RD STREET SOUTH GATE HIGHWAY CONSTRUCTION DETAILS
FG569	CLOSURE STRUCTURES EAST 23RD STREET SOUTH GATE HIGHWAY CONSTRUCTION DETAILS
FG570	CLOSURE STRUCTURES EAST 23RD STREET SOUTH GATE HIGHWAY CONSTRUCTION DETAILS
FG600	CLOSURE STRUCTURES WEST SERVICE ROAD CROSSING GENERAL PLAN
FG601	CLOSURE STRUCTURES WEST SERVICE ROAD CROSSING ELEVATION
FG602	CLOSURE STRUCTURES WEST SERVICE ROAD SECTIONS
FG603	CLOSURE STRUCTURES WEST SERVICE ROAD GATE CONCRETE MONLITH SHEET 1 OF 2
FG604	CLOSURE STRUCTURES WEST SERVICE ROAD GATE CONCRETE MONLITH SHEET 2 OF 2
FG605	CLOSURE STRUCTURES WEST SERVICE ROAD GATE PLAN & ELEVATION SHEET 1 OF 3
FG606	CLOSURE STRUCTURES WEST SERVICE ROAD GATE PLAN & ELEVATION SHEET 2 OF 3
FG607	CLOSURE STRUCTURES WEST SERVICE ROAD GATE PLAN & ELEVATION SHEET 3 OF 3
FG608	CLOSURE STRUCTURES WEST SERVICE ROAD GATE CONCRETE MONLITH PILE LAYOUT AND SCHEDULE
FG609	CLOSURE STRUCTURES WEST SERVICE ROAD GATE CONCRETE STORAGE MONOLITH
FG610	WEST SERVICE ROAD CROSSING ROADWAY AND SIDEWALK RECONSTRUCTION PLAN
FG611	WEST SERVICE ROAD CROSSING REGRADING PROFILES (1 OF 2)
FG612	WEST SERVICE ROAD CROSSING REGRADING PROFILES (2 OF 2)
FG650	CLOSURE STRUCTURES ASSER LEVY ROLLER GATE GENERAL PLAN
FG651	CLOSURE STRUCTURES ASSER LEVY ROLLER GATE ELEVATION
FG652	CLOSURE STRUCTURES ASSER LEVY ROLLER GATE REGRADING OVERALL PLAN
FG653	CLOSURE STRUCTURES ASSER LEVY ROLLER GATE CONCRETE MONLITH SHEET 1 OF 2
FG654	CLOSURE STRUCTURES ASSER LEVY ROLLER GATE CONCRETE MONLITH SHEET 2 OF 2
FG655	CLOSURE STRUCTURES ASSER LEVY PLAYGROUND GATE PLAN & ELEVATION SHEET 1 OF 2

DWG NO.	SHEET TITLE
FG656	CLOSURE STRUCTURES ASSER LEVY PLAYGROUND GATE PLAN & ELEVATION SHEET 2 OF 2
FG657	CLOSURE STRUCTURES ASSER LEVY PLAYGROUND GATE CONCRETE MONLITH PILE LAYOUT AND SCHEDULE
FG658	CLOSURE STRUCTURES ASSER LEVY PLAYGROUND GATE CONCRETE STORAGE MONOLITH
FG659	CLOSURE STRUCTURES ASSER LEVY PLAYGROUND GATE SILL PLATE AND TRACK SUPPORT PLAN
FG660	CLOSURE STRUCTURES ASSER LEVY PLAYGROUND GATE STORAGE MONOLITH DRAINAGE PLAN AND DETAILS
FG700	FLOOD GATES - STANDARD DETAILS - SHEET 1 OF 21
FG701	FLOOD GATES - STANDARD DETAILS - SHEET 2 OF 21
FG702	FLOOD GATES - STANDARD DETAILS - SHEET 3 OF 21
FG703	FLOOD GATES - STANDARD DETAILS - SHEET 4 OF 21
FG704	FLOOD GATES - STANDARD DETAILS - SHEET 5 OF 21
FG705	FLOOD GATES - STANDARD DETAILS - SHEET 6 OF 21
FG706	FLOOD GATES - STANDARD DETAILS - SHEET 7 OF 21
FG707	FLOOD GATES - STANDARD DETAILS - SHEET 8 OF 21
FG708	FLOOD GATES - STANDARD DETAILS - SHEET 9 OF 21
FG709	FLOOD GATES - STANDARD DETAILS - SHEET 10 OF 21
FG710	FLOOD GATES - STANDARD DETAILS - SHEET 11 OF 21
FG711	FLOOD GATES - STANDARD DETAILS - SHEET 12 OF 21
FG712	FLOOD GATES - STANDARD DETAILS - SHEET 13 OF 21
FG713	FLOOD GATES - STANDARD DETAILS - SHEET 14 OF 21
FG714	FLOOD GATES - STANDARD DETAILS - SHEET 15 OF 21
FG715	FLOOD GATES - STANDARD DETAILS - SHEET 16 OF 21
FG716	FLOOD GATES - STANDARD DETAILS - SHEET 17 OF 21
FG717	FLOOD GATES - STANDARD DETAILS - SHEET 18 OF 21
FG718	FLOOD GATES - STANDARD DETAILS - SHEET 19 OF 21
FG719	FLOOD GATES - STANDARD DETAILS - SHEET 20 OF 21
FG720	FLOOD GATES - STANDARD DETAILS - SHEET 21 OF 21
FG721	FLOOD GATES - STANDARD DETAILS - SHEET 1 OF 2
FG722	FLOOD GATES - STANDARD DETAILS - SHEET 2 OF 2
FG746	SWING GATE LATCHING NOTCH DETAILS
FG747	ROLLER GATE LATCHING NOTCH DETAILS
FG748	TYPICAL ROLLER GATE LATCHING DETAILS SHEET 1 OF 2
FG749	TYPICAL ROLLER GATE LATCHING DETAILS SHEET 2 OF 2

DWG NO.	SHEET TITLE
FG750	TYPICAL LATCHING DETAILS SHEET 1 OF 2
FG751	TYPICAL LATCHING DETAILS SHEET 2 OF 2
FG752	ROLLER GATE SEAL DETAIL SHEET 1 OF 2
FG753	ROLLER GATE SEAL DETAIL SHEET 2 OF 2
FG754	ROLLER GATE CASTER DETAILS
FG755	ROLLER GATE TYPICAL STANDARD DETAILS SHEET 1 OF 2
FG756	ROLLER GATE TYPICAL STANDARD DETAILS SHEET 2 OF 2
FG757	ROLLER GATE REMOVABLE WINCH PEDESTAL & GATE STOPPER DETAIL
FG758	ROLLER GATE TYPICAL RAIL AND SEAL PLATE SECTIONS
FG759	ROLLER GATE TYPICAL RAIL AND TRACK SUPPORTING DETAILS
FG760	ROLLER GATE TYPICAL SEAL PLATE SUPPORTING DETAILS
FG761	SWING GATE HINGE DETAILS SHEET 1 OF 3
FG762	SWING GATE HINGE DETAILS SHEET 2 OF 3
FG763	SWING GATE HINGE DETAILS SHEET 3 OF 3
FG764	SWING GATE HINGE SECTIONS SHEET 1 OF 3
FG765	SWING GATE HINGE SECTIONS SHEET 2 OF 3
FG766	SWING GATE HINGE SECTIONS SHEET 3 OF 3
FG767	SWING GATE SEAL DETAILS SHEET 1 OF 2
FG768	SWING GATE SEAL DETAILS SHEET 2 OF 2
FG769	REMOVAL PINCH PEDESTAL DETAILS
FG770	SWING GATE END SUPPORT TYPICAL DETAIL
FG771	GATE LIFTING HOOK DETAILS
FG772	PROPOSED LADDER DETAILS
FGA100	FLOOD GATE FINISH SCHEDULE AND ELEVATION DETAIL
FGA101	FLOOD GATE FINISH DETAILS
FGA102	FLOOD GATE FINISH ELEVATIONS GATE 01 - GATE 06
FGA103	FLOOD GATE FINISH ELEVATIONS GATE 14 - GATE 18
DS000	DEP SEWERS TABLE OF CONTENTS
DS001	DEP SEWERS GENERAL NOTES
DS111	DEP SEWER DEMOLITION PLAN SEGMENT 4 - REACH L STA. 97+94 - 156+14
DS112	DEP SEWER DEMOLITION PLAN SEGMENT 4 - REACH M STA. 156+14 - 163+29
DS113	DEP SEWER DEMOLITION PLAN SEGMENT 5 - REACH N STA. 163+29 - 209+16
DS114	DEP SEWER DEMOLITION PLAN SEGMENT 5 - REACH O STA. 209+16 - 217+13

DWG NO.	SHEET TITLE
DS115	DEP SEWER DEMOLITION PLAN SEGMENT 6 - REACH Q STA. 217+13 - 224+51
DS311	DEP SEWER PLAN SEGMENT 4 - REACH L STA. 97+94 - 156+14
DS312	DEP SEWER PLAN SEGMENT 4 - REACH M STA. 156+14 - 163+29
DS313	DEP SEWER PLAN SEGMENT 5 - REACH N STA. 163+29 - 209+16
DS314	DEP SEWER PLAN SEGMENT 5 - REACH O STA. 209+16 - 217+13
DS315	DEP SEWER PLAN SEGMENT 6 - REACH Q STA. 217+13 - 224+51
DS450	DEP SEWER PLAN AND PROFILE - EXISTING 8'-0"x6'-0" COMB. SEWER CROSSING - STA. 202+37
DS451	DEP SEWER PLAN AND PROFILE - EXISTING 3'-0"x6'-0" COMB. SEWER CROSSING - STA. 202+82
DS452	DEP SEWER PLAN AND PROFILE - COMBINED SEWER PLAN AND PROFILE - REGULATOR M-38 TO OUTFALL NCM-048
DS453	DEP SEWER PLAN AND PROFILE - COMBINED SEWER PLAN AND PROFILE - TIDE GATE CHAMBER M-38A TO MH-O02
DS454	DEP SEWER PLAN AND PROFILE - EXISTING 4'-0"x5'-0" COMB. SEWER CROSSING - STA. 217+44
DS455	DEP SEWER PLAN AND PROFILE - EXISTING 2'-4"x5'-0" COMB. SEWER CROSSING - STA. 220+23
DS456	DEP SEWER PLAN AND PROFILE AT STUYVESANT COVE SOUTH GATE
DS457	DEP SEWER PLAN AND PROFILE AT E. 23RD STREET GATE
DS458	DEP SEWER PLAN AND PROFILE AT WEST SERVICE RD. AND ASSER LEVY PLAYGROUND
DS550	REGULATOR M-37 TIDE GATE REMOVAL AND REPLACEMENT SHEET 1 OF 2
DS551	REGULATOR M-37 TIDE GATE REMOVAL AND REPLACEMENT SHEET 2 OF 2
DS552	REGULATOR M-38 TIDE GATE REMOVAL AND REPLACEMENT
DS553	TIDE GATE CHAMBER M38A TIDE GATE REMOVAL AND REPLACEMENT
DS554	TIDE GATE CHAMBER M38B TIDE GATE REMOVAL AND REPLACEMENT
DS555	REGULATOR M-39 TIDE GATE REMOVAL AND REPLACEMENT
DS556	TIDE GATE AND DIVERSION CHAMBER M-39A TIDE GATE REMOVAL AND REPLACEMENT
DS557	E15TH STREET UPLAND TIDE GATE CHAMBER SECTIONS AND DETAILS
DS558	E16TH STREET UPLAND TIDE GATE CHAMBER SECTIONS AND DETAILS
DS559	E17TH STREET UPLAND TIDE GATE CHAMBER SECTIONS AND DETAILS
DS560	UPLAND TIDE GATE CHAMBER SECTIONS AND DETAILS SHEET 1 OF 2
DS561	UPLAND TIDE GATE CHAMBER SECTIONS AND DETAILS SHEET 2 OF 2
DS562	SPECIAL MANHOLE DETAILS AND SECTIONS SHEET 1 OF 5
DS563	SPECIAL MANHOLE DETAILS AND SECTIONS SHEET 2 OF 5

DWG NO.	SHEET TITLE
DS564	SPECIAL MANHOLE DETAILS AND SECTIONS SHEET 3 OF 5
DS565	SPECIAL MANHOLE DETAILS AND SECTIONS SHEET 4 OF 5
DS566	SPECIAL MANHOLE DETAILS AND SECTIONS SHEET 5 OF 5
DS570	E15TH STREET UPLAND TIDE GATE CHAMBER SEWER PROFILES
DS571	E16TH STREET UPLAND TIDE GATE CHAMBER SEWER PROFILES
DS572	E17TH STREET UPLAND TIDE GATE CHAMBER SEWER PROFILES
DS700	EXISTING MANHOLE DETAILS
DS701	MANHOLE FLOODPROOFING DETAILS SHEET 1 OF 2
DS702	MANHOLE FLOODPROOFING DETAILS SHEET 2 OF 2
DS703	MANHOLE SCHEDULE SHEET 1 OF 2
DS704	MANHOLE SCHEDULE SHEET 2 OF 2
DS718	PROPOSED SEWER CONNECTION DETAILS
CU311	CIVIL UTILITY PLAN SEGMENT 4 - REACH L STA. 97+94 - 156+14
CU312	CIVIL UTILITY PLAN SEGMENT 4 - REACH M STA. 156+14 - 163+29
CU313	CIVIL UTILITY PLAN SEGMENT 5 - REACH N STA. 163+29 - 209+16
CU314	CIVIL UTILITY PLAN SEGMENT 5 - REACH O STA. 209+16 - 217+13
CU315	CIVIL UTILITY PLAN SEGMENT 6 - REACH Q STA. 217+13 - 224+51
PD000	PARK DEMOLITION TABLE OF CONTENTS
PDT111	PARK DEMOLITION - TREE REMOVALS & PROTECTION PLAN SEGMENT 4 - REACH L STA. 97+94 - 156+14
PDT112	PARK DEMOLITION - TREE REMOVALS & PROTECTION PLAN SEGMENT 4 - REACH M STA. 156+14 - 163+29
PDT113	PARK DEMOLITION - TREE REMOVALS & PROTECTION PLAN SEGMENT 5 - REACH N STA. 163+29 - 209+16
PDT114	PARK DEMOLITION - TREE REMOVALS & PROTECTION PLAN SEGMENT 5 - REACH O STA. 209+16 - 217+13
PDT115	PARK DEMOLITION - TREE REMOVALS & PROTECTION PLAN SEGMENT 6 - REACH Q STA. 217+13 - 224+51
PDS001	PARK DEMOLITION - SITE PLAN GENERAL NOTES
PDS111	PARK DEMOLITON - SITE PLAN SEGMENT 4 - REACH L STA. 97+94 - 156+14
PDS112	PARK DEMOLITON - SITE PLAN SEGMENT 4 - REACH M STA. 156+14 - 163+29
PDS113	PARK DEMOLITON - SITE PLAN SEGMENT 5 - REACH N STA. 163+29 - 209+16
PDS114	PARK DEMOLITON - SITE PLAN SEGMENT 5 - REACH O STA. 209+16 - 217+13
PDS115	PARK DEMOLITON - SITE PLAN SEGMENT 6 - REACH Q STA. 217+13 - 224+51

DWG NO.	SHEET TITLE
PDD112	PARK DEMOLITION - DRAINAGE & SANITARY PLAN SEGMENT 4 - REACH M STA. 156+14 - 163+29
PDD115	PARK DEMOLITION - DRAINAGE & SANITARY PLAN SEGMENT 6 - REACH Q STA. 217+13 - 224+51
PDE113	PARK DEMOLITION - ELECTRICAL PLAN SEGMENT 5 - REACH N STA. 163+29 - 209+16
PDE114	PARK DEMOLITION - ELECTRICAL PLAN SEGMENT 5 - REACH O STA. 209+16 - 217+13
LG311	SITE GRADING PLAN SEGMENT 4 - REACH L STA. 97+94 - 156+14
LG312	SITE GRADING PLAN SEGMENT 4 - REACH M STA. 156+14 - 163+29
LG313	SITE GRADING PLAN SEGMENT 5 - REACH N STA. 163+29 - 209+16
LG314	SITE GRADING PLAN SEGMENT 5 - REACH O STA. 209+16 - 217+13
LG315	SITE GRADING PLAN SEGMENT 6 - REACH Q STA. 217+13 - 224+51
LG321	SITE GRADING PLAN ENLARGEMENT - MURPHY BROTHERS
LG322	SITE GRADING PLAN ENLARGEMENT - ASSER LEVY
PUD001	PARK UTILITIES - DRAINAGE & SANITARY PIPE SCHEDULE SHEET 1 OF 2
PUD003	PARK UTILITIES - DRAINAGE & SANITARY STRUCTURE SCHEDULE SHEET 1 OF 2
PUD312	PARK UTILITIES - DRAINAGE & SANITARY PLAN SEGMENT 4 - REACH M STA. 156+14 - 163+29
PUD315	PARK UTILITIES - DRAINAGE & SANITARY PLAN SEGMENT 6 - REACH Q STA. 217+13 - 224+51
PUD420	PARK UTILITIES - DRAINAGE & SANITARY PROFILE M SERIES
PUD421	PARK UTILITIES - DRAINAGE & SANITARY PROFILE A SERIES
PUD700	PARK UTILITIES - DRAINAGE & SANITARY DETAILS
PUD701	PARK UTILITIES - DRAINAGE & SANITARY DETAILS
L000	SITE LAYOUT, LANDSCAPING & PARK UTILITIES TABLE OF CONTENTS
L001	SITE LAYOUT, LANDSCAPING & PARK UTILITIES TABLE OF CONTENTS
LL050	SITE LAYOUT SCHEDULE
LL051	SITE LAYOUT SCHEDULE
LL052	SITE LAYOUT SCHEDULE
LL053	SITE LAYOUT SCHEDULE
LL311	BLANK
LL312	BLANK
LL313	BLANK
LL314	BLANK
LL315	BLANK

DWG NO.	SHEET TITLE
LLP001	SITE LAYOUT - SHARED USE PATH GEOMETRIC PLAN CURVE & TANGENT DATA TABLE
LLP200	SITE LAYOUT - SHARED USE PATH TYPICAL SECTIONS
LLP313	SITE LAYOUT - SHARED USE PATH PLAN SEGMENT 5 - REACH N STA. 163+29 - 209+16
LLP314	SITE LAYOUT - SHARED USE PATH PLAN SEGMENT 5 - REACH O STA. 209+16 - 217+13
LLP315	SITE LAYOUT - SHARED USE PATH PLAN SEGMENT 6 - REACH Q STA. 217+13 - 224+51
LLP418	SITE LAYOUT - SHARED USE PATH PROFILE STUYVESANT COVE PARK WEST EDGE
LLP419	SITE LAYOUT - SHARED USE PATH PROFILE STUYVESANT COVE PARK EAST EDGE
LLP420	SITE LAYOUT - SHARED USE PATH PROFILE STUYVESANT COVE PARK WEST EDGE
LLP421	SITE LAYOUT - SHARED USE PATH PROFILE STUYVESANT COVE PARK EAST EDGE
LLP700	SITE LAYOUT - SHARED USE PATH & MISCELLANEOUS DETAILS
LL575	LAYOUT ENLARGEMENT KEY PLAN
LL576	LAYOUT ENLARGEMENT REACH M-1
LL577	LAYOUT ENLARGEMENT REACH M-2
LL578	LAYOUT ENLARGEMENT REACH N-1
LL579	LAYOUT ENLARGEMENT REACH N-2
LL580	LAYOUT ENLARGEMENT REACH O-1
LL581	LAYOUT ENLARGEMENT REACH O-2
LL582	LAYOUT ENLARGEMENT REACH Q-1
LM311	MATERIALS PLAN SEGMENT 4 - REACH L STA. 97+94 - 156+14
LM312	MATERIALS PLAN SEGMENT 4 - REACH M STA. 156+14 - 163+29
LM313	MATERIALS PLAN SEGMENT 5 - REACH N STA. 163+29 - 209+16
LM314	MATERIALS PLAN SEGMENT 5 - REACH O STA. 209+16 - 217+13
LM315	MATERIALS PLAN SEGMENT 6 - REACH Q STA. 217+13 - 224+51
LM550	PATH CONCRETE JOINTING PLAN
LM551	PATH CONCRETE JOINTING PLAN
LM552	PATH CONCRETE JOINTING PLAN
LM560	CURB, WALL, AND FENCE PLAN
LM561	CURB, WALL, AND FENCE PLAN
LM562	CURB, WALL, AND FENCE PLAN

DWG NO.	SHEET TITLE
LF050	FURNISHINGS PLAN SCHEDULE
LF311	FURNISHINGS PLAN SEGMENT 4 - REACH L STA. 97+94 - 156+14
LF312	FURNISHINGS PLAN SEGMENT 4 - REACH M STA. 156+14 - 163+29
LF313	FURNISHINGS PLAN SEGMENT 5 - REACH N STA. 163+29 - 209+16
LF314	FURNISHINGS PLAN SEGMENT 5 - REACH O STA. 209+16 - 217+13
LF315	FURNISHINGS PLAN SEGMENT 6 - REACH Q STA. 217+13 - 224+51
LSL311	SOILS PLAN SEGMENT 4 - REACH L STA. 97+94 - 156+14
LSL312	SOILS PLAN SEGMENT 4 - REACH M STA. 156+14 - 163+29
LSL313	SOILS PLAN SEGMENT 5 - REACH N STA. 163+29 - 209+16
LSL314	SOILS PLAN SEGMENT 5 - REACH O STA. 209+16 - 217+13
LSL315	SOILS PLAN SEGMENT 6 - REACH Q STA. 217+13 - 224+51
LSL701	SOIL PROFILES
LSL703	SOIL AND PLANTING DETAILS
LP050	PLANTING SCHEDULE
LP051	PLANTING SCHEDULE
LP311	PLANTING PLAN SEGMENT 4 - REACH L STA. 97+94 - 156+14
LP312	PLANTING PLAN SEGMENT 4 - REACH M STA. 156+14 - 163+29
LP313	PLANTING PLAN SEGMENT 5 - REACH N STA. 163+29 - 209+16
LP314	PLANTING PLAN SEGMENT 5 - REACH O STA. 209+16 - 217+13
LP315	PLANTING PLAN SEGMENT 6 - REACH Q STA. 217+13 - 224+51
LP575	PLANTING ENLARGEMENT KEY PLAN
LP576	PLANTING ENLARGEMENT REACH M-1
LP577	PLANTING ENLARGEMENT REACH M-2
LP578	PLANTING ENLARGEMENT REACH N-1
LP579	PLANTING ENLARGEMENT REACH N-2
LP580	PLANTING ENLARGEMENT REACH N-3
LP581	PLANTING ENLARGEMENT REACH N-4
LP582	PLANTING ENLARGEMENT REACH N-5
LP583	PLANTING ENLARGEMENT REACH O-1
LP584	PLANTING ENLARGEMENT REACH O-2
LP585	PLANTING ENLARGEMENT REACH O-3
LP586	PLANTING ENLARGEMENT REACH O-4
LP587	PLANTING ENLARGEMENT REACH O-5
LP588	PLANTING ENLARGEMENT REACH Q-1
LPL050	TREE PLANTING LAYOUT SCHEDULE
LPL051	TREE PLANTING LAYOUT SCHEDULE

DWG NO.	SHEET TITLE
LPL311	TREE PLANTING LAYOUT PLAN
LPL312	TREE PLANTING LAYOUT PLAN
LPL313	TREE PLANTING LAYOUT PLAN
LPL314	TREE PLANTING LAYOUT PLAN
LPL315	TREE PLANTING LAYOUT PLAN
LT001	TREE MITIGATION SCHEDULE SHEET 1 OF 13
LT002	TREE MITIGATION SCHEDULE SHEET 2 OF 13
LT003	TREE MITIGATION SCHEDULE SHEET 3 OF 13
LT004	TREE MITIGATION SCHEDULE SHEET 4 OF 13
LT005	TREE MITIGATION SCHEDULE SHEET 5 OF 13
LT006	TREE MITIGATION SCHEDULE SHEET 6 OF 13
LT007	TREE MITIGATION SCHEDULE SHEET 7 OF 13
LT008	TREE MITIGATION SCHEDULE SHEET 8 OF 13
LT009	TREE MITIGATION SCHEDULE SHEET 9 OF 13
LT010	TREE MITIGATION SCHEDULE SHEET 10 OF 13
LT011	TREE MITIGATION SCHEDULE SHEET 11 OF 13
LT012	TREE MITIGATION SCHEDULE SHEET 12 OF 13
LT013	TREE MITIGATION SCHEDULE SHEET 13 OF 13
LS612	LANDSCAPE SECTIONS REACH M
LS613	LANDSCAPE SECTIONS REACH N
LS614	LANDSCAPE SECTIONS REACH O
LS615A	LANDSCAPE SECTIONS REACH Q
LS615B	LANDSCAPE SECTIONS REACH Q
LD001	DETAIL NOTES
LD727	PAVING DETAILS
LD728	PAVING DETAILS
LD730	PAVING ENLARGEMENT - MURPHY BROTHERS
LD731	PAVING ENLARGEMENT - ASSER LEVY
LD759	ATHLETIC ENLARGEMENT - MURPHY BROTHERS TEE BALL
LD759A	SUBDRAINAGE PLAN - MURPHY BROTHERS TEE BALL
LD760	UNDERDRAIN DETAILS
LD761	ATHLETIC ENLARGEMENT - COURTS
LD775	STONE ENLARGEMENT - STUYVESANT COVE
LD812	PRECAST - STUYVESANT COVE
LD812A	PRECAST - STUYVESANT COVE
LD813	PRECAST - STUYVESANT COVE

DWG NO.	SHEET TITLE
LD813A	PRECAST - STUYVESANT COVE
LD814	PRECAST DETAILS - STUYVESANT COVE
LD815	PRECAST DETAILS - STUYVESANT COVE
LD816	PRECAST DETAILS - STUYVESANT COVE
LD831	FENCE ELEVATIONS - MURPHY BROTHERS
LD832	FENCE ELEVATIONS - MURPHY BROTHERS
LD832A	FENCE ELEVATIONS - MURPHY BROTHERS
LD833	FENCE ELEVATIONS - ASSER LEVY
LD834	FENCE ELEVATIONS - ASSER LEVY
LD834A	CAST IN PLACE CONCRETE - MURPHY BROTHERS
LD834B	CAST IN PLACE CONCRETE - MURPHY BROTHERS
LD834C	CAST IN PLACE CONCRETE - MURPHY BROTHERS
LD834D	CAST IN PLACE CONCRETE - MURPHY BROTHERS
LD834E	CAST IN PLACE CONCRETE - ASSER LEVY
LD839	SEA RAIL DETAILS
LD839A	SEA RAIL DETAILS
LD839D	SEA RAIL DETAILS
LD842	FURNISHINGS AND AMENITIES - TABLES AND CHAIRS TYPE 1
LD848	FURNISHINGS AND AMENITIES - RECEPTACLES
LD848A	FURNISHINGS AND AMENITIES
LD848B	FURNISHINGS AND AMENITIES
LD849	DOG RUN DETAILS
LD854	PLAYGROUND ENLARGEMENT - MURPHY BROTHERS
LD855	PLAY EQUIPMENT - MURPHY BROTHERS
LD856	PLAYGROUND ENLARGEMENT - ASSER LEVY
LD857	PLAY EQUIPMENT - ASSER LEVY
LD858	PLAYGROUND DETAILS
LD890	PARKS SECURITY DETAILS
LD917	PRECAST CONCRETE MODULES AND FOUNDATIONS DETAIL - STUYVESANT COVE
LD918	CAST IN PLACE CONCRETE SEATWALL, TRANSITION WALL FOUNDATIONS & CURB DETAILS - MURPHY BROTHERS 1 OF 4
LD919	CAST IN PLACE CONCRETE SEATWALL, TRANSITION WALL FOUNDATIONS & CURB DETAILS - MURPHY BROTHERS 2 OF 4
LD920	CAST IN PLACE CONCRETE SEATWALL, TRANSITION WALL FOUNDATIONS & CURB DETAILS - MURPHY BROTHERS 3 OF 4

DWG NO.	SHEET TITLE
LD921	CAST IN PLACE CONCRETE SEATWALL, TRANSITION WALL FOUNDATIONS & CURB DETAILS - MURPHY BROTHERS 4 OF 4
LD922	CAST IN PLACE CONCRETE SEATWALL, TRANSITION WALL FOUNDATIONS & CURB DETAILS - ASSER LEVY
LD923	MISCELLANEOUS PARKS FURNITURE FOUNDATION DETAILS 1 OF 2
LD924	MISCELLANEOUS PARKS FURNITURE FOUNDATION DETAILS 2 OF 2
PUE001	SITE ELECTRICAL GENERAL NOTES, LEGEND AND ABBREVIATIONS
PUE313	PARK UTILITIES - ELECTRICAL PLAN SEGMENT 5 - REACH N STA. 163+29 - 209+16
PUE314	PARK UTILITIES - ELECTRICAL PLAN SEGMENT 5 - REACH O STA. 209+16 - 217+13
PUEW312	PARK UTILITIES - WALKWAY LIGHTING PLAN SEGMENT 4 - REACH M STA. 156+14 - 163+29
PUEW313	PARK UTILITIES - WALKWAY LIGHTING PLAN SEGMENT 5 - REACH N STA. 163+29 - 209+16
PUEW314	PARK UTILITIES - WALKWAY LIGHTING PLAN SEGMENT 5 - REACH O STA. 209+16 - 217+13
PUEW315	PARK UTILITIES - WALKWAY LIGHTING PLAN SEGMENT 6 - REACH Q STA. 217+13 - 224+51
PUE701	PARK UTILITIES - EXISTING LIGHTING SYSTEM ONE-LINE DIAGRAM
PUE702	PARK UTILITIES - PROPOSED LIGHTING SYSTEM ONE-LINE DIAGRAM
PUE703	PARK UTILITIES - MURPHY BROTHERS ELECTRICAL CABINET DETAILS
PUE704	WALKWAY LIGHTPOLE DETAILS
PUE705	ROADWAY PULL BOX DETAILS
SL311	STREET LIGHTING PLAN SEGMENT 4 - REACH L STA. 97+94 - 156+14
SL312	STREET LIGHTING PLAN SEGMENT 4 - REACH M STA. 156+14 - 163+29
SL313	STREET LIGHTING PLAN SEGMENT 5 - REACH N STA. 163+29 - 209+16
SL314	STREET LIGHTING PLAN SEGMENT 5 - REACH O STA. 209+16 - 217+13
SL315	STREET LIGHTING PLAN SEGMENT 6 - REACH Q STA. 217+13 - 224+51
SL700	STREET LIGHTING PLAN DETAILS
SL701	STREET LIGHTING PLAN DETAILS
TS313	TRAFFIC SIGNAL PLAN EAST 18TH STREET & AVENUE C
TS315	TRAFFIC SIGNAL PLAN EAST 23RD STREET & AVENUE C
TS315A	TEMPORARY TRAFFIC SIGNAL PLAN EAST 23RD STREET & AVENUE C
TS700	TRAFFIC SIGNAL PLAN DETAIL
TS701	TRAFFIC SIGNAL PLAN DETAIL
TS702	TRAFFIC SIGNAL PLAN DETAIL

DWG NO.	SHEET TITLE
TS703	TRAFFIC SIGNAL PLAN DETAIL
PUP001	PLUMBING GENERAL NOTES, LEGEND AND ABBREVIATIONS
PUP312	PARK UTILITIES - PLUMBING PLAN SEGMENT 4 - REACH M STA. 156+14 - 163+29
PUP313	PARK UTILITIES - PLUMBING PLAN SEGMENT 5 - REACH N STA. 163+29 - 209+16
PUP314	PARK UTILITIES - PLUMBING PLAN SEGMENT 5 - REACH O STA. 209+16 - 217+13
PUP315	PARK UTILITIES - PLUMBING PLAN SEGMENT 6 - REACH Q STA. 217+13 - 224+51
PUP701	RPZ DETAILS NO. 1
PUP702	RPZ DETAILS NO. 2
PUP703	DRINKING FOUNTAIN PLUMBING DETAILS NO. 1
PUP704	PLUMBING DETAILS NO. 2
LLP511	PAVEMENT MARKING PLAN SEGMENT 4 - REACH L STA. 97+94 - 156+14
LLP513	PAVEMENT MARKING PLAN SEGMENT 5 - REACH N STA. 163+29 - 209+16
LLP514	PAVEMENT MARKING PLAN SEGMENT 5 - REACH O STA. 209+16 - 217+13
LLP515	PAVEMENT MARKING PLAN SEGMENT 6 - REACH Q STA. 217+13 - 224+51
RW001	RECOVERY WELL DETAILS AND NOTES
RW010	RECOVERY WELL LOCATIONS STUYVESANT COVE PARK SOUTHERN PORTION
RW011	RECOVERY WELL LOCATIONS STUYVESANT COVE PARK NORTHERN PORTION
TC000	MPT TABLE OF CONTENTS
TC200	MPT GENERAL NOTES, LEGEND AND ABBREVIATIONS
TC201	PROJECT GENERAL CONSTRUCTION PLAN
TC202	GREENWAY REROUTING PLAN
TC203	EMERGENCY EGRESS PLAN
TC204	TEMPORARY SIGN TABLE (1 OF 2)
TC205	TEMPORARY SIGN TABLE (2 OF 2)
TC206	MPT PROTECTION DEVICES
TC207	ADVANCE WARNING SIGNS DETAILS - HIGHWAY
TC208	MOVEABLE BARRIERS PLACEMENT DETAILS (1 OF 2)
TC209	MOVEABLE BARRIERS PLACEMENT DETAILS (2 OF 2)
TC210	MPT TYPICAL APPLICATION - HIGHWAY TYPE I WORK
TC211	MPT TYPICAL APPLICATION - HIGHWAY TYPE II WORK
TC212	MPT TYPICAL APPLICATIONS - STREETS

DWG NO.	SHEET TITLE
TC220	REACH M MPT PLAN MURPHY BROTHERS PARK AND CLOSURE STRUCTURES
TC221	REACH L MPT PLAN CON EDISON INTERNAL DRAINAGE STAGE 1
TC222	REACH M MPT PLAN CON EDISON INTERNAL DRAINAGE STAGE 2
TC223	REACH L MPT PLAN CON EDISON INTERNAL DRAINAGE STAGE 3
TC224	REACH M MPT PLAN OVERHEAD SIGN STRUCTURE #12S WEST FOUNDATION
TC225	REACH M MPT PLAN OVERHEAD SIGN STRUCTURE #12S EAST FOUNDATION
TC226	REACH M MPT PLAN CON EDISON CLOSURE STRUCTURES STAGE 1
TC227	REACH L MPT PLAN CON EDISON CLOSURE STRUCTURES STAGE 2
TC228	REACH L MPT PLAN CON EDISON CLSOURE STRUCTURES STAGE 3
TC229	REACH L MPT PLAN CON EDISON CLOSURE STRUCTURES STAGE 4
TC230	REACH L MPT PLAN CON EDISON CLOSURE STRUCTURES STAGE 5
TC231	REACH L MPT PLAN FLYOVER BRIDGE PIER 3 FOUNDATION
TC232	REACH M MPT PLAN MANHOLE FLOODPROOFING NORTHBOUND
TC233	REACH L MPT PLAN MANHOLE FLOODPROOFING SOUTHBOUND
TC234	REACH L MPT PLAN MANHOLE FLOODPROOFING NORTHBOUND STAGE 1
TC235	REACH L MPT PLAN MANHOLE FLOODPROOFING NORTHBOUND STAGE 2
TC240	REACH N MPT PLAN E. 18TH STREET CLOSURE STRUCTURE STAGE 1
TC241	REACH N MPT PLAN E. 18TH STREET CLOSURE STRUCTURE STAGE 2
TC242	REACH N MPT PLAN E. 18TH STREET CLOSURE STRUCTURE STAGE 3
TC243	REACH N MPT PLAN E. 18TH STREET CLOSURE STRUCTURE STAGE 4
TC244	REACH N MPT PLAN AVENUE C ROADWAY RECONSTRUCTION STAGE 1
TC245	REACH N MPT PLAN AVENUE C ROADWAY RECONSTRUCTION STAGE 2
TC246	REACH N MPT PLAN AVENUE C ROADWAY RECONSTRUCTION STAGE 3
TC250	REACH N MPT PLAN STUYVESANT COVE PARK CLOSURE STRUCTURES
TC251	REACH N MPT PLAN AVENUE C PARKING LOT RECONSTRUCTION
TC252	REACH O MPT PLAN STUYVESANT COVE PARK CLOSURE STRUCTURES
TC253	REACH O MPT PLAN AVENUE C PARKING LOT RECONSTRUCTION (1 OF 2)
TC254	REACH O MPT PLAN AVENUE C PARKING LOT RECONSTRUCTION (2 OF 2)
TC255	REACH N MPT PLAN STUYVESANT COVE PARK RECONSTRUCTION (1 OF 2)
TC256	REACH O MPT PLAN STUYVESANT COVE PARK RECONSTRUCTION (2 OF 2)
TC260	REACH Q MPT PLAN E. 23RD STREET CLOSURE STRUCTURE STAGE 1
TC261	REACH Q MPT PLAN E. 23RD STREET CLOSURE STRUCTURE STAGE 2
TC262	REACH Q MPT PLAN E. 23RD STREET - RESERVED PAGE - STAGE 3

DWG NO.	SHEET TITLE
TC263	REACH Q MPT PLAN E. 23RD STREET - RESERVED PAGE - STAGE 4
TC264	REACH Q MPT PLAN E. 23RD STREET - RESERVED PAGE - STAGE 5
TC265	REACH Q MPT PLAN E. 23RD STREET - RESERVED PAGE - STAGE 6
TC270	REACH Q MPT PLAN WEST SERVICE ROAD CLOSURE STRUCTURE STAGE 1
TC271	REACH Q MPT PLAN WEST SERVICE ROAD CLOSURE STRUCTURE STAGE 2
TC272	REACH Q MPT PLAN CLOSURE STRUCTURES AND ASSER LEVY PARK
TC280	FDR DRIVE SOUTHBOUND (EXIT 7) ON-RAMP DETOUR PLAN
TC281	WATERSIDE PLAZA DETOUR PLAN
OS000	OVERHEAD SIGN STRUCTURE TABLE OF CONTENTS
OS200	OVERHEAD SIGN STRUCTURE LOCATION PLAN
OS201	FDR DR TRAFFIC CONTROL EXISTING CONDITION PLAN (1 OF 2)
OS210	TRAFFIC SIGN RELOCATION PLAN - #12S
OS211	TRAFFIC SIGN RELOCATION PLAN - #15S
OS212	SEGMENT 4 PAVEMENT MARKINGS PLAN
OS220	GROUND MOUNTED SIGN ELEVATION - #12S, #15S
OS230	SIGN TEXT DATA SHEET AND SIGN LAYOUT
OS250	OVERHEAD SIGN STRUCTURES SPAN STRUCTURE
OS251	OVERHEAD SIGN STRUCTURES SPAN STRUCTURES SELECTION TABLES
OS252	OVERHEAD SIGN STRUCTURES SPAN STRUCTURES FOUNDATIONS
OS253	OVERHEAD SIGN STRUCTURES SPAN STRUCTURES POST DETAILS SHEET 1 OF 2
OS254	OVERHEAD SIGN STRUCTURES SPAN STRUCTURES POST DETAILS SHEET 2 OF 2
OS255	OVERHEAD SIGN STRUCTURES SPAN STRUCTURES TRUSS DETAILS SHEET 1 OF 2
OS256	OVERHEAD SIGN STRUCTURES SPAN STRUCTURES TRUSS DETAILS SHEET 2 OF 2
OS257	OVERHEAD SIGN STRUCTURES CANTILEVER STRUCTURE
OS258	OVERHEAD SIGN STRUCTURES CANTILEVER STRUCTURES SELECTION TABLES
OS259	OVERHEAD SIGN STRUCTURES CANTILEVER STRUCTURES FOUNDATION
OS260	OVERHEAD SIGN STRUCTURES CANTILEVER STRUCTURES BOX CONNECTION DETAILS
OS261	OVERHEAD SIGN STRUCTURES TRUSSED ARM CONNECTION DETAILS
OS262	OVERHEAD SIGN STRUCTURES TYPICAL BASE AND CAP DETAILS

DWG NO.	SHEET TITLE
OS263	OVERHEAD SIGN STRUCTURES SIGN PANEL ATTACHMENT DETAILS
OS264	OVERHEAD SIGN STRUCTURES DMS/SIGN PANEL ATTACHMENT DETAILS
OS265	OVERHEAD SIGN STRUCTURES STRUCTURAL AND GEOTECHNICAL NOTES
SPL200	STUYVESANT COVE PARKING LOT UNDER ELEVATED FDR DRIVE TYPICAL SECTION
SPL313	STUYVESANT COVE PARKING LOT UNDER ELEVATED FDR DRIVE HIGHWAY CONSTRUCTION PLAN REACH N
SPL314	STUYVESANT COVE PARKING LOT UNDER ELEVATED FDR DRIVE HIGHWAY CONSTRUCTION PLAN REACH O
SPL320	STUYVESANT COVE PARKING LOT UNDER ELEVATED FDR DRIVE UTILITY PLAN AND PROFILE
SPL350	STUYVESANT COVE PARKING LOT UNDER ELEVATED FDR DRIVE SOUTHERN ENTRANCE ENLARGEMENT
SPL351	STUYVESANT COVE PARKING LOT UNDER ELEVATED FDR DRIVE PEDESTRIAN PLAZA ENLARGEMENT
SPL352	STUYVESANT COVE PARKING LOT UNDER ELEVATED FDR DRIVE NORTHERN ENTRANCE ENLARGEMENT
SPL513	STUYVESANT COVE PARKING LOT UNDER ELEVATED FDR DRIVE PAVEMENT MARKING PLAN REACH N
SPL514	STUYVESANT COVE PARKING LOT UNDER ELEVATED FDR DRIVE PAVEMENT MARKING PLAN REACH O
SPL700	STUYVESANT COVE PARKING LOT UNDER ELEVATED FDR DRIVE DETAILS
AT350	AUTOTURNS - SU30 EAST 18TH STREET & AVENUE C
AT351	AUTOTURNS - CITY BUS EAST 18TH STREET & AVENUE C
AT352	AUTOTURNS - SU30 EAST 23RD STREET & AVENUE C
AT353	AUTOTURNS - CITY BUS EAST 23RD STREET & AVENUE C
JB1-JB51	JOINT BID PACKAGE
FG371	EAST 15TH STREET CON-ED FIRE STANDPIPE/SPRINKLER SIAMESE REMOVAL PLAN AND PROPOSAL PLAN
FG372	EAST 15TH STREET CON-ED FIRE STANDPIPE DETAIL SHEET
FG770	GATE END SUPPORT JACK DETAIL & H-PIPE SPLICE DETAIL
FG771	GATE LIFTING HOOK DETAILS
FG772	PROPOSED LADDER DETAILS
SH0 – Sheet No.5	NYCDPR Standard Drawings
Sheet No 7 - 8	
Sheet No 12- 66	

Standard Drawings

Note: See the "Specifications and Standards of New York City" sheet in Volume 3 of this contract for obtaining Standard Drawings.

NYCDOT Standard Details of Construction

DRAWING NO.	DESCRIPTION
H-1003B	PEDESTRIAN CROSSWALKS-MALL TYPE B
H-1004	TYPICAL TEMPORARY PEDESTRIAN PASSAGEWAY IN ROADWAY AREA DURING CONSTRUCTION
H-1005	BUS STOP IN NEW ROADWAY
H-1010	STEEL FACED CONCRETE CURB, STEEL FACING TYPE D
H-1011	SIDEWALK PEDESTRIAN RAMPS
H-1012	TIMBER CURB
H-1013	ILLUMINATED TIMBER BARRICADE
H-1014	TEMPORARY PEDESTRIAN STEEL BARRICADE
H-1015	STEEL FACED DROP CURB DRIVEWAYS
H-1017	BAR PICKET FENCE (4'-0" HIGH)
H-1034	TYPICAL CONSTRUCTION JOINTS FOR CONCRETE BASE FOR PAVEMENT
H-1036	CONCRETE POURED-IN-PLACE MALL CURB
H-1037	UNDER SIDEWALK DRAIN
H-1038	TYPE III BREAKAWAY BARRICADE
H-1040	TRANSVERSE CONSTRUCTION JOINTS FOR CONCRETE BASE
H-1044	CONCRETE CURB
H-1045	CONCRETE SIDEWALK
H-1046	STREET TREE PLANTING DETAIL TYPE 1
H-1046A	PROTECTIVE TREE BARRIER
H-1047	TYPICAL CURB DETAIL AT EXISTING TREES
H-1049	PLASTIC BARREL
H-1051	TEMPORARY WOODEN STEPS
H-1053	DETAILS FOR CONSTRUCTING AREAS OF ADJUSTMENT AND TRANSITION SECTIONS
H-1054	LIMITS OF MEASUREMENT FOR PAYMENT OF TEMPORARY ASPHALT PAVEMENT

DRAWING NO.	DESCRIPTION
H-1055	PAVEMENT KEY TYPE A, B-1, B-2, C
H-1057	TEMPORARY STORAGE AREA
MS-1000	NEW YORK CITY COMPARISON OF DATUM PLATES
MS-1001	SIDEWALK PAVEMENT LIMITS
MS-1003	TYPICAL ROADWAY CROSS-SECTION/RESURFACING
MS-1005	ADJUSTMENT AT CATCH BASINS

NYCDEP Sewer Design Standards

DRAWING NO.	DESCRIPTION
SE1	STANDARD FOR VITRIFIED CLAY PIPE ON CONCRETE CRADLE ON EARTH OR ON ROCK
SE3	STANDARD FOR CIRCULAR REINFORCED CONCRETE PIPE ON CONCRETE CRADLE ON EARTH OR ON ROCK
SE11	STANDARD FOR MANHOLE ON 8" DIA. TO 30" DIA. PIPE SEWERS IN DRY LOCATION
SE12	STANDARD FOR MANHOLE ON 8" DIA. TO 30" DIA. PIPE SEWERS ON PILE IN DRY LOCATION
SE14	STANDARD FOR MANHOLE ON 8" DIA. TO 30" DIA. PIPE SEWERS IN WET LOCATION
SE28A, SE28B, SE28C, & SE28D	STANDARD FOR 4'-0" DIAMETER PRECAST MANHOLE (4 DWGS)
SE31A & SE31B	STANDARD FOR PRECAST MANHOLE DETAILS (2 DWGS)
SE32	STANDARD FOR ALTERNATE MONOLITHIC BASE SECTION FOR PRECAST MANHOLES (POURED IN PLACE)
SE35	STANDARD FOR REMOVABLE PRECAST REINFORCED CONCRETE SLAB
SE39	STANDARD FOR 27" DIAMETER CAST IRON MANHOLE FRAME AND COVER
SE40	STANDARD FOR 27" DIAMETER CAST IRON EXTENSION RING FOR 27" DIAMETER MANHOLE FRAME AND COVER
SE43	STANDARD FOR CAST IRON MANHOLE STEP
SE44	STANDARD FOR CAST IRON MANHOLE STEP (BOLT-ON TYPE)

DRAWING NO.	DESCRIPTION
SE45	STANDARD FOR CIRCULAR CAST IRON MANHOLE STEP (BOLT-ON TYPE)
SE46	STANDARD FOR PLASTIC MANHOLE STEP
SE47	STANDARD FOR TYPE 1 CATCH BASIN (WITH CURB PIECE)
SE48	STANDARD FOR TYPE 2 CATCH BASIN (WITHOUT CURB PIECE)
SE49B	STANDARD FOR TYPE 3 CATCH BASIN (WITH CURB PIECE)
SE52A & SE52B	STANDARD FOR PRECAST TYPE 1 CATCH BASIN (2 DWGS)
SE53A	STANDARD FOR PRECAST TYPE 2 CATCH BASIN
SE53B	STANDARD FOR SPLIT PRECAST TYPE 2 CATCH BASIN
SE54B	STANDARD FOR PRECAST TYPE 3 CATCH BASIN (WITH CURB PIECE)
SE55C	STANDARD FOR PRECAST DOUBLE CATCH BASIN
SE57	STANDARD FOR CAST IRON FRAME FOR CATCH BASINS (WITH CURB PIECE)
SE58A	STANDARD FOR CAST IRON FRAME FOR CATCH BASINS (WITHOUT CURB PIECE)
SE58B	STANDARD FOR CAST IRON FRAME FOR TYPE 3 CATCH BASINS (WITH CURB PIECE)
SE59A & SE59B	STANDARD FOR CAST IRON GRATING, BACK PLATE, AND CURB PIECE FOR CATCH BASINS (2 DWGS)
SE60	STANDARD FOR CAST IRON HOOD AND HOOKS FOR CATCH BASINS
SE61	STANDARD FOR DUCTILE IRON PIPE ALTERNATIVE
SE62	STANDARD FOR HOUSE CONNECTIONS
SE67	STANDARD FOR CONSTRUCTION OF CATCH BASIN (NO EXISTING CURB)
SE70	STANDARD FOR MINIMUM LOAD DIAGRAM FOR NON-WATERTIGHT SHEETING DESIGN
SE71	STANDARD FOR MINIMUM LOAD DIAGRAM FOR WATERTIGHT SHEETING DESIGN

NYCDEP Water Main Standard Drawings

DRAWING NO.	DESCRIPTION
10240-A-Z	VALVE BOX SKIRT, CAST IRON
10241-A-Z	HYDRANT VALVE BOX, CAST IRON
11576-A-Z	FOUNDATIONS FOR VALVE BOXES
13547-B-Z	WIDE FLANGE MANHOLE HEAD & COVER, CAST IRON
22809-Z	HYDRANT DRAIN BASE
31050-Z	STANDARD METHODS FOR HYDRANT DRAINAGE, 31050-Z SUPERSEDES 11522-Z
44292-B-Z	GRAVEL OR BROKEN STONE BEDDING AND FILTER FABRIC INSTALLATION FOR DUCTILE CAST IRON PIPES
44387-Z-B	RODDING ALL SPECIAL CASTINGS, LEAD & MECHANICAL JOINTS ON LOW PRESSURE WATER MAINS, PUSH-ON JOINT PIPE
45161-A-Z	STANDARD STEEL HYDRANT FENDER
45700-W	STANDARD SUPPORTS FOR WATER MAINS INSTALLED AT SUBWAYS AND IN EXTREMELY YIELDING SOIL
46464-Z	METHOD FOR PROTECTING D.I. WATER MAINS WITH SHALLOW (LESS THAN 24") COVER
WM0401	PAVEMENT EXCAVATION LIMITS FOR PERMANENT RESTORATION IN STREETS NOT PROTECTED BY N.Y.C. ADM. CODE § 19.144, WATER MAINS 20" AND LESS IN DIAMETER
WM0402	PAVEMENT EXCAVATION LIMITS FOR PERMANENT RESTORATION IN STREETS PROTECTED BY N.Y.C. ADM. CODE § 19.144, WATER MAINS 20" AND LESS IN DIAMETER
WM0403	PAVEMENT EXCAVATION LIMITS FOR PERMANENT RESTORATION, WATER MAINS 24" AND LARGER IN DIAMETER

CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF INFRASTRUCTURE

ADDENDA CONTROL SHEET

BID SUBMISSION DATE / TIME: **MAY 28, 2020, 11:00 AM – 2:00 PM**
BID OPENING DATE: **June 1, 2020**

PROJECT NO.: **SANDRESM2**

DESCRIPTION: **INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET**

Addendum		Addendum Contains:					
No.	Date	Revised Bid Date/Time	Revised Bid Schedule	Questions & Responses	Additional Amendments	Drawings (number)	General Counsel Approval
1	02/28/2020	☒	☐	☐	☒	☐ (0)	
2	03/06/2020	☐	☐	☐	☐	☒ (182)	
3	03/09/2020	☐	☐	☐	☒	☐ (0)	
4	03/10/2020	☐	☒	☐	☒	☐ (0)	
5	03/16/2020	☐	☐	☐	☐	☒ (140)	
6	03/17/2020	☐	☐	☒	☒	☐ (0)	
7	03/19/2020	☐	☐	☐	☒	☐ (0)	
8	03/26/2020	☐	☒	☐	☐	☐ (0)	
9	03/26/2020	☐	☐	☐	☐	☒ (44)	
10	03/30/2020	☐	☐	☒	☐	☐ (0)	
11	04/22/2020	☐	☐	☐	☐	☒ (218)	
12	05/8/2020	☐	☒	☐	☒	☒ (78)	
13	05/15/2020	☒	☒	☒	☒	☒ (36)	
14	05/21/2020	☒	☒	☒	☒	☒ (10)	
15	05/26/2020	☐	☒	☐	☒	☐ (0)	

The Table above is a guide. Refer to the referenced Addendum for specific information.

ATTACH TO CONTRACT DOCUMENTS
THE CITY OF NEW YORK

DEPARTMENT OF DESIGN AND CONSTRUCTION
INFRASTRUCTURE DIVISION
BUREAU OF DESIGN

PROJECT ID: SANDRESM2

INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET

TOGETHER WITH ALL WORK INCIDENTAL THERETO

BOROUGH OF MANHATTAN

ADDENDUM NO. 1

DATED: February 28, 2020

THIS ADDENDUM IS HEREBY MADE A PART OF THE CONTRACT DOCUMENTS

1. **Refer** to the Bid Opening for the contract scheduled for March 5, 2020, at 11:00 am. is hereby rescheduled to March 26, 2020 at 11:00 am.

2. **Refer** to Volume 1 of 3, Page A-5
Delete Page A-5, in its entirety;
Substitute with attached revised Page A-5R
[Number of attachments 1]

3. **Refer** to VOLUME 1 OF 3, BID SCHEDULE, article 10 (b), page A-14;
Delete article 10 (b) in its entirety;
Substitute with the revised article 10 (b) below;

"To apply for a full or partial waiver of the Participation Goals, a bidder, proposer, or contractor, as applicable, must complete Part III (Page 5) of Schedule B and submit such request no later than seven (7) calendar days prior to the date and time the bids, proposals, or Task Orders are due, in writing to the Agency by email at MWBEModification@ddc.nyc.gov. Bidders, proposers, or contractors, as applicable, who have submitted requests will receive an Agency response by no later than two (2) calendar days prior to the due date for bids, proposals, or Task Orders; provided, however, that if that date would fall on a weekend or holiday, an Agency response will be provided by close-of-business on the business day before such weekend or holiday date.".

END OF ADDENDUM NO. 1

By signing in the space provided below, the bidder acknowledges receipt of this Addendum consisting of one (1) page and ONE(1) page of attachments.

THIS ADDENDUM MUST BE SIGNED BY ALL BIDDERS AND ATTACHED TO THEIR BID

How Sheen Pau.
How Sheen Pau, P.E.
Assistant Commissioner

Perfetto Contracting Co. Inc.
Name of Bidder

By: _____

ATTACH TO CONTRACT DOCUMENTS
THE CITY OF NEW YORK

DEPARTMENT OF DESIGN AND CONSTRUCTION
INFRASTRUCTURE DIVISION
BUREAU OF DESIGN

PROJECT ID: SANDRESM2

INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET

TOGETHER WITH ALL WORK INCIDENTAL THERETO

BOROUGH OF MANHATTAN

ADDENDUM NO. 2

DATED: March 6, 2020

THIS ADDENDUM IS HEREBY MADE A PART OF THE CONTRACT DOCUMENTS

1. **Refer** to the list of the Contract Drawings in Attachment 1;
   Replace the contract drawings marked with status "Revised" in the attached list;
   Add the new contract drawings marked with status "New" in the attached list;
   [Number of attachments 1; Number of drawings: 182]

2. **Refer** to the list of the Contract Drawings in Volume 1 of 3, Pages C-7;
   Replace Pages C-7 with the revised Page C-7R;
   Note: Deleted drawing FG-371.
   [Number of attachments 1]

END OF ADDENDUM NO. 2

By signing in the space provided below, the bidder acknowledges receipt of this Addendum consisting of one (1) page, TWO (2) pages of attachments, and ONE HUNDRED EIGHTY-TWO (182) drawings

THIS ADDENDUM MUST BE SIGNED BY ALL BIDDERS AND ATTACHED TO THEIR BID

How Sheen Pau.
How Sheen Pau, P.E.
Assistant Commissioner

Perfecto Contracting Co. Inc
Name of Bidder

By: _____

ATTACH TO CONTRACT DOCUMENTS
THE CITY OF NEW YORK

DEPARTMENT OF DESIGN AND CONSTRUCTION
INFRASTRUCTURE DIVISION
BUREAU OF DESIGN

PROJECT ID: SANDRESM2

INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET

TOGETHER WITH ALL WORK INCIDENTAL THERETO

BOROUGH OF MANHATTAN

ADDENDUM NO. 3

DATED: March 9, 2020

THIS ADDENDUM IS HEREBY MADE A PART OF THE CONTRACT DOCUMENTS

1. **Refer** to Volume 3 of 3, FLOODWALL PAGES
   Delete Floodwall Pages; in their entirety;
   Substitute with attached Floodwall Pages
   Note: Changes are double underlined in the revised document
   [Number of attachments 110]

2. **Refer** to VOLUME 3 OF 3, PARKS PAGES, pages PARKS - 19 to PARKS – 22, SECTION PK-ESCR 028
   Delete pages PARKS - 19 to PARKS – 22 in their entirety;
   Substitute with attached revised page PARKS - 19R to PARKS - 22R
   [Number of attachments 4]

3. **Refer** to VOLUME 3 OF 3, PARKS PAGES, pages PARKS - 23 to PARKS – 30, SECTION PK-ESCR 031
   Delete pages PARKS - 23 to PARKS – 30 in their entirety;
   Substitute with attached revised page PARKS - 23R to PARKS - 30R
   [Number of attachments 8]

4. **Refer** to VOLUME 3 OF 3, PARKS PAGES, pages PARKS - 71 to PARKS – 80, SECTION PK-ESCR 110
   Delete pages PARKS - 71 to PARKS – 80 in their entirety;
   Substitute with attached revised page PARKS - 71R to PARKS - 80R
   Insert Pages PARKS - 80aR to PARKS – 80dR after page PARKS - 80R
   [Number of attachments 14]

END OF ADDENDUM NO. 3

By signing in the space provided below, the bidder acknowledges receipt of this Addendum consisting of one (1) page and ONE HUNDRED THIRTY-SIX (136) pages of attachments.

THIS ADDENDUM MUST BE SIGNED BY ALL BIDDERS AND ATTACHED TO THEIR BID

Richard Jones, PE
How Sheen Pau, P.E.
Assistant Commissioner FOR

Perfetto Contracting Co. Inc.
Name of Bidder

By:

ATTACH TO CONTRACT DOCUMENTS
THE CITY OF NEW YORK

DEPARTMENT OF DESIGN AND CONSTRUCTION
INFRASTRUCTURE DIVISION
BUREAU OF DESIGN

PROJECT ID: SANDRESM2

INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET

TOGETHER WITH ALL WORK INCIDENTAL THERETO

BOROUGH OF MANHATTAN

ADDENDUM NO. 4

DATED: March 10, 2020

THIS ADDENDUM IS HEREBY MADE A PART OF THE CONTRACT DOCUMENTS

1. **Refer** to VOLUME 1 OF 3, BID SCHEDULE, Pages B-3 through B-78;
   Delete pages B-3 through B-78 in their entirety;
   Substitute with attached revised B-3 [Revision #1] through B-78 [Revision #1]
   Note See Attachment A for list of changes
   [Number of attachments 77]

2. **Refer** to VOLUME 3 OF 3, GENERAL PAGES, Page G-32
   Delete Page G-32 in its entirety;
   Insert Pages G-32R to G-35R after Page G-31
   Note SECTION ESCR 6.25 GS has been added
   [Number of attachments 4]

3. **Refer** to VOLUME 3 OF 3, PARKS PAGES
   Insert pages PARKS – 301R to PARKS – 305R after Page PARKS – 300
   Note SECTION PK-ESCR 968
   [Number of attachments 5]

END OF ADDENDUM NO. 4

By signing in the space provided below, the bidder acknowledges receipt of this Addendum consisting of one (1) page and Eighty- Six(86) pages of attachments.

THIS ADDENDUM MUST BE SIGNED BY ALL BIDDERS AND ATTACHED TO THEIR BID

How Sheen Pau
How Sheen Pau, P.E.
Assistant Commissioner

Perfetto Contracting Co. Inc.
Name of Bidder

By: _____

Department of Design and Construction

Lorraine Grillo
Commissioner

Jamie Torres-Springer
First Deputy Commissioner

Justin Walter
Chief Administrative Officer
Administration

Nicholas Mendoza
Agency Chief Contracting Officer

Lorraine Holley
Deputy ACCO

NOTICE TO BIDDERS
POSTPONEMENT MEMO

DATE: March 13, 2020

TO: ALL CONTRACTORS

FROM: LORRAINE HOLLEY, Deputy ACCO

TEL. NO.: 718-391-1041

EMAIL: csb_projectinquiries@ddc.nyc.gov

NO. OF PAGES: 2 (INCLUDING COVER SHEET)

SUBJECT: POSTPONEMENT MEMO: SANDRESM2 – INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET

- BOROUGH OF MANHATTAN

MESSAGE: PLEASE CONFIRM ACKNOWLEDGEMENT OF THIS NOTICE.

RECEIPT MUST BE SENT TO THE EMAIL ADDRESSES LISTED ABOVE.

Department of Design and Construction

NOTICE TO BIDDERS
POSTPONEMENT MEMO

PROJECT #/DESCRIPTION SANDRESM2 – INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET

- BOROUGH OF MANHATTAN

THE BID OPENING FOR THE ABOVE-REFERENCED PROJECT ORIGINALLY SCHEDULED FOR MARCH 26, 2020 IS POSTPONED UNTIL FURTHER NOTICE. AN ADDENDUM WILL BE ISSUED SHORTLY.

THANK YOU.

Company Name: Perfetto Contracting Co. Inc.

Company Officer: _____
Signature

Please email this acknowledgement receipt to: csb_projectinquiries@ddc.nyc.gov If you have any questions, please call Bid Operations at 718-391-1041

ATTACH TO CONTRACT DOCUMENTS
THE CITY OF NEW YORK

DEPARTMENT OF DESIGN AND CONSTRUCTION
INFRASTRUCTURE DIVISION
BUREAU OF DESIGN

PROJECT ID: SANDRESM2

INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET

TOGETHER WITH ALL WORK INCIDENTAL THERETO

BOROUGH OF MANHATTAN

ADDENDUM NO. 5

DATED: March 16, 2020

THIS ADDENDUM IS HEREBY MADE A PART OF THE CONTRACT DOCUMENTS

1. **Refer** to the list of the Drawings in Attachment 1;
   Replace the contract drawings marked with status "Replacement" in the attached drawings list;
   Add the new contract drawings marked with status "New" in the attached drawings list;
   [Number of attachments 1; Number of drawings:75]

2. **Refer** to the list of the Drawings in Attachment 1;
   Add the NYCDPR Standard Drawings
   Number of drawings: 63]

3. **Refer** to the list of the Contract Drawings in Volume 1 of 3, Pages C-26;
   Replace Pages C-26 with the revised Page C-26R;
   Note: Drawings FG371, FG372, FG770, FG771, FG772, and Parks Standard Drawings have been added;
   [Number of attachments 1]

END OF ADDENDUM NO. 5

By signing in the space provided below, the bidder acknowledges receipt of this Addendum along with all the attachments as mentioned above.

THIS ADDENDUM MUST BE SIGNED BY ALL BIDDERS AND ATTACHED TO THEIR BID

How Sheen Pau
How Sheen Pau, P.E.
Assistant Commissioner

Perkins Consulting Inc.
Name of Bidder

By: _____

ATTACH TO CONTRACT DOCUMENTS
THE CITY OF NEW YORK

DEPARTMENT OF DESIGN AND CONSTRUCTION
INFRASTRUCTURE DIVISION
BUREAU OF DESIGN

PROJECT ID: SANDRESM2

INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET

TOGETHER WITH ALL WORK INCIDENTAL THERETO

BOROUGH OF MANHATTAN

ADDENDUM NO. 6

DATED: March 17, 2020

THIS ADDENDUM IS HEREBY MADE A PART OF THE CONTRACT DOCUMENTS

1. **Refer** to Addendum 4, Attachment A, Row "New Item"
   Delete "ESCR-6.82 C, ESCR-6.83 C"
   Note: These items were not included in the revised Bid Schedule

2. See the attached pages of "Questions Submitted by Bidders and DDC's Responses".
   [Number of attachments 11]

END OF ADDENDUM NO. 6

By signing in the space provided below, the bidder acknowledges receipt of this Addendum along with all the attachments as mentioned above.

THIS ADDENDUM MUST BE SIGNED BY ALL BIDDERS AND ATTACHED TO THEIR BID

How Sheen Pau
How Sheen Pau, P.E.
Assistant Commissioner

Perfesso Contracting Co. Inc.
Name of Bidder

By: _____

ATTACH TO CONTRACT DOCUMENTS
THE CITY OF NEW YORK

DEPARTMENT OF DESIGN AND CONSTRUCTION
INFRASTRUCTURE DIVISION
BUREAU OF DESIGN

PROJECT ID: SANDRESM2

INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET

TOGETHER WITH ALL WORK INCIDENTAL THERETO

BOROUGH OF MANHATTAN

ADDENDUM NO. 7

DATED: March 19, 2020

THIS ADDENDUM IS HEREBY MADE A PART OF THE CONTRACT DOCUMENTS

1. **Refer** to VOLUME 3 OF 3, GENERAL PAGES, Section ESCR-9.30
   Delete Pages G-27 to G-31 in their entirety;
   Substitute Pages G-27R to G-31R. (Note: Changes are marked with double underline)
   [Number of attachments 5]

2. **Refer** to the reference document, Storm Water Pollution Prevention Plan (SWPPP);
   Delete the Storm Water Pollution Prevention Plan (SWPPP) in its entirety;
   Substitute the revised Storm Water Pollution Prevention Plan (SWPPP).
   [Number of attachments 324]

3. **Refer** to the Contract Drawings;
   Add Sheets 30 through 46 (Drawings ESC200 through ESC218).
   [Number of attachments 17]

Note to bidders: Refer to the 3/13/2020 Postponement Notice. The revised bid date will be provided in a future Addendum.

END OF ADDENDUM NO. 7

By signing in the space provided below, the bidder acknowledges receipt of this Addendum along with all the attachments as mentioned above.

THIS ADDENDUM MUST BE SIGNED BY ALL BIDDERS AND ATTACHED TO THEIR BID

Richard Jones, P.E.
Executive Director

Renfro Contracting Co. Inc.
Name of Bidder

By: _____

ATTACH TO CONTRACT DOCUMENTS
THE CITY OF NEW YORK

DEPARTMENT OF DESIGN AND CONSTRUCTION
INFRASTRUCTURE DIVISION
BUREAU OF DESIGN

PROJECT ID: SANDRESM2

INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET

TOGETHER WITH ALL WORK INCIDENTAL THERETO

BOROUGH OF MANHATTAN

ADDENDUM NO. 8

DATED: March 26, 2020

THIS ADDENDUM IS HEREBY MADE A PART OF THE CONTRACT DOCUMENTS

1. **Refer** to ADDENDUM 4, BID SCHEDULE, Pages B-3 [Revision #1] through B-78 [Revision #1];
   Delete pages [Revision #1] through B-78 [Revision #1] in their entirety;
   Substitute with attached revised B-3 [Revision #2] through B-82 [Revision #2]
   Note See Attachment A for list of changes
   [Number of attachments 81]

2. **Refer** to Volume 3 of 3, PROJECT DESCRIPTION pages PD - 3 to PD - 4
   Delete pages PD - 3 to PD - 4 their entirety;
   Substitute with attached revised page PD - 3R to PD - 4R
   Note: Item 619.029913 updated to 619.01991308 and Item 619.1812 added.
   [Number of attachments 2]

***Note to bidders #1**: Refer to the 3/13/2020 Postponement Notice. The revised bid date will be provided in a future Addendum.*

***Note to bidders #2**: Refer to the ADDENDUM 5.*
ADDENDUM 5 has 65 NYCDPR Drawings, not 63 Drawings as stated in ADDENDUM 5 Article 2;
ADDENDUM 5 has 140 drawings, not 138 Drawings as stated on ADDENDUM 5 Addenda Control Sheet

END OF ADDENDUM NO. 8

By signing in the space provided below, the bidder acknowledges receipt of this Addendum along with all the attachments as mentioned above.

THIS ADDENDUM MUST BE SIGNED BY ALL BIDDERS AND ATTACHED TO THEIR BID

Richard Jones, P.E.
Executive Director

Perfesse Company Co Inc
Name of Bidder

By: _____

ATTACH TO CONTRACT DOCUMENTS
THE CITY OF NEW YORK

DEPARTMENT OF DESIGN AND CONSTRUCTION
INFRASTRUCTURE DIVISION
BUREAU OF DESIGN

PROJECT ID: SANDRESM2

INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET

TOGETHER WITH ALL WORK INCIDENTAL THERETO

BOROUGH OF MANHATTAN

ADDENDUM NO. 9

DATED: March 26, 2020

THIS ADDENDUM IS HEREBY MADE A PART OF THE CONTRACT DOCUMENTS

1. **Refer** to the list of the Drawings in Attachment 1;
   Replace the contract drawings marked with status "Replacement" in the attached drawings list;
   [Number of attachments 1; Number of drawings:44]

***Note to bidders#1**: Refer to the 3/13/2020 Postponement Notice. The revised bid date will be provided in a future Addendum.*

***Note to bidders** #2: ADDENDUM 8 was issued on March 26, 2020, not on March 25, 2020 as stated on ADDENDUM 8's Addenda Control Sheet*

END OF ADDENDUM NO. 9

By signing in the space provided below, the bidder acknowledges receipt of this Addendum along with all the attachments as mentioned above.

THIS ADDENDUM MUST BE SIGNED BY ALL BIDDERS AND ATTACHED TO THEIR BID

Richard Jones, P.E.
Executive Director

Perlene Contracting Co. Inc.
Name of Bidder

By: _____

ATTACH TO CONTRACT DOCUMENTS
THE CITY OF NEW YORK

DEPARTMENT OF DESIGN AND CONSTRUCTION
INFRASTRUCTURE DIVISION
BUREAU OF DESIGN

PROJECT ID: SANDRESM2

INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET

TOGETHER WITH ALL WORK INCIDENTAL THERETO

BOROUGH OF MANHATTAN

ADDENDUM NO. 10

DATED: March 30, 2020

THIS ADDENDUM IS HEREBY MADE A PART OF THE CONTRACT DOCUMENTS

1. See the attached pages of "Questions Submitted by Bidders and DDC's Responses".
   [Number of attachments 5]

***Note to bidders**: Refer to the 3/13/2020 Postponement Notice. The revised bid date will be provided in a future Addendum.*

END OF ADDENDUM NO. 10

By signing in the space provided below, the bidder acknowledges receipt of this Addendum along with all the attachments as mentioned above.

THIS ADDENDUM MUST BE SIGNED BY ALL BIDDERS AND ATTACHED TO THEIR BID

Richard Jones, P.E.
Executive Director

Pellegrino Contracting Co. Inc.
Name of Bidder

By: _____ DD

ATTACH TO CONTRACT DOCUMENTS
THE CITY OF NEW YORK

DEPARTMENT OF DESIGN AND CONSTRUCTION
INFRASTRUCTURE DIVISION
BUREAU OF DESIGN

PROJECT ID: SANDRESM2

INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET

TOGETHER WITH ALL WORK INCIDENTAL THERETO

BOROUGH OF MANHATTAN

ADDENDUM NO. 11

DATED: April 22, 2020

THIS ADDENDUM IS HEREBY MADE A PART OF THE CONTRACT DOCUMENTS

1. **Refer** to the list of the Drawings in Attachment A;
   Replace the contract drawings marked with status "Replacement" in the attached drawings list;
   [Number of attachments 2; Number of drawings:218]

***Note to bidders**: Refer to the 3/13/2020 Postponement Notice. The revised bid date will be provided in a future Addendum. The bid date will be extended beyond the 4/29/2020 date currently shown on the DDC Bid Documents website.*

END OF ADDENDUM NO. 11

By signing in the space provided below, the bidder acknowledges receipt of this Addendum along with all the attachments as mentioned above.

THIS ADDENDUM MUST BE SIGNED BY ALL BIDDERS AND ATTACHED TO THEIR BID

Richard Jones, P.E.
Executive Director

Name of Bidder

By: _____

ATTACH TO CONTRACT DOCUMENTS
THE CITY OF NEW YORK

DEPARTMENT OF DESIGN AND CONSTRUCTION
INFRASTRUCTURE DIVISION
BUREAU OF DESIGN

PROJECT ID: SANDRESM2

INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET

TOGETHER WITH ALL WORK INCIDENTAL THERETO

BOROUGH OF MANHATTAN

ADDENDUM NO. 12

DATED: May 8, 2020

THIS ADDENDUM IS HEREBY MADE A PART OF THE CONTRACT DOCUMENTS

1. **Refer** to VOLUME 1 OF 3, BID SCHEDULE, Pages B-3 [Revision #2] through B-82 [Revision #2];
   Delete Pages B-3 [Revision #2] through B-82 [Revision #2]; in their entirety;
   Substitute with attached revised B-3 [Revision #3] through B-85 [Revision #3];
   Note See Attachment A for list of changes.
   [Number of attachments 83 pages of bid schedule and 1 page of attachments]

2. **Refer** to VOLUME 3 OF 3, S-Pages, pages S- 13, S-56, S-57, S-76, and S-77
   Delete pages S- 13, S-56, S-57, S-76, and S-77 in their entirety;
   Substitute with attached revised page S-13R, S-56R, S-57R, S-76R, and S-77R;
   [Number of attachments 5]

3. **Refer** to Volume 3, S-Pages, Article B3.
   Replace all references to "the GDA" with "the Engineer"

4. **Refer** to VOLUME 3 OF 3, GENERAL-Pages;
   Delete Pages G-i and G-14 in their entirety;
   Substitute with attached revised pages G-iR and G-14R;
   Insert Pages G-36R to G-41R after Page G-35R;
   Note SECTION ESCR-10, SECTION ESCR-11 and SECTION 9.06 HW have been added.
   [Number of attachments 8]

5. **Refer** to VOLUME 3 OF 3, Project Description Pages,
   Delete Project Description Pages in their entirety;
   Substitute with attached revised Project Description Pages
   Note Only the chart with the NYSDOT items have changed
   [Number of attachments 6]

6. **Refer** to All Specifications in Volume 3 of 3, for all bid item numbers with "ESCR" prefix:
   Replace all spaces after the ESCR prefix with a hyphen. (ESCR X.XX REPLACED WITH ESCR-X.XX) with 2 exceptions: ESCR 9.30; ESCR 6.01 AB will remain with spaces.

7. **Refer** to Volume 3 of 3, FLOODWALL PAGES, Section ESCR-2 Jet Grouting
   a) for FW-1R: 2.01 INTENT,
   Add "floodwall" after "gate foundation," in the first sentence.

   b) for FW-8R: 2.11 QUALITY CONTROL/QUALITY ASSURANCE, E,
   Add "visually" to the second sentence. The core will be "visually" evaluated by the Engineer for compliance with specific acceptance criteria defined in this specification.

c) for FW-10R: 2.13 ACCEPTANCE CRITERIA, D,
Replace with "Hydraulic conductivity: $1x10^{-6}$ cm/sec"

d) for FW-12R: 2.15 PRICE TO COVER, *Payment will be Made Under*:
Remove items ESCR 2.V and ESCR 2.VO

8. **Refer** to Volume 3 of 3, FLOODWALL PAGES, Section ESCR-4.06 CONCRETE IN STRUCTURES

   a) for FW-37R: 4.06.03 MATERIALS, D,
   Add "and concrete for seawall items shall be Mix Class A-40"

   b) for FW-37R: 4.06.03 MATERIALS, C,
   Delete the text
   Replace the text with "Not in use"

   c) for FW-46R: 4.06.16, PRICE TO COVER,
   Delete 4th paragraph
   Delete Item no PK ESCR 963

   d) for FW-46R: 4.06.16, PRICE TO COVER, *Payment will be Made Under:*
   Add item "ESCR-4.06 UC CONCRETE FOR UTILITY CROSSINGS AND GATE SEEPAGE WALL CLOSURE POURS C.Y."

9. **Refer** to Volume 3 of 3, FLOODWALL PAGES, Section ESCR-4.11 Excavation and Filling, FW-66R: 4.11.9 PRICE TO COVER, *Payment will be Made Under:*
   Add the prefix "ESCR-" to all of the Item numbers listed

10. **Refer** to Volume 3 of 3, FLOODWALL PAGES, Section ESCR-559 – PROTECTIVE COATING FOR WATERFRONT STRUCTURES FW-121R: 559.05 METHODS, D. COATING APPLICATION,
    Add "Coating shall be applied to the following steel elements to the extents described below, unless otherwise noted:

    Floodwall and Floodgate Foundations
    1. Coat full length of steel pipe pile and sheet piles
    2. For steel sheet piles, both faces shall be coated. For steel pipe piles, only the outside face shall be coated."

11. **Refer** to Volume 3 of 3, PARKS PAGES, Section PK-ESCR 036 Pre-Cast Concrete

    a) for PARKS-34: PK-ESCR 036.3 MATERIALS
    Add
    1.6 MORTAR
    Type S Masonry Mortar per the following proportions

PORTLAND OR BLENDED PORTLAND CEMENT	MASONRY OR MORTAR CEMENT	SAND
0	1 (Type S)	2 1/4 to 3
½ (Type II or VI)	1 (Type N)	3 3/8 to 4 1/2

    b) for PARKS-41: PK-ESCR 036.4 METHODS, A. EXAMINATION
    Add "3. Sea Wall Cap:
    a. Contractor shall survey the north and south end tie in points to the existing railing in order to define the precast unit length and shape (if a bend is required) and the north and south end.
    b. At the ferry dock bridge connection, the new precast unit shall continue through but without the post holes across the ferry dock bridge entrance. The Contractor shall survey the location and width of the bridge in order to define a separate unit(s) for the mouth of the bridge entrance.
    c. Contractor shall then develop respective shop drawings for the engineer's approval prior to precasting."

c) for PARKS-41: PK-ESCR 036.4 METHODS, B. INSTALLATION 1.
Replace paragraph with:

Anchor precast architectural concrete units in position by bolting, welding, grouting, mortaring, or as otherwise indicated. Remove temporary shims, wedges, and spacers as soon as possible after anchoring, grouting, and mortaring are completed.

d) for PARKS-42: PK-ESCR 036.4 METHODS, B. INSTALLATION
Add "4. At the sea wall, the Contractor shall provide protective measures to minimize debris or construction materials from falling into the river to the satisfaction of the Engineer."

e) for PARKS-42: PK-ESCR 036.5 MEASUREMENT,
Add "Stuyvesant Cove precast concrete sea wall cap units shall be measured in place for payment by the linear foot along the centerline of the units."

f) for PARKS-42: PK-ESCR 036.6 PRICE TO COVER,
Add "The price per linear feet of Stuyvesant Cove precast concrete sea wall cap shall cover the cost of all labor, materials, insurance and incidentals required to furnish and construct the precast units on the existing sea wall complete in full compliance with the requirements of the specifications, inclusive of steel reinforcement, testing and mock ups. All joints, mortar and sealants, shall be included in the contract price. The cost of special units at the north end south end terminus as well as at the ferry terminal bridge shall not be paid separately but included in the linear foot unit cost for all precast concrete sea wall cap units."

12. **Refer** to Volume 3 of 3, FLOODGATE PAGES, Section ESCR-50 FABRICATED STEEL FLOODGATES

a) for FG-5
Add: "50.4.16 STEEL LADDERS
Fixed-rail steel ladders shall be used by the gate operators to climb on top of the flood walls and go from the flood side to the protected side and vice versa. Location of the steel ladders and their details are shown on the plan set. Ladders shall be standard steel walkthrough ladder with return. Ladders shall be fabricated of structural steel and be galvanized after fabrication. Ladders shall be fabricated of solid-section rod rungs fitted into holes in bar side rails and welded. Make splices within side rails using full penetration welds and provide a flush and smooth transition between connecting ends. Grind all welds smooth. Weld ladder rails to bent bar supporting brackets anchored to supporting structure as shown."

b) for FG-20: 50.5.6 INSTALLATION
Add:"(I) Steel Ladders – Secure steel ladders to the concrete flood wall with the clip angles attached to the stringer. Secure to concrete walls using expansion anchors as per ladder manufacturer's recommendation. Install brackets as required for securing of ladders built into the concrete. In no case rest ends of ladders shall rest upon the sidewalk or finished grade."

c) for FG-21: 50.6 MEASUREMENT AND PAYMENT
Add "Measurement for Fabricated Steel Ladders shall be per each steel ladder satisfactorily fabricated, installed, and accepted."

d) for FG-22: 50.7 PRICE TO COVER
Add "Payment for Steel Ladders fabricated as described in this Section, and in accordance with the contract drawings, will be made at the contract unit price each for "Fabricated Steel Ladders". Price and payment shall constitute full compensation for all materials, labor, and equipment required for furnishing, fabricating, transporting, manufacturing, finishing, painting, and performing all operations required for the assembly and installation of the steel ladders."

e) for FG-22 50.7 PRICE TO COVER, *Payment will be made under:*
Add ESCR-50.SL FURNISH AND INSTALL FABRICATED STEEL LADDER EACH"

13. **Refer** to the Contract Drawings
Replace all references to the following bid items as follows:
Item 4.11 AS with ESCR-4.11 AS
Item 4.11 CA with ESCR-4.11 CA
Item 4.11 CC with ESCR-4.11 CC

14. **Refer** to the Contract Drawings
Replace JB- 51 with attached revised JB- 51
Add JB- 52 and JB- 53
Note New JB-53 is the same as original JB-51
Number of Drawings 3]

15. **Refer** to VOLUME 3 OF 3, JB-Pages, page JB-4 and page JB-96
Delete page JB-4 and page JB- 96 in their entirety;
Substitute with attached revised page JB-4R and page JB- 96R;
[Number of attachments 2]

16. **Refer** to the list of the Drawings in Attachment B;
Replace the contract drawings marked with status "Replacement" in the attached drawings list;
[Number of attachments 1; Number of drawings:78]

***Note to bidders**: Refer to the 4/28/2020 Postponement Notice. The revised bid due date and bid opening date will be provided in a future Addendum.*

END OF ADDENDUM NO. 12

By signing in the space provided below, the bidder acknowledges receipt of this Addendum along with all the attachments as mentioned above.

THIS ADDENDUM MUST BE SIGNED BY ALL BIDDERS AND ATTACHED TO THEIR BID

Richard Jones, P.E.
Executive Director

Perfetto Contracting Co. Inc
Name of Bidder

By: _____

ATTACH TO CONTRACT DOCUMENTS
THE CITY OF NEW YORK

DEPARTMENT OF DESIGN AND CONSTRUCTION
INFRASTRUCTURE DIVISION
BUREAU OF DESIGN

PROJECT ID: SANDRESM2

INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET

TOGETHER WITH ALL WORK INCIDENTAL THERETO

BOROUGH OF MANHATTAN

ADDENDUM NO. 13

DATED: May 15, 2020

THIS ADDENDUM IS HEREBY MADE A PART OF THE CONTRACT DOCUMENTS

1. **Refer** to Volume 1 of 3, Page i
   Delete Page i, in its entirety;
   Substitute with attached revised Page iR
   Note New Bid Submission and Bid Opening procedures are detailed in page iR
   [Number of attachments 1]

2. **Refer** to Volume 1 of 3, Page A-5
   Delete Page A-5, in its entirety;
   Substitute with attached revised Page A-5R1
   Note 1: Bid Submission will be May 22, 2020 between 11:00 AM and 2:00 PM
   Note 2: Bid Opening will be May 26, 2020 at 11:00 AM
   [Number of attachments 1]

3. **Refer** to VOLUME 3 OF 3, FLOODGATE Pages, pages FG-28 to FG-33 Section PK-ESCR 639
   Delete pages FG-28 to FG-33 in their entirety;
   Substitute with attached revised Section PK-ESCR 639, pages FG-28R to FG-33R;
   [Number of attachments 6]

4. **Refer** to VOLUME 3 OF 3, HUD Pages, 01/03/2020 Davis Bacon Wages
   Delete 1/03/2020 Davis Bacon Wages in their entirety
   Substitute with attached 05/01/2020 Davis Bacon Wages
   [Number of attachments 16]

5. **Refer** to the list of the Drawings in Attachment A;
   Replace the contract drawings marked with status "Replacement" in the attached drawings list;
   [Number of attachments 1; Number of drawings: 36]

6. **Refer** to VOLUME 1 OF 3, BID SCHEDULE, Pages B-3 [Revision #3] through B-85 [Revision #3];
   Delete Pages B-3 [Revision #3 through B-85 [Revision #3]; in their entirety;
   Substitute with attached revised B-3 [Revision #4] through B-90 [Revision #4];
   Note See Attachment B for list of changes.
   [Number of attachments 88 pages of bid schedule and 1 page of attachments]

7. See the attached pages of "Questions Submitted by Bidders and DDC's Responses". *[Number of attachments 44]*

END OF ADDENDUM NO. 13

By signing in the space provided below, the bidder acknowledges receipt of this Addendum along with all the attachments as mentioned above.

THIS ADDENDUM MUST BE SIGNED BY ALL BIDDERS AND ATTACHED TO THEIR BID

Richard Jones, P.E.
Executive Director

Perdesse Contracting Co. Inc.
Name of Bidder

By: _____

ATTACH TO CONTRACT DOCUMENTS
THE CITY OF NEW YORK

DEPARTMENT OF DESIGN AND CONSTRUCTION
INFRASTRUCTURE DIVISION
BUREAU OF DESIGN

PROJECT ID: SANDRESM2

INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET

TOGETHER WITH ALL WORK INCIDENTAL THERETO

BOROUGH OF MANHATTAN

ADDENDUM NO. 14

DATED: May 21, 2020

THIS ADDENDUM IS HEREBY MADE A PART OF THE CONTRACT DOCUMENTS

1. **Refer** to VOLUME 1 OF 3, BID SCHEDULE, Pages B-3 [Revision #4] through B-90 [Revision #4];
   Delete Pages B-3 [Revision #4] through B-90 [Revision #4]; in their entirety;
   Substitute with attached revised B-3 [Revision #5] through B-90 [Revision #5];
   Note See Attachment A for list of changes.
   [Number of attachments 88 pages of bid schedule and 1 page of attachments]

2. **Refer** to Volume 1 of 3, Page A-5R1
   Delete Page A-5R1 in its entirety;
   Substitute with attached revised Page A-5R2
   Note 1: Bid Submission has been rescheduled from May 22, 2020 between 11:00 AM and 2:00 PM to May 28, 2020 between 11:00 AM and 2:00 PM
   Note 2: Bid Opening has been rescheduled from May 26, 2020 at 11:00 AM to June 1, 2020 at 11:00 AM
   [Number of attachments 1]

3. ***Refer*** *to VOLUME 3 OF 3, Schedule A,*
   Delete *Schedule A in its entirety;*
   Substitute with attached revised *Schedule A,*
   [Number of attachments 13]

4. ***Refer*** *to VOLUME 3 OF 3, GENERAL PAGES, Page G-1 to G-6*
   Delete *Pages G-1 to G-6 in their entirety;*
   Substitute *with attached revised G-1R to G-6R*
   Insert *Pages G-42R to G-46R after Page G-41R*
   Note 1: *SECTION HW-900-D has been deleted*
   Note 2: *SECTION HW-900P has been added*
   [Number of attachments 11]

ATTACH TO CONTRACT DOCUMENTS
THE CITY OF NEW YORK

DEPARTMENT OF DESIGN AND CONSTRUCTION
INFRASTRUCTURE DIVISION
BUREAU OF DESIGN

PROJECT ID: SANDRESM2

INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET

TOGETHER WITH ALL WORK INCIDENTAL THERETO

BOROUGH OF MANHATTAN

ADDENDUM NO. 15

DATED: May 26, 2020

THIS ADDENDUM IS HEREBY MADE A PART OF THE CONTRACT DOCUMENTS

1. **Refer** to VOLUME 1 OF 3, BID SCHEDULE, Pages B-3 [Revision #5] through B-90 [Revision #5];
   Delete Pages B-3 [Revision #5] through B-90 [Revision #5]; in their entirety;
   Substitute with attached revised B-3 [Revision #6] through B-90 [Revision #6];
   Notes: 1. See Attachment A for list of changes.
   2. The Bidder's attention is drawn to Addendum 12, Article 13.
   [Number of attachments 88 pages of bid schedule and 1 page of attachments]

2. **Refer** to Volume 1 of 3, Pages A-39 to A-45, SCHEDULE B: M/WBE UTILIZATION PLAN
   Delete Pages A-39 to A-45, SCHEDULE B: M/WBE UTILIZATION PLAN in its entirety
   Substitute with attached revised Pages A-39R to A-45R SCHEDULE B: M/WBE UTILIZATION PLAN
   [Number of attachments 7]

END OF ADDENDUM NO. 15

By signing in the space provided below, the bidder acknowledges receipt of this Addendum along with all the attachments as mentioned above.

THIS ADDENDUM MUST BE SIGNED BY ALL BIDDERS AND ATTACHED TO THEIR BID

Richard Jones, P.E.
Executive Director

Perfetto Contracting Co Inc.
Name of Bidder

By: Sean Hooper
Sean Hooper
Estimator

Department of Design and Construction

DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

VOLUME 1 OF 3

PROJECT ID: SANDRESM2

INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET

**TOGETHER WITH ALL WORK INCIDENTAL THERETO
INCLUDING FLOOD PROTECTION SYSTEM, ROLLER AND SWING GATES, PARK RECONSTRUCTION, SEWER, STREET LIGHTING, AND TRAFFIC WORK**

**Together With All Work Incidental Thereto
BOROUGH OF MANHATTAN
CITY OF NEW YORK**

_____

Contractor

Dated_____, **20**_____

Department of Design and Construction

THE CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF INFRASTRUCTURE
30-30 THOMSON AVENUE
LONG ISLAND CITY, NY, 11101
TEL: 718.391.1000
WEB: www.nyc.gov/ddc

DDC SPONSOR AGENCY:

NEW YORK CITY DEPARTMENT OF PARKS AND RECREATION

PREPARED BY:

AKRF / KSE JV

DATE PREPARED:

OCTOBER 31 2019

VOLUME 2 OF 3

FOR FURNISHING ALL LABOR AND MATERIALS NECESSARY AND REQUIRED FOR:

PROJECT ID: SANDRESM2

INFORMATION FOR BIDDERS
CONTRACT
PERFORMANCE AND PAYMENT BONDS
PREVAILING WAGE SCHEDULE

FOR FURNISHING ALL LABOR AND MATERIALS NECESSARY AND REQUIRED FOR:

INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET

TOGETHER WITH ALL WORK INCIDENTAL THERETO INCLUDING FLOOD PROTECTION SYSTEM, ROLLER AND SWING GATES, PARK RECONSTRUCTION, SEWER, STREET LIGHTING, AND TRAFFIC WORK

TOGETHER WITH ALL WORK INCIDENTAL THERETO

BOROUGH OF MANHATTAN

CITY OF NEW YORK

HUD FUNDED

20-053

NOTICE TO BIDDERS

Please note that the Safety Requirements for Construction Contracts has been updated. Changes include but are not limited to:

1. **Throughout:** Change name of Construction Safety Unit to Office of Construction Safety.
2. **Section III:** Updated definition of "Work" to include Utility Interference work.
3. **Section VI:** Allow for the Office of Construction Safety to request Site Safety Plan to be developed and approved using the SSP App.

NOTE: The list above is intended as a guide.
The text of the Safety Requirements for Construction Contracts govern.

(NO FURTHER TEXT ON THIS PAGE)

1/2/2020
DISCONTINUE THE USE OF THIS NOTICE ON 7/2/2020

(NO TEXT ON THIS PAGE)

CITY OF NEW YORK

DEPARTMENT OF DESIGN AND CONSTRUCTION DIVISION OF INFRASTRUCTURE

INFORMATION FOR BIDDERS

JULY 2019

CITY OF NEW YORK CITY
DEPARTMENT OF DESIGN AND CONSTRUCTION
INFORMATION FOR BIDDERS

TABLE OF CONTENTS

INFORMATION FOR BIDDERS

1. Description and Location of Work

The description and location of the work for which bids are requested are specified in Attachment 1, "Bid Information". Attachment 1 is included in the BID BOOKLET, VOLUME 1 OF 3.

2. Time and Place for Receipt of Bids

Sealed bids shall be received on or before the date and hour specified in Attachment 1, at which time they will be publicly opened and read aloud in the presence of the Commissioner or his or her representative, and any bidders who may desire to be present.

3. Definitions

The definitions set forth in the Procurement Policy Board Rules shall apply to this Invitation For Bids.

4. Invitation For Bids and Contract Documents

(A) Except for titles, sub-titles, headings, running headlines, tables of contents and indices (all of which are printed herein merely for convenience) the following, except for such portions thereof as may be specifically excluded, shall be deemed to be part of the Contract and the Invitation for Bids.

(1) All provisions required by law to be inserted in this Contract, whether actually inserted or not
(2) The Contract Drawings and Specifications
(3) The General Conditions, the General Requirements and the Special Conditions, if any
(4) The Contract
(5) The Information for Bidders; Request for Proposals; Notice of Solicitation and Proposal For Bids; Bid or Proposal, and, if used, the Bid Booklet
(6) The Budget Director's Certificate; all Addenda issued prior to the receipt of the bids; the Notice of Award; Performance and Payment Bonds, if required; and the Notice to Proceed with the Work.

(B) For particulars as to this procurement, including quantity and quality of the purchase, extent of the work or labor to be performed, delivery and performance schedule, and any other special instructions, prospective bidders are referred to the Invitation For Bids Documents. A copy of such documents can be obtained at the location set forth in Attachment 1.

(C) Deposit for Copy of Invitation For Bids Documents: Prospective bidders may obtain a copy of the Invitation For Bids Documents by complying with the conditions set forth in the Notice of Solicitation. The deposit must be in the form of a check or money order made payable to the City of New York, and drawn upon a state or national bank or trust company, or a check of such bank or trust company signed by a duly authorized officer thereof.

(D) Return of Invitation For Bids Documents: All Invitation For Bids Documents must be returned to the Department upon request. If the bidder elects not to submit a bid thereunder, the

Invitation For Bids Documents shall be returned to the Department, along with a statement that no bid will be submitted.

(E) Return of Deposit: Such deposit will be returned within 30 days after the award of the contract or the rejection of all bids as set forth in the advertisement, provided the Invitation For Bids Documents are returned to the location specified in Attachment 1, in physical condition satisfactory to the Commissioner.

(F) Additional Copies: Additional copies of the Invitation For Bids Documents may be obtained, subject to the conditions set forth in the advertisement for bids.

5. Pre-Bid Conference

A pre-bid conference shall be held as set forth in Attachment 1. Nothing stated at the pre-bid conference shall change the terms or conditions of the Invitation For Bids Documents, unless a change is made by written amendment as provided in Section 9 below. Failure to attend a mandatory pre-bid conference shall constitute grounds for the rejection of the bid.

6. Agency Contact

Any questions or correspondence relating to this bid solicitation shall be addressed to the Agency Contact person specified in Attachment 1.

7. Bidder's Oath

(A) The bid-shall be properly signed by an authorized representative of the bidder and the bid shall be verified by the written oath of the authorized representative who signed the bid, that the several matters stated and information furnished therein are in all aspects true.

(B) A materially false statement willfully or fraudulently made in connection with the bid or any of the forms completed and submitted with the bid may result in the termination of any Contract between the City and the Bidder. As a result, the Bidder may be barred from participating in future City contracts as well as be subject to possible criminal prosecution.

8. Examination and Viewing of Site

(A) Pre-Bidding (Investigation) Viewing of Site -Bidders must carefully view and examine the site of the proposed work, as well as its adjacent area, and seek other usual sources of information, for they will be conclusively presumed to have full knowledge of any and all conditions on, about or above the site relating to or affecting in any way the performance of the work to be done under the Contract which were or should have been indicated to a reasonably prudent bidder. To arrange a date for visiting the work site, bidders are to contact the Agency Contact person specified in Attachment 1.

(B) Should the contractor encounter during the progress of the work subsurface conditions at the site materially differing from any shown on the Contract Drawings or indicated in the Specifications or such subsurface conditions as could not reasonably have been anticipated by the contractor and were not anticipated by the City, which conditions will materially affect the cost of the work to be done under the

Contract, the attention of the Commissioner must be called immediately to such conditions before they are disturbed. The Commissioner shall thereupon promptly investigate the conditions. If he finds that they do so materially differ, or that they could not have been reasonably anticipated by the contractor and were not anticipated by the City, the Contract may be modified with his written approval.

9. Examination of Proposed Contract

(A) Request for Interpretation or Correction: Prospective bidders must examine the Contract Documents carefully and before bidding must request the Commissioner in writing for an interpretation or correction of every patent ambiguity, inconsistency or error therein which should have been discovered by a reasonably prudent bidder. Such interpretation or correction, as well as any additional contract provisions the Commissioner may decide to include, will be issued in writing by the Commissioner as an addendum to the Contract, which will be transmitted to each person recorded as having received a copy of the Contract Documents from the Department. Transmission of such addendum will be by mail, e-mail, facsimile or hand delivery. Such addendum will also be posted at the place where the Contract Documents are available for the inspection of prospective bidders. Upon transmission as provided for herein, such addendum shall become a part of the Contract Documents, and binding on all bidders, whether or not actual notice of such addendum is shown.

(B) Only Commissioner's Interpretation or Correction Binding: Only the written interpretation or correction so given by the Commissioner shall be binding, and prospective bidders are warned that no other officer, agent or employee of the City is authorized to give information concerning, or to explain or interpret, the Contract.

(C) Documents given to a subcontractor for the purpose of soliciting the subcontractor's bid shall include either a copy of the bid cover sheet or a separate information sheet setting forth the project name, the Contract number (if available), the contracting agency and the Project's location.

10. Form of Bid

Each bid must be submitted upon the prescribed form and must contain: a) the name, residence and place of business of the person or persons making the same; b) the names of all persons interested therein, and if no other person is so interested, such fact must be distinctly stated; c) a statement to the effect that it is made without any connection with any other person making a bid for the same purpose and that it is in all respects fair and without collusion or fraud; d) a statement that no Council member or other officer or employee or person whose salary is payable in whole or part from the City Treasury is directly or indirectly interested therein or in the supplies, materials or equipment and work or labor to which it relates, or in any portion of the profits thereof; e) a statement that the bidder is not in arrears to the City or to any agency upon a debt or contract or taxes, and is not a defaulter as surety or otherwise upon any obligation to the City to any agency thereof, except as set forth in the bid.

THE BID SHALL BE TYPEWRITTEN OR WRITTEN LEGIBLY IN INK. THE BID SHALL BE SIGNED IN INK. ERASURES OR ALTERATIONS SHALL BE INITIALED BY THE SIGNER IN INK. FAILURE TO CONFORM TO THE REQUIREMENTS OF THIS SECTION 10 SHALL RESULT IN THE REJECTION OF THE BID.

11. Irrevocability of Bid

The prices set forth in the bid cannot be revoked and shall be effective until the award of the Contract, unless the bid is withdrawn as provided for in Sections 15 and 18 below.

12. Acknowledgment of Amendments

The receipt of any amendment to the Contract Documents shall be acknowledged by the bidder in its bid submission.

13. Bid Samples and Descriptive Literature

Bid samples and descriptive literature shall not be submitted by the bidder, unless expressly requested elsewhere in the Contract or Contract Documents. Any unsolicited bid samples or descriptive literature which are submitted shall not be examined or tested and shall not be deemed to vary any of the provisions of this Contract.

14. Proprietary Information/Trade Secrets

(A) The bidder shall identify those portions of the bid which it deems to be confidential, proprietary information or trade secrets, and provide justification why such materials shall not be disclosed by the City. All such materials shall be clearly indicated by stamping the pages on which such information appears, at the top and bottom thereof with the word "Confidential". Such materials stamped "Confidential" must be easily separable from the non-confidential sections of the bid.

(B) All such materials so indicated shall be reviewed by the Agency and any decision not to honor a request for confidentiality shall be communicated in writing to the bidder. For those bids which are unsuccessful, all such confidential materials shall be returned to the bidder. Prices, makes and model or catalog numbers of the items offered, deliveries, and terms of payment shall be publicly available after bid opening, regardless of any designation of confidentiality made by the bidder.

15. Pre-Opening Modification or Withdrawal of Bids

Bids may be modified or withdrawn by written notice received in the office designated in Attachment 1, before the time and date set for the bid opening. If a bid is withdrawn in accordance with this Section, the bid security, if any, shall be returned to the bidder.

16. Bid Evaluation and Award

In accordance with the New York City Charter, the Procurement Policy Board Rules and the terms and conditions of this Invitation For Bids, this Contract shall be awarded, if at all, to the responsible bidder whose bid meets the requirements and evaluation criteria set forth in the Invitation For Bids, and whose bid price is either the most favorable bid price or, if the Invitation For Bids so states, the most favorable evaluated bid price. A bid may not be evaluated for any requirement or criterion that is not disclosed in the Invitation For Bids.

Restriction: No negotiations with any bidder shall be allowed to take place except under the circumstances and in the manner set forth in Section 21. Nothing in this Section shall be deemed to permit a contract award to a bidder submitting a higher quality item than that designated in the Invitation For Bids, if that bid is not also the most favorable bid.

17. Late Bids, Late Withdrawals and Late Modifications

Any bid received at the place designated in the solicitation after the time and date set for receipt of bids is late and shall not be considered. Any request for withdrawal or modification received at the place designated in the solicitation after the time and date set for receipt of bids is late and shall not be considered. The exception to this provision is that a late modification of a successful bid that makes the bid terms more favorable to the City shall be considered at any time it is received.

18. Withdrawal of Bids.

Except as provided for in Section 15, above, a bidder may not withdraw its bid before the expiration of forty-five (45) days after the date of the opening of bids; thereafter, a bidder may withdraw its bid only in writing and in advance of an actual award. If within sixty (60) days after the execution of the Contract, the Commissioner fails to fix the date for commencement of work by written notice to the bidder, the bidder, at his option, may ask to be relieved of his obligation to perform the work called for by written notice to the Commissioner. If such notice is given to the Commissioner, and the request to withdraw is granted, the bidder waives all claims in connection with this Contract.

19. Mistake in Bids

(A) Mistake Discovered Before Bid Opening: A bidder may correct mistakes discovered before the time and date set for bid opening by withdrawing or correcting the bid as provided in Section 15 above.

(B) Mistakes Discovered Before Award

(1) In accordance with General Municipal Law (Section 103, subdivision 11), where a unilateral error or mistake is discovered in a bid, such bid may be withdrawn upon written approval of the Agency Chief Contracting Officer if the following conditions are met:

(a) The mistake is known or made known to the agency prior to the awarding of the Contract or within 3 days after the opening of the bid, whichever period is shorter; and
(b) The price bid was based upon an error of such magnitude that enforcement would be unconscionable; and
(c) The bid was submitted in good faith and the bidder submits credible evidence that the mistake was a clerical error as opposed to a judgment error; and
(d) The error in the bid is actually due to an unintentional and substantial arithmetic error or an unintentional omission of a substantial quantity of work, labor, material or services made directly in the compilation of the bid, which unintentional arithmetic error or unintentional omission can be clearly shown by objective evidence drawn from inspection of the original work paper, documents, or materials used in the preparation of the bid sought to be withdrawn; and
(e) It is possible to place the agency in the same position as existed prior to the bid.

(2) Unless otherwise required by law, the sole remedy for a bid mistake in accordance with this Article shall be withdrawal of the bid, and the return of the bid bond, or other security, if any, to the bidder. Thereafter, the agency may, in its discretion, award the Contract to the next lowest bidder or rebid the Contract. Any amendment to or reformation of a bid or a Contract to rectify such an error or mistake

therein is strictly prohibited.

(3) If the mistake and the intended correct bid are clearly evident on the face of the bid document, the bid shall be corrected to the intended correct bid and may not be withdrawn. Examples of mistakes that may be corrected are typographical errors, errors in extending unit prices, transposition errors and arithmetical errors.

20. Low Tie Bids

(A) When two or more low responsive bids from responsible bidders are identical in price, meeting all the requirements and criteria set forth in the Invitation For Bids, the Agency Chief Contracting Officer will break the tie in the following manner and order of priority:

(1) Award to a certified New York City small, minority or woman-owned business entity bidder;
(2) Award to a New York City bidder;
(3) Award to a certified New York State small, minority or woman-owned business bidder;
(4) Award to a New York State bidder.

(B) If two or more bidders still remain equally eligible after application of paragraph (A) above, award shall be made by a drawing by lot limited to those bidders. The bidders involved shall be invited to attend the drawing. A witness shall be present to verify the drawing and shall certify the results on the bid tabulation sheet.

21. Rejection of Bids

(A) Rejection of Individual Bids: The Agency may reject a bid if:

(1) The bidder fails to furnish any of the information required pursuant to Section 24 or 28 hereof; or if
(2) The bidder is determined to be not responsible pursuant to the Procurement Policy Board Rules; or if
(3) The bid is determined to be non-responsive pursuant to the Procurement Policy Board Rules; or if
(4) The bid, in the opinion of the Agency Chief Contracting Officer, contains unbalanced bid prices and is thus non-responsive, unless the bidder can show that the prices are not unbalanced for the probable required quantity of items, or if the imbalance is corrected pursuant to Section 15.

(B) Rejection of All Bids: The Agency, upon written approval by the Agency Chief Contracting Officer, may reject all bids and may elect to resolicit bids if in its sole opinion it shall deem it in the best interest of the City so to do.

(C) Rejection of All Bids and Negotiation With All Responsible Bidders: The Agency Head may determine that it is appropriate to cancel the Invitation For Bids after bid opening and before award and to complete the acquisition by negotiation. This determination shall be based on one of the following reasons:

(1) All otherwise acceptable bids received are at unreasonable prices, or only one bid is received and the Agency Chief Contracting Officer cannot determine the reasonableness of the bid price, or no responsive bid has been received from a responsible bidder; or

(2) In the judgment of the Agency Chief Contracting Officer, the bids were not independently arrived at in open competition, were collusive, or were submitted in bad faith.

(D) When the Agency has determined that the Invitation for Bids is to be canceled and that use of negotiation is appropriate to complete the acquisition, the contracting officer may negotiate and award the Contract without issuing a new solicitation, subject to the following conditions:

(1) prior notice of the intention to negotiate and a reasonable opportunity to negotiate have been given by the contracting officer to each responsible bidder that submitted a bid in response to the Invitation for Bids;

(2) the negotiated price is the lowest negotiated price offered by a responsible bidder; and

(3) the negotiated price is lower than the lowest rejected bid price of a responsible bidder that submitted a bid in response to the Invitation for Bids.

22. Right to Appeal Determinations of Non-Responsiveness or Non-Responsibility and Right to Protest Solicitations and Award

The bidder has the right to appeal a determination of non-responsiveness or non-responsibility and has the right to protest a solicitation and award. For further information concerning these rights, the bidder is directed to the Procurement Policy Board Rules.

23. Affirmative Action and Equal Employment Opportunity

This Invitation For Bids is subject to applicable provisions of Federal, State and Local Laws and executive orders requiring affirmative action and equal employment opportunity.

24. PASSPort COMPLIANCE

All vendors that intend to do business with the City of New York must complete a disclosure process in order to be considered for a contract. This disclosure process was formerly completed using Vendor Information Exchange System (VENDEX) paper-based forms. The City of New York has moved collection of vendor disclosure information online. In early August 2017, the New York City Mayor's Office of Contract Services (MOCS) launched the Procurement and Sourcing Solutions Portal (PASSPort), a new online procurement system that replaced the paper-VENDEX process. In anticipation of awards, all bidders must create online accounts in the new PASSPort system, and file all disclosure information using PASSPort. Paper submissions, including certifications of no changes to existing VENDEX packages, will not be accepted in lieu of complete online filings using PASSPort.

All vendors that intend to do business with the City, but specifically those that fall into any of the following categories, are required to enroll:

- Have a pending award with a City Agency; or
- Hold a current contract with a City Agency and have either an expiring VENDEX or expiring Certificate of No Change.

The Department of Design and Construction (DDC) and MOCS hereby notifies all proposers that the PASSPort system is available, and that disclosure filing completion is required prior to any award through this competitive bid.

To enroll in PASSPort and to access the PASSPort website (including online training), please visit www.nyc.gov/passport. Contact MOCS at passport@mocs.nyc.gov for additional information and technical support.

25. Complaints About the Bid Process

The New York City Comptroller is charged with the audit of contracts in New York City. Any vendor who believes that there has been unfairness, favoritism or impropriety in the bid process should inform the Comptroller, Office of Contract Administration, One Centre Street, Room 835, New York, New York; telephone number (212) 669-2323.

26. Bid, Performance and Payment Security

(A) Bid Security: Each bid must be accompanied by bid security in an amount and type specified in Attachment 1 (BID BOOKLET, VOLUME 1 OF 3). The bid security shall assure the City of New York of the adherence of the bidder to its proposal, the execution of the Contract, and the furnishing of Performance and Payment Bonds by the bidder, if required in Attachment 1. Bid security shall be returned to the bidder as follows:

(1) Within ten (10) days after the bid opening, the Comptroller will be notified to return the deposits of all but the three (3) lowest bidders. Within five (5) days after the award, the Comptroller will be notified to return the deposits of the remaining two unsuccessful bidders.
(2) Within five (5) days after the execution of the Contract and acceptance of the Contractor's bonds, the Comptroller will be notified to return the bid security of the successful bidder or, if performance and payment bonds are not required, only after the sum retained under Article 21 of the Contract equals the amount of the bid security.
(3) Where all bids are rejected, the Comptroller will be notified to return the deposit of the three (3) lowest bidders at the time of rejection.

(B) Performance and Payment Security: Performance and Payment Security must be provided in an amount and type specified in Attachment 1 (BID BOOKLET, VOLUME 1 OF 3). The performance and payment security shall be delivered by the contractor prior to or at the time of execution of the Contract. If a contractor fails to deliver the required performance and payment security, its bid security shall be enforced, and an award of Contract may be made to the next lowest responsible and responsive bidder, or the contract may be rebid.

(C) Acceptable Types of Security: Acceptable types of security for bids, performance, and payment shall be limited to the following:

(1) a one-time bond in a form satisfactory to the City;
(2) a bank certified check or money order;
(3) obligations of the City of New York; or
(4) other financial instruments as determined by the Office of Construction in consultation with the Comptroller.

Whenever the successful bidder deposits obligations of the City of New York as performance and payment security, the Comptroller may sell and use the proceeds thereof for any purpose for which the principal or surety on such bond would be liable under the terms of the Contract. If the money is deposited with the Comptroller, the successful bidder shall not be entitled to receive interest on such money from the City.

(D) Form of Bonds: Security provided in the form of bonds must be prepared on the form of bonds authorized by the City of New York. Forms for bid, performance, and payment bonds are included in the Invitation for Bids Documents. Such bonds must have as surety thereunder such surety company or companies as are: (1) approved by the City of New York; (2) authorized to do business in the State of New York, and (3) approved by the Department of the Treasury of the United States. Premiums for any required bonds must be included in the base bid.

The bidder is advised that submission of a bid bond where the surety on such bond fails to meet the criteria set forth herein, shall result in the rejection of the bid as non-responsive.

The Department of the Treasury of the United States advises that information concerning approved surety companies may be obtained as follows: (1) from the Government Printing Office at 215-364-6465; (2) through the Internet at https://www.fiscal.treasury.gov/surety-bonds/.

(E) Power of Attorney: Attorneys in fact who sign bid, performance, or payment bonds must file with each bond a certified copy of their power of attorney to sign said bonds.

27. Failure to Execute Contract

In the event of failure of the successful bidder to execute the Contract and furnish the required security within ten (10) days after notice of the award of the Contract, the deposit of the successful bidder or so much thereof as shall be applicable to the amount of the award made shall be retained by the City, and the successful bidder shall be liable for and hereby agrees to pay on demand the difference between the price bid and the price for which such Contract shall be subsequently awarded, including the cost of any required reletting and less the amount of such deposit. No plea of mistake in such accepted bid shall be available to the bidder for the recovery of the deposit or as a defense to any action based upon such accepted bid. Further, should the bidder's failure to comply with this Section cause any funding agency, body or group (Federal, State, City, Public, Private, etc.) to terminate, cancel or reduce the funding on this project, the bidder in such event shall be liable also to the City for the amount of actual funding withdrawn by such agency on this project, less the amount of the forfeited deposit.

28. Bidder Responsibilities and Qualifications

(A) Bidders must include with their bids all information necessary for a determination of bidder responsibility, as set forth in the Specifications.

(B) The Agency may require any bidder or prospective bidder to furnish all books of account, records, vouchers, statements or other information concerning the bidder's financial status for examination as may be required by the Agency to ascertain the bidder's responsibility and capability to perform the Contract. If required, a bidder must also submit a sworn statement setting forth such information as the Agency may require concerning present and proposed plant and equipment, the personnel and qualifications of his working organizations, prior experience and performance record.

(C) Oral Examination on Qualifications: In addition thereto, and when directed by the Agency, the bidder, or a responsible officer, agent or employee of the bidder, must submit to an oral examination to be conducted by the Agency in relation to his proposed tentative plan and schedule of

operations, and such other matters as the Agency may deem necessary in order to determine the bidder's ability and responsibility to perform the work in accordance with the Contract. Each person so examined must sign and verify a stenographic transcript of such examination noting thereon such corrections as such person may desire to make.

(D) If the bidder fails or refuses to supply any of the documents or information set forth in paragraph (B) hereof or fails to comply with any of the requirements thereof, the Agency may reject the bid.

29. Employment Report

In accordance with Executive Order No. 50 (1980) as modified by Executive Order 108 (1986), the filing of a completed Employment Report (ER) is a requirement of doing business with the City of New York for construction contractors with contracts of $1,000,000 or more and subcontractors with construction subcontracts of $750,000 or more. The required forms and information are included in the Bid Booklet.

30. Labor Law Requirements

(A) General: The successful bidder will be required to comply strictly with all Federal, State and local labor laws and regulations.

(B) New York State Labor Law: This Contract is subject to New York State Labor Law Section 220, which requires that construction workers on the site be paid prevailing wages and supplements. The Contractor is reminded that all wage provisions of this Contract will be enforced strictly and failure to comply will be considered when evaluating performance. Noncompliance may result in the contractor being debarred by the City from future contracts. Complaints filed with the Comptroller may result in decisions which may debar a contractor from bidding contracts with any state governmental entity and other political subdivisions.

(C) Records: The Contractor is expected to submit accurate payroll reports and other required documents and verify attendance and job classifications being utilized in compliance with the law, Contract provisions and agency procedures.

31. Insurance

(A) Bidders are advised that the insurance requirements contained herein are regarded as material terms of the Contract. As required by Article 22 of the Contract, the contractor must effect and maintain with companies licensed and authorized to do business in the State of New York, the types of insurance set forth therein, when required by and in the amounts set forth in Schedule A of the General Conditions. Such required insurance must be provided from the date the contractor is ordered to commence work and up to the date of final acceptance of all required work.

(B) The contractor must, within ten days of receipt of the notice of award, submit the following insurance documentation: (a) original certificate of insurance for general liability in the amount required by Schedule A of the General Conditions, and (b) original certificates of insurance or other proof of coverage for workers' compensation and disability benefits, as required by Section 57 of the New York State Workers' Compensation Law and Section 220 of the Disability Benefits Law.

32. Lump Sum Contracts

(A) Comparison of Bids: Bids on Lump Sum Contracts will be compared on the basis of the lump sum price bid, adjusted for alternate prices bid, if any.

(B) Lump Sum Bids for "General Construction Work" which include excavation shall include all necessary excavation work defined in the Specifications as being included in the lump sum bid. The bidder shall also bid a unit price for the additional cost of excavating material which is defined in the Specifications as excavation for which additional payment will be made. The total estimated additional cost of removing such material will be taken as the quantity set forth in the Engineer's Estimate multiplied by the unit price bid. This total estimated cost of additional excavation shall be added to the lump sum bid for the General Construction Work for the purpose of comparing bids to determine the low bidder.

(C) Variations from Engineer's Estimate: The Engineer's Estimate of the quantity of excavation for which additional payment will be made is approximate only and is given solely to be used as a uniform basis for the comparison of bids and such estimate is not to be considered as part of this contract. The quantities actually required to complete the contract work may be more or less than the quantities in the Engineer's Estimate and, if so, no action for damages or for loss of profits shall accrue to the contractor by reason thereof.

33. Unit Price Contracts

(A) Comparison of Bids: Bids on Unit Price Contracts will be compared on the basis of a total estimated price, arrived at by taking the sum of the estimated quantities of such items, in accordance with the Engineer's Estimate of Quantities set forth in the Bid Schedule, multiplied by the corresponding unit prices, and including any lump sum bids on individual items.

(B) Variations from Engineer's Estimate: Bidders are warned that the Engineer's Estimate of Quantities on the various items of work and materials is approximate only, given solely to be used as a uniform basis for the comparison of bids, and is not be considered part of this contract. The quantities actually required to complete the contract work may be less or more than so estimated, and if so, no action for damages or for loss of profits shall accrue to the contractor by reason thereof.

(C) Overruns: The terms and conditions applicable to overruns of unit price items are set forth in Article 26 of the Contract.

34. Excise Tax

Bidders are referred to the Specifications for information on Federal Excise Tax exemptions.

35. Licenses and Permits

The successful bidder will be required to obtain all necessary licenses and permits necessary to perform the work.

36. Multiple Prime Contractors

If more than one prime contractor will be involved on this project, all contractors are required to examine the Invitation for Bid packages for all other parts of the project.

37. Locally Based Enterprise Requirements (LBE)

This Contract is subject to the requirements of Administrative Code, Section 6-108.1, and the regulations promulgated thereunder. No construction contract will be awarded unless and until these requirements have been complied with in their entirety. The bidder is advised of the provisions set forth below, as well as the provisions with respect to the Locally Based Enterprise Program contained in Article 67 of the Contract. The contractor is advised that:

(A) If any portion of the Contract is subcontracted, not less than ten percent of the total dollar amount of the contract shall be awarded to locally based enterprises ("LBEs"); except, where less than ten percent of the total dollar amount of the Contract is subcontracted, such lesser percentage shall be so awarded.

(B) No contractor shall require performance and payment bonds from LBE subcontractors.

(C) No Contract shall be awarded unless the contractor first identifies in its bid:

(1) the percentage, dollar amount and type of work to be subcontracted; and
(2) the percentage, dollar amount and type of work to be subcontracted to LBEs.

(D) Within ten calendar days after notification of low bid, the apparent low bidder shall submit an "LBE Participation Schedule" to the contracting agency. If such schedule does not identify sufficient LBE subcontractors to meet the requirements of Administrative Code Section 6-108.1, the apparent low bidder shall submit documentation of its good faith efforts to meet such requirements.

(1) The "LBE Participation Schedule" shall include:

(a) the name and address of each LBE that will be given a subcontract,
(b) the percentage, dollar amount and type of work to be subcontracted to the LBE, and
(c) the dates when the LBE subcontract work will commence and end.

(2) The following documents shall be attached to the "LBE Participation Schedule":

(a) verification letters from each subcontractor listed in the "LBE Participation Schedule" stating that the LBE will enter into a formal agreement for work,
(b) certification documents of any proposed LBE subcontractor which is not on the LBE certified list, and
(c) copies of the certification letter of any proposed subcontractor which is an LBE.

(3) Documentation of good faith efforts to achieve the required LBE percentage shall include as appropriate but not limited to the following:

(a) attendance at prebid meetings, when scheduled by the agency, to advise bidders of contract requirements;

(b) advertisement where appropriate in general circulation media, trade association publications and small business media of the specific subcontracts that would be at least equal to the percentage goal for LBE utilization specified by the contractor;

(c) written notification to association of small, minority and women contractors soliciting specific subcontractors;

(d) written notification by certified mail to LBE firms that their interest in the contract is solicited for specific work items and their estimated values;

(e) demonstration of efforts made to select portions of the work for performance by LBE firms in order to increase the likelihood of achieving the stated goal;

(f) documented efforts to negotiate with LBE firms for specific subcontracts, including at a minimum:
(i) The names, address and telephone numbers of LBE firms that are contacted;
(ii) A description of the information provided to LBE firms regarding the plans and specifications for portions of the work to be performed;
(iii) Documentation showing that no reasonable price can be obtained from LBE firms;
(iv) A statement of why agreements with LBE firms were not reached;

(g) a statement of the reason for rejecting any LBE firm which the contractor deemed to be unqualified; and

(h) documentation of efforts made to assist the LBE firms contacted that needed assistance in obtaining required insurance.

(E) Unless otherwise waived by the Commissioner with the approval of the Office of Economic and Financial Opportunity, failure of a proposed contractor to provide the information required by paragraphs (C) and (D) above may render the bid non-responsive and the Contract may not be awarded to the bidder. If the contractor states that it will subcontract a specific portion of the work, but can demonstrate despite good faith efforts it cannot achieve its required LBE percentage for subcontracted work until after award of Contract, the Contract may be awarded, subject to a letter of compliance from the contractor stating that it will comply with Administrative Code Section 6-108.1 and subject to approval by the Commissioner. If the contractor has not met its required LBE percentage prior to award, the contractor shall demonstrate that a good faith effort has been made subsequent to award to obtain LBEs on each subcontract until its meets the required percentage.

(F) When a bidder indicates prior to award that no work will be subcontracted, no work may be subcontracted without the prior written approval of the Commissioner, which shall be granted only if the contractor in good faith seeks LBE subcontractors at least six weeks prior to the start of work.

(G) The contractor may not substitute or change any LBE which was identified prior to award of the contract without the written permission of the Commissioner. The contractor shall make a written application to the Commissioner for permission to make such substitution or change, explaining why the contractor needs to change its LBE subcontractor and how the contractor will meet its LBE subcontracting requirement. Copies of such application must be served on the originally identified LBE by certified mail return receipt requested, as well as the proposed substitute LBE. The Commissioner shall determine whether or not to grant the contractor's request for substitution.

38. Bid Submission Requirements

The Bid Submission Requirements are set forth in the BID BOOKLET VOLUME 1 OF 3.

39. Comptroller's Certificate

This Contract shall not be binding or of any force unless it is registered by the Comptroller in accordance with Section 328 of the City Charter and the Procurement Policy Board Rules. This Contract shall continue in force only after annual appropriation of funds by the City of New York and certification as hereinabove set forth.

40. Procurement Policy Board Rules

This Invitation For Bids is subject to the Rules of the Procurement Policy Board of the City of New York. In the event of a conflict between said Rules and a provision of this Invitation For Bids, the Rules shall take precedence.

41. Viewing of Submitted Bid Documents

In accordance with Procurement Policy Board Rules of the City of New York, Section 3-02, the submitted bid documents will be available to view immediately after completion of the bid opening and by appointment for up to 72 hours after the bid opening.

42. DDC Safety Requirements

The DDC Safety Requirements apply to the work to be performed pursuant to the Contract. The DDC Safety Requirements are set forth on the following pages.

CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
SAFETY REQUIREMENTS FOR CONSTRUCTION CONTRACTS

January 2020

THE DDC SAFETY REQUIREMENTS FOR CONSTRUCTION CONTRACTS INCLUDE THE FOLLOWING SECTIONS:

I. POLICY ON SITE SAFETY

The City of New York Department of Design and Construction (DDC) is committed to a policy of injury and illness prevention and risk management for construction work that will ensure the safety and health of the workers engaged in the projects and the protection of the general public. Therefore, it is DDC's policy that work carried out by Contractors on DDC contracts must, at a minimum, comply with the most current versions of all applicable federal, state and city laws, rules, and regulations, including without limitation:

- Code of Federal Regulations, Title 29, Part 1926 (29 CFR 1926) and applicable Sub-parts of Part 1910 – U.S. Occupational Safety and Health Administration (OSHA);
- Federal Highway Administration – Manual on Uniform Traffic Control Devices (MUTCD);
- New York Codes, Rules and Regulations (NYCRR), Title 12, Part 23 – Protection in Construction, Demolition and Excavation Operations;
- New York Codes, Rules and Regulations (NYCRR), Title 16, Part 753 – Protection of Underground Facilities;
- New York City Administrative Code, Title 28 – New York City Construction Codes;
- Rules of the City of New York, Title 15, Chapter 13 – Rules Pertaining To the Prevention of the Emission of Dust from Construction Related Activities;
- Rules of the City of New York, Title 15, Chapter 28 – Citywide Construction Noise Mitigation;
- Rules of the City of New York, Title 34 Chapter 2 – NYCDOT Highway Rules.

The Contractor will be required to comply with all new and/or revised federal, state and city laws, rules, and regulations, issued during the course of the project, at the expense of the Contractor without any additional costs to the DDC.

II. PURPOSE

The purpose of this policy is to ensure that Contractors perform their work and supervise their employees in accordance with all applicable federal, state and city rules and regulations. Further, Contractors will be expected to minimize or eliminate jobsite and public hazards, through a planning, inspection, auditing and corrective action process. The goal is to control risks so that injuries, illnesses, and accidents to contractors' employees, DDC employees and the general public, as well as damage to city-owned and private property, are reduced to the lowest level feasible.

III. DEFINITIONS

Agency Chief Contracting Officer (ACCO): The ACCO will mean the person delegated authority by the Commissioner to organize and supervise the procurement activity of subordinate Agency staff in conjunction with the City Chief Procurement Officer (CCPO).

Competent Person: As defined by OSHA, an individual who is capable of identifying existing and predictable hazards in the surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees or the general public, and who has authorization to take prompt corrective measures to eliminate them. This individual will have completed, at a minimum an authorized 30-hour OSHA Construction Safety Course. The Contractor may be required to provide more than one competent person due to construction operations and based on the number of active work sites.

Construction Safety Auditor: A representative of the Office of Construction Safety who provides inspection and assessment services to enhance health and safety on all DDC construction projects. The activities of the Construction Safety Auditor include performing site audits, reviewing safety plans, reviewing construction permits, drawings, verifying Contractor's compliance with applicable federal, state and city laws, rules, regulations, and DDC Contract Safety Requirements, etc. and rendering technical advice and assistance to DDC Resident Engineers and Project Managers.

Office of Construction Safety: A unit of DDC Safety and Site Support that assesses contractor's safety on DDC jobsites and advises responsible parties of needed corrective actions.

Registered Construction Superintendent: For certain projects, as defined in New York City Construction Codes – Title 28, the contractor will provide a Construction Superintendent registered with the NYC Department of Buildings and responsible for all duties as defined in Chapter 33 of Title 1 of the Rules of the City of New York.

Contractor: For purposes of these Safety Requirements, the term "Contractor" will mean any person or entity that enters into a contract for the performance of construction work on a DDC project. The term "Contractor" will include any person or entity which enters into any of the following types of contracts: (1) a prime construction contract for a specific project, (2) a prime construction contract using the Job Order Contracting System ("JOCS Contract"), and (3) a subcontract with a CM/Builder ("First Tier Subcontract").

Daily Safety Job Briefing: Daily jobsite safety briefings, given to all jobsite personnel at project site by the Contractor before work begins and/or if hazards or potential hazards are discovered while working, with the purpose of discussing the scheduled activities for the day, the hazards related to these activities, activity specific safety procedures, and Job Hazard Analysis associated with the scheduled construction work. Daily jobsite briefings will be documented, available at the jobsite, and will include at a minimum, topics, name and signature of the person conducting the briefing session, names and signatures of attendants, name of the designated competent person, contactor's name, DDC Project ID, date, time, and location.

Director – Office of Construction Safety: Responsible for the operations of the Office of Construction Safety and the DDC Site Safety management programs.

Job Hazard Analysis (JHA): A process of identifying the major job tasks and any potential site-specific hazards that may be present during construction and establishing the means and methods to eliminate or control those hazards. A JHA will be documented, available at the jobsite and will include at a minimum work tasks, being performed, identified hazards, control methods for the identified hazards, contractor's name, DDC Project ID, location, date, name and signature of certifying person. A JHA is a living document that will be re-evaluated and revised to address new hazards and tasks that may develop and will be present at the worksite and produced upon request.

Qualified Person: As defined by OSHA, an individual who, by possession of a recognized degree, certificate, license, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his or her ability to solve problems relating to the subject matter, the work, or the project. Qualified Persons are required under regulation to address issues pertaining, but without limit, to fall protection, scaffold design, maintenance and protection of traffic, and excavation protective system, among others.

Project Site: Those areas indicated in the Contract Documents where the Work is to be performed.

Project Safety Representative: The designated Project Safety Representative will have at a minimum an OSHA 30-hour Construction Safety Course and other safety training applicable to Contractor's/subcontractor's project work. This individual will be responsible to oversee safety performance of the required construction work, conduct documented daily safety inspections, and implement corrective actions to maintain a safe work site. The Project Safety Representative must have sufficient experience and skills necessary to thoroughly understand the health and safety hazards and controls and must have authority to undertake corrective actions. A dedicated full-time Project Safety Representative may be required on large projects and projects deemed by DDC to be particularly high risk. DDC reserves the right to request a dedicated full-time Project Safety Representative for any reason at any time during the course of the project at the expense of the Contractor without any additional costs to the DDC. The full-time Project Safety Representative will be present at the site during all work activities.

Resident Engineer ("RE"): Representative of the Commissioner duly designated by the Commissioner to be his/her representative at the site of the work. The RE may be a consultant retained by DDC, including a Construction Management (CM) or Resident Engineer Inspection (REI) firm. If DDC has retained a CM, REI or other consultant firm to perform management and oversite for the Project (e.g., CM-Builder, CM-Design-Builder, Project Manager, Program Manager), that CM, REI or other consultant is the Resident Engineer for purposes of these Safety Requirements.

Safety Questionnaire: Used by DDC to evaluate Contractor's current and past safety performance. It is required to be completed by all Contractors initially when submitting bids for Construction work, or when being pre-qualified and updated annually or as requested by the DDC.

Site Safety Manager: For certain projects, as defined in New York City Construction Codes – Title 28, the Contractor will provide a Site Safety Manager with a Site Safety Manager License issued by the New York City Department of Building.

Site Safety Plan: A site-specific safety plan developed by the Contractor for a DDC project. The Site Safety Plan will identify the project work scope, identify hazards associated with the project work and include project specific safety procedures and training appropriate and necessary to complete the work. The Site Safety Plan will be submitted within 30 days from the Award Date or as otherwise directed and is subject to review and acceptance by the Office of Construction Safety prior to the commencement of work at the site.

Unsafe or Unhealthy Condition: A condition that could be potentially hazardous to the health and safety of personnel or the public, and/or damaging to equipment, machinery, property, or the environment.

Weekly Safety Meetings: Weekly jobsite safety meetings, given to all jobsite personnel by Contractor, with the purpose of discussing general safety topics and job specific requirements encountered at the DDC work site. Weekly safety meetings will be documented and will include at a minimum, topics, name and signature of the person conducting the meeting, names and signatures of attendees, contractor's name, DDC Project ID, date, and location.
Work: The construction required by the Contractor's Contract Documents whether completed or partially completed, performed by the Contractor/ subcontractors. Work refers to the furnishing of labor, furnishing and incorporating materials and equipment into the construction and providing any service required by the Contract Documents to fulfill the Contractor's obligation to complete the Project. For the purposes of these Safety Requirements, the term "Work" includes all Utility Interference work (commonly referred to as "Section U", "EP-7", and "Joint Bid" work) performed in association with this Contract.

IV. RESPONSIBILITIES

All persons who manage, perform, and provide support for construction projects will conduct operations in compliance with the requirements identified in this Policy and all applicable governing regulatory agency requirements and guidelines pertaining to safety in construction.

A. Resident Engineer

1. Review and facilitate Contractor(s) Site Safety Plan submittals to DDC for acceptability.
2. Notify the Office of Construction Safety of the commencement of construction work.
3. Develop and implement a training verification process to ensure that all CM/REI, consultant, Contractor, and subcontractor employees are properly trained. Maintain all applicable initial and refresher training records and assures documentation availability on site.
4. Maintain documentation of and attend weekly safety meetings and daily safety job briefings.
5. Assure that Contractor(s) JHA's are current to reflect the work tasks being performed, hazards, and control methods to mitigate the identified hazards. Verify that all employees at the job site are trained on the JHAs and maintain supporting documentation on site.
6. Assure adequate planning for all critical construction activities (crane operation, excavation, confined space entry, etc.) including coordination between Contractor(s) /DDC/ other Agencies as required.
7. Maintain custody of all construction related permits, plans, approvals, drawings, etc., related to the project and assure their availability on site.
8. Recognize, minimize, or eliminate jobsite and public hazards, through required planning, inspection, verification, and corrective action process.
9. Monitor the conditions at the site for conformance with the Contractor's Site Safety Plan, DDC policies, permits, and all applicable regulations and documentation that pertain to construction safety.
10. Notify the Contractor and DDC immediately upon determination of any condition or activity existing which is not in compliance with the Contractor's Site Safety Plan, applicable federal, state or local codes or any condition that presents a potential risk of injury to the public or workers or possible damage to property. Direct the Contractor to provide such labor, materials, equipment, and supervision to remedy such conditions.
11. Notify the Office of Construction Safety and the ACCO's Insurance and Risk Management Unit of project-related accidents, incidents, and near misses as per DDC's Construction Safety Emergency and Accident Notification and Response Procedure within two (2) hours.
12. In case of an accident, incident, or near miss, RE is responsible to protect the integrity of the accident site including but not limited to: the safeguarding of all evidence, documentation of all personnel on site at the time of the accident, gather facts related to all accidents, incidents, or near miss, and prepare required DDC Construction Accident Report as per DDC's Construction Safety Emergency and Accident Notification and Response Procedure. Maintain all records pertaining to accidents, incidents, and near miss and have them available upon request.
13. Notify the Office of Construction Safety within two (2) hours of the start of an inspection by any outside/ regulatory agency personnel, including NYS, OSHA, NYC DOB or any other City/State/Federal oversight entity and forward a copy of the inspection report within one business day of its receipt.
14. Escort and assist Construction Safety Auditors during all field and record audits.
15. Report any emergency conditions to the Office of Construction Safety immediately.

Note: In addition to the responsibilities listed above, if the Resident Engineer is a CM/REI or other non-City party hired by the City to manage the Project, the Resident Engineer is also required to do the following:

16. Provide personnel who are certified and or trained appropriately for the requirements of the project.

17. Perform an investigation for any project-related accidents, incidents, and near misses. Within 24-hours of the time of the accident, incident, or near miss, the CM/REI will submit an investigation report to the Office of Construction Safety. Such report will include proposed remedial measures and implementation of corrective actions to prevent recurrence.

DDC reserves the right to request that the CM/REI replace any CM/REI personnel for any reason at any time during the project.

B. Construction Contractors

Note: For CM-Build and CM-Design-Build Projects, the CM will meet all requirements listed in this section, as well as the Resident Engineer section above.

1. Submit a completed Safety Questionnaire and other safety performance related documentation with its bid or as part of a pre-qualification package.
2. Submit a Site Safety Plan within 30 days from the Award Date or as otherwise directed. The Site Safety Plan is subject to review and acceptance by the Office of Construction Safety prior to the commencement of work at the site. The Site Safety Plan will be revised and updated as necessary during the course of the project. If requested by the Office of Construction Safety, the Site Safety Plan must be developed and submitted for approval using a web-based system, the Site Safety Plan Application (SSP App).
3. Designate and identify a Project Safety Representative in the Site Safety Plan. The Contractor will immediately notify the Office of Construction Safety, in a form and manner acceptable to the Office of Construction Safety, of any permanent change to the designated Project Safety Representative. In the event the primary designated Project Safety Representative is temporary unable to perform his or her duties, an alternate Project Safety Representative will be provided. Resumes, outlining the qualification and experience for the Project Safety Representative (s) will be included in the Site Safety Plan and available upon request. DDC reserves the right to request the Contractor to replace a Project Safety Representative for any reason at any time during the course of the project.
4. Designate and identify a Competent Person(s) in the Site Safety Plan. Contractor/subcontractor may be required to provide more than one competent person due to construction operations and based on a number of work tasks/areas. DDC reserves the right to request the Contractor to replace a Competent Person or provide additional Competent Person(s) for any reason at any time during the course of the project. The Competent Person will be present at the site during all work activities.
5. For certain projects, as defined in New York City Construction Codes – Title 28, designate and identify the Licensed Site Safety Manager or Registered Construction Superintendent. Resumes, outlining the qualification and experience for the Licensed Site Safety Manager or Registered Construction Superintendent will be included in the Site Safety Plan and available upon request. The Contractor will immediately notify the Office of Construction Safety, in a form and manner acceptable to the Office of Construction Safety, of any permanent change to the designated Site Safety Manager and/or Construction Superintendent. In the event the primary designated Site Safety Manager or Construction Superintendent is temporarily unable to perform his
or her duties, an alternate Licensed Site Safety Manager and/or Registered Construction Superintendent will be provided. The Office of Construction Safety must be informed of such change. DDC reserves the right to request the Contractor to replace Site Safety Manager or Construction Superintendent for any reason at any time during the course of the project.
6. Develop a written Job Hazard Analysis (JHA) that identifies safety hazards and control methods for project specific work tasks. A preliminary JHA will be included in the Site Safety Plan submitted by the Contractor. A JHA is a living document that will be re-evaluated and revised to address new hazards and tasks that may develop during the course of the project and will be present at the worksite and produced upon request.
7. Develop project specific safety procedures to protect employees, general public, and property during all construction activities for the duration of the project.
8. Ensure that all employees are aware of the hazards associated with the project through documented formal and informal training and/or other communications. Conduct and document new employee and site-specific safety orientation for all Contractor and subcontractor personnel to review the hazards associated with the project as identified in the Site Safety Plan and the specific safety procedures and controls that will be used to protect workers, the general public and property. The Project Safety Representative will conduct this training prior to mobilization and if necessary during the course of the project. Documentation will be provided to the RE.

9. Prior to performing any work on DDC projects all Contractor's and subcontractor's employees will, at a minimum, have successfully completed, within the previous five calendar years, an OSHA 10-hour construction safety course.

   All training records (OSHA 10-hour, flagger, scaffold, fall protection, confined space, etc.) will be provided to the RE prior to mobilization, included in the Site Safety Plan, kept current during the course of the project, and available for review.
10. Conduct and document weekly safety meetings and daily job briefing sessions for the duration of the project. Attendance at weekly safety meetings and daily job briefing sessions is mandatory. A written record of weekly safety meetings will be available upon request and job briefing sessions will be available at the worksite.
11. As part of the Site Safety Plan, prepare site specific procedures, such as maintenance and protection of traffic plan, steel erection plan, confined space program, fall protection plan, demolition plan, site specific emergency evacuation plan, etc. (if not otherwise provided in the contract documents) and comply with all of its provisions.
12. Have immediately available for review at the project site where actual construction activities are being performed all applicable documentation, including but not limited to: JHAs for work tasks being performed, all required training records, MPT plan (where applicable), Noise and Dust Mitigation Plans, excavation protective system drawings (where applicable), Emergency Evacuation plan, fall protection program (where applicable), confined space program (where applicable), all required permits, daily job briefing records, all required documentation for crane operation (where applicable), daily inspection checklist, scaffold and sidewalk drawings (when applicable), safety data sheets for chemicals in use.
13. Comply with all federal, state and local safety and health rules, laws, and regulations.
14. Comply with all provisions of the Site Safety Plan.
15. Provide, replace, and adequately maintain at or around the project site, suitable and sufficient signage, lights, barricades and enclosures (fences, sidewalk sheds, netting, bracing, etc.). The project specific MPT plan will be developed, implemented, and reviewed during the course of the project.
16. The Project Safety Representative will conduct daily safety inspections, document the inspection results, implement corrective actions for the identified hazards. Maintain the inspection records and have them available upon request.
17. **Report unsafe or unhealthy conditions to the RE as soon as practical, but no more than 24 hours after discovery, and take prompt actions to remove or abate such conditions. Should an imminent dangerous condition be discovered, Contractor will stop all work in the area of danger until corrections are made.**
18. Report all accidents, incidents and near misses involving injuries to workers or the general public, as well as property damage, to the RE within one (1) hour.
19. Following an accident or incident, unless otherwise directed, the Contractor will not remove or alter any equipment, structure, material, or evidence related to the accident or incident. Exception: Immediate emergency procedures taken to secure structures, temporary construction, operations, or equipment that pose a continued imminent danger or facilitate assistance for persons who are trapped or who have sustained bodily injury. Take additional measures as necessary to secure the accident or incident site and to protect against any further injury or property damage.
20. The Contractor will perform an investigation into the root cause of the accident, incident, or near miss. Within 24 hours of an accident, incident, or near miss, the Contractor will prepare and submit to the RE a written investigation report detailing findings, corrective actions, and hazard mitigation implementation to prevent recurrence.
21. Notify the RE within two (2) hours of the start of an inspection by any outside regulatory agency personnel, including OSHA, NYC DOB, or others.
22. Maintain all records pertaining to all required safety compliance documents, accidents and incidents reports. DDC reserves the right to request copy of any records pertaining to the safety of the project and required by DDC and other federal, state, and city agencies, including but not limited to permits, training records, safety inspection records, drawings, equipment records, etc.
23. Cooperate with DDC Office of Construction Safety/ RE and address DDC recommendations on safety, which will in no way relieve the Contractor of its responsibilities for safety on the project. The Contractor has sole responsibility for safety.

V. SAFETY QUESTIONNAIRE

DDC requires that all Contractors provide information regarding their current and past safety performance and programs. This will be accomplished by the use of the DDC Safety Questionnaire. As a part of the bid submittal package, the contractor will submit a completed DDC Safety Questionnaire listing company workers' compensation experience modification rating and OSHA Incident Rates for the three (3) years prior to the date of the bid opening. DDC may request a Contractor to update its Questionnaire at any time or to provide more detailed information. The Contractor will provide the requested information within 15 days.

The following criteria will be used by DDC in reviewing the Contractor's responsibility, which will be based on the information provided on the questionnaire:

Criteria 1: OSHA Injury and Illness Rates (I&IR) are no greater than the average for the industry (based on the most current Bureau of Labor Statistics data for the Contractors SIC code); and

Criteria 2: Insurance workers compensation Experience Modification Rate (EMR) equal to or less than 1.0; and

Criteria 3: Any willful violations issued by OSHA or NYC DOB within the last three (3) years; and

Criteria 4: A fatality (worker or member of public) and injuries, requiring OSHA notification, experienced on or near Contractor's worksite within the last three (3) years; and

Criteria 5: Past safety performance on DDC projects (accidents; status of site safety plan submittals; etc.)

Criteria 6: OSHA violation history for the last three (3) years;

Criteria 7: Contractor will provide OSHA Injury and Illness Records (currently OSHA 300 and 300A Logs) for the last three (3) years.

If the Contractor fails to meet the basic criteria listed above, the Office of Construction Safety may request, through the ACCO, more details concerning the Contractor's safety experience. DDC may request the Contractor to provide copies of, among other things, accident investigation reports, OSHA records, OSHA and NYC DOB citations, EPA citations and written corrective action plan.

VI. SITE SAFETY PLAN

Within thirty (30) days from the Award Date or as otherwise directed, the Contractor will submit the Site Safety Plan. The Site Safety Plan will identify project work scope, safety hazards associated with the project tasks, and include specific safety procedures and training appropriate and necessary to complete the work. The Site Safety Plan is subject to review and acceptance by the Office of Construction Safety prior to the commencement of work at the site. Due to the project work scope and project duration, the Office of Construction Safety may grant a conditional acceptance for a Site Safety Plan without all sections being complete. In a case of a "Conditional Acceptance" of a Site Safety Plan, the Contractor will provide the remaining sections previously incomplete and/or not submitted for review and acceptance by the Office of Construction Safety prior to the commencement of the construction activities. The Office of Construction Safety reserves the right to withdraw the initial "Conditional Acceptance" if the Contractor fails to provide the remaining sections of a Site Safety Plan. Failure by the Contractor to submit an acceptable Site Safety Plan will be grounds for default.

Site Safety Plan requirements: The Site Safety Plan will be a written document and will apply to all project specific Contractor and subcontractor operations, and will have at a minimum, the following elements with each described in a separate section (It may be necessary to modify the basic format for certain unique or high-risk projects, such as tunnels or high-rise construction). All Site Safety Plan sections will be numbered in the order listed below. For sections, which are not applicable for the type of the work being performed by the Contractor on DDC project, the Contractor will in writing indicate "Not applicable based on the project work scope." The Site Safety Plan will include Contractor's name, DDC project ID, project location (s), and development and revision dates. The Site Safety Plan will include the sections, attachments, and appendixes provided in the Site Safety Plan. All pages of the Site Safety Plan will be numbered. If requested by the Office of Construction Safety, the Site Safety Plan must be developed and submitted for approval using a web-based system, the Site Safety Plan Application (SSP App).

1. Project Work Scope – Detailed information regarding work tasks that will be performed by Contractor and subcontractors under the project.
2. Responsibility and Organization – Contractor's organization chart with responsible personnel for the project, including titles, names, contact information, roles, and responsibilities. All Contractor's personnel required by the DDC Safety Requirements will be identified.
3. Safety Training and Education – OSHA 10 Hours training, requirements for daily safety briefings and weekly safety meetings, any work task specific training, responsible staff for implementation of training program for the project.
4. Job Hazard Analysis (JHA) – Project specific Job Hazard Analysis including work tasks, identified hazards, hazard control methods (administrative, engineering, PPE) to protect workers, property and general public, Contractor's name, project id, location, name and signature of a certifying person, hazard assessment date.
5. Protection of Public – Project specific procedures covering safety of the general public during all project construction activities.
6. Hazard Corrective Actions - Procedures for hazard identification, including responsible person(s), frequency of safety inspections, implementation of corrective actions, safety inspection checklist.
7. Accident/Exposure Investigation – Project specific procedures for accident/incident/near miss investigation and implementation of corrective actions. Accident/incident/near miss notification procedure of DDC project staff (timer frame and responsible personnel).
8. Recording and Reporting Injuries – Procedures to meet 29 CFR 1904 requirements.
9. First Aid and Medical Attention – Responsible staff, location and inspection of First Aid kit, directions to local hospitals; emergency telephone numbers.
10. Project Specific Fire Protection and Prevention Program – Project specific procedures, including responsible staff, fire alarm system/methods, hot work procedures, etc.
11. Housekeeping Procedure.
12. Project Specific Illumination Procedure.
13. Project Specific Sanitation Procedure.
14. Personal Protective Equipment (PPE), including Respiratory Protection Program and Hearing Conservation Program, if required.
15. Hazard Communication Program – Contractor's Hazard Communication Program, responsible staff; training; SDS records, project specific list of chemicals; location of the program and SDS records.
16. Means of Egress – Information regarding free and unobstructed egress from all parts of the building or structure; exit marking; maintenance of means of egress, etc.
17. Employee Emergency Action Plan – Project specific: responsible staff, emergency alarm system/devices, evacuation procedure, procedure to account for employees after evacuation, etc.
18. Evacuation Plan – Project specific evacuation plan (drawing/scheme) with exists and evacuation routes.
19. Ionizing/Nonionizing Radiation – Competent person, license and qualification requirements, type of radiation, employee's exposure and protection, safety procedures, etc.
20. Material Handling, Storage, Use and Disposal – Project specific information regarding material storage, disposal, and handling: procedures, plan/drawings, etc.
21. Signs, Signals, and Barricades – Use of danger/warning signs, safety instruction signs, sidewalk closure and pedestrian fencing and barricades (if not included in the MPT plan), etc.
22. Tools – Hand and Power – Safety procedures for the type of tools to be used.
23. Scaffold – Project specific scaffold types, procedures, training requirements, scaffold drawings, designed, sealed, and signed by NYS Licensed Professional Engineer, or as otherwise directed; competent person, criteria for project specific scaffold, falling object protection, procedures for aerial lifts/scissor lifts.
24. Welding and Cutting – Project specific procedure for welding and cutting, including all necessary safety requirements such as fire prevention, personal protective equipment, hot work permits (if not covered by Contractor's Fire Prevention and Protection program, FDNY certificate requirements).
25. Electrical Safety – Project specific procedures, including lock out-tag out.
26. Fall Protection – Project specific information regarding selected fall protection systems, fall protection plan, responsible staff.
27. Cranes, Derrick, Hoists, Elevators, Conveyors – project specific equipment information including type, rated load capacity, manufacture specification requirements, competent person, exposure to falling load, inspection, recordkeeping, clearance requirements, communication procedure, ground lines, permits.

28. Excavation Safety – Competent person; excavation procedures; project specific protective system, including drawings, designed, sealed, and signed by NYS Licensed Professional Engineer, or as otherwise directed.
29. Protection of Underground Facilities and Utilities Procedure, including responsible staff and responsibilities.
30. Concrete and Masonry Construction Procedures
31. Maintenance and Protection of Traffic Plan – Project specific MPT plan, designed, sealed, and signed by NYS Licensed Professional Engineer, or as otherwise directed; flagmen training, public safety, etc.
32. Steel Erection – Site specific erection plan, requirements for applicable written notifications, competent person, fall protection plan, training requirements, etc.
33. Demolition – Engineering survey, including written evidence, disconnection of all effected utilities, identification of all hazardous chemicals, materials, gases, etc., floor openings, chutes, inspection and maintenance of all stairs/passageways, removal of materials/debris/structural elements, lock out/tag out, competent person.
34. Blasting and the Use of Explosives – Project specific safety procedures, warning signs, training/qualification, transportation, storage and use of explosives, inspection.
35. Stairways and Ladders – Types of stairs and ladders, safety procedures, training requirements.
36. Alcohol and Drug Abuse Policy
37. Rodents and Vermin Controls
38. Toxic and Hazardous Substances – Safety procedures for substances that Contractor's and subcontractor's employees can be exposed on project.
39. Noise Mitigation Plan – Completed project specific Noise Mitigation Plan, and noise mitigation procedures.
40. Confined Space Program – Project specific Confined Space Program, responsible staff, training records, equipment information, rescue procedure, list of project specific confined spaces, forms.
41. Construction Vehicles/Heavy Equipment – Type of construction vehicles/heavy equipment to be used on site, procedures
42. Dust Mitigation Plan – Completed project specific Dust Mitigation Plan, and dust mitigation procedures.
43. Working Over and Near Water. Diving Operations – safety procedures including personal protective equipment, fall protection, rescue services, etc.

The most critical component of the Site Safety Plan is the Job Hazard Analysis (JHA) section. The JHA form is a written document prepared by the Contractor. The Contractor will conduct a site and task assessment to identify the tasks and any potential safety or environmental hazards related to performance of the work, eliminate or implement controls for the potential hazards, and identify proper personal protective equipment for the task. The JHA will be communicated to all Contractor/subcontractor personnel on site. The JHA will include safety hazard identification and controls to protect employees, general public, and property.

The initial JHA will be included in the Contractor's Site Safety Plan and the current JHA form will be available at the construction site for reference. A JHA is a living document that will be re-evaluated and revised to address new hazards and tasks that may develop and will be present at the worksite and produced upon request.

VII. KICK-OFF MEETINGS/PRE-CONSTRUCTION AND SAFETY REVIEW

Prior to the start of construction activities on all DDC projects, RE will invite the Office of Construction Safety to the construction kick-off meeting. The Office of Construction Safety representative(s) will participate in this meeting with the Contractor and RE for the purpose of:

A. Reviewing DDC Contract Safety Requirements
B. Reviewing site-specific safety issues based on a project work scope, location, and any other factors which may impact safety of workers and general public.
C. Reviewing the Site Safety Plan and JHA requirements.
D. Reviewing Accident/Incident reporting and investigation procedures.
E. Reviewing designated safety contacts, roles, and responsibilities.
F. Discussing planned inspections and audits of the site by the Office of Construction Safety personnel.

VIII. EVALUATION DURING WORK IN PROGRESS

The Contractor's adherence to these Safety Requirements will be monitored throughout the project. This will be accomplished by the following:

A. Use of a safety checklist by a representative of the Office of Construction Safety (or other designated DDC representative) and the RE during regular inspections and comprehensive audits of the job site. Field Exit Conferences will be held with the RE and Contractor Project Safety Representatives.

B. The RE will continually monitor the safety and environmental performance of the Contractor's employees and work methods. Deficiencies will be brought to the attention of the Contractor's Project Safety Representative on site for immediate correction. The RE will maintain a written record of these deficiencies and have these records available upon request. Any critical deficiencies will be immediately reported to the Office of Construction Safety via telephone (718)391-1911.

C. If the Contractor's safety performance during the project is not up to DDC standards (safety performance measure, accident/incident rate, etc.) the Director – Office of Construction Safety, or his/her designee will meet with the Contractor's Project Safety Representative and other representatives, the RE, and the DDC Environmental Specialist (if environmental issues are involved). The purpose of this meeting is to 1) determine the level of non-compliance; 2) explain and clarify the safety/environmental provisions; 3) agree on a future course of action to correct the deficiencies.

D. If the deficiencies continue, the Commissioner may, without limitation, declare the Contractor in default.

E. The Contractor will within 1 hour inform the RE of all accidents/incidents/near misses including all fatalities, any injuries to employees or members of the general public, and property damage (e.g., structural damage, equipment rollovers, utility damage, loads dropped from crane). The RE will notify the Office of Construction Safety as per DDC's Construction Safety Emergency and Accident Notification and Response Procedure and will maintain a record of all Contractor accidents/incidents for the project.

F. The Contractor and the RE will notify the Office of Construction Safety within two (2) hours of the start of any NYS-DOL/ NYC-COSH/ OSHA/ EPA inspections.

IX. SAFETY PERFORMANCE EVALUATION

The Contractor's safety record, including accident/incident history and DDC safety inspection results, will be considered as part of the Contractor's performance evaluation at the conclusion of the project. Poor safety performance during the course of the project will be a reason to rate a Contractor unsatisfactory which may be reflected in the City's PASSPort system and will be considered for future procurement actions as set forth in the City's Procurement Policy Board Rules.

CITY OF NEW YORK

STANDARD CONSTRUCTION CONTRACT

March 2017

CITY OF NEW YORK
STANDARD CONSTRUCTION CONTRACT

TABLE OF CONTENTS

WITNESSETH:

The parties, in consideration of the mutual agreements contained herein, agree as follows:

CHAPTER I: THE CONTRACT AND DEFINITIONS

ARTICLE 1. THE CONTRACT

1.1 Except for titles, subtitles, headings, running headlines, tables of contents and indices (all of which are printed herein merely for convenience), the following, except for such portions thereof as may be specifically excluded, shall be deemed to be part of this **Contract**:

1.1.1 All provisions required by law to be inserted in this **Contract**, whether actually inserted or not;

1.1.2 The Contract Drawings and Specifications;

1.1.3 The General Conditions and Special Conditions, if any;

1.1.4 The **Contract**;

1.1.5 The Information for Bidders; Request for Proposals; Notice of Solicitation and Proposal For Bids; Bid or Proposal, and, if used, the Bid Booklet;

1.1.6 All Addenda issued prior to the receipt of the bids; the Notice of Award; Performance and Payment Bonds, if required; and the Notice to Proceed or the Order to Work.

1.2 Should any conflict occur in or between the Drawings and Specifications, the **Contractor** shall be deemed to have estimated the most expensive way of doing the **Work**, unless the **Contractor** shall have asked for and obtained a decision in writing from the **Commissioner** of the **Agency** that is entering into this **Contract**, before the submission of its bid, as to what shall govern.

ARTICLE 2. DEFINITIONS

2.1 The following words and expressions, or pronouns used in their stead, shall, wherever they appear in this Contract, be construed as follows, unless a different meaning is clear from the context:

2.1.1 **"Addendum"** or **"Addenda"** shall mean the additional Contract provisions and/or technical clarifications issued in writing by the Commissioner prior to the receipt of bids.

2.1.2 **"Agency"** shall mean a city, county, borough or other office, position, department, division, bureau, board or commission, or a corporation, institution or agency of government, the expenses of which are paid in whole or in part from the City treasury.

2.1.3 **"Agency Chief Contracting Officer" (ACCO)** shall mean a person delegated authority by the Commissioner to organize and supervise the procurement activity of subordinate Agency staff in conjunction with the CCPO, or his/her duly authorized representative.

2.1.4 **"Allowance"** shall mean a sum of money which the Agency may include in the total amount of the Contract for such specific contingencies as the Agency believes may be necessary to complete the Work, *e.g.*, lead or asbestos remediation, and for which the Contractor will be paid on the basis of stipulated unit prices or a formula set forth in the Contract or negotiated between the parties provided, however, that if the Contractor is not directed to use the Allowance, the Contractor shall have no right to such money and it shall be deducted from the total amount of the Contract.

2.1.5 **"City"** shall mean the City of New York.

2.1.6 **"City Chief Procurement Officer" (CCPO)** shall mean a person delegated authority by the Mayor to coordinate and oversee the procurement activity of Mayoral agency staff, including the ACCO and any offices which have oversight responsibility for the procurement of construction, or his/her duly authorized representative.

2.1.7 **"Commissioner"** shall mean the head of the Agency that has entered into this Contract, or his/her duly authorized representative.

2.1.8 **"Comptroller"** shall mean the Comptroller of the City of New York.

2.1.9 **"Contract"** or **"Contract Documents"** shall mean each of the various parts of the contract referred to in Article 1 hereof, both as a whole and severally.

2.1.10 **"Contract Drawings"** shall mean only those drawings specifically entitled as such and listed in the Specifications or in any Addendum, or any drawings furnished by the Commissioner, pertaining or supplemental thereto.

2.1.11 **"Contract Work"** shall mean everything required to be furnished and done by the Contractor by any one or more of the parts of the Contract referred to in Article 1, except Extra Work as hereinafter defined.

2.1.12 **"Contractor"** shall mean the entity which executed this Contract, whether a corporation, firm, partnership, joint venture, individual, or any combination thereof, and its, their, his/her successors, personal representatives, executors, administrators, and assigns, and any person, firm, partnership, joint venture, individual, or corporation which shall at any time be substituted in the place of the Contractor under this Contract.

2.1.13 **"Days"** shall mean calendar days, except where otherwise specified.

2.1.14 **"Engineer"** or **"Architect"** or **"Project Manager"** shall mean the person so designated in writing by the Commissioner in the Notice to Proceed or the Order to Work to act as such in relation to this Contract, including a private Architect or Engineer or Project Manager, as the case may be. Subject to written approval by the Commissioner, the Engineer, Architect or Project Manager may designate an authorized representative.

2.1.15 **"Engineering Audit Officer" (EAO)** shall mean the person so designated by the Commissioner to perform responsible auditing functions hereunder.

2.1.16 **"Extra Work"** shall mean Work other than that required by the Contract at the time of award which is authorized by the Commissioner pursuant to Chapter VI of this Contract.

2.1.17 **"Federal-Aid Contract"** shall mean a contract in which the United States (federal) Government provides financial funding as so designated in the Information for Bidders.

2.1.18 **"Final Acceptance"** shall mean final written acceptance of all the Work by the Commissioner, a copy of which shall be sent to the Contractor.

2.1.19 **"Final Approved Punch List"** shall mean a list, approved pursuant to Article 14.2.2, specifying those items of Work to be completed by the Contractor after Substantial Completion and dates for the completion of each item of Work.

2.1.20 **"Law"** or **"Laws"** shall mean the Constitution of the State of New York, the New York City Charter, the New York City Administrative Code, a statute of the United States or of the State of New York, a local law of the City of New York, any ordinance, rule or regulation having the force of law, or common law.

2.1.21 **"Materialman"** shall mean any corporation, firm, partnership, joint venture, or individual, other than employees of the Contractor, who or which contracts with the Contractor or any Subcontractor, to fabricate or deliver, or who actually fabricates or delivers, plant, materials or equipment to be incorporated in the Work.

2.1.22 **"Means and Methods of Construction"** shall mean the labor, materials, temporary structures, tools, plant, and construction equipment, and the manner and time of their use, necessary to accomplish the result intended by this Contract.

2.1.23**"Notice to Proceed" or "Order to Work"** shall mean the written notice issued by the Commissioner specifying the time for commencement of the Work and the Engineer, Architect or Project Manager.

2.1.24 **"Other Contractor(s)"** shall mean any contractor (other than the entity which executed this Contract or its Subcontractors) who or which has a contract with the City for work on or adjacent to the building or Site of the Work.

2.1.25 **"Payroll Taxes"** shall mean State Unemployment Insurance (SUI), Federal Unemployment Insurance (FUI), and payments pursuant to the Federal Insurance Contributions Act (FICA).

2.1.26 **"Project"** shall mean the public improvement to which this Contract relates.

2.1.27 **"Procurement Policy Board" (PPB)** shall mean the Agency of the City of New York whose function is to establish comprehensive and consistent procurement policies and rules which shall have broad application throughout the City.

2.1.28 **"Required Quantity"** in a unit price Contract shall mean the actual quantity of any item of Work or materials which is required to be performed or furnished in order to comply with the Contract.

2.1.29 **"Resident Engineer"** shall mean the representative of the Commissioner duly designated by the Commissioner to be his/her representative at the site of the Work.

2.1.30 **"Site"** shall mean the area upon or in which the Contractor's operations are carried on, and such other areas adjacent thereto as may be designated as such by the Engineer.

2.1.31 **"Small Tools"** shall mean items that are ordinarily required for a worker's job function, including but not limited to, equipment that ordinarily has no licensing, insurance or substantive storage costs associated with it; such as circular and chain saws, impact drills, threaders, benders, wrenches, socket tools, etc.

2.1.32 **"Specifications"** shall mean all of the directions, requirements, and standards of performance applying to the Work as hereinafter detailed and designated under the Specifications.

2.1.33 **"Subcontractor"** shall mean any person, firm or corporation, other than employees of the Contractor, who or which contracts with the Contractor or with its subcontractors to furnish, or actually furnishes labor, or labor and materials, or labor and equipment, or superintendence, supervision and/or management at the Site. Wherever the word Subcontractor appears, it shall also mean sub-Subcontractor.

2.1.34 **"Substantial Completion"** shall mean the written determination by the Engineer that the Work required under this Contract is substantially, but not entirely, complete and the approval of the **Final Approved Punch List**.

2.1.35 **"Work"** shall mean all services required to complete the Project in accordance with the Contract Documents, including without limitation, labor, material, superintendence, management, administration, equipment, and incidentals, and obtaining any and all permits, certifications and licenses as may be necessary and required to complete the Work, and shall include both Contract Work and Extra Work.

CHAPTER II: THE WORK AND ITS PERFORMANCE

ARTICLE 3. CHARACTER OF THE WORK

3.1 Unless otherwise expressly provided in the **Contract Drawings**, **Specifications,** and **Addenda**, the **Work** shall be performed in accordance with the best modern practice, utilizing, unless otherwise specified in writing, new and unused materials of standard first grade quality and workmanship and design of the highest quality, to the satisfaction of the **Commissioner**.

ARTICLE 4. MEANS AND METHODS OF CONSTRUCTION

4.1 Unless otherwise expressly provided in the **Contract Drawings**, **Specifications,** and **Addenda**, the **Means and Methods of Construction** shall be such as the **Contractor** may choose; subject, however, to the **Engineer's** right to reject the **Means and Methods of Construction** proposed by the **Contractor** which in the opinion of the **Engineer**:

4.1.1 Will constitute or create a hazard to the **Work**, or to persons or property; or

4.1.2 Will not produce finished **Work** in accordance with the terms of the **Contract**; or

4.1.3 Will be detrimental to the overall progress of the **Project**.

4.2 The **Engineer's** approval of the **Contractor's Means and Methods of Construction**, or his/her failure to exercise his/her right to reject such means or methods, shall not relieve the **Contractor**

of its obligation to complete the **Work** as provided in this **Contract**; nor shall the exercise of such right to reject create a cause of action for damages.

ARTICLE 5. COMPLIANCE WITH LAWS

5.1 The **Contractor** shall comply with all **Laws** applicable to this **Contract** and to the **Work** to be done hereunder.

5.2 Procurement Policy Board Rules: This **Contract** is subject to the Rules of the **PPB** ("**PPB** Rules") in effect at the time of the bid opening for this **Contract**. In the event of a conflict between the **PPB** Rules and a provision of this **Contract**, the **PPB** Rules shall take precedence.

5.3 Noise Control Code provisions.

5.3.1 In accordance with the provisions of Section 24-216(b) of the Administrative Code of the **City** ("Administrative Code"), Noise Abatement Contract Compliance, devices and activities which will be operated, conducted, constructed or manufactured pursuant to this **Contract** and which are subject to the provisions of the **City** Noise Control Code shall be operated, conducted, constructed, or manufactured without causing a violation of the Administrative Code. Such devices and activities shall incorporate advances in the art of noise control development for the kind and level of noise emitted or produced by such devices and activities, in accordance with regulations issued by the **Commissioner** of the **City** Department of Environmental Protection.

5.3.2 The **Contractor** agrees to comply with Section 24-219 of the Administrative Code and implementing rules codified at 15 Rules of the City of New York ("RCNY") Section 28-100 *et seq*. In accordance with such provisions, the **Contractor**, if the **Contractor** is the responsible party under such regulations, shall prepare and post a Construction Noise Mitigation Plan at each **Site**, in which the **Contractor** shall certify that all construction tools and equipment have been maintained so that they operate at normal manufacturers operating specifications. If the **Contractor** cannot make this certification, it must have in place an Alternative Noise Mitigation Plan approved by the **City** Department of Environmental Protection. In addition, the **Contractor**'s certified Construction Noise Mitigation Plan is subject inspection by the **City** Department of Environmental Protection in accordance with Section 28-101 of Title 15 of RCNY. No **Contract Work** may take place at a **Site** unless there is a Construction Noise Mitigation Plan or approved Alternative Noise Mitigation Plan in place. In addition, the **Contractor** shall create and implement a noise mitigation training program. Failure to comply with these requirements may result in fines and other penalties pursuant to the applicable provisions of the Administrative Code and RCNY.

5.4 Ultra Low Sulfur Diesel Fuel: In accordance with the provisions of Section 24-163.3 of the Administrative Code, the **Contractor** specifically agrees as follows:

5.4.1 Definitions. For purposes of this Article 5.4, the following definitions apply:

5.4.1(a) "Contractor" means any person or entity that enters into a Public Works Contract with a **City Agency**, or any person or entity that enters into an agreement with such person or entity, to perform work or provide labor or services related to such Public Works Contract.

5.4.1(b) "Motor Vehicle" means any self-propelled vehicle designed for transporting persons or property on a street or highway.

5.4.1(c) "Nonroad Engine" means an internal combustion engine (including the fuel system) that is not used in a Motor Vehicle or a vehicle used solely for competition, or that is not subject to standards promulgated under Section 7411 or Section 7521 of Title 42 of the United States Code, except that this term shall apply to internal combustion engines used to power generators, compressors or similar equipment used in any construction program or project.

5.4.1(d) "Nonroad Vehicle" means a vehicle that is powered by a Nonroad Engine, fifty (50) horsepower and greater, and that is not a Motor Vehicle or a vehicle used solely for competition, which shall include, but not be limited to, excavators, backhoes, cranes, compressors, generators, bulldozers, and similar equipment, except that this term shall not apply to horticultural maintenance vehicles used for landscaping purposes that are powered by a Nonroad Engine of sixty-five (65) horsepower or less and that are not used in any construction program or project.

5.4.1(e) "Public Works Contract" means a contract with a **City Agency** for a construction program or project involving the construction, demolition, restoration, rehabilitation, repair, renovation, or abatement of any building, structure, tunnel, excavation, roadway, park or bridge; a contract with a **City Agency** for the preparation for any construction program or project involving the construction, demolition, restoration, rehabilitation, repair, renovation, or abatement of any building, structure, tunnel, excavation, roadway, park or bridge; or a contract with a **City Agency** for any final work involved in the completion of any construction program or project involving the construction, demolition, restoration, rehabilitation, repair, renovation, or abatement of any building, structure, tunnel, excavation, roadway, park or bridge.

5.4.1(f) "Ultra Low Sulfur Diesel Fuel" means diesel fuel that has a sulfur content of no more than fifteen parts per million (15 ppm).

5.4.2 Ultra Low Sulfur Diesel Fuel

5.4.2(a) All **Contractors** shall use Ultra Low Sulfur Diesel Fuel in diesel-powered Nonroad Vehicles in the performance of this **Contract**.

5.4.2(b) Notwithstanding the requirements of Article 5.4.2(a), **Contractors** may use diesel fuel that has a sulfur content of no more than thirty parts per million (30 ppm) to fulfill the requirements of this Article 5.4.2, where the Commissioner of the **City** Department of Environmental Protection ("DEP Commissioner") has issued a determination that a sufficient quantity of Ultra Low Sulfur Diesel Fuel is not available to meet the needs of **Agencies** and **Contractors**. Any such determination shall expire after six (6) months unless renewed.

5.4.2(c) **Contractors** shall not be required to comply with this Article 5.4.2 where the **City Agency** letting this **Contract** makes a written finding, which is approved, in writing, by the DEP Commissioner, that a sufficient quantity of Ultra Low Sulfur Diesel Fuel, or diesel fuel that has a sulfur content of no more than thirty parts per million (30 ppm) is not available to meet the requirements of Section 24-163.3 of the Administrative Code, provided that such **Contractor** in its fulfillment of the

requirements of this **Contract**, to the extent practicable, shall use whatever quantity of Ultra Low Sulfur Diesel Fuel or diesel fuel that has a sulfur content of no more than thirty parts per million (30 ppm) is available. Any finding made pursuant to this Article 5.4.2(c) shall expire after sixty (60) **Days**, at which time the requirements of this Article 5.4.2 shall be in full force and effect unless the **City Agency** renews the finding in writing and such renewal is approved by the DEP Commissioner.

5.4.2(d) **Contractors** may check on determinations and approvals issued by the DEP Commissioner pursuant to Section 24-163.3 of the Administrative Code, if any, at www.dep.nyc.gov or by contacting the **City Agency** letting this **Contract**.

5.4.2(e) The requirements of this Article 5.4.2 do not apply where they are precluded by federal or State funding requirements or where the **Contract** is an emergency procurement.

5.4.3 Best Available Technology

5.4.3(a) All **Contractors** shall utilize the best available technology for reducing the emission of pollutants for diesel-powered Nonroad Vehicles in the performance of this **Contract**. For determinations of best available technology for each type of diesel-powered Nonroad Vehicle, **Contractors** shall comply with the regulations of the **City** Department of Environmental Protection, as and when adopted, Chapter 14 of Title 15 of the Rules of the City of New York (RCNY). The **Contractor** shall fully document all steps in the best available technology selection process and shall furnish such documentation to the **City Agency** or the DEP Commissioner upon request. The **Contractor** shall retain all documentation generated in the best available technology selection process for as long as the selected best available technology is in use.

5.4.3(b) No **Contractor** shall be required to replace best available technology for reducing the emission of pollutants or other authorized technology utilized for a diesel-powered Nonroad Vehicle in accordance with the provisions of this Article 5.4.3 within three (3) years of having first utilized such technology for such vehicle.

5.4.3(c) This Article 5.4.3 shall not apply to any vehicle used to satisfy the requirements of a specific Public Works Contract for fewer than twenty (20) **Days**.

5.4.3(d) The **Contractor** shall not be required to comply with this Article 5.4.3 with respect to a diesel-powered Nonroad Vehicle under the following circumstances:

5.4.3(d)(i) Where the **City Agency** makes a written finding, which is approved, in writing, by the DEP Commissioner, that the best available technology for reducing the emission of pollutants as required by this Article 5.4.3 is unavailable for such vehicle, the **Contractor** shall use whatever technology for reducing the emission of pollutants, if any, is available and appropriate for such vehicle.

5.4.3(d)(ii) Where the DEP Commissioner has issued a written waiver based upon the **Contractor** having demonstrated to the DEP Commissioner that the use of the best available technology for reducing the emission of pollutants might endanger the operator of such vehicle or those working near such vehicle, due to engine malfunction, the **Contractor** shall use whatever technology for

reducing the emission of pollutants, if any, is available and appropriate for such vehicle, which would not endanger the operator of such vehicle or those working near such vehicle.

5.4.3(d)(iii) In determining which technology to use for the purposes of Articles 5.4.3(d)(i) and 5.4.3(d)(ii) above, the **Contractor** shall primarily consider the reduction in emissions of particulate matter and secondarily consider the reduction in emissions of nitrogen oxides associated with the use of such technology, which shall in no event result in an increase in the emissions of either such pollutant.

5.4.3(d)(iv) The **Contractor** shall submit requests for a finding or a waiver pursuant to this Article 5.4.3(d) in writing to the DEP Commissioner, with a copy to the **ACCO** of the **City Agency** letting this **Contract**. Any finding or waiver made or issued pursuant to Articles 5.4.3(d)(i) and 5.4.3(d)(ii) above shall expire after one hundred eighty (180) **Days**, at which time the requirements of Article 5.4.3(a) shall be in full force and effect unless the **City Agency** renews the finding, in writing, and the DEP Commissioner approves such finding, in writing, or the DEP Commissioner renews the waiver, in writing.

5.4.3(e) The requirements of this Article 5.4.3 do not apply where they are precluded by federal or State funding requirements or where the **Contract** is an emergency procurement.

5.4.4 Section 24-163 of the Administrative Code. The **Contractor** shall comply with Section 24-163 of the Administrative Code related to the idling of the engines of motor vehicles while parking.

5.4.5 Compliance

5.4.5(a) The **Contractor's** compliance with Article 5.4 may be independently monitored. If it is determined that the **Contractor** has failed to comply with any provision of Article 5.4, any costs associated with any independent monitoring incurred by the **City** shall be reimbursed by the **Contractor**.

5.4.5(b) Any **Contractor** who violates any provision of Article 5.4, except as provided in Article 5.4.5(c) below, shall be liable for a civil penalty between the amounts of one thousand ($1,000) and ten thousand ($10,000) dollars, in addition to twice the amount of money saved by such **Contractor** for failure to comply with Article 5.4.

5.4.5(c) No **Contractor** shall make a false claim with respect to the provisions of Article 5.4 to a **City Agency**. Where a **Contractor** has been found to have done so, such **Contractor** shall be liable for a civil penalty of twenty thousand ($20,000) dollars, in addition to twice the amount of money saved by such **Contractor** in association with having made such false claim.

5.4.6 Reporting

5.4.6(a) For all Public Works Contracts covered by this Article 5.4, the **Contractor** shall report to the **City Agency** the following information:

5.4.6(a)(i) The total number of diesel-powered Nonroad Vehicles used to fulfill the requirements of this Public Works Contract;

5.4.6(a)(ii) The number of such Nonroad Vehicles that were powered by Ultra Low Sulfur Diesel Fuel;

5.4.6(a)(iii) The number of such Nonroad Vehicles that utilized the best available technology for reducing the emission of pollutants, including a breakdown by vehicle model and the type of technology;

5.4.6(a)(iv) The number of such Nonroad Vehicles that utilized such other authorized technology in accordance with Article 5.4.3, including a breakdown by vehicle model and the type of technology used for each such vehicle;

5.4.6(a)(v) The locations where such Nonroad Vehicles were used; and

5.4.6(a)(vi) Where a determination is in effect pursuant to Article 5.4.2(b) or 5.4.2(c), detailed information concerning the **Contractor's** efforts to obtain Ultra Low Sulfur Diesel Fuel or diesel fuel that has a sulfur content of no more than thirty parts per million (30 ppm).

5.4.6(b) The **Contractor** shall submit the information required by Article 5.4.6(a) at the completion of **Work** under the Public Works Contract and on a yearly basis no later than August 1 throughout the term of the Public Works Contract. The yearly report shall cover **Work** performed during the preceding fiscal year (July 1 - June 30).

5.5 Ultra Low Sulfur Diesel Fuel. In accordance with the Coordinated Construction Act for Lower Manhattan, as amended:

5.5.1 Definitions. For purposes of this Article 5.5, the following definitions apply:

5.5.1(a) "Lower Manhattan" means the area to the south of and within the following lines: a line beginning at a point where the United States pierhead line in the Hudson River as it exists now or may be extended would intersect with the southerly line of West Houston Street in the Borough of Manhattan extended, thence easterly along the southerly side of West Houston Street to the southerly side of Houston Street, thence easterly along the southerly side of Houston Street to the southerly side of East Houston Street, thence northeasterly along the southerly side of East Houston Street to the point where it would intersect with the United States pierhead line in the East River as it exists now or may be extended, including tax lots within or immediately adjacent thereto.

5.5.1(b) "Lower Manhattan Redevelopment Project" means any project in Lower Manhattan that is funded in whole or in part with federal or State funding, or any project intended to improve transportation between Lower Manhattan and the two air terminals in the **City** known as LaGuardia Airport and John F. Kennedy International Airport, or between Lower Manhattan and the air terminal in Newark known as Newark Liberty International Airport, and that is funded in whole or in part with federal funding.

5.5.1(c) "Nonroad Engine" means an internal combustion engine (including the fuel system) that is not used in a Motor Vehicle or a vehicle used solely for competition, or that is not subject to standards promulgated under Section 7411 or Section 7521 of Title 42 of the United States Code, except that this term shall apply to internal combustion engines used to power generators, compressors or similar equipment used in any construction program or project.

5.5.1(d) "Nonroad Vehicle" means a vehicle that is powered by a Nonroad Engine, fifty (50) horsepower (HP) and greater, and that is not a Motor Vehicle or a vehicle used solely for competition, which shall include, but not be limited to, excavators, backhoes, cranes, compressors, generators, bulldozers, and similar equipment, except that this terms shall not apply to horticultural maintenance vehicles used for landscaping purposes that are powered by a Nonroad Engine of sixty-five (65) HP or less and that are not used in any construction program or project.

5.5.1(e) "Ultra Low Sulfur Diesel Fuel" means diesel fuel that has a sulfur content of no more than fifteen parts per million (15 ppm).

5.5.2 Requirements. **Contractors** and **Subcontractors** are required to use only Ultra Low Sulfur Diesel Fuel to power the diesel-powered Nonroad Vehicles with engine HP rating of fifty (50) HP and above used on a Lower Manhattan Redevelopment Project and, where practicable, to reduce the emission of pollutants by retrofitting such Nonroad Vehicles with oxidation catalysts, particulate filters, or technology that achieves lowest particulate matter emissions.

5.6 Pesticides. In accordance with Section 17-1209 of the Administrative Code, to the extent that the **Contractor** or any **Subcontractor** applies pesticides to any property owned or leased by the **City**, the **Contractor,** and any **Subcontractor** shall comply with Chapter 12 of the Administrative Code.

5.7 Waste Treatment, Storage, and Disposal Facilities and Transporters. In connection with the **Work**, the **Contractor** and any **Subcontractor** shall use only those waste treatment, storage, and disposal facilities and waste transporters that possess the requisite license, permit or other governmental approval necessary to treat, store, dispose, or transport the waste, materials or hazardous substances.

5.8 Environmentally Preferable Purchasing. The **Contractor** shall ensure that products purchased or leased by the **Contractor** or any **Subcontractor** for the **Work** that are not specified by the **City** or are submitted as equivalents to a product specified by the **City** comply with the requirements of the New York City Environmentally Preferable Purchasing Program contained in Chapter 11 of Title 43 of the RCNY, pursuant to Chapter 3 of Title 6 of the Administrative Code.

ARTICLE 6. INSPECTION

6.1 During the progress of the **Work** and up to the date of **Final Acceptance**, the **Contractor** shall at all times afford the representatives of the **City** every reasonable, safe, and proper facility for inspecting all **Work** done or being done at the **Site** and also for inspecting the manufacture or preparation of materials and equipment at the place of such manufacture or preparation.

6.2 The **Contractor's** obligation hereunder shall include the uncovering or taking down of finished **Work** and its restoration thereafter; provided, however, that the order to uncover, take down and restore shall be in writing, and further provided that if **Work** thus exposed proves satisfactory, and if the **Contractor** has complied with Article 6.1, such uncovering or taking down and restoration shall be

considered an item of **Extra Work** to be paid for in accordance with the provisions of Article 26. If the **Work** thus exposed proves unsatisfactory, the **City** has no obligation to compensate the **Contractor** for the uncovering, taking down or restoration.

6.3 Inspection and approval by the **Commissioner**, the **Engineer**, **Project Manager**, or **Resident Engineer**, of finished **Work** or of **Work** being performed, or of materials and equipment at the place of manufacture or preparation, shall not relieve the **Contractor** of its obligation to perform the **Work** in strict accordance with the **Contract**. Finished or unfinished **Work** not found to be in strict accordance with the **Contract** shall be replaced as directed by the **Engineer**, even though such **Work** may have been previously approved and paid for. Such corrective **Work** is **Contract Work** and shall not be deemed **Extra Work**.

6.4 Rejected **Work** and materials shall be promptly taken down and removed from the **Site**, which must at all times be kept in a reasonably clean and neat condition.

ARTICLE 7. PROTECTION OF WORK AND OF PERSONS AND PROPERTY; NOTICES AND INDEMNIFICATION

7.1 During the performance of the **Work** and up to the date of **Final Acceptance**, the **Contractor** shall be under an absolute obligation to protect the finished and unfinished **Work** against any damage, loss, injury, theft and/or vandalism and in the event of such damage, loss, injury, theft and/or vandalism, it shall promptly replace and/or repair such **Work** at the **Contractor's** sole cost and expense, as directed by the **Resident Engineer**. The obligation to deliver finished **Work** in strict accordance with the **Contract** prior to **Final Acceptance** shall be absolute and shall not be affected by the **Resident Engineer's** approval of, or failure to prohibit, the **Means and Methods of Construction** used by the **Contractor**.

7.2 During the performance of the **Work** and up to the date of **Final Acceptance**, the **Contractor** shall take all reasonable precautions to protect all persons and the property of the **City** and of others from damage, loss or injury resulting from the **Contractor's**, and/or its **Subcontractors'** operations under this **Contract.** The **Contractor's** obligation to protect shall include the duty to provide, place or replace, and adequately maintain at or about the **Site** suitable and sufficient protection such as lights, barricades, and enclosures.

7.3 The **Contractor** shall comply with the notification requirements set forth below in the event of any loss, damage or injury to **Work**, persons or property, or any accidents arising out of the operations of the **Contractor** and/or its **Subcontractors** under this **Contract**.

7.3.1 The **Contractor** shall make a full and complete report in writing to the **Resident Engineer** within three (3) **Days** after the occurrence.

7.3.2 The **Contractor** shall also send written notice of any such event to all insurance carriers that issued potentially responsive policies (including commercial general liability insurance carriers for events relating to the **Contractor**'s own employees) no later than twenty (20) days after such event and again no later than twenty (20) days after the initiation of any claim and/or action resulting therefrom. Such notice shall contain the following information: the number of the insurance policy, the name of the Named Insured, the date and location of the incident, and the identity of the persons injured or property damaged. For any policy on which the **City** and/or the **Engineer**, **Architect**, or **Project Manager** are Additional Insureds, such notice shall expressly specify that "this notice is

being given on behalf of the City of New York as Additional Insured, such other Additional Insureds, as well as the Named Insured."

7.3.2(a) Whenever such notice is sent under a policy on which the **City** is an Additional Insured, the **Contractor** shall provide copies of the notice to the **Comptroller,** the **Commissioner** and the **City** Corporation Counsel. The copy to the **Comptroller** shall be sent to the Insurance Unit, NYC Comptroller's Office, 1 Centre Street – Room 1222, New York, New York, 10007. The copy to the **Commissioner** shall be sent to the address set forth in Schedule A of the General Conditions. The copy to the **City** Corporation Counsel shall be sent to Insurance Claims Specialist, Affirmative Litigation Division, New York City Law Department, 100 Church Street, New York, New York 10007.

7.3.2(b) If the **Contractor** fails to provide any of the foregoing notices to any appropriate insurance carrier(s) in a timely and complete manner, the **Contractor** shall indemnify the **City** for all losses, judgments, settlements, and expenses, including reasonable attorneys' fees, arising from an insurer's disclaimer of coverage citing late notice by or on behalf of the **City**.

7.4 To the fullest extent permitted by law, the **Contractor** shall defend, indemnify, and hold the **City**, its employees, and officials (the "Indemnitees") harmless against any and all claims (including but not limited to claims asserted by any employee of the **Contractor** and/or its **Subcontractors**) and costs and expenses of whatever kind (including but not limited to payment or reimbursement of attorneys' fees and disbursements) allegedly arising out of or in any way related to the operations of the **Contractor** and/or its **Subcontractors** in the performance of this **Contract** or from the **Contractor's** and/or its **Subcontractors'** failure to comply with any of the provisions of this **Contract** or of the **Law**. Such costs and expenses shall include all those incurred in defending the underlying claim and those incurred in connection with the enforcement of this Article 7.4 by way of cross-claim, third-party claim, declaratory action or otherwise. The parties expressly agree that the indemnification obligation hereunder contemplates (1) full indemnity in the event of liability imposed against the Indemnitees without negligence and solely by reason of statute, operation of **Law** or otherwise; and (2) partial indemnity in the event of any actual negligence on the part of the Indemnitees either causing or contributing to the underlying claim (in which case, indemnification will be limited to any liability imposed over and above that percentage attributable to actual fault whether by statute, by operation of **Law**, or otherwise). Where partial indemnity is provided hereunder, all costs and expenses shall be indemnified on a pro rata basis.

7.4.1 Indemnification under Article 7.4 or any other provision of the **Contract** shall operate whether or not **Contractor** or its **Subcontractors** have placed and maintained the insurance specified under Article 22.

7.5 The provisions of this Article 7 shall not be deemed to create any new right of action in favor of third parties against the **Contractor** or the **City**.

CHAPTER III: TIME PROVISIONS

ARTICLE 8. COMMENCEMENT AND PROSECUTION OF THE WORK

8.1 The **Contractor** shall commence the **Work** on the date specified in the **Notice to Proceed** or the **Order to Work**. The time for performance of the **Work** under the **Contract** shall be computed from

the date specified in the **Notice to Proceed** or the **Order to Work. TIME BEING OF THE ESSENCE** to the **City**, the **Contractor** shall thereafter prosecute the **Work** diligently, using such **Means and Methods of Construction** as are in accord with Article 4 herein and as will assure its completion not later than the date specified in this Contract, or on the date to which the time for completion may be extended.

ARTICLE 9. PROGRESS SCHEDULES

9.1 To enable the **Work** to be performed in an orderly and expeditious manner, the **Contractor**, within fifteen (15) **Days** after the **Notice to Proceed** or **Order to Work**, unless otherwise directed by the **Engineer**, shall submit to the **Engineer** a proposed progress schedule based on the Critical Path Method in the form of a bar graph or in such other form as specified by the **Engineer**, and monthly cash flow requirements, showing:

9.1.1 The anticipated time of commencement and completion of each of the various operations to be performed under this **Contract**; and

9.1.2 The sequence and interrelation of each of these operations with the others and with those of other related contracts; and

9.1.3 The estimated time required for fabrication or delivery, or both, of all materials and equipment required for the **Work**, including the anticipated time for obtaining required approvals pursuant to Article 10; and

9.1.4 The estimated amount in dollars the **Contractor** will claim on a monthly basis.

9.2 The proposed schedule shall be revised as directed by the **Engineer**, until finally approved by the **Engineer**, and after such approval, subject to the provisions of Article 11, shall be strictly adhered to by the **Contractor**.

9.3 If the **Contractor** shall fail to adhere to the approved progress schedule, or to the schedule as revised pursuant to Article 11, it shall promptly adopt such other or additional **Means and Methods of Construction**, at its sole cost and expense, as will make up for the time lost and will assure completion in accordance with the approved progress schedule. The approval by the **City** of a progress schedule which is shorter than the time allotted under the **Contract** shall not create any liability for the **City** if the approved progress schedule is not met.

9.4 The **Contractor** will not receive any payments until the proposed progress schedule is submitted.

ARTICLE 10. REQUESTS FOR INFORMATION OR APPROVAL

10.1 From time to time as the **Work** progresses and in the sequence indicated by the approved progress schedule, the **Contractor** shall submit to the **Engineer** a specific request in writing for each item of information or approval required by the **Contractor**. These requests shall state the latest date upon which the information or approval is actually required by the **Contractor**, and shall be submitted in a reasonable time in advance thereof to provide the **Engineer** a sufficient time to act upon such submissions, or any necessary re-submissions thereof.

10.2 The **Contractor** shall not have any right to an extension of time on account of delays due to the **Contractor's** failure to submit requests for the required information or the required approval in accordance with the above requirements.

ARTICLE 11. NOTICE OF CONDITIONS CAUSING DELAY AND DOCUMENTATION OF DAMAGES CAUSED BY DELAY

11.1 After the commencement of any condition which is causing or may cause a delay in completion of the **Work**, including conditions for which the **Contractor** may be entitled to an extension of time, the following notifications and submittals are required:

11.1.1 Within fifteen (15) **Days** after the **Contractor** becomes aware or reasonably should be aware of each such condition, the **Contractor** must notify the **Resident Engineer** or **Engineer**, as directed by the **Commissioner**, in writing of the existence, nature and effect of such condition upon the approved progress schedule and the **Work**, and must state why and in what respects, if any, the condition is causing or may cause a delay. Such notice shall include a description of the construction activities that are or could be affected by the condition and may include any recommendations the **Contractor** may have to address the delay condition and any activities the **Contractor** may take to avoid or minimize the delay.

11.1.2 If the **Contractor** shall claim to be sustaining damages for delay as provided for in this Article 11,within forty-five (45) **Days** from the time such damages are first incurred for each such condition, the **Contractor** shall submit to the **Commissioner** a verified written statement of the details and estimates of the amounts of such damages, including categories of expected damages and projected monthly costs, together with documentary evidence of such damages as the **Contractor** may have at the time of submission ("statement of delay damages"), as further detailed in Article 11.6. The **Contractor** may submit the above statement within such additional time as may be granted by the **Commissioner** in writing upon written request therefor.

11.1.3 Articles 11.1.1 and 11.1.2 do not relieve the **Contractor** of its obligation to comply with the provisions of Article 44.

11.2 Failure of the **Contractor** to strictly comply with the requirements of Article 11.1.1 may, in the discretion of the **Commissioner**, be deemed sufficient cause to deny any extension of time on account of delay arising out of such condition. Failure of the **Contractor** to strictly comply with the requirements of both Articles 11.1.1 and 11.1.2 shall be deemed a conclusive waiver by the **Contractor** of any and all claims for damages for delay arising from such condition and no right to recover on such claims shall exist.

11.3 When appropriate and directed by the **Engineer**, the progress schedule shall be revised by the **Contractor** until finally approved by the **Engineer**. The revised progress schedule must be strictly adhered to by the **Contractor**.

11.4 Compensable Delays

11.4.1 The **Contractor** agrees to make claim only for additional costs attributable to delay in the performance of this **Contract** necessarily extending the time for completion of the **Work** or resulting from acceleration directed by the **Commissioner** and required to maintain the progress schedule, occasioned solely by any act or omission to act of the **City** listed below. The **Contractor** also agrees that delay from any other cause shall be

compensated, if at all, solely by an extension of time to complete the performance of the **Work**.

11.4.1.1 The failure of the **City** to take reasonable measures to coordinate and progress the **Work** to the extent required by the **Contract**, except that the City shall not be responsible for the **Contractor's** obligation to coordinate and progress the **Work** of its **Subcontractors**.

11.4.1.2 Unreasonable delays attributable to the review of shop drawings, the issuance of change orders, or the cumulative impact of change orders that were not brought about by any act or omission of the **Contractor**.

11.4.1.3 The unavailability of the **Site** caused by acts or omissions of the **City**..

11.4.1.4 The issuance by the **Engineer** of a stop work order that was not brought about through any act or omission of the **Contractor**.

11.4.1.5 Differing site conditions or environmental hazards that were neither known nor reasonably ascertainable on a pre-bid inspection of the **Site** or review of the bid documents or other publicly available sources, and that are not ordinarily encountered in the **Project**'s geographical area or neighborhood or in the type of **Work** to be performed.

11.4.1.6 Delays caused by the **City's** bad faith or its willful, malicious, or grossly negligent conduct;

11.4.1.7 Delays not contemplated by the parties;

11.4.1.8 Delays so unreasonable that they constitute an intentional abandonment of the **Contract** by the **City**; and

11.4.1.9 Delays resulting from the **City's** breach of a fundamental obligation of the **Contract**.

11.4.2 No claim may be made for any alleged delay in **Substantial Completion** of the **Work** if the **Work** will be or is substantially completed by the date of **Substantial Completion** provided for in Schedule A unless acceleration has been directed by the **Commissioner** to meet the date of **Substantial Completion** set forth in Schedule A, or unless there is a provision in the **Contract** providing for additional compensation for early completion.

11.4.3 The provisions of this Article 11 apply only to claims for additional costs attributable to delay and do not preclude determinations by the **Commissioner** allowing reimbursements for additional costs for **Extra Work** pursuant to Articles 25 and 26 of this **Contract**. To the extent that any cost attributable to delay is reimbursed as part of a change order, no additional claim for compensation under this Article 11 shall be allowed.

11.5 Non-Compensable Delays. The **Contractor** agrees to make no claim for, and is deemed to have included in its bid prices for the various items of the **Contract**, the extra/additional costs attributable to any delays caused by or attributable to the items set forth below. For such items, the **Contractor** shall be compensated, if at all, solely by an extension of time to complete the performance of the **Work**, in accordance with the provisions of Article 13. Such extensions of time will be granted, if at all, pursuant to the grounds set forth in Article 13.3.

11.5.1 The acts or omissions of any third parties, including but not limited to **Other Contractors**, public/ governmental bodies (other than **City Agencies**), utilities or private enterprises, who are disclosed in the **Contract Documents** or are ordinarily encountered or generally recognized as related to the **Work**;

11.5.2 Any situation which was within the contemplation of the parties at the time of entering into the **Contract**, including any delay indicated or disclosed in the **Contract Documents** or that would be generally recognized by a reasonably prudent contractor as related to the nature of the **Work**, and/or the existence of any facility or appurtenance owned, operated or maintained by any third party, as indicated or disclosed in the **Contract Documents** or ordinarily encountered or generally recognized as related to the nature of the **Work**;

11.5.3 Restraining orders, injunctions or judgments issued by a court which were caused by a Contractor's submission, action or inaction or by a Contractor's **Means and Methods of Construction**, or by third parties, unless such order, injunction or judgment was the result of an act or omission by the **City**;

11.5.4 Any labor boycott, strike, picketing, lockout or similar situation;

11.5.5 Any shortages of supplies or materials, or unavailability of equipment, required by the **Contract Work**;

11.5.6 Climatic conditions, storms, floods, droughts, tidal waves, fires, hurricanes, earthquakes, landslides or other catastrophes or acts of God, or acts of war or of the public enemy or terrorist acts, including the **City's** reasonable responses thereto; and

11.5.7 **Extra Work** which does not significantly affect the overall completion of the **Contract**, reasonable delays in the review or issuance of change orders or field orders and/or in shop drawing reviews or approvals.

11.6 Required Content of Submission of Statement of Delay Damages

11.6.1 In the verified written statement of delay damages required by Article 11.1.2, the following information shall be provided by the **Contractor**:

11.6.1.1 For each delay, the start and end dates of the claimed periods of delay and, in addition, a description of the operations that were delayed, an explanation of how they were delayed, and the reasons for the delay, including identifying the applicable act or omission of the City listed in Article 11.4.

11.6.1.2 A detailed factual statement of the claim providing all necessary dates, locations and items of **Work** affected by the claim.

11.6.1.3 The estimated amount of additional compensation sought and a breakdown of that amount into categories as described in Article 11.7.

11.6.1.4 Any additional information requested by the **Commissioner**.

11.7 Recoverable Costs

11.7.1 Delay damages may be recoverable for the following costs actually and necessarily incurred in the performance of the **Work**:

11.7.1.1 Direct labor, including payroll taxes (subject to statutory wage caps) and supplemental benefits, based on time and materials records;

11.7.1.2 Necessary materials (including transportation to the **Site**), based on time and material records;

11.7.1.3 Reasonable rental value of necessary plant and equipment other than small tools, plus fuel/energy costs according to the applicable formula set forth in Articles 26.2.4 and/or 26.2.8, based on time and material records;

11.7.1.4 Additional insurance and bond costs;

11.7.1.5 Extended **Site** overhead, field office rental, salaries of field office staff, on-site project managers and superintendents, field office staff vehicles, **Project**-specific storage, field office utilities and telephone, and field office consumables;

11.7.1.6 Labor escalation costs based on actual costs;

11.7.1.7 Materials and equipment escalation costs based on applicable industry indices unless documentation of actual increased cost is provided;

11.7.1.8 Additional material and equipment storage costs based on actual documented costs and additional costs necessitated by extended manufacturer warranty periods; and

11.7.1.9 Extended home office overhead calculated based on the following formula:

(1) Subtract from the original **Contract** amount the amount earned by original contractual **Substantial Completion** date (not including change orders);

(2) Remove 15% overhead and profit from the calculation in item (1) by dividing the results of item (1) by 1.15;

(3) Multiply the result of item (2) by 7.25% for the total home office overhead;

(4) Multiply the result of item (3) by 7.25% for the total profit; and

(5) The total extended home office overhead will be the total of items (3) and (4).

11.7.2 Recoverable Subcontractor Costs. When the **Work** is performed by a **Subcontractor**, the **Contractor** may be paid the actual and necessary costs of such subcontracted **Work** as outlined above in Articles 11.7.1.1 through 11.7.1.8, and an additional overhead of 5% of the costs outlined in Articles 11.7.1.1 through 11.7.1.3.

11.7.3 Non-Recoverable Costs. The parties agree that the **City** will have no liability for the following items and the **Contractor** agrees it shall make no claim for the following items:

11.7.3.1 Profit, or loss of anticipated or unanticipated profit, except as provided in Article 11.7.1.9;

11.7.3.2 Consequential damages, including, but not limited to, construction or bridge loans or interest paid on such loans, loss of bonding capacity, bidding opportunities, or interest in investment, or any resulting insolvency;

11.7.3.3 Indirect costs or expenses of any nature except those included in Article 11.7.1;

11.7.3.4 Direct or indirect costs attributable to performance of **Work** where the **Contractor**, because of situations or conditions within its control, has not progressed the **Work** in a satisfactory manner; and

11.7.3.5 Attorneys' fees and dispute and claims preparation expenses.

11.8 Any claims for delay under this Article 11 are not subject to the jurisdiction of the Contract Dispute Resolution Board pursuant to the dispute resolution process set forth in Article 27.

11.9 Any compensation provided to the **Contractor** in accordance with this Article 11 will be made pursuant to a claim filed with the **Comptroller**. Nothing in this Article 11 extends the time for the **Contractor** to file an action with respect to a claim within six months after **Substantial Completion** pursuant to Article 56.

ARTICLE 12. COORDINATION WITH OTHER CONTRACTORS

12.1 During the progress of the **Work**, **Other Contractors** may be engaged in performing other work or may be awarded other contracts for additional work on this **Project**. In that event, the **Contractor** shall coordinate the **Work** to be done hereunder with the work of such **Other Contractors** and the **Contractor** shall fully cooperate with such **Other Contractors** and carefully fit its own **Work** to that provided under other contracts as may be directed by the **Engineer**. The **Contractor** shall not commit or permit any act which will interfere with the performance of work by any **Other Contractors**.

12.2 If the **Engineer** determines that the **Contractor** is failing to coordinate its **Work** with the work of **Other Contractors** as the **Engineer** has directed, then the **Commissioner** shall have the right to withhold any payments otherwise due hereunder until the **Contractor** completely complies with the **Engineer's** directions.

12.3 The **Contractor** shall notify the **Engineer** in writing if any **Other Contractor** on this **Project** is failing to coordinate its work with the **Work** of this **Contract**. If the **Engineer** finds such charges to be true, the **Engineer** shall promptly issue such directions to the **Other Contractor** with respect thereto as the situation may require. The **City** shall not, however, be liable for any damages suffered by any **Other Contractor's** failure to coordinate its work with the **Work** of this **Contract** or by reason of the **Other Contractor's** failure to promptly comply with the directions so issued by the **Engineer**, or by reason of any **Other Contractor's** default in performance, it being understood that the **City** does not guarantee the responsibility or continued efficiency of any contractor. The **Contractor** agrees to make no claim against the **City** for any damages relating to or arising out of any directions issued by the **Engineer** pursuant to this Article 12 (including but not limited to the failure of any **Other Contractor** to comply or promptly comply with such directions), or the failure of any **Other Contractor** to coordinate its work, or the default in performance of any **Other Contractor**.

12.4 The **Contractor** shall indemnify and hold the **City** harmless from any and all claims or judgments for damages and from costs and expenses to which the **City** may be subjected or which it may suffer or incur by reason of the **Contractor's** failure to comply with the **Engineer's** directions promptly; and the **Comptroller** shall have the right to exercise the powers reserved in Article 23 with respect to any claims which may be made for damages due to the **Contractor's** failure to comply with the **Engineer's** directions promptly. Insofar as the facts and **Law** relating to any claim would preclude the **City** from being completely indemnified by the **Contractor**, the **City** shall be partially indemnified by the **Contractor** to the fullest extent provided by **Law**.

12.5 Should the **Contractor** sustain any damage through any act or omission of any **Other Contractor** having a contract with the **City** for the performance of work upon the **Site** or of work which may be necessary to be performed for the proper prosecution of the **Work** to be performed hereunder, or through any act or omission of a subcontractor of such **Other Contractor**, the **Contractor** shall have no claim against the **City** for such damage, but shall have a right to recover such damage from the **Other**

Contractor under the provision similar to the following provisions which apply to this **Contract** and have been or will be inserted in the contracts with such **Other Contractors**:

12.5.1 Should any **Other Contractor** having or who shall hereafter have a contract with the **City** for the performance of work upon the **Site** sustain any damage through any act or omission of the **Contractor** hereunder or through any act or omission of any **Subcontractor** of the **Contractor**, the **Contractor** agrees to reimburse such **Other Contractor** for all such damages and to defend at its own expense any action based upon such claim and if any judgment or claim (even if the allegations of the action are without merit) against the **City** shall be allowed the **Contractor** shall pay or satisfy such judgment or claim and pay all costs and expenses in connection therewith and agrees to indemnify and hold the **City** harmless from all such claims. Insofar as the facts and **Law** relating to any claim would preclude the **City** from being completely indemnified by the **Contractor**, the **City** shall be partially indemnified by the **Contractor** to the fullest extent provided by **Law**.

12.6 The **City's** right to indemnification hereunder shall in no way be diminished, waived or discharged by its recourse to assessment of liquidated damages as provided in Article 15, or by the exercise of any other remedy provided for by **Contract** or by **Law**.

ARTICLE 13. EXTENSION OF TIME FOR PERFORMANCE

13.1 If performance by the **Contractor** is delayed for a reason set forth in Article 13.3, the **Contractor** may be allowed a reasonable extension of time in conformance with this Article 13 and the **PPB** Rules.

13.2 Any extension of time may be granted only by the **ACCO** or by the Board for the Extension of Time (hereafter "Board") (as set forth below) upon written application by the **Contractor**.

13.3 Grounds for Extension: If such application is made, the **Contractor** shall be entitled to an extension of time for delay in completion of the **Work** caused solely:

13.3.1 By the acts or omissions of the **City**, its officials, agents or employees; or

13.3.2 By the act or omissions of **Other Contractors** on this **Project**; or

13.3.3 By supervening conditions entirely beyond the control of either party hereto (such as, but not limited to, acts of God or the public enemy, excessive inclement weather, war or other national emergency making performance temporarily impossible or illegal, or strikes or labor disputes not brought about by any act or omission of the **Contractor**).

13.3.4 The **Contractor** shall, however, be entitled to an extension of time for such causes only for the number of **Days** of delay which the **ACCO** or the Board may determine to be due solely to such causes, and then only if the **Contractor** shall have strictly complied with all of the requirements of Articles 9 and 10.

13.4 The **Contractor** shall not be entitled to receive a separate extension of time for each of several causes of delay operating concurrently, but, if at all, only for the actual period of delay in completion of the **Work** as determined by the **ACCO** or the Board, irrespective of the number of causes contributing to produce such delay. If one of several causes of delay operating concurrently results from any act, fault or omission of the **Contractor** or of its **Subcontractors** or **Materialmen**, 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.

13.5 The determination made by the **ACCO** or the Board on an application for an extension of time shall be binding and conclusive on the **Contractor**.

13.6 The **ACCO** or the Board acting entirely within their discretion may grant an application for an extension of time for causes of delay other than those herein referred.

13.7 Permitting the **Contractor** to continue with the **Work** after the time fixed for its completion has expired, or after the time to which such completion may have been extended has expired, or the making of any payment to the **Contractor** after such time, shall in no way operate as a waiver on the part of the **City** of any of its rights under this **Contract**.

13.8 Application for Extension of Time:

13.8.1 Before the **Contractor's** time extension request will be considered, the **Contractor** shall notify the **ACCO** of the condition which allegedly has caused or is causing the delay, and shall submit a written application to the **ACCO** identifying:

13.8.1(a) The **Contractor**; the registration number; and **Project** description;

13.8.1(b) Liquidated damage assessment rate, as specified in the **Contract**;

13.8.1(c) Original total bid price;

13.8.1(d) The original **Contract** start date and completion date;

13.8.1(e) Any previous time extensions granted (number and duration); and

13.8.1(f) The extension of time requested.

13.8.2 In addition, the application for extension of time shall set forth in detail:

13.8.2(a) The nature of each alleged cause of delay in completing the **Work**;

13.8.2(b) The date upon which each such cause of delay began and ended and the number of **Days** attributable to each such cause;

13.8.2(c) A statement that the **Contractor** waives all claims except for those delineated in the application, and the particulars of any claims which the **Contractor** does not agree to waive. For time extensions for **Substantial Completion** and final completion payments, the application shall include a detailed statement of the dollar amounts of each element of claim item reserved; and

13.8.2(d) A statement indicating the **Contractor's** understanding that the time extension is granted only for purposes of permitting continuation of **Contract** performance and payment for **Work** performed and that the **City** retains its right to conduct an investigation and assess liquidated damages as appropriate in the future.

13.9 Analysis and Approval of Time Extensions:

13.9.1 For time extensions for partial payments, a written determination shall be made by the **ACCO** who may, for good and sufficient cause, extend the time for the performance of the **Contract** as follows:

13.9.1(a) If the **Work** is to be completed within six (6) months, the time for performance may be extended for sixty (60) **Days**;

13.9.1(b) If the **Work** is to be completed within less than one (1) year but more than six (6) months, an extension of ninety (90) **Days** may be granted;

13.9.1(c) If the **Contract** period exceeds one (1) year, besides the extension granted in Article 13.9.1(b), an additional thirty (30) **Days** may be granted for each multiple of six (6) months involved beyond the one (1) year period; or

13.9.1(d) If exceptional circumstances exist, the **ACCO** may extend the time for performance beyond the extensions in Articles 13.9.1(a), 13.9.1(b), and 13.9.1(c). In that event, the **ACCO** shall file with the Mayor's Office of Contract Services a written explanation of the exceptional circumstances.

13.9.2 For extensions of time for **Substantial Completion** and final completion payments, the **Engineer**, in consultation with the **ACCO**, shall prepare a written analysis of the delay (including a preliminary determination of the causes of delay, the beginning and end dates for each such cause of delay, and whether the delays are excusable under the terms of this **Contract**). The report shall be subject to review by and approval of the Board, which shall have authority to question its analysis and determinations and request additional facts or documentation. The report as reviewed and made final by the Board shall be made a part of the **Agency** contract file. Neither the report itself nor anything contained therein shall operate as a waiver or release of any claim the **City** may have against the **Contractor** for either actual or liquidated damages.

13.9.3 Approval Mechanism for Time Extensions for **Substantial Completion** or Final Completion Payments: An extension shall be granted only with the approval of the Board which is comprised of the **ACCO** of the **Agency**, the **City** Corporation Counsel, and the **Comptroller**, or their authorized representatives.

13.9.4 Neither the granting of any application for an extension of time to the **Contractor** or any **Other Contractor** on this **Project** nor the papers, records or reports related to any application for or grant of an extension of time or determination related thereto shall be referred to or offered in evidence by the **Contractor** or its attorneys in any action or proceeding.

13.10 No Damage for Delay: The **Contractor** agrees to make no claim for damages for delay in the performance of this **Contract** occasioned by any act or omission to act of the **City** or any of its representatives, except as provided for in Article 11.

ARTICLE 14. COMPLETION AND FINAL ACCEPTANCE OF THE WORK

14.1 Date for **Substantial Completion**: The **Contractor** shall substantially complete the **Work** within the time fixed in Schedule A of the General Conditions, or within the time to which such **Substantial Completion** may be extended.

14.2 Determining the Date of **Substantial Completion**: The **Work** will be deemed to be substantially complete when the two conditions set forth below have been met.

14.2.1 Inspection: The **Engineer** or **Resident Engineer**, as applicable, has inspected the **Work** and has made a written determination that it is substantially complete.

14.2.2 Approval of **Final Approved Punch List** and Date for **Final Acceptance**: Following inspection of the **Work**, the **Engineer/Resident Engineer** shall furnish the **Contractor** with a final punch list, specifying all items of **Work** to be completed and proposing dates for the completion of each specified item of **Work**. The **Contractor** shall then submit in writing to the **Engineer/Resident Engineer** within ten (10) **Days** of the **Engineer/Resident Engineer** furnishing the final punch list either acceptance of the dates or proposed alternative dates for the completion of each specified item of **Work**. If the **Contractor** neither accepts the dates nor proposes alternative dates within ten (10) **Days**, the schedule proposed by the **Engineer/Resident Engineer** shall be deemed accepted. If the **Contractor** proposes alternative dates, then, within a reasonable time after receipt, the **Engineer/Resident Engineer**, in a written notification to the **Contractor**, shall approve the **Contractor's** completion dates or, if they are unable to agree, the **Engineer/Resident Engineer** shall establish dates for the completion of each item of **Work**. The latest completion date specified shall be the date for **Final Acceptance** of the **Work**.

14.3 Date of **Substantial Completion**. The date of approval of the **Final Approved Punch List**, shall be the date of **Substantial Completion**. The date of approval of the **Final Approved Punch List** shall be either (a) if the **Contractor** approves the final punch list and proposed dates for completion furnished by the **Engineer/Resident Engineer**, the date of the **Contractor**'s approval; or (b) if the **Contractor** neither accepts the dates nor proposes alternative dates, ten (10) **Days** after the **Engineer/Resident Engineer** furnishes the **Contractor** with a final punch list and proposed dates for completion; or (c) if the **Contractor** proposes alternative dates, the date that the **Engineer/Resident Engineer** sends written notification to the **Contractor** either approving the **Contractor**'s proposed alternative dates or establishing dates for the completion for each item of **Work**.

14.4 Determining the Date of **Final Acceptance**: The **Work** will be accepted as final and complete as of the date of the **Engineer**'s/**Resident Engineer**'s inspection if, upon such inspection, the **Engineer/Resident Engineer** finds that all items on the **Final Approved Punch List** are complete and no further **Work** remains to be done. The **Commissioner** will then issue a written determination of **Final Acceptance**.

14.5 Request for Inspection: Inspection of the **Work** by the **Engineer/Resident Engineer** for the purpose of **Substantial Completion** or **Final Acceptance** shall be made within fourteen (14) **Days** after receipt of the **Contractor's** written request therefor.

14.6 Request for Re-inspection: If upon inspection for the purpose of **Substantial Completion** or **Final Acceptance**, the **Engineer/Resident Engineer** determines that there are items of **Work** still to be performed, the **Contractor** shall promptly perform them and then request a re-inspection. If upon re-inspection, the **Engineer/Resident Engineer** determines that the **Work** is substantially complete or finally accepted, the date of such re-inspection shall be the date of **Substantial Completion** or **Final Acceptance**. Re-inspection by the **Engineer/Resident Engineer** shall be made within ten (10) **Days** after receipt of the **Contractor's** written request therefor.

14.7 Initiation of Inspection by the **Engineer/Resident Engineer**: If the **Contractor** does not request inspection or re-inspection of the **Work** for the purpose of **Substantial Completion** or **Final Acceptance**, the **Engineer/Resident Engineer** may initiate such inspection or re-inspection.

ARTICLE 15. LIQUIDATED DAMAGES

15.1 In the event the **Contractor** fails to substantially complete the **Work** within the time fixed for such **Substantial Completion** in Schedule A of the General Conditions, plus authorized time extensions, or if the **Contractor**, in the sole determination of the **Commissioner**, has abandoned the **Work**, the **Contractor** shall pay to the **City** the sum fixed in Schedule A of the General Conditions, for each and every **Day** that the time consumed in substantially completing the **Work** exceeds the time allowed therefor; which said sum, in view of the difficulty of accurately ascertaining the loss which the **City** will suffer by reason of delay in the **Substantial Completion** of the **Work** hereunder, is hereby fixed and agreed as the liquidated damages that the **City** will suffer by reason of such delay, and not as a penalty. This Article 15 shall also apply to the **Contractor** whether or not the **Contractor** is defaulted pursuant to Chapter X of this **Contract**. Neither the failure to assess liquidated damages nor the granting of any time extension shall operate as a waiver or release of any claim the **City** may have against the **Contractor** for either actual or liquidated damages.

15.2 Liquidated damages received hereunder are not intended to be nor shall they be treated as either a partial or full waiver or discharge of the **City's** right to indemnification, or the **Contractor's** obligation to indemnify the **City**, or to any other remedy provided for in this **Contract** or by **Law**.

15.3 The **Commissioner** may deduct and retain out of the monies which may become due hereunder, the amount of any such liquidated damages; and in case the amount which may become due hereunder shall be less than the amount of liquidated damages suffered by the **City**, the **Contractor** shall be liable to pay the difference.

ARTICLE 16. OCCUPATION OR USE PRIOR TO COMPLETION

16.1 Unless otherwise provided for in the **Specifications**, the **Commissioner** may take over, use, occupy or operate any part of the **Work** at any time prior to **Final Acceptance**, upon written notification to the **Contractor**. The **Engineer** or **Resident Engineer**, as applicable, shall inspect the part of the **Work** to be taken over, used, occupied, or operated, and will furnish the **Contractor** with a written statement of the **Work**, if any, which remains to be performed on such part. The **Contractor** shall not object to, nor interfere with, the **Commissioner's** decision to exercise the rights granted by Article 16. In the event the **Commissioner** takes over, uses, occupies, or operates any part of the **Work:**

16.1.1 the **Engineer/Resident Engineer** shall issue a written determination of **Substantial Completion** with respect to such part of the **Work**;

16.1.2 the **Contractor** shall be relieved of its absolute obligation to protect such part of the unfinished **Work** in accordance with Article 7;

16.1.3 the **Contractor's** guarantee on such part of the **Work** shall begin on the date of such use by the **City**; and;

16.1.4 the **Contractor** shall be entitled to a return of so much of the amount retained in accordance with Article 21 as it relates to such part of the **Work**, except so much thereof as may be retained under Articles 24 and 44.

CHAPTER IV: SUBCONTRACTS AND ASSIGNMENTS

ARTICLE 17. SUBCONTRACTS

17.1 The **Contractor** shall not make subcontracts totaling an amount more than the percentage of the total **Contract** price fixed in Schedule A of the General Conditions, without prior written permission from the **Commissioner**. All subcontracts made by the **Contractor** shall be in writing. No **Work** may be performed by a **Subcontractor** prior to the **Contractor** entering into a written subcontract with the **Subcontractor** and complying with the provisions of this Article 17.

17.2 Before making any subcontracts, the **Contractor** shall submit a written statement to the **Commissioner** giving the name and address of the proposed **Subcontractor**; the portion of the **Work** and materials which it is to perform and furnish; the cost of the subcontract; the VENDEX questionnaire if required; the proposed subcontract if requested by the **Commissioner**; and any other information tending to prove that the proposed **Subcontractor** has the necessary facilities, skill, integrity, past experience, and financial resources to perform the **Work** in accordance with the terms and conditions of this **Contract**.

17.3 In addition to the requirements in Article 17.2, **Contractor** is required to list the **Subcontractor** in the web based Subcontractor Reporting System through the City's Payee Information Portal (PIP), available at www.nyc.gov/pip.[1] For each **Subcontractor** listed, **Contractor** is required to provide the following information: maximum contract value, description of **Subcontractor's** Work, start and end date of the subcontract and identification of the **Subcontractor**'s industry. Thereafter, **Contractor** will be required to report in the system the payments made to each **Subcontractor** within 30 days of making the payment. If any of the required information changes throughout the Term of the **Contract**, **Contractor** will be required to revise the information in the system.

Failure of the **Contractor** to list a **Subcontractor** and/or to report **Subcontractor** payments in a timely fashion may result in the **Commissioner** declaring the **Contractor** in default of the **Contract** and will subject **Contractor** to liquidated damages in the amount of $100 per day for each day that the **Contractor** fails to identify a **Subcontractor** along with the required information about the **Subcontractor** and/or fails to report payments to a **Subcontractor**, beyond the time frames set forth herein or in the notice from the **City**. Article 15 shall govern the issue of liquidated damages.

17.4 If an approved **Subcontractor** elects to subcontract any portion of its subcontract, the proposed sub-subcontract shall be submitted in the same manner as directed above.

17.5 The **Commissioner** will notify the **Contractor** in writing whether the proposed **Subcontractor** is approved. If the proposed **Subcontractor** is not approved, the **Contractor** may submit another proposed **Subcontractor** unless the **Contractor** decides to do the **Work**. No **Subcontractor** shall be permitted to enter or perform any work on the **Site** unless approved.

17.6 Before entering into any subcontract hereunder, the **Contractor** shall provide the proposed **Subcontractor** with a complete copy of this document and inform the proposed **Subcontractor** fully and completely of all provisions and requirements of this **Contract** relating either directly or indirectly to the **Work** to be performed and the materials to be furnished under such subcontract, and every such

[1] In order to use the new system, a PIP account will be required. Detailed instructions on creating a PIP account and using the new system are also available at www.nyc.gov/pip. Additional assistance with PIP may be obtained by emailing the Financial Information Services Agency Help Desk at pip@fisa.nyc.gov.

Subcontractor shall expressly stipulate that all labor performed and materials furnished by the **Subcontractor** shall strictly comply with the requirements of this **Contract**.

17.7 Documents given to a prospective **Subcontractor** for the purpose of soliciting the **Subcontractor's** bid shall include either a copy of the bid cover or a separate information sheet setting forth the **Project** name, the **Contract** number (if available), the **Agency** (as noted in Article 2.1.6), and the **Project's** location.

17.8 The **Commissioner's** approval of a **Subcontractor** shall not relieve the **Contractor** of any of its responsibilities, duties, and liabilities hereunder. The **Contractor** shall be solely responsible to the **City** for the acts or defaults of its **Subcontractor** and of such **Subcontractor's** officers, agents, and employees, each of whom shall, for this purpose, be deemed to be the agent or employee of the **Contractor** to the extent of its subcontract.

17.9 If the **Subcontractor** fails to maintain the necessary facilities, skill, integrity, past experience, and financial resources (other than due to the **Contractor's** failure to make payments where required) to perform the **Work** in accordance with the terms and conditions of this **Contract**, the **Contractor** shall promptly notify the **Commissioner** and replace such **Subcontractor** with a newly approved **Subcontractor** in accordance with this Article 17.

17.10 The **Contractor** shall be responsible for ensuring that all **Subcontractors** performing **Work** at the **Site** maintain all insurance required by **Law**.

17.11 The **Contractor** shall promptly, upon request, file with the **Engineer** a conformed copy of the subcontract and its cost. The subcontract shall provide the following:

17.11.1 Payment to **Subcontractors**: The agreement between the **Contractor** and its **Subcontractor** shall contain the same terms and conditions as to method of payment for **Work**, labor, and materials, and as to retained percentages, as are contained in this **Contract**.

17.11.2 Prevailing Rate of Wages: The agreement between the **Contractor** and its **Subcontractor** shall include the prevailing wage rates and supplemental benefits to be paid in accordance with Labor Law Section 220.

17.11.3 Section 6-123 of the Administrative Code: Pursuant to the requirements of Section 6-123 of the Administrative Code, every agreement between the **Contractor** and a **Subcontractor** in excess of fifty thousand ($50,000) dollars shall include a provision that the **Subcontractor** shall not engage in any unlawful discriminatory practice as defined in Title VIII of the Administrative Code (Section 8-101 *et seq.*).

17.11.4 All requirements required pursuant to federal and/or state grant agreement(s), if applicable to the **Work**.

17.12 The **Commissioner** may deduct from the amounts certified under this **Contract** to be due to the **Contractor**, the sum or sums due and owing from the **Contractor** to the **Subcontractors** according to the terms of the said subcontracts, and in case of dispute between the **Contractor** and its **Subcontractor**, or **Subcontractors**, as to the amount due and owing, the **Commissioner** may deduct and withhold from the amounts certified under this **Contract** to be due to the **Contractor** such sum or sums as may be claimed by such **Subcontractor**, or **Subcontractors**, in a sworn affidavit, to be due and owing until such time as such claim or claims shall have been finally resolved.

17.13 On contracts where performance bonds and payment bonds are executed, the **Contractor** shall include on each requisition for payment the following data: **Subcontractor's** name, value of the subcontract, total amount previously paid to **Subcontractor** for **Work** previously requisitioned, and the amount, including retainage, to be paid to the **Subcontractor** for **Work** included in the requisition.

17.14 On **Contracts** where performance bonds and payment bonds are not executed, the **Contractor** shall include with each requisition for payment submitted hereunder, a signed statement from each and every **Subcontractor** and/or **Materialman** for whom payment is requested in such requisition. Such signed statement shall be on the letterhead of the **Subcontractor** and/or **Materialman** for whom payment is requested and shall (i) verify that such **Subcontractor** and/or **Materialman** has been paid in full for all **Work** performed and/or material supplied to date, exclusive of any amount retained and any amount included on the current requisition, and (ii) state the total amount of retainage to date, exclusive of any amount retained on the current requisition.

ARTICLE 18. ASSIGNMENTS

18.1 The **Contractor** shall not assign, transfer, convey or otherwise dispose of this **Contract**, or the right to execute it, or the right, title or interest in or to it or any part thereof, or assign, by power of attorney or otherwise any of the monies due or to become due under this **Contract**, unless the previous written consent of the **Commissioner** shall first be obtained thereto, and the giving of any such consent to a particular assignment shall not dispense with the necessity of such consent to any further or other assignments.

18.2 Such assignment, transfer, conveyance or other disposition of this **Contract** shall not be valid until filed in the office of the **Commissioner** and the **Comptroller**, with the written consent of the **Commissioner** endorsed thereon or attached thereto.

18.3 Failure to obtain the previous written consent of the **Commissioner** to such an assignment, transfer, conveyance or other disposition, may result in the revocation and annulment of this **Contract**. The **City** shall thereupon be relieved and discharged from any further liability to the **Contractor**, its assignees, transferees or sublessees, who shall forfeit and lose all monies therefor earned under the **Contract**, except so much as may be required to pay the **Contractor's** employees.

18.4 The provisions of this clause shall not hinder, prevent, or affect an assignment by the **Contractor** for the benefit of its creditors made pursuant to the **Laws** of the State of New York.

18.5 This **Contract** may be assigned by the **City** to any corporation, agency or instrumentality having authority to accept such assignment.

CHAPTER V: CONTRACTOR'S SECURITY AND GUARANTEE

ARTICLE 19. SECURITY DEPOSIT

19.1 If performance and payment bonds are required, the **City** shall retain the bid security to ensure that the successful bidder executes the **Contract** and furnishes the required payment and performance security within ten (10) **Days** after notice of the award of the **Contract**. If the successful bidder fails to execute the **Contract** and furnish the required payment and performance security, the **City** shall retain such bid security as set forth in the Information for Bidders. If the successful bidder executes the

Contract and furnishes the required payment and performance security, the **City** shall return the bid security within a reasonable time after the furnishing of such bonds and execution of the **Contract** by the **City**.

19.2 If performance and payment bonds are not required, the bid security shall be retained by the **City** as security for the **Contractor**'s faithful performance of the **Contract**. If partial payments are provided, the bid security will be returned to the **Contractor** after the sum retained under Article 21 equals the amount of the bid security, subject to other provisions of this **Contract**. If partial payments are not provided, the bid security will be released when final payment is certified by the **City** for payment.

19.3 If the **Contractor** is declared in default under Article 48 prior to the return of the deposit, or if any claim is made such as referred to in Article 23, the amount of such deposit, or so much thereof as the **Comptroller** may deem necessary, may be retained and then applied by the **Comptroller**:

19.3.1 To compensate the **City** for any expense, loss or damage suffered or incurred by reason of or resulting from such default, including the cost of re-letting and liquidated damages; or

19.3.2 To indemnify the **City** against any and all claims.

ARTICLE 20. PAYMENT GUARANTEE

20.1 On **Contracts** where one hundred (100%) percent performance bonds and payment bonds are executed, this Article 20 does not apply.

20.2 In the event the terms of this **Contract** do not require the **Contractor** to provide a payment bond or where the **Contract** does not require a payment bond for one hundred (100%) percent of the **Contract** price, the **City** shall, in accordance with the terms of this Article 20, guarantee payment of all lawful claims for:

20.2.1 Wages and compensation for labor performed and/or services rendered; and

20.2.2 Materials, equipment, and supplies provided, whether incorporated into the **Work** or not, when demands have been filed with the **City** as provided hereinafter by any person, firm, or corporation which furnished labor, material, equipment, supplies, or any combination thereof, in connection with the **Work** performed hereunder (hereinafter referred to as the "beneficiary") at the direction of the **City** or the **Contractor**.

20.3 The provisions of Article 20.2 are subject to the following limitations and conditions:

20.3.1 If the **Contractor** provides a payment bond for a value that is less than one hundred (100%) percent of the value of the **Contract Work**, the payment bond provided by the **Contractor** shall be primary (and non-contributing) to the payment guarantee provided under this Article 20.

20.3.2 The guarantee is made for the benefit of all beneficiaries as defined in Article 20.2 provided that those beneficiaries strictly adhere to the terms and conditions of Article 20.3.4 and 20.3.5.

20.3.3 Nothing in this Article 20 shall prevent a beneficiary providing labor, services or material for the **Work** from suing the **Contractor** for any amounts due and owing the beneficiary by the **Contractor**.

20.3.4 Every person who has furnished labor or material, to the **Contractor** or to a **Subcontractor** of the **Contractor**, in the prosecution of the **Work** and who has not been paid in full therefor before the expiration of a period of ninety (90) **Days** after the date on which the last of the labor was performed or material was furnished by him/her for which the claim is made, shall have the right to sue on this payment guarantee in his/her own name for the amount, or the balance thereof, unpaid at the time of commencement of the action; provided, however, that a person having a direct contractual relationship with a **Subcontractor** of the **Contractor** but no contractual relationship express or implied with the **Contractor** shall not have a right of action upon the guarantee unless he/she shall have given written notice to the **Contractor** within one hundred twenty (120) **Days** from the date on which the last of the labor was performed or the last of the material was furnished, for which his/her claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the material was furnished or for whom the labor was performed. The notice shall be served by delivering the same personally to the **Contractor** or by mailing the same by registered mail, postage prepaid, in an envelope addressed to the **Contractor** at any place where it maintains an office or conducts its business; provided, however, that where such notice is actually received by the **Contractor** by other means, such notice shall be deemed sufficient.

20.3.5 Except as provided in Labor Law Section 220-g, no action on this payment guarantee shall be commenced after the expiration of the one-year limitations period set forth in Section 137(4)(b) of the State Finance Law.

20.3.6 The **Contractor** shall promptly forward to the **City** any notice or demand received pursuant to Article 20.3.4. The **Contractor** shall inform the **City** of any defenses to the notice or demand and shall forward to the **City** any documents the **City** requests concerning the notice or demand.

20.3.7 All demands made against the **City** by a beneficiary of this payment guarantee shall be presented to the **Engineer** along with all written documentation concerning the demand which the **Engineer** deems reasonably appropriate or necessary, which may include, but shall not be limited to: the subcontract; any invoices presented to the **Contractor** for payment; the notarized statement of the beneficiary that the demand is due and payable, that a request for payment has been made of the **Contractor** and that the demand has not been paid by the **Contractor** within the time allowed for such payment by the subcontract; and copies of any correspondence between the beneficiary and the **Contractor** concerning such demand. The **City** shall notify the **Contractor** that a demand has been made. The **Contractor** shall inform the **City** of any defenses to the demand and shall forward to the **City** any documents the **City** requests concerning the demand.

20.3.8 The **City** shall make payment only if, after considering all defenses presented by the **Contractor**, it determines that the payment is due and owing to the beneficiary making the demand.

20.3.9 No beneficiary shall be entitled to interest from the **City**, or to any other costs, including, but not limited to, attorneys' fees, except to the extent required by State Finance Law Section 137.

20.4 Upon the receipt by the **City** of a demand pursuant to this Article 20, the **City** may withhold from any payment otherwise due and owing to the **Contractor** under this **Contract** an amount sufficient to satisfy the demand.

20.4.1 In the event the **City** determines that the demand is valid, the **City** shall notify the **Contractor** of such determination and the amount thereof and direct the **Contractor** to immediately pay such amount to the beneficiary. In the event the **Contractor**, within seven (7) **Days** of receipt of such notification from the **City**, fails to pay the beneficiary, such failure shall constitute an automatic and irrevocable assignment of payment by the **Contractor** to the beneficiary for the amount of the demand determined by the **City** to be valid. The **Contractor**, without further notification or other process, hereby gives its unconditional consent to such assignment of payment to the beneficiary and authorizes the **City**, on its behalf, to take all necessary actions to implement such assignment of payment, including without limitation the execution of any instrument or documentation necessary to effectuate such assignment.

20.4.2In the event that the amount otherwise due and owing to the **Contractor** by the **City** is insufficient to satisfy such demand, the **City** may, at its option, require payment from the **Contractor** of an amount sufficient to cover such demand and exercise any other right to require or recover payment which the **City** may have under **Law** or **Contract**.

20.4.3 In the event the **City** determines that the demand is invalid, any amount withheld pending the **City**'s review of such demand shall be paid to the **Contractor**; provided, however, no lien has been filed. In the event a claim or an action has been filed, the terms and conditions set forth in Article 23 shall apply. In the event a lien has been filed, the parties will be governed by the provisions of the Lien Law of the State of New York.

20.5 The provisions of this Article 20 shall not prevent the **City** and the **Contractor** from resolving disputes in accordance with the **PPB** Rules, where applicable.

20.6 In the event the **City** determines that the beneficiary is entitled to payment pursuant to this Article 20, such determination and any defenses and counterclaims raised by the **Contractor** shall be taken into account in evaluating the **Contractor's** performance.

20.7 Nothing in this Article 20 shall relieve the **Contractor** of the obligation to pay the claims of all persons with valid and lawful claims against the **Contractor** relating to the **Work**.

20.8 The **Contractor** shall not require any performance, payment or other bonds of any **Subcontractor** if this **Contract** does not require such bonds of the **Contractor**.

20.9 The payment guarantee made pursuant to this Article 20 shall be construed in a manner consistent with Section 137 of the State Finance Law and shall afford to persons furnishing labor or materials to the **Contractor** or its **Subcontractors** in the prosecution of the **Work** under this **Contract** all of the rights and remedies afforded to such persons by such section, including but not limited to, the right to commence an action against the **City** on the payment guarantee provided by this Article 20 within the one-year limitations period set forth in Section 137(4)(b).

ARTICLE 21. RETAINED PERCENTAGE

21.1 If this **Contract** requires one hundred (100%) percent performance and payment security, then as further security for the faithful performance of this **Contract**, the **Commissioner** shall deduct, and

retain until the substantial completion of the **Work**, five (5%) percent of the value of **Work** certified for payment in each partial payment voucher.

21.2 If this **Contract** does not require one hundred (100%) percent performance and payment security and if the price for which this **Contract** was awarded does not exceed one million ($1,000,000) dollars, then as further security for the faithful performance of this **Contract**, the **Commissioner** shall deduct, and retain until the substantial completion of the **Work**, five (5%) percent of the value of **Work** certified for payment in each partial payment voucher.

21.3 If this **Contract** does not require one hundred (100%) percent performance and payment security and if the price for which this **Contract** was awarded exceeds one million ($1,000,000) dollars, then as further security for the faithful performance of this **Contract,** the **Commissioner** shall deduct, and retain until the substantial completion of the **Work**, up to ten (10%) percent of the value of **Work** certified for payment in each partial payment voucher. The percentage to be retained is set forth in Schedule A of the General Conditions.

ARTICLE 22. INSURANCE

22.1 Types of Insurance: The **Contractor** shall procure and maintain the following types of insurance if, and as indicated, in Schedule A of the General Conditions (with the minimum limits and special conditions specified in Schedule A). Such insurance shall be maintained from the date the **Contractor** is required to provide Proof of Insurance pursuant to Article 22.3.1 through the date of completion of all required **Work** (including punch list work as certified in writing by the **Resident Engineer**), except for insurance required pursuant to Article 22.1.4, which may terminate upon **Substantial Completion** of the **Contract**. All insurance shall meet the requirements set forth in this Article 22. Wherever this Article requires that insurance coverage be "at least as broad" as a specified form (including all ISO forms), there is no obligation that the form itself be used, provided that the **Contractor** can demonstrate that the alternative form or endorsement contained in its policy provides coverage at least as broad as the specified form.

22.1.1 Commercial General Liability Insurance: The **Contractor** shall provide Commercial General Liability Insurance covering claims for property damage and/or bodily injury, including death, which may arise from any of the operations under this **Contract**. Coverage under this insurance shall be at least as broad as that provided by the latest edition of Insurance Services Office ("ISO") Form CG 0001. Such insurance shall be "occurrence" based rather than "claims-made" and include, without limitation, the following types of coverage: premises operations; products and completed operations; contractual liability (including the tort liability of another assumed in a contract); broad form property damage; independent contractors; explosion, collapse and underground (XCU); construction means and methods; and incidental malpractice. Such insurance shall contain a "per project" aggregate limit, as specified in Schedule A, that applies separately to operations under this **Contract**.

22.1.1(a) Such Commercial General Liability Insurance shall name the **City** as an Additional Insured. Coverage for the City shall specifically include the **City's** officials and employees, be at least as broad as the latest edition of ISO Form CG 20 10 and provide completed operations coverage at least as broad as the latest edition of ISO Form CG 20 37.

22.1.1(b) Such Commercial General Liability Insurance shall name all other entities designated as additional insureds in Schedule A but only for claims arising from the

Contractor's operations under this **Contract**, with coverage at least as broad as the latest edition of ISO Form CG 20 26.

22.1.1(c) If the **Work** requires a permit from the Department of Buildings pursuant to 1 RCNY Section 101-08, the **Contractor** shall provide Commercial General Liability Insurance with limits of at least those required by 1 RCNY section 101-08 or greater limits required by the Agency in accordance with Schedule A. If the **Work** does not require such a permit, the minimum limits shall be those provided for in Schedule A.

22.1.1(d) If any of the **Work** includes repair of a waterborne vessel owned by or to be delivered to the **City**, such Commercial General Liability shall include, or be endorsed to include, Ship Repairer's Legal Liability Coverage to protect against, without limitation, liability arising from navigation of such vessels prior to delivery to and acceptance by the **City**.

22.1.2 Workers' Compensation Insurance, Employers' Liability Insurance, and Disability Benefits Insurance: The **Contractor** shall provide, and shall cause its **Subcontractors** to provide, Workers Compensation Insurance, Employers' Liability Insurance, and Disability Benefits Insurance in accordance with the **Laws** of the State of New York on behalf of all employees providing services under this **Contract** (except for those employees, if any, for which the **Laws** require insurance only pursuant to Article 22.1.3).

22.1.3 United States Longshoremen's and Harbor Workers Act and/or Jones Act Insurance: If specified in Schedule A of the General Conditions or if required by **Law**, the **Contractor** shall provide insurance in accordance with the United States Longshoremen's and Harbor Workers Act and/or the Jones Act, on behalf of all qualifying employees providing services under this **Contract**.

22.1.4 Builders Risk Insurance: If specified in Schedule A of the General Conditions, the **Contractor** shall provide Builders Risk Insurance on a completed value form for the total value of the **Work** through **Substantial Completion** of the **Work** in its entirety. Such insurance shall be provided on an All Risk basis and include coverage, without limitation, for windstorm (including named windstorm), storm surge, flood and earth movement. Unless waived by the **Commissioner**, it shall include coverage for ordinance and law, demolition and increased costs of construction, debris removal, pollutant clean up and removal, and expediting costs. Such insurance shall cover, without limitation, (a) all buildings and/or structures involved in the **Work**, as well as temporary structures at the **Site**, and (b) any property that is intended to become a permanent part of such building or structure, whether such property is on the **Site**, in transit or in temporary storage. Policies shall name the **Contractor** as Named Insured and list the **City** as both an Additional Insured and a Loss Payee as its interest may appear.

22.1.4(a) Policies of such insurance shall specify that, in the event a loss occurs at an occupied facility, occupancy of such facility is permitted without the consent of the issuing insurance company.

22.1.4(b) Such insurance may be provided through an Installation Floater, at the **Contractor's** option, if it otherwise conforms with the requirements of this Article 22.1.4.

22.1.5 Commercial Automobile Liability Insurance: The **Contractor** shall provide Commercial Automobile Liability Insurance for liability arising out of ownership,

maintenance or use of any owned (if any), non-owned and hired vehicles to be used in connection with this **Contract**. Coverage shall be at least as broad as the latest edition of ISO Form CA0001. If vehicles are used for transporting hazardous materials, the Automobile Liability Insurance shall be endorsed to provide pollution liability broadened coverage for covered vehicles (endorsement CA 99 48) as well as proof of MCS 90.

22.1.6 Contractors Pollution Liability Insurance: If specified in Schedule A of the General Conditions, the **Contractor** shall maintain, or cause the **Subcontractor** doing such **Work** to maintain, Contractors Pollution Liability Insurance covering bodily injury and property damage. Such insurance shall provide coverage for actual, alleged or threatened emission, discharge, dispersal, seepage, release or escape of pollutants (including asbestos), including any loss, cost or expense incurred as a result of any cleanup of pollutants (including asbestos) or in the investigation, settlement or defense of any claim, action, or proceedings arising from the operations under this **Contract**. Such insurance shall be in the **Contractor's** name and list the **City** as an Additional Insured and any other entity specified in Schedule A. Coverage shall include, without limitation, (a) loss of use of damaged property or of property that has not been physically injured, (b) transportation, and (c) non-owned disposal sites.

22.1.6(a) Coverage for the **City** as Additional Insured shall specifically include the **City's** officials and employees and be at least as broad as provided to the **Contractor** for this **Project**.

22.1.6(b) If such insurance is written on a claims-made policy, such policy shall have a retroactive date on or before the effective date of this **Contract**, and continuous coverage shall be maintained, or an extended discovery period exercised, for a period of not less than three (3) years from the time the **Work** under this **Contract** is completed.

22.1.7 Marine Insurance:

22.1.7(a) Marine Protection and Indemnity Insurance: If specified in Schedule A of the General Conditions or if the **Contractor** engages in marine operations in the execution of any part of the **Work**, the **Contractor** shall maintain, or cause the **Subcontractor** doing such Work to maintain, Marine Protection and Indemnity Insurance with coverage at least as broad as Form SP-23. The insurance shall provide coverage for the **Contractor** or **Subcontractor** (whichever is doing this **Work**) and for the **City** (together with its officials and employees) and any other entity specified in Schedule A as an Additional Insured for bodily injury and property damage arising from marine operations under this **Contract**. Coverage shall include, without limitation, injury or death of crew members (if not fully provided through other insurance), removal of wreck, damage to piers, wharves and other fixed or floating objects and loss of or damage to any other vessel or craft, or to property on such other vessel or craft.

22.1.7(b) Hull and Machinery Insurance: If specified in Schedule A of the General Conditions or if the **Contractor** engages in marine operations in the execution of any part of the **Work**, the **Contractor** shall maintain, or cause the **Subcontractor** doing such **Work** to maintain, Hull and Machinery Insurance with coverage for the **Contractor** or **Subcontractor** (whichever is doing this Work) and for the **City** (together with its officials and employees) as Additional Insured at least as broad as the latest edition of American Institute Tug Form for all tugs used under this

Contract and Collision Liability at least as broad as the latest edition of American Institute Hull Clauses.

22.1.7(c) Marine Pollution Liability Insurance: If specified in Schedule A of the General Conditions or if the **Contractor** engages in marine operations in the execution of any part of the **Work**, the **Contractor** shall maintain, or cause the **Subcontractor** doing such Work to maintain, Marine Pollution Liability Insurance covering itself (or the Subcontractor doing such Work) as Named Insured and the **City** (together with its officials and employees) and any other entity specified in Schedule A as an Additional Insured. Coverage shall be at least as broad as that provided by the latest edition of Water Quality Insurance Syndicate Form and include, without limitation, liability arising from the discharge or substantial threat of a discharge of oil, or from the release or threatened release of a hazardous substance including injury to, or economic losses resulting from, the destruction of or damage to real property, personal property or natural resources.

22.1.8 The **Contractor** shall provide such other types of insurance, at such minimum limits and with such conditions, as are specified in Schedule A of the General Conditions.

22.2 General Requirements for Insurance Coverage and Policies:

22.2.1 All required insurance policies shall be maintained with companies that may lawfully issue the required policy and have an A.M. Best rating of at least A-/VII or a Standard and Poor's rating of at least A, unless prior written approval is obtained from the **City** Corporation Counsel.

22.2.2 The **Contractor** shall be solely responsible for the payment of all premiums for all required policies and all deductibles and self-insured retentions to which such policies are subject, whether or not the **City** is an insured under the policy.

22.2.3 In his/her sole discretion, the **Commissioner** may, subject to the approval of the **Comptroller** and the **City** Corporation Counsel, accept Letters of Credit and/or custodial accounts in lieu of required insurance.

22.2.4 The **City's** limits of coverage for all types of insurance required pursuant to Schedule A of the General Conditions shall be the greater of (i) the minimum limits set forth in Schedule A or (ii) the limits provided to the **Contractor** as Named Insured under all primary, excess, and umbrella policies of that type of coverage.

22.2.5 The **Contractor** may satisfy its insurance obligations under this Article 22 through primary policies or a combination of primary and excess/umbrella policies, so long as all policies provide the scope of coverage required herein.

22.2.6 Policies of insurance provided pursuant to this Article 22 shall be primary and non-contributing to any insurance or self-insurance maintained by the **City**.

22.3 Proof of Insurance:

22.3.1 For all types of insurance required by Article 22.1 and Schedule A, except for insurance required by Articles 22.1.4 and 22.1.7, the **Contractor** shall file proof of insurance in accordance with this Article 22.3 within ten (10) **Days** of award. For insurance

provided pursuant to Articles 22.1.4 and 22.1.7, proof shall be filed by a date specified by the **Commissioner** or ten (10) **Days** prior to the commencement of the portion of the **Work** covered by such policy, whichever is earlier.

22.3.2 For Workers' Compensation Insurance provided pursuant to Article 22.1.2, the **Contractor** shall submit one of the following forms: C-105.2 Certificate of Workers' Compensation Insurance; U-26.3 - State Insurance Fund Certificate of Workers' Compensation Insurance; Request for WC/DB Exemption (Form CE-200); equivalent or successor forms used by the New York State Workers' Compensation Board; or other proof of insurance in a form acceptable to the **Commissioner**. For Disability Benefits Insurance provided pursuant to Article 22.1.2, the Contractor shall submit DB-120.1 - Certificate Of Insurance Coverage Under The NYS Disability Benefits Law, Request for WC/DB Exemption (Form CE-200); equivalent or successor forms used by the New York State Workers' Compensation Board; or other proof of insurance in a form acceptable to the **Commissioner**. ACORD forms are not acceptable.

22.3.3 For policies provided pursuant to all of Article 22.1 other than Article 22.1.2, the **Contractor** shall submit one or more Certificates of Insurance on forms acceptable to the **Commissioner**. All such Certificates of Insurance shall certify (a) the issuance and effectiveness of such policies of insurance, each with the specified minimum limits (b) for insurance secured pursuant to Article 22.1.1 that the **City** and any other entity specified in Schedule A is an Additional Insured thereunder; (c) in the event insurance is required pursuant to Article 22.1.6 and/or Article 22.1.7, that the City is an Additional Insured thereunder; (d) the company code issued to the insurance company by the National Association of Insurance Commissioners (the NAIC number); and (e) the number assigned to the **Contract** by the **City**. All such Certificates of Insurance shall be accompanied by either a duly executed "Certification by Insurance Broker or Agent" in the form contained in Part III of Schedule A or copies of all policies referenced in such Certificate of Insurance as certified by an authorized representative of the issuing insurance carrier. If any policy is not available at the time of submission, certified binders may be submitted until such time as the policy is available, at which time a certified copy of the policy shall be submitted.

22.3.4 Documentation confirming renewals of insurance shall be submitted to the **Commissioner** prior to the expiration date of coverage of policies required under this **Contract**. Such proofs of insurance shall comply with the requirements of Articles 22.3.2 and 22.3.3.

22.3.5 The **Contractor** shall be obligated to provide the **City** with a copy of any policy of insurance provided pursuant to this Article 22 upon the demand for such policy by the **Commissioner** or the **City** Corporation Counsel.

22.4 Operations of the **Contractor**:

22.4.1 The **Contractor** shall not commence the **Work** unless and until all required certificates have been submitted to and accepted by the **Commissioner**. Acceptance by the **Commissioner** of a certificate does not excuse the **Contractor** from securing insurance consistent with all provisions of this Article 22 or of any liability arising from its failure to do so.

22.4.2 The **Contractor** shall be responsible for providing continuous insurance coverage in the manner, form, and limits required by this **Contract** and shall be authorized to perform **Work** only during the effective period of all required coverage.

22.4.3 In the event that any of the required insurance policies lapse, are revoked, suspended or otherwise terminated, for whatever cause, the **Contractor** shall immediately stop all **Work**, and shall not recommence **Work** until authorized in writing to do so by the **Commissioner**. Upon quitting the **Site**, except as otherwise directed by the **Commissioner**, the **Contractor** shall leave all plant, materials, equipment, tools, and supplies on the **Site**. **Contract** time shall continue to run during such periods and no extensions of time will be granted. The **Commissioner** may also declare the **Contractor** in default for failure to maintain required insurance.

22.4.4 In the event the **Contractor** receives notice, from an insurance company or other person, that any insurance policy required under this Article 22 shall be cancelled or terminated (or has been cancelled or terminated) for any reason, the **Contractor** shall immediately forward a copy of such notice to both the **Commissioner** and the New York City Comptroller, attn: Office of Contract Administration, Municipal Building, One Centre Street, room 1005, New York, New York 10007. Notwithstanding the foregoing, the **Contractor** shall ensure that there is no interruption in any of the insurance coverage required under this Article 22.

22.4.5 Where notice of loss, damage, occurrence, accident, claim or suit is required under an insurance policy maintained in accordance with this Article 22, the **Contractor** shall notify in writing all insurance carriers that issued potentially responsive policies of any such event relating to any operations under this **Contract** (including notice to Commercial General Liability insurance carriers for events relating to the **Contractor**'s own employees) no later than 20 days after such event. For any policy where the **City** is an Additional Insured, such notice shall expressly specify that "this notice is being given on behalf of the City of New York as Insured as well as the Named Insured." Such notice shall also contain the following information: the number of the insurance policy, the name of the named insured, the date and location of the damage, occurrence, or accident, and the identity of the persons or things injured, damaged or lost. The **Contractor** shall simultaneously send a copy of such notice to the City of New York c/o Insurance Claims Specialist, Affirmative Litigation Division, New York City Law Department, 100 Church Street, New York, New York 10007.

22.4.6 In the event of any loss, accident, claim, action, or other event that does or can give rise to a claim under any insurance policy required under this Article 22, the **Contractor** shall at all times fully cooperate with the **City** with regard to such potential or actual claim.

22.5 **Subcontractor** Insurance: In the event the **Contractor** requires any **Subcontractor** to procure insurance with regard to any operations under this **Contract** and requires such **Subcontractor** to name the **Contractor** as an **Additional Insured** thereunder, the **Contractor** shall ensure that the **Subcontractor** name the **City**, including its officials and employees, as an Additional Insured with coverage at least as broad as the most recent edition of ISO Form CG 20 26.

22.6 Wherever reference is made in Article 7 or this Article 22 to documents to be sent to the **Commissioner** (e.g., notices, filings, or submissions), such documents shall be sent to the address set forth in Schedule A of the General Conditions. In the event no address is set forth in Schedule A, such documents are to be sent to the **Commissioner's** address as provided elsewhere in this **Contract**.

22.7 Apart from damages or losses covered by insurance provided pursuant to Articles 22.1.2, 22.1.3, or 22.1.5, the **Contractor** waives all rights against the **City**, including its officials and employees, for any damages or losses that are covered under any insurance required under this Article 22 (whether or

not such insurance is actually procured or claims are paid thereunder) or any other insurance applicable to the operations of the **Contractor** and/or its employees, agents, or **Subcontractors**.

22.8 In the event the **Contractor** utilizes a self-insurance program to satisfy any of the requirements of this Article 22, the **Contractor** shall ensure that any such self-insurance program provides the **City** with all rights that would be provided by traditional insurance under this Article 22, including but not limited to the defense and indemnification obligations that insurers are required to undertake in liability policies.

22.9 Materiality/Non-Waiver: The **Contractor's** failure to secure policies in complete conformity with this Article 22, or to give an insurance company timely notice of any sort required in this **Contract** or to do anything else required by this Article 22 shall constitute a material breach of this **Contract**. Such breach shall not be waived or otherwise excused by any action or inaction by the **City** at any time.

22.10 Pursuant to General Municipal Law Section 108, this **Contract** shall be void and of no effect unless **Contractor** maintains Workers' Compensation Insurance for the term of this **Contract** to the extent required and in compliance with the New York State Workers' Compensation Law.

22.11 Other Remedies: Insurance coverage provided pursuant to this Article 22 or otherwise shall not relieve the **Contractor** of any liability under this **Contract**, nor shall it preclude the **City** from exercising any rights or taking such other actions available to it under any other provisions of this **Contract** or **Law**.

ARTICLE 23. MONEY RETAINED AGAINST CLAIMS

23.1 If any claim shall be made by any person or entity (including **Other Contractors** with the **City** on this **Project**) against the **City** or against the **Contractor** and the **City** for any of the following:

(a) An alleged loss, damage, injury, theft or vandalism of any of the kinds referred to in Articles 7 and 12, plus the reasonable costs of defending the **City**, which in the opinion of the **Comptroller** may not be paid by an insurance company (for any reason whatsoever); or

(b) An infringement of copyrights, patents or use of patented articles, tools, etc., as referred to in Article 57; or

(c) Damage claimed to have been caused directly or indirectly by the failure of the **Contractor** to perform the **Work** in strict accordance with this **Contract,**

the amount of such claim, or so much thereof as the **Comptroller** may deem necessary, may be withheld by the **Comptroller**, as security against such claim, from any money due hereunder. The **Comptroller**, in his/her discretion, may permit the **Contractor** to substitute other satisfactory security in lieu of the monies so withheld.

23.2 If an action on such claim is timely commenced and the liability of the **City**, or the **Contractor**, or both, shall have been established therein by a final judgment of a court of competent jurisdiction, or if such claim shall have been admitted by the **Contractor** to be valid, the **Comptroller** shall pay such judgment or admitted claim out of the monies retained by the **Comptroller** under the provisions of this Article 23, and return the balance, if any, without interest, to the **Contractor**.

ARTICLE 24. MAINTENANCE AND GUARANTY

24.1 The **Contractor** shall promptly repair, replace, restore or rebuild, as the **Commissioner** may determine, any finished **Work** in which defects of materials or workmanship may appear or to which damage may occur because of such defects, during the one (1) year period subsequent to the date of **Substantial Completion** (or use and occupancy in accordance with Article 16), except where other periods of maintenance and guaranty are provided for in Schedule A.

24.2 As security for the faithful performance of its obligations hereunder, the **Contractor**, upon filing its requisition for payment on **Substantial Completion**, shall deposit with the **Commissioner** a sum equal to one (1%) percent of the price (or the amount fixed in Schedule A of the General Conditions) in cash or certified check upon a state or national bank and trust company or a check of such bank and trust company signed by a duly authorized officer thereof and drawn to the order of the **Comptroller**, or obligations of the **City**, which the **Comptroller** may approve as of equal value with the sum so required.

24.3 In lieu of the above, the **Contractor** may make such security payment to the **City** by authorizing the **Commissioner** in writing to deduct the amount from the **Substantial Completion** payment which shall be deemed the deposit required above.

24.4 If the **Contractor** has faithfully performed all of its obligations hereunder the **Commissioner** shall so certify to the **Comptroller** within five (5) **Days** after the expiration of one (1) year from the date of **Substantial Completion** and acceptance of the **Work** or within thirty (30) **Days** after the expiration of the guarantee period fixed in the **Specifications**. The security payment shall be repaid to the **Contractor** without interest within thirty (30) **Days** after certification by the **Commissioner** to the **Comptroller** that the **Contractor** has faithfully performed all of its obligations hereunder.

24.5 Notice by the **Commissioner** to the **Contractor** to repair, replace, rebuild or restore such defective or damaged **Work** shall be timely, pursuant to this article, if given not later than ten (10) **Days** subsequent to the expiration of the one (1) year period or other periods provided for herein.

24.6 If the **Contractor** shall fail to repair, replace, rebuild or restore such defective or damaged **Work** promptly after receiving such notice, the **Commissioner** shall have the right to have the **Work** done by others in the same manner as provided for in the completion of a defaulted **Contract**, under Article 51.

24.7 If the security payment so deposited is insufficient to cover the cost of such **Work**, the **Contractor** shall be liable to pay such deficiency on demand by the **Commissioner**.

24.8 The **Engineer's** certificate setting forth the fair and reasonable cost of repairing, replacing, rebuilding or restoring any damaged or defective **Work** when performed by one other than the **Contractor**, shall be binding and conclusive upon the **Contractor** as to the amount thereof.

24.9 The **Contractor** shall obtain all manufacturers' warranties and guaranties of all equipment and materials required by this **Contract** in the name of the **City** and shall deliver same to the **Commissioner**. All of the **City's** rights and title and interest in and to said manufacturers' warranties and guaranties may be assigned by the **City** to any subsequent purchasers of such equipment and materials or lessees of the premises into which the equipment and materials have been installed.

CHAPTER VI: CHANGES, EXTRA WORK, AND DOCUMENTATION OF CLAIM

ARTICLE 25. CHANGES

25.1 Changes may be made to this **Contract** only as duly authorized in writing by the **Commissioner** in accordance with the **Law** and this **Contract**. All such changes, modifications, and amendments will become a part of the **Contract**. **Work** so ordered shall be performed by the **Contractor**.

25.2 **Contract** changes will be made only for **Work** necessary to complete the **Work** included in the original scope of the **Contract** and/or for non-material changes to the scope of the **Contract**. Changes are not permitted for any material alteration in the scope of **Work** in the **Contract**.

25.3 The **Contractor** shall be entitled to a price adjustment for **Extra Work** performed pursuant to a written change order. Adjustments to price shall be computed in one or more of the following ways:

25.3.1 By applicable unit prices specified in the **Contract**; and/or

25.3.2 By agreement of a fixed price; and/or

25.3.3 By time and material records; and/or

25.3.4 In any other manner approved by the **CCPO**.

25.4 All payments for change orders are subject to pre-audit by the **Engineering Audit Officer** and may be post-audited by the **Comptroller** and/or the **Agency**.

ARTICLE 26. METHODS OF PAYMENT FOR OVERRUNS AND EXTRA WORK

26.1 Overrun of Unit Price Item: An overrun is any quantity of a unit price item which the **Contractor** is directed to provide which is in excess of one hundred twenty-five (125%) percent of the estimated quantity for that item set forth in the bid schedule.

26.1.1For any unit price item, the **Contractor** will be paid at the unit price bid for any quantity up to one hundred twenty-five (125%) percent of the estimated quantity for that item set forth in the bid schedule. If during the progress of the **Work**, the actual quantity of any unit price item required to complete the **Work** approaches the estimated quantity for that item, and for any reason it appears that the actual quantity of any unit price item necessary to complete the **Work** will exceed the estimated quantity for that item by twenty-five (25%) percent, the **Contractor** shall immediately notify the **Engineer** of such anticipated overrun. The **Contractor** shall not be compensated for any quantity of a unit price item provided which is in excess of one hundred twenty-five (125%) percent of the estimated quantity for that item set forth in the bid schedule without written authorization from the **Engineer**.

26.1.2 If the actual quantity of any unit price item necessary to complete the **Work** will exceed one hundred twenty five (125%) percent of the estimated quantity for that item set forth in the bid schedule, the **City** reserves the right and the **Contractor** agrees to negotiate a new unit price for such item. In no event shall such negotiated new unit price exceed the unit bid price. If the **City** and **Contractor** cannot agree on a new unit price, then the **City** shall order the **Contractor** and the **Contractor** agrees to provide additional quantities of

the item on the basis of time and material records for the actual and reasonable cost as determined under Article 26.2, but in no event at a unit price exceeding the unit price bid.

26.2 **Extra Work:** For **Extra Work** where payment is by agreement on a fixed price in accordance with Article 25.3.2, the price to be paid for such **Extra Work** shall be based on the fair and reasonable estimated cost of the items set forth below. For **Extra Work** where payment is based on time and material records in accordance with Article 25.3.3, the price to be paid for such **Extra Work** shall be the actual and reasonable cost of the items set forth below, calculated in accordance with the formula specified therein, if any.

26.2.1 Necessary materials (including transportation to the **Site**); plus

26.2.2 Necessary direct labor, including payroll taxes (subject to statutory wage caps) and supplemental benefits; plus

26.2.3 Sales and personal property taxes, if any, required to be paid on materials not incorporated into such **Extra Work**; plus

26.2.4 Reasonable rental value of **Contractor**-owned (or **Subcontractor**-owned, as applicable), necessary plant and equipment other than **Small Tools**, plus fuel/energy costs. Except for fuel costs for pick-up trucks which shall be reimbursed based on a consumption of five (5) gallons per shift, fuel costs shall be reimbursed based on actual costs or, in the absence of auditable documentation, the following fuel consumption formula per operating hour: (.035) x (HP rating) x (Fuel cost/gallon). Reasonable rental value is defined as the lower of either seventy-five percent of the monthly prorated rental rates established in "The AED Green Book, Rental Rates and Specifications for Construction Equipment" published by Equipment Watch (the "Green Book"), or seventy-five percent of the monthly prorated rental rates established in the "Rental Rate Blue Book for Construction Equipment" published by Equipment Watch (the "Blue Book") (the applicable Blue Book rate being for rental only without the addition of any operational costs listed in the Blue Book). The reasonable rental value is deemed to be inclusive of all operating costs except for fuel/energy consumption and equipment operator's wages/costs. For multiple shift utilization, reimbursement shall be calculated as follows: first shift shall be seventy-five (75%) percent of such rental rates; second shift shall be sixty (60%) percent of the first shift rate; and third shift shall be forty (40%) percent of the first shift rate. Equipment on standby shall be reimbursed at one-third (1/3) the prorated monthly rental rate. **Contractor**-owned (or **Subcontractor**-owned, as applicable) equipment includes equipment from rental companies affiliated with or controlled by the **Contractor** (or **Subcontractor**, as applicable), as determined by the **Commissioner**. In establishing cost reimbursement for non-operating **Contractor**-owned (or **Subcontractor**-owned, as applicable) equipment (scaffolding, sheeting systems, road plates, etc.), the **City** may restrict reimbursement to a purchase-salvage/life cycle basis if less than the computed rental costs; plus

26.2.5 Necessary installation and dismantling of such plant and equipment, including transportation to and from the **Site**, if any, provided that, in the case of non-**Contractor**-owned (or non-**Subcontractor**-owned, as applicable) equipment rented from a third party, the cost of installation and dismantling are not allowable if such costs are included in the rental rate; plus

26.2.6 Necessary fees charged by governmental entities; plus

26.2.7 Necessary construction-related service fees charged by non-governmental entities, such as landfill tipping fees; plus

26.2.8 Reasonable rental costs of non-**Contractor**-owned (or non-**Subcontractor**-owned, as applicable) necessary plant and equipment other than **Small Tools**, plus fuel/energy costs. Except for fuel costs for pick-up trucks which shall be reimbursed based on a consumption of five (5) gallons per shift, fuel costs shall be reimbursed based on actual costs or, in the absence of auditable documentation, the following fuel consumption formula per hour of operation: (.035) x (HP rating) x (Fuel cost/gallon). In lieu of renting, the **City** reserves the right to direct the purchase of non-operating equipment (scaffolding, sheeting systems, road plates, etc.), with payment on a purchase-salvage/life cycle basis, if less than the projected rental costs; plus

26.2.9 Workers' Compensation Insurance, and any insurance coverage expressly required by the **City** for the performance of the **Extra Work** which is different than the types of insurance required by Article 22 and Schedule A of the General Conditions. The cost of Workers' Compensation Insurance is subject to applicable payroll limitation caps and shall be based upon the carrier's Manual Rate for such insurance derived from the applicable class Loss Cost ("LC") and carrier's Lost Cost Multiplier ("LCM") approved by the New York State Department of Financial Services, and with the exception of experience rating, rate modifiers as promulgated by the New York Compensation Insurance Rating Board ("NYCIRB"); plus

26.2.10 Additional costs incurred as a result of the **Extra Work** for performance and payment bonds; plus

26.2.11 Twelve percent (12%) percent of the total of items in Articles 26.2.1 through 26.2.5 as compensation for overhead, except that no percentage for overhead will be allowed on **Payroll Taxes** or on the premium portion of overtime pay or on sales and personal property taxes. Overhead shall include without limitation, all costs and expenses in connection with administration, management superintendence, small tools, and insurance required by Schedule A of the General Conditions other than Workers' Compensation Insurance; plus

26.2.12 Ten (10%) percent of the total of items in Articles 26.2.1 through 26.2.5, plus the items in Article 26.2.11, as compensation for profit, except that no percentage for profit will be allowed on **Payroll Taxes** or on the premium portion of overtime pay or on sales and personal property taxes; plus

26.2.13 Five (5%) percent of the total of items in Articles 26.2.6 through 26.2.10 as compensation for overhead and profit.

26.3 Where the **Extra Work** is performed in whole or in part by other than the **Contractor's** own forces pursuant to Article 26.2, the **Contractor** shall be paid, subject to pre-audit by the **Engineering Audit Officer**, the cost of such **Work** computed in accordance with Article 26.2 above, plus an additional allowance of five (5%) percent to cover the **Contractor's** overhead and profit.

26.4 Where a change is ordered, involving both **Extra Work** and omitted or reduced **Contract Work,** the **Contract** price shall be adjusted, subject to pre-audit by the **EAO**, in an amount based on the difference between the cost of such **Extra Work** and of the omitted or reduced **Work**.

26.5 Where the **Contractor** and the **Commissioner** can agree upon a fixed price for **Extra Work** in accordance with Article 25.3.2 or another method of payment for **Extra Work** in accordance with

Article 25.3.4, or for **Extra Work** ordered in connection with omitted **Work**, such method, subject to pre-audit by the **EAO**, may, at the option of the **Commissioner**, be substituted for the cost plus a percentage method provided in Article 26.2; provided, however, that if the **Extra Work** is performed by a **Subcontractor**, the **Contractor** shall not be entitled to receive more than an additional allowance of five (5%) percent for overhead and profit over the cost of such **Subcontractor's Work** as computed in accordance with Article 26.2.

ARTICLE 27. RESOLUTION OF DISPUTES

27.1 All disputes between the **City** and the **Contractor** of the kind delineated in this Article 27.1 that arise under, or by virtue of, this **Contract** shall be finally resolved in accordance with the provisions of this Article 27 and the **PPB** Rules. This procedure for resolving all disputes of the kind delineated herein shall be the exclusive means of resolving any such disputes.

27.1.1 This Article 27 shall not apply to disputes concerning matters dealt with in other sections of the **PPB** Rules, or to disputes involving patents, copyrights, trademarks, or trade secrets (as interpreted by the courts of New York State) relating to proprietary rights in computer software.

27.1.2 This Article 27 shall apply only to disputes about the scope of **Work** delineated by the **Contract**, the interpretation of **Contract** documents, the amount to be paid for **Extra Work** or disputed work performed in connection with the **Contract**, the conformity of the **Contractor's Work** to the **Contract**, and the acceptability and quality of the **Contractor's Work**; such disputes arise when the **Engineer**, **Resident Engineer**, **Engineering Audit Officer**, or other designee of the **Commissioner** makes a determination with which the **Contractor** disagrees.

27.2 All determinations required by this Article 27 shall be made in writing clearly stated, with a reasoned explanation for the determination based on the information and evidence presented to the party making the determination. Failure to make such determination within the time required by this Article 27 shall be deemed a non-determination without prejudice that will allow application to the next level.

27.3 During such time as any dispute is being presented, heard, and considered pursuant to this Article 27, the **Contract** terms shall remain in force and the **Contractor** shall continue to perform **Work** as directed by the **ACCO** or the **Engineer**. Failure of the **Contractor** to continue **Work** as directed shall constitute a waiver by the **Contractor** of its claim.

27.4 Presentation of Disputes to **Commissioner**.

Notice of Dispute and Agency Response. The **Contractor** shall present its dispute in writing ("Notice of Dispute") to the **Commissioner** within thirty (30) Days of receiving written notice of the determination or action that is the subject of the dispute. This notice requirement shall not be read to replace any other notice requirements contained in the **Contract**. The Notice of Dispute shall include all the facts, evidence, documents, or other basis upon which the **Contractor** relies in support of its position, as well as a detailed computation demonstrating how any amount of money claimed by the **Contractor** in the dispute was arrived at. Within thirty (30) Days after receipt of the detailed written submission comprising the complete Notice of Dispute, the **Engineer**, **Resident Engineer**, **Engineering Audit Officer**, or other designee of the **Commissioner** shall submit to the **Commissioner** all materials he or she deems pertinent to the dispute. Following initial submissions to the **Commissioner**, either party may demand of the other the production of any document or other material the demanding party believes may be relevant to the dispute. The requested party shall produce all relevant materials that are not otherwise

protected by a legal privilege recognized by the courts of New York State. Any question of relevancy shall be determined by the **Commissioner** whose decision shall be final. Willful failure of the **Contractor** to produce any requested material whose relevancy the **Contractor** has not disputed, or whose relevancy has been affirmatively determined, shall constitute a waiver by the **Contractor** of its claim.

27.4.1 **Commissioner** Inquiry. The **Commissioner** shall examine the material and may, in his or her discretion, convene an informal conference with the **Contractor**, the **ACCO**, and the **Engineer**, **Resident Engineer**, **Engineering Audit Officer**, or other designee of the **Commissioner** to resolve the issue by mutual consent prior to reaching a determination. The **Commissioner** may seek such technical or other expertise as he or she shall deem appropriate, including the use of neutral mediators, and require any such additional material from either or both parties as he or she deems fit. The **Commissioner's** ability to render, and the effect of, a decision hereunder shall not be impaired by any negotiations in connection with the dispute presented, whether or not the **Commissioner** participated therein. The **Commissioner** may or, at the request of any party to the dispute, shall compel the participation of any **Other Contractor** with a contract related to the **Work** of this **Contract**, and that **Contractor** shall be bound by the decision of the **Commissioner**. Any **Other Contractor** thus brought into the dispute resolution proceeding shall have the same rights and obligations under this Article 27 as the **Contractor** initiating the dispute.

27.4.2 **Commissioner** Determination. Within thirty (30) **Days** after the receipt of all materials and information, or such longer time as may be agreed to by the parties, the **Commissioner** shall make his or her determination and shall deliver or send a copy of such determination to the **Contractor**, the **ACCO,** and **Engineer**, **Resident Engineer**, **Engineering Audit Officer**, or other designee of the **Commissioner**, as applicable, together with a statement concerning how the decision may be appealed.

27.4.3 Finality of **Commissioner's** Decision. The **Commissioner's** decision shall be final and binding on all parties, unless presented to the Contract Dispute Resolution Board pursuant to this Article 27. The **City** may not take a petition to the Contract Dispute Resolution Board. However, should the **Contractor** take such a petition, the **City** may seek, and the Contract Dispute Resolution Board may render, a determination less favorable to the **Contractor** and more favorable to the **City** than the decision of the **Commissioner**.

27.5 Presentation of Dispute to the **Comptroller**. Before any dispute may be brought by the **Contractor** to the Contract Dispute Resolution Board, the **Contractor** must first present its claim to the **Comptroller** for his or her review, investigation, and possible adjustment.

27.5.1 Time, Form, and Content of Notice. Within thirty (30) **Days** of its receipt of a decision by the **Commissioner,** the **Contractor** shall submit to the **Comptroller** and to the **Commissioner** a Notice of Claim regarding its dispute with the **Agency**. The Notice of Claim shall consist of (i) a brief written statement of the substance of the dispute, the amount of money, if any, claimed and the reason(s) the **Contractor** contends the dispute was wrongly decided by the **Commissioner**; (ii) a copy of the written decision of the **Commissioner**; and (iii) a copy of all materials submitted by the **Contractor** to the **Agency**, including the Notice of Dispute. The **Contractor** may not present to the **Comptroller** any material not presented to the **Commissioner**, except at the request of the **Comptroller**.

27.5.2 Response. Within thirty (30) **Days** of receipt of the Notice of Claim, the **Agency** shall make available to the **Comptroller** a copy of all material submitted by the **Agency** to the **Commissioner** in connection with the dispute. The **Agency** may not present to the **Comptroller** any material not presented to the **Commissioner** except at the request of the **Comptroller**.

27.5.3 **Comptroller** Investigation. The **Comptroller** may investigate the claim in dispute and, in the course of such investigation, may exercise all powers provided in Sections 7-201 and 7-203 of the Administrative Code. In addition, the **Comptroller** may demand of either party, and such party shall provide, whatever additional material the **Comptroller** deems pertinent to the claim, including original business records of the **Contractor**. Willful failure of the **Contractor** to produce within fifteen (15) **Days** any material requested by the **Comptroller** shall constitute a waiver by the **Contractor** of its claim. The **Comptroller** may also schedule an informal conference to be attended by the **Contractor**, **Agency** representatives, and any other personnel desired by the **Comptroller**.

27.5.4 Opportunity of **Comptroller** to Compromise or Adjust Claim. The **Comptroller** shall have forty-five (45) **Days** from his or her receipt of all materials referred to in Article 27.5.3 to investigate the disputed claim. The period for investigation and compromise may be further extended by agreement between the **Contractor** and the **Comptroller**, to a maximum of ninety (90) **Days** from the **Comptroller's** receipt of all materials. The **Contractor** may not present its petition to the Contract Dispute Resolution Board until the period for investigation and compromise delineated in this Article 27.5.4 has expired. In compromising or adjusting any claim hereunder, the **Comptroller** may not revise or disregard the terms of the **Contract** between the parties.

27.6 Contract Dispute Resolution Board. There shall be a Contract Dispute Resolution Board composed of:

27.6.1 The chief administrative law judge of the Office of Administrative Trials and Hearings (OATH) or his/her designated OATH administrative law judge, who shall act as chairperson, and may adopt operational procedures and issue such orders consistent with this Article 27 as may be necessary in the execution of the Contract Dispute Resolution Board's functions, including, but not limited to, granting extensions of time to present or respond to submissions;

27.6.2 The **CCPO** or his/her designee; any designee shall have the requisite background to consider and resolve the merits of the dispute and shall not have participated personally and substantially in the particular matter that is the subject of the dispute or report to anyone who so participated; and

27.6.3 A person with appropriate expertise who is not an employee of the **City**. This person shall be selected by the presiding administrative law judge from a prequalified panel of individuals, established and administered by OATH with appropriate background to act as decision-makers in a dispute. Such individual may not have a contract or dispute with the **City** or be an officer or employee of any company or organization that does, or regularly represents persons, companies, or organizations having disputes with the **City**.

27.7 Petition to the Contract Dispute Resolution Board. In the event the claim has not been settled or adjusted by the **Comptroller** within the period provided in this Article 27, the **Contractor**,

within thirty (30) **Days** thereafter, may petition the Contract Dispute Resolution Board to review the **Commissioner's** determination.

27.7.1 Form and Content of Petition by **Contractor**. The **Contractor** shall present its dispute to the Contract Dispute Resolution Board in the form of a petition, which shall include (i) a brief written statement of the substance of the dispute, the amount of money, if any, claimed, and the reason(s) the **Contractor** contends the dispute was wrongly decided by the **Commissioner**; (ii) a copy of the written Decision of the **Commissioner,** (iii) copies of all materials submitted by the **Contractor** to the Agency; (iv) a copy of the written decision of the **Comptroller**, if any, and (v) copies of all correspondence with, or written material submitted by the **Contractor**, to the **Comptroller**. The **Contractor** shall concurrently submit four (4) complete sets of the Petition: one set to the **City** Corporation Counsel (Attn: Commercial and Real Estate Litigation Division) and three (3) sets to the Contract Dispute Resolution Board at OATH's offices with proof of service on the **City** Corporation Counsel. In addition, the **Contractor** shall submit a copy of the written statement of the substance of the dispute, cited in (i) above, to both the **Commissioner** and the **Comptroller**.

27.7.2 **Agency** Response. Within thirty (30) **Days** of its receipt of the Petition by the **City** Corporation Counsel, the **Agency** shall respond to the brief written statement of the **Contractor** and make available to the Contract Dispute Resolution Board all material it submitted to the **Commissioner** and **Comptroller**. Three (3) complete copies of the **Agency** response shall be provided to the Contract Dispute Resolution Board and one to the **Contractor**. Extensions of time for submittal of the **Agency** response shall be given as necessary upon a showing of good cause or, upon consent of the parties, for an initial period of up to thirty (30) Days.

27.7.3 Further Proceedings. The Contract Dispute Resolution Board shall permit the **Contractor** to present its case by submission of memoranda, briefs, and oral argument. The Contract Dispute Resolution Board shall also permit the **Agency** to present its case in response to the **Contractor** by submission of memoranda, briefs, and oral argument. If requested by the **City** Corporation Counsel, the **Comptroller** shall provide reasonable assistance in the preparation of the **Agency's** case. Neither the **Contractor** nor the **Agency** may support its case with any documentation or other material that was not considered by the **Comptroller**, unless requested by the Contract Dispute Resolution Board. The Contract Dispute Resolution Board, in its discretion, may seek such technical or other expert advice as it shall deem appropriate and may seek, on its own or upon application of a party, any such additional material from any party as it deems fit. The Contract Dispute Resolution Board, in its discretion, may combine more than one dispute between the parties for concurrent resolution.

27.7.4 Contract Dispute Resolution Board Determination. Within forty-five (45) **Days** of the conclusion of all written submissions and oral arguments, the Contract Dispute Resolution Board shall render a written decision resolving the dispute. In an unusually complex case, the Contract Dispute Resolution Board may render its decision in a longer period, not to exceed ninety (90) **Days**, and shall so advise the parties at the commencement of this period. The Contract Dispute Resolution Board's decision must be consistent with the terms of the **Contract**. Decisions of the Contract Dispute Resolution Board shall only resolve matters before the Contract Dispute Resolution Board and shall not have precedential effect with respect to matters not before the Contract Dispute Resolution Board.

27.7.5 Notification of Contract Dispute Resolution Board Decision. The Contract Dispute Resolution Board shall send a copy of its decision to the **Contractor**, the **ACCO**, the Engineer, the **Comptroller**, the **City** Corporation Counsel, the CCPO, and the **PPB**. A decision in favor of the **Contractor** shall be subject to the prompt payment provisions of the **PPB** Rules. The Required Payment Date shall be thirty (30) Days after the date the parties are formally notified of the Contract Dispute Resolution Board's decision.

27.7.6 Finality of Contract Dispute Resolution Board Decision. The Contract Dispute Resolution Board's decision shall be final and binding on all parties. Any party may seek review of the Contract Dispute Resolution Board's decision solely in the form of a challenge, filed within four (4) months of the date of the Contract Dispute Resolution Board's decision, in a court of competent jurisdiction of the State of New York, County of New York pursuant to Article 78 of the Civil Practice Law and Rules. Such review by the court shall be limited to the question of whether or not the Contract Dispute Resolution Board's decision was made in violation of lawful procedure, was affected by an error of **Law**, or was arbitrary and capricious or an abuse of discretion. No evidence or information shall be introduced or relied upon in such proceeding that was not presented to the Contract Dispute Resolution Board in accordance with this Article 27.

27.8 Any termination, cancellation, or alleged breach of the **Contract** prior to or during the pendency of any proceedings pursuant to this Article 27 shall not affect or impair the ability of the **Commissioner** or Contract Dispute Resolution Board to make a binding and final decision pursuant to this Article 27.

ARTICLE 28. RECORD KEEPING FOR EXTRA OR DISPUTED WORK OR WORK ON A TIME & MATERIALS BASIS

28.1 While the **Contractor** or any of its **Subcontractors** is performing **Work** on a time and material basis or **Extra Work** on a time and material basis ordered by the **Commissioner** under Article 25, or where the **Contractor** believes that it or any of its **Subcontractors** is performing **Extra Work** but a final determination by **Agency** has not been made, or the **Contractor** or any of its **Subcontractors** is performing disputed **Work** (whether on or off the **Site**), or complying with a determination or order under protest in accordance with Articles 11, 27, and 30, in each such case the **Contractor** shall furnish the **Resident Engineer** daily with three (3) copies of written statements signed by the **Contractor's** representative at the **Site** showing:

28.1.1 The name, trade, and number of each worker employed on such **Work** or engaged in complying with such determination or order, the number of hours employed, and the character of the **Work** each is doing; and

28.1.2 The nature and quantity of any materials, plant and equipment furnished or used in connection with the performance of such **Work** or compliance with such determination or order, and from whom purchased or rented.

28.2 A copy of such statement will be countersigned by the **Resident Engineer**, noting thereon any items not agreed to or questioned, and will be returned to the **Contractor** within two (2) **Days** after submission.

28.3 The **Contractor** and its **Subcontractors**, when required by the **Commissioner**, or the **Comptroller**, shall also produce for inspection, at the office of the **Contractor** or **Subcontractor**, any and all of its books, bid documents, financial statements, vouchers, records, daily job diaries and reports,

and cancelled checks, and any other documents relating to showing the nature and quantity of the labor, materials, plant and equipment actually used in the performance of such **Work**, or in complying with such determination or order, and the amounts expended therefor, and shall permit the **Commissioner** and the **Comptroller** to make such extracts therefrom, or copies thereof, as they or either of them may desire.

28.4 In connection with the examination provided for herein, the **Commissioner**, upon demand therefor, will produce for inspection by the **Contractor** such records as the **Agency** may have with respect to such **Extra Work** or disputed **Work** performed under protest pursuant to order of the **Commissioner**, except those records and reports which may have been prepared for the purpose of determining the accuracy and validity of the **Contractor's** claim.

28.5 Failure to comply strictly with these requirements shall constitute a waiver of any claim for extra compensation or damages on account of the performance of such **Work** or compliance with such determination or order.

ARTICLE 29. OMITTED WORK

29.1 If any **Contract Work** in a lump sum **Contract**, or if any part of a lump sum item in a unit price, lump sum, or percentage-bid **Contract** is omitted by the **Commissioner** pursuant to Article 33, the **Contract** price, subject to audit by the EAO, shall be reduced by a pro rata portion of the lump sum bid amount based upon the percent of **Work** omitted subject to Article 29.4. For the purpose of determining the pro rata portion of the lump sum bid amount, the bid breakdown submitted in accordance with Article 41 shall be considered, but shall not be the determining factor.

29.2 If the whole of a lump sum item or units of any other item is so omitted by the **Commissioner** in a unit price, lump sum, or percentage-bid **Contract**, then no payment will be made therefor except as provided in Article 29.4.

29.3 For units that have been ordered but are only partially completed, the unit price shall be reduced by a pro rata portion of the unit price bid based upon the percentage of **Work** omitted subject to Article 29.4.

29.4 In the event the **Contractor**, with respect to any omitted **Work**, has purchased any non-cancelable material and/or equipment that is not capable of use except in the performance of this **Contract** and has been specifically fabricated for the sole purpose of this **Contract**, but not yet incorporated into the **Work**, the **Contractor** shall be paid for such material and/or equipment in accordance with Article 64.2.1(b); provided, however, such payment is contingent upon the **Contractor's** delivery of such material and/or equipment in acceptable condition to a location designated by the **City**.

29.5 The **Contractor** agrees to make no claim for damages or for loss of overhead and profit with regard to any omitted **Work**.

ARTICLE 30. NOTICE AND DOCUMENTATION OF COSTS AND DAMAGES; PRODUCTION OF FINANCIAL RECORDS

30.1 If the **Contractor** shall claim to be sustaining damages by reason of any act or omission of the **City** or its agents, it shall submit to the **Commissioner** within forty-five (45) **Days** from the time such damages are first incurred, and every thirty (30) **Days** thereafter to the extent additional damages are being incurred for the same condition, verified statements of the details and the amounts of such

damages, together with documentary evidence of such damages. The **Contractor** may submit any of the above statements within such additional time as may be granted by the **Commissioner** in writing upon written request therefor. Failure of the **Commissioner** to respond in writing to a written request for additional time within thirty (30) **Days** shall be deemed a denial of the request. On failure of the **Contractor** to strictly comply with the foregoing provisions, such claims shall be deemed waived and no right to recover on such claims shall exist. Damages that the **Contractor** may claim in any action or dispute resolution procedure arising under or by reason of this **Contract** shall not be different from or in excess of the statements and documentation made pursuant to this Article 30. This Article 30.1 does not apply to claims submitted to the **Commissioner** pursuant to Article 11 or to claims disputing a determination under Article 27.

30.2 In addition to the foregoing statements, the **Contractor** shall, upon notice from the **Commissioner**, produce for examination at the **Contractor's** office, by the **Engineer**, **Architect** or **Project Manager**, all of its books of account, bills, invoices, payrolls, subcontracts, time books, daily reports, bank deposit books, bank statements, check books, and cancelled checks, showing all of its acts and transactions in connection with or relating to or arising by reason of this **Contract**, and submit itself and persons in its employment, for examination under oath by any person designated by the **Commissioner** or **Comptroller** to investigate claims made or disputes against the **City** under this **Contract**. At such examination, a duly authorized representative of the **Contractor** may be present.

30.3 In addition to the statements required under Article 28 and this Article 30, the **Contractor** and/or its **Subcontractor** shall, within thirty (30) **Days** upon notice from the **Commissioner** or **Comptroller**, produce for examination at the **Contractor's** and/or **Subcontractor's** office, by a representative of either the **Commissioner** or **Comptroller**, all of its books of account, bid documents, financial statements, accountant workpapers, bills, invoices, payrolls, subcontracts, time books, daily reports, bank deposit books, bank statements, check books, and cancelled checks, showing all of its acts and transactions in connection with or relating to or arising by reason of this **Contract**. Further, the **Contractor** and/or its **Subcontractor** shall submit any person in its employment, for examination under oath by any person designated by the **Commissioner** or **Comptroller** to investigate claims made or disputes against the **City** under this **Contract**. At such examination, a duly authorized representative of the **Contractor** may be present.

30.4 Unless the information and examination required under Article 30.3 is provided by the **Contractor** and/or its **Subcontractor** upon thirty (30) **Days'** notice from the **Commissioner** or **Comptroller**, or upon the **Commissioner's** or **Comptroller's** written authorization to extend the time to comply, the **City** shall be released from all claims arising under, relating to or by reason of this **Contract**, except for sums certified by the **Commissioner** to be due under the provisions of this **Contract**. It is further stipulated and agreed that no person has the power to waive any of the foregoing provisions and that in any action or dispute resolution procedure against the **City** to recover any sum in excess of the sums certified by the **Commissioner** to be due under or by reason of this **Contract**, the **Contractor** must allege in its complaint and prove, at trial or during such dispute resolution procedure, compliance with the provisions of this Article 30.

30.5 In addition, after the commencement of any action or dispute resolution procedure by the **Contractor** arising under or by reason of this **Contract**, the **City** shall have the right to require the **Contractor** to produce for examination under oath, up until the trial of the action or hearing before the Contract Dispute Resolution Board, the books and documents described in Article 30.3 and submit itself and all persons in its employ for examination under oath. If this Article 30 is not complied with as required, then the **Contractor** hereby consents to the dismissal of the action or dispute resolution procedure.

CHAPTER VII: POWERS OF THE RESIDENT ENGINEER,THE ENGINEER OR ARCHITECT AND THE COMMISSIONER

ARTICLE 31. THE RESIDENT ENGINEER

31.1 The **Resident Engineer** shall have the power to inspect, supervise, and control the performance of the **Work**, subject to review by the **Commissioner**. The **Resident Engineer** shall not, however, have the power to issue an **Extra Work** order, except as specifically designated in writing by the **Commissioner**.

ARTICLE 32. THE ENGINEER OR ARCHITECT OR PROJECT MANAGER

32.1 The **Engineer** or **Architect** or **Project Manager**, in addition to those matters elsewhere herein delegated to the **Engineer** and expressly made subject to his/her determination, direction or approval, shall have the power, subject to review by the **Commissioner**:

32.1.1 To determine the amount, quality, and location of the **Work** to be paid for hereunder; and

32.1.2 To determine all questions in relation to the **Work**, to interpret the **Contract Drawings**, **Specifications**, and **Addenda**, and to resolve all patent inconsistencies or ambiguities therein; and

32.1.3 To determine how the **Work** of this **Contract** shall be coordinated with **Work** of **Other Contractors** engaged simultaneously on this **Project**, including the power to suspend any part of the **Work**, but not the whole thereof; and

32.1.4 To make minor changes in the **Work** as he/she deems necessary, provided such changes do not result in a net change in the cost to the **City** or to the **Contractor** of the **Work** to be done under the **Contract**; and

32.1.5 To amplify the **Contract Drawings**, add explanatory information and furnish additional **Specifications** and drawings, consistent with this **Contract**.

32.2 The foregoing enumeration shall not imply any limitation upon the power of the **Engineer** or **Architect** or **Project Manager**, for it is the intent of this **Contract** that all of the **Work** shall generally be subject to his/her determination, direction, and approval, except where the determination, direction or approval of someone other than the **Engineer** or **Architect** or **Project Manager** is expressly called for herein.

32.3 The **Engineer** or **Architect** or **Project Manager** shall not, however, have the power to issue an **Extra Work** order, except as specifically designated in writing by the **Commissioner**.

ARTICLE 33. THE COMMISSIONER

33.1 The **Commissioner**, in addition to those matters elsewhere herein expressly made subject to his/her determination, direction or approval, shall have the power:

33.1.1 To review and make determinations on any and all questions in relation to this **Contract** and its performance; and

33.1.2 To modify or change this **Contract** so as to require the performance of **Extra Work** (subject, however, to the limitations specified in Article 25) or the omission of **Contract Work**; and

33.1.3 To suspend the whole or any part of the **Work** whenever in his/her judgment such suspension is required:

33.1.3(a) In the interest of the **City** generally; or

33.1.3(b) To coordinate the **Work** of the various contractors engaged on this **Project** pursuant to the provisions of Article 12; or

33.1.3(c) To expedite the completion of the entire **Project** even though the completion of this particular **Contract** may thereby be delayed.

ARTICLE 34. NO ESTOPPEL

34.1 Neither the **City** nor any **Agency**, official, agent or employee thereof, shall be bound, precluded or estopped by any determination, decision, approval, order, letter, payment or certificate made or given under or in connection with this **Contract** by the **City**, the **Commissioner**, the **Engineer**, the **Resident Engineer**, or any other official, agent or employee of the **City**, either before or after the final completion and acceptance of the **Work** and payment therefor:

34.1.1 From showing the true and correct classification, amount, quality or character of the **Work** actually done; or that any such determination, decision, order, letter, payment or certificate was untrue, incorrect or improperly made in any particular, or that the **Work**, or any part thereof, does not in fact conform to the requirements of this **Contract**; and

34.1.2 From demanding and recovering from the **Contractor** any overpayment made to it, or such damages as the **City** may sustain by reason of the **Contractor's** failure to perform each and every part of its **Contract**.

CHAPTER VIII: LABOR PROVISIONS

ARTICLE 35. EMPLOYEES

35.1 The **Contractor** and its **Subcontractors** shall not employ on the **Work**:

35.1.1 Anyone who is not competent, faithful and skilled in the **Work** for which he/she shall be employed; and whenever the **Commissioner** shall inform the **Contractor**, in writing, that any employee is, in his/her opinion, incompetent, unfaithful or disobedient, that employee shall be discharged from the **Work** forthwith, and shall not again be employed upon it; or

35.1.2 Any labor, materials or means whose employment, or utilization during the course of this **Contract**, may tend to or in any way cause or result in strikes, work stoppages, delays, suspension of **Work** or similar troubles by workers employed by the **Contractor** or its **Subcontractors**, or by any of the trades working in or about the buildings and premises where **Work** is being performed under this **Contract**, or by **Other Contractors** or their **Subcontractors** pursuant to other contracts, or on any other building or premises owned or operated by the **City**, its **Agencies**, departments, boards or authorities. Any violation by the **Contractor** of this requirement may, upon certification of the **Commissioner**, be considered as proper and sufficient cause for declaring the **Contractor** to be in default, and for the **City** to take action against it as set forth in Chapter X of this **Contract**, or such other article of this **Contract** as the Commissioner may deem proper; or

35.1.3 In accordance with Section 220.3-e of the Labor Law of the State of New York (hereinafter "Labor Law"), the **Contractor** and its **Subcontractors** shall not employ on the **Work** any apprentice, unless he/she is a registered individual, under a bona fide program registered with the New York State Department of Labor. The allowable ratio of apprentices to journey-level workers in any craft classification shall not be greater than the ratio permitted to the **Contractor** as to its work force on any job under the registered program. Any employee listed on a payroll at an apprentice wage rate, who is not registered as above, shall be paid the wage rate determined by the **Comptroller** of the **City** for the classification of **Work** actually performed. The **Contractor** or **Subcontractor** will be required to furnish written evidence of the registration of its program and apprentices as well as all the appropriate ratios and wage rates, for the area of the construction prior to using any apprentices on the **Contract Work**.

35.2 If the total cost of the **Work** under this **Contract** is at least two hundred fifty thousand ($250,000) dollars, all laborers, workers, and mechanics employed in the performance of the **Contract** on the public work site, either by the **Contractor**, **Subcontractor** or other person doing or contracting to do the whole or a part of the **Work** contemplated by the **Contract**, shall be certified prior to performing any **Work** as having successfully completed a course in construction safety and health approved by the United States Department of Labor's Occupational Safety and Health Administration that is at least ten (10) hours in duration.

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

35.3.1 The **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 (a) the Commissioner of the Department of Investigation, (b) a member of the New York City Council, the Public Advocate, or the **Comptroller**, or (c) the **CCPO**, **ACCO**, **Agency** head, or **Commissioner**.

35.3.2 If any of the **Contractor**'s officers or employees believes that he or she has been the subject of an adverse personnel action in violation of Article 35.3.1, he or she shall be entitled to bring a cause of action against the **Contractor** to recover all relief necessary to make him or her whole. Such relief may include but is not limited to: (a) an injunction to restrain continued retaliation, (b) reinstatement to the position such employee would have had but for the retaliation or to an equivalent position, (c) reinstatement of full fringe benefits and seniority rights, (d) payment of two times back

pay, plus interest, and (e) compensation for any special damages sustained as a result of the retaliation, including litigation costs and reasonable attorney's fees.

35.3.3 The **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:

35.3.3(a) 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

35.3.3(b) the rights and remedies afforded to its employees under 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**.

35.3.4 For the purposes of this Article 35.3, "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.

35.3.5 This Article 35.3 is applicable to all of the **Contractor**'s **Subcontractors** having subcontracts with a value in excess of $100,000; accordingly, the **Contractor** shall include this rider in all subcontracts with a value a value in excess of $100,000.

35.4 Article 35.3 is not applicable to this **Contract** if it is valued at $100,000 or less. Articles 35.3.1, 35.3.2, 35.3.4, and 35.3.5 are not applicable to this **Contract** if it was solicited pursuant to a finding of an emergency.

35.5 Paid Sick Leave Law.

35.5.1 Introduction and General Provisions.

35.5.1(a) 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.[2] Contractors of the **City** or of other governmental entities may be required to provide sick time pursuant to the PSLL.

35.5.1(b) 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").

[2] 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.

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

35.5.1(d) The **Contractor** must notify the **Agency Chief Contracting Officer** of the **Agency** 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 **Contract**. Additionally, the **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.

35.5.1(e) The PSLL is summarized below for the convenience of the **Contractor**. The **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 the **Contractor** can get more information about how to comply with the PSLL. The **Contractor** acknowledges that it is responsible for compliance with the PSLL notwithstanding any inconsistent language contained herein.

35.5.2 Pursuant to the PSLL and the Rules: Applicability, Accrual, and Use.

35.5.2(a) 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 40 hours of sick time to an employee in any Year.

35.5.2(b) 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 40 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.

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

i. 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;
ii. 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;

iii. closure of such employee's place of business by order of a public official due to a public health emergency; or

iv. such employee's need to care for a child whose school or childcare provider has been closed due to a public health emergency.

35.5.2(d) 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.

35.5.2(e) 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.

35.5.2(f) 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.

35.5.3 Exemptions and Exceptions. Notwithstanding the above, the PSLL does not apply to any of the following:

35.5.3(a) an independent contractor who does not meet the definition of employee under section 190(2) of the New York State Labor Law;

35.5.3(b) an employee covered by a valid collective bargaining agreement in effect on April 1, 2014, until the termination of such agreement;

35.5.3(c) 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;

35.5.3(d) 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;

35.5.3(e) 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;

35.5.3(f) an employee in a work study program under Section 2753 of Chapter 42 of the United States Code;

35.5.3(g) 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

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

35.5.4 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.

35.5.5 Notice of Rights.

35.5.5(a) 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.

35.5.5(b) 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.

35.5.6 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.

35.5.7 Enforcement and Penalties.

35.5.7(a) 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.

35.5.7(b) 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.

35.5.8 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.

35.6 HireNYC: Hiring and Reporting Requirements. This Article 35.6 applies to construction contracts of $1,000,000 or more. The **Contractor** shall comply with the requirements of Articles 35.6.1-35.6.5 for all non-trades jobs (e.g., for an administrative position arising out of **Work** ant located in New York City). The **Contractor** shall reasonably cooperate with SBS and the **City** on specific outreach events, including "Hire-on-the-Spot" events, for the hiring of trades workers in connection with the **Work**. If provided elsewhere in this **Contract**, this **Contract** is subject to a project labor agreement.

35.6.1 Enrollment. The **Contractor** shall enroll with the HireNYC system, found at www.nyc.gov/sbs, within thirty (30) days after the registration of this **Contract** pursuant to Section 328 of the New York City Charter. The **Contractor** shall provide information about the business, designate a primary contact and say whether it intends to hire for any entry to mid-level job opportunities arising from this **Contract** and located in New York City, and, if so, the approximate start date of the first hire.

35.6.2 Job Posting Requirements.

35.6.2(a) Once enrolled in HireNYC, the **Contractor** agrees to update the HireNYC portal with all entry to mid-level job opportunities arising from this **Contract** and located in New York City, if any, which shall be defined as jobs requiring no more than an associate degree, as provided by the New York State Department of Labor (see Column F of https://labor.ny.gov/stats/2012-2022- NYS-Employment-Prospects.xls). The information to be updated includes the types of entry and mid-level positions made available from the work arising from the **Contract** and located in New York City, the number of positions, the anticipated schedule of initiating the hiring process for these positions, and the contact information for the **Contractor's** representative charged with overseeing hiring. The **Contractor** must update the HireNYC portal with any hiring needs arising from the contract and located in New York City, and the requirements of the jobs to be filled, no less than three weeks prior to the intended first day of employment for each new position, except with the permission of SBS, not to be unreasonably withheld, and must also update the HireNYC portal as set forth below.

35.6.2(b) After enrollment through HireNYC and submission of relevant information, SBS will work with the **Contractor** to develop a recruitment plan which will outline the candidate screening process, and will provide clear instructions as to when, where, and how interviews will take place. HireNYC will screen applicants based on employer requirements and refer applicants whom it believes are qualified to the **Contractor** for interviews. The **Contractor** must interview referred applicants whom it believes are qualified.

35.6.2(c) After completing an interview of a candidate referred by HireNYC, the **Contractor** must provide feedback via the portal within twenty (20) business days to indicate which candidates were interviewed and hired, if any. In addition, the **Contractor** shall provide the start date of new hires, and additional information

reasonably related to such hires, within twenty (20) business days after the start date. In the event the **Contractor** does not have any job openings covered by this Rider in any given year, the **Contractor** shall be required to provide an annual update to HireNYC to that effect. For this purpose, the reporting year shall run from the date of the registration of the **Contract** pursuant to Charter section 328 and each anniversary date.

35.6.2(d) These requirements do not limit the **Contractor's** ability to assess the qualifications of prospective workers, and to make final hiring and retention decisions. No provision of this Article 35.6 shall be interpreted so as to require the **Contractor** to employ any particular worker.

35.6.2(e) In addition, the provisions of this Article 35.6 shall not apply to positions that the **Contractor** intends to fill with employees employed pursuant to the job retention provision of Section 22-505 of the Administrative Code of the City of New York. The **Contractor** shall not be required to report such openings with HireNYC. However, the **Contractor** shall enroll with the HireNYC system pursuant to Article 35.6.1, above, and, if such positions subsequently become open, then the remaining provisions of this Article 35.6 will apply.

35.6.3 Breach and Liquidated Damages. If the **Contractor** fails to comply with the terms of the **ContrSact** and this Article 35.6 (l) by not enrolling its business with HireNYC; (2) by not informing HireNYC, as required, of open positions; or (3) by failing to interview a qualified candidate, the **Agency** may assess liquidated damages in the amount of two-thousand five hundred dollars ($2,500) per breach. For all other events of noncompliance with the terms of this Article 35.6, the **Agency** may assess liquidated damages in the amount of five hundred dollars ($500) per breach. Furthermore, in the event the **Contractor** breaches the requirements of this Article 35.6 during the term of the **Contract**, the **City** may hold the **Contractor** in default of this **Contract**.

35.6.4 Audit Compliance. In addition to the auditing requirements set forth in other parts of the **Contract**, the **Contractor** shall permit SBS and the **City** to inspect any and all records concerning or relating to job openings or the hiring of individuals for work arising from the **Contract** and located in New York City. The **Contractor** shall permit an inspection within seven (7) business days of the request.

35.6.5 Other Reporting Requirements. The **Contractor** shall report to the **City**, on a monthly basis, all information reasonably requested by the **City** that is necessary for the **City** to comply with any reporting requirements imposed by **Law**, including any requirement that the **City** maintain a publicly accessible database. In addition, the **Contractor** agrees to comply with all reporting requirements imposed by **Law**, or as otherwise requested by the **City**.

35.6.6 Federal Hiring Requirements. If this **Contract** is federally funded (as indicated elsewhere in this Contract), the **Contractor** shall comply with all federal hiring requirements as may be set forth in this **Contract**, including, as applicable: (a) Section 3 of the HUD Act of 1968, which requires, to the greatest extent feasible, economic opportunities for 30 percent of new hires be given to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing and Executive Order 11246, which prohibits discrimination in employment due to race, color, religion, sex or national origin, and requires the implementation of goals for minority and female participation for work involving any construction trade.

ARTICLE 36. NO DISCRIMINATION

36.1 The **Contractor** specifically agrees, as required by Labor Law Section 220-e, as amended, that:

36.1.1 In the hiring of employees for the performance of **Work** under this **Contract** or any subcontract hereunder, neither the **Contractor**, **Subcontractor**, nor any person acting on behalf of such **Contractor** or **Subcontractor**, shall by reason of race, creed, color or national origin discriminate against any citizen of the State of New York who is qualified and available to perform the **Work** to which the employment relates;

36.1.2 Neither the **Contractor**, **Subcontractor**, nor any person on its behalf shall, in any manner, discriminate against or intimidate any employee hired for the performance of **Work** under this **Contract** on account of race, creed, color or national origin;

36.1.3 There may be deducted from the amount payable to the **Contractor** by the **City** under this **Contract** a penalty of fifty ($50.00) dollars for each person for each **Day** during which such person was discriminated against or intimidated in violation of the provisions of this **Contract**; and

36.1.4 This **Contract** may be cancelled or terminated by the **City** and all moneys due or to become due hereunder may be forfeited, for a second or any subsequent violation of the terms or conditions of this Article 36.

36.1.5 This Article 36 covers all construction, alteration and repair of any public building or public work occurring in the State of New York and the manufacture, sale, and distribution of materials, equipment, and supplies to the extent that such operations are performed within the State of New York pursuant to this **Contract**.

36.2 The **Contractor** specifically agrees, as required by Section 6-108 of the Administrative Code, as amended, that:

36.2.1 It shall be unlawful for any person engaged in the construction, alteration or repair of buildings or engaged in the construction or repair of streets or highways pursuant to a **Contract** with the **City** or engaged in the manufacture, sale or distribution of materials, equipment or supplies pursuant to a **Contract** with the **City** to refuse to employ or to refuse to continue in any employment any person on account of the race, color or creed of such person.

36.2.2 It shall be unlawful for any person or any servant, agent or employee of any person, described in Article 36.1.2, to ask, indicate or transmit, orally or in writing, directly or indirectly, the race, color or creed or religious affiliation of any person employed or seeking employment from such person, firm or corporation.

36.2.3 Breach of the foregoing provisions shall be deemed a violation of a material provision of this **Contract**.

36.2.4 Any person, or the employee, manager or owner of or officer of such firm or corporation who shall violate any of the provisions of this Article 36.2 shall, upon

conviction thereof, be punished by a fine of not more than one hundred ($100.00) dollars or by imprisonment for not more than thirty (30) **Days**, or both.

36.3 This **Contract** is subject to the requirements of Executive Order No. 50 (1980) ("E.O. 50"), as revised, 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 it:

36.3.1 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; and

36.3.2 Will not engage in any unlawful discrimination in the selection of **Subcontractors** on the basis of the owner's race, color, creed, national origin, sex, age, disability, marital status or sexual orientation; and

36.3.3 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 unlawful discrimination based on race, creed, color, national origin, sex, age, citizens status, disability, marital status, sexual orientation, or that it is an equal employment opportunity employer; and

36.3.4 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

36.3.5 Will furnish, before the award of the **Contract**, all information and reports, including an employment report, that are required by E.O. 50, the rules and regulations promulgated thereunder, and orders of the **City** Department of Business Services, Division of Labor Services (**DLS**) and will permit access to its books, records, and accounts by the **DLS** for the purposes of investigation to ascertain compliance with such rules, regulations, and orders.

36.4 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 the **DLS**, the Director of the **DLS** may direct the **Commissioner** to impose any or all of the following sanctions:

36.4.1 Disapproval of the **Contractor**; and/or

36.4.2 Suspension or termination of the **Contract**; and/or

36.4.3 Declaring the **Contractor** in default; and/or

36.4.4 In lieu of any of the foregoing sanctions, the Director of the **DLS** may impose an employment program.

In addition to any actions taken under this **Contract**, failure to comply with E.O. 50 and the rules and regulations promulgated thereunder, in one or more instances, may result in a **City Agency** declaring the **Contractor** to be non-responsible in future procurements. 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.

36.5 The **Contractor** specifically agrees, as required by Section 6-123 of the Administrative Code, that:

36.5.1 The **Contractor** will not engage in any unlawful discriminatory practice in violation of Title 8 of the Administrative Code; and

36.5.2 Any failure to comply with this Article 36.5 may subject the **Contractor** to the remedies set forth in Section 6-123 of the Administrative Code, including, where appropriate, sanctions such as withholding of payment, imposition of an employment program, finding the **Contractor** to be in default, cancellation of the **Contract**, or any other sanction or remedy provided by **Law** or **Contract**.

ARTICLE 37. LABOR LAW REQUIREMENTS

37.1 The **Contractor** shall strictly comply with all applicable provisions of the Labor Law, as amended. Such compliance is a material term of this **Contract**.

37.2 The **Contractor** specifically agrees, as required by Labor Law Sections 220 and 220-d, as amended, that:

37.2.1 Hours of **Work**: No laborer, worker, or mechanic in the employ of the **Contractor**, **Subcontractor** or other person doing or contracting to do the whole or a part of the **Work** contemplated by this **Contract** shall be permitted or required to work more than eight (8) hours in any one (1) **Day**, or more than five (5) **Days** in any one (1) week, except as provided in the Labor Law and in cases of extraordinary emergency including fire, flood, or danger to life or property, or in the case of national emergency when so proclaimed by the President of the United States of America.

37.2.2 In situations in which there are not sufficient laborers, workers, and mechanics who may be employed to carry on expeditiously the **Work** contemplated by this **Contract** as a result of such restrictions upon the number of hours and **Days** of labor, and the immediate commencement or prosecution or completion without undue delay of the **Work** is necessary for the preservation of the **Site** and/or for the protection of the life and limb of the persons using the same, such laborers, workers, and mechanics shall be permitted or required to work more than eight (8) hours in any one (1) **Day**; or five (5) **Days** in any one (1) week; provided, however, that upon application of any **Contractor**, the **Commissioner** shall have first certified to the Commissioner of Labor of the State of New York (hereinafter "Commissioner of Labor") that such public **Work** is of an important nature and that a delay in carrying it to completion would result in serious disadvantage to the public; and provided, further, that such Commissioner of Labor shall have determined that such an emergency does in fact exist as provided in Labor Law Section 220.2.

37.2.3 Failure of the **Commissioner** to make such a certification to the Commissioner of Labor shall not entitle the **Contractor** to damages for delay or for any cause whatsoever.

37.2.4 Prevailing Rate of Wages: The wages to be paid for a legal day's **Work** to laborers, workers, or mechanics employed upon the **Work** contemplated by this **Contract** or upon any materials to be used thereon shall not be less than the "prevailing rate of wage" as defined in Labor Law Section 220, and as fixed by the **Comptroller** in the attached Schedule of Wage Rates and in updated schedules thereof. The prevailing wage rates and supplemental benefits to be paid are those in effect at the time the **Work** is being performed.

37.2.5 Requests for interpretation or correction in the Information for Bidders includes all requests for clarification of the classification of trades to be employed in the performance of the **Work** under this **Contract**. In the event that a trade not listed in the **Contract** is in fact employed during the performance of this **Contract**, the **Contractor** shall be required to obtain from the **Agency** the prevailing wage rates and supplementary benefits for the trades used and to complete the performance of this **Contract** at the price at which the **Contract** was awarded.

37.2.6 Minimum Wages: Except for employees whose wage is required to be fixed pursuant to Labor Law Section 220, all persons employed by the **Contractor** and any **Subcontractor** in the manufacture or furnishing of the supplies, materials, or equipment, or the furnishing of work, labor, or services, used in the performance of this **Contract**, shall be paid, without subsequent deduction or rebate unless expressly authorized by **Law**, not less than the sum mandated by **Law**.

37.3 Working Conditions: No part of the **Work**, labor or services shall be performed or rendered by the **Contractor** in any plants, factories, buildings or surroundings or under working conditions which are unsanitary or hazardous or dangerous to the health and safety of employees engaged in the performance of this **Contract**. Compliance with the safety, sanitary, and factory inspection **Laws** of the state in which the **Work** is to be performed shall be prima facie evidence of compliance with this Article 37.3.

37.4 Prevailing Wage Enforcement: The **Contractor** agrees to pay for all costs incurred by the **City** in enforcing prevailing wage requirements, including the cost of any investigation conducted by or on behalf of the **Agency** or the **Comptroller,** where the **City** discovers a failure to comply with any of the requirements of this Article 37 by the **Contractor** or its **Subcontractor(s)**. The **Contractor** also agrees that, should it fail or refuse to pay for any such investigation, the **Agency** is hereby authorized to deduct from a **Contractor's** account an amount equal to the cost of such investigation.

37.4.1 The Labor Law Section 220 and Section 220-d, as amended, provide that this **Contract** shall be forfeited and no sum paid for any **Work** done hereunder on a second conviction for willfully paying less than:

37.4.1(a) The stipulated prevailing wage scale as provided in Labor Law section 220, as amended, or

37.4.1(b) The stipulated minimum hourly wage scale as provided in Labor Law section 220-d, as amended.

37.4.2 For any breach or violation of either working conditions (Article 37.3) or minimum wages (Article 37.2.6) provisions, the party responsible therefor shall be liable to the **City** for liquidated damages, which may be withheld from any amounts due on any contracts with the **City** of such party responsible, or may be recovered in actions brought by the **City**

Corporation Counsel in the name of the **City**, in addition to damages for any other breach of this **Contract**, for a sum equal to the amount of any underpayment of wages due to any employee engaged in the performance of this **Contract**. In addition, the **Commissioner** shall have the right to cancel contracts and enter into other contracts for the completion of the original contract, with or without public letting, and the original **Contractor** shall be liable for any additional cost. All sums withheld or recovered as deductions, rebates, refunds, or underpayment of wages hereunder, shall be held in a special deposit account and shall be paid without interest, on order of the **Comptroller**, directly to the employees who have been paid less than minimum rates of pay as set forth herein and on whose account such sums were withheld or recovered, provided that no claims by employees for such payments shall be entertained unless made within two (2) years from the date of actual notice to the **Contractor** of the withholding or recovery of such sums by the **City**.

37.4.3 A determination by the **Comptroller** that a **Contractor** and/or its **Subcontractor** willfully violated Labor Law Section 220 will be forwarded to the **City's** five District Attorneys for review.

37.4.4 The **Contractor's** or **Subcontractor's** noncompliance with this Article 37.4 and Labor Law Section 220 may result in an unsatisfactory performance evaluation and the **Comptroller** may also find and determine that the **Contractor** or **Subcontractor** willfully violated the New York Labor **Law**.

37.4.4(a) An unsatisfactory performance evaluation for noncompliance with this Article 37.4 may result in a determination that the **Contractor** is a non-responsible bidder on subsequent procurements with the **City** and thus a rejection of a future award of a contract with the **City**, as well as any other sanctions provided for by **Law**.

37.4.4(b) Labor Law Section 220-b, as amended, provides that when two (2) final determinations have been rendered against a **Contractor** or **Subcontractor** within any consecutive six (6) year period determining that such **Contractor** or **Subcontractor** has willfully failed to pay the prevailing rate of wages or to provide supplements in accordance with the Labor Law and this Article 37.4, whether such failures were concurrent or consecutive and whether or not such final determinations concerning separate public works projects are rendered simultaneously, such **Contractor** or **Subcontractor** shall be ineligible to submit a bid on or be awarded any public works contract with the **City** for a period of five (5) years from the second final determination. If the final determination involves the falsification of payroll records or the kickback of wages or supplements, the **Contractor** or **Subcontractor** shall be ineligible to submit a bid on or be awarded any public works contract with the **City** for a period of five (5) years from the first final determination.

37.4.4(c) Labor Law Section 220, as amended, provides that the **Contractor** or **Subcontractor** found to have violated this Article 37.4 may be directed to make payment of wages or supplements including interest found to be due, and the **Contractor** or **Subcontractor** may be directed to make payment of a further sum as a civil penalty in an amount not exceeding twenty-five (25%) percent of the total amount found to be due.

37.5 The **Contractor** and its **Subcontractors** shall within ten (10) **Days** after mailing of a Notice of Award or written order, post in prominent and conspicuous places in each and every plant, factory, building, and structure where employees of the **Contractor** and its **Subcontractors** engaged in the

performance of this **Contract** are employed, notices furnished by the **City**, in relation to prevailing wages and supplements, minimum wages, and other stipulations contained in Sections 220 and 220-h of the Labor Law, and the **Contractor** and its **Subcontractors** shall continue to keep such notices posted in such prominent and conspicuous places until **Final Acceptance** of the supplies, materials, equipment, or **Work**, labor, or services required to be furnished or rendered under this **Contract**.

37.6 The **Contractor** shall strictly comply with all of the provisions of Articles 37.6.1 through 37.6.5, and provide for all workers, laborers or mechanics in its employ, the following:

37.6.1 Notices Posted At **Site**: Post, in a location designated by the **City**, schedules of prevailing wages and supplements for this **Project**, a copy of all re-determinations of such schedules for the **Project**, the Workers' Compensation **Law** Section 51 notice, all other notices required by **Law** to be posted at the **Site**, the **City** notice that this **Project** is a public works project on which each worker is entitled to receive the prevailing wages and supplements for the occupation at which he or she is working, and all other notices which the **City** directs the **Contractor** to post. The **Contractor** shall provide a surface for such notices which is satisfactory to the **City**. The **Contractor** shall maintain and keep current such notices in a legible manner and shall replace any notice or schedule which is damaged, defaced, illegible or removed for any reason. The **Contractor** shall post such notices before commencing any **Work** on the **Site** and shall maintain such notices until all **Work** on the **Site** is complete; and

37.6.2 Daily **Site** Sign-in Sheets: Maintain daily **Site** sign-in sheets, and require that **Subcontractors** maintain daily **Site** sign-in sheets for its employees, which include blank spaces for an employee's name to be both printed and signed, job title, date started and Social Security number, the time the employee began work and the time the employee left work, until **Final Acceptance** of the supplies, materials, equipment, or **Work**, labor, or services to be furnished or rendered under this **Contract** unless exception is granted by the **Comptroller** upon application by the **Agency**. In the alternative, subject to the approval of the **CCPO**, the **Contractor** and **Subcontractor** may maintain an electronic or biometric sign-in system, which provides the information required by this Article 37.6.2; and

37.6.3 Individual Employee Information Notices: Distribute a notice to each worker, laborer or mechanic employed under this **Contract**, in a form provided by the **Agency**, that this **Project** is a public works project on which each worker, laborer or mechanic is entitled to receive the prevailing rate of wages and supplements for the occupation at which he or she is working. If the total cost of the **Work** under this **Contract** is at least two hundred fifty thousand ($250,000) dollars, such notice shall also include a statement that each worker, laborer or mechanic must be certified prior to performing any **Work** as having successfully completed a course in construction safety and health approved by the United States Department of Labor's Occupational Safety and Health Administration that is at least ten (10) hours in duration. Such notice shall be distributed to each worker before he or she starts performing any **Work** of this **Contract** and with the first paycheck after July first of each year. "Worker, laborer or mechanic" includes employees of the **Contractor** and all **Subcontractors** and all employees of suppliers entering the **Site**. At the time of distribution, the **Contractor** shall have each worker, laborer or mechanic sign a statement, in a form provided by the **Agency**, certifying that the worker has received the notice required by this Article 37.6.3, which signed statement shall be maintained with the payroll records required by this **Contract**; and

37.6.3(a) The **Contractor** and each **Subcontractor** shall notify each worker, laborer or mechanic employed under this **Contract** in writing of the prevailing rate of

wages for their particular job classification. Such notification shall be given to every worker, laborer, and mechanic on their first pay stub and with every pay stub thereafter; and

37.6.4 **Site** Laminated Identification Badges: The **Contractor** shall provide laminated identification badges which include a photograph of the worker's, laborer's or mechanic's face and indicate the worker's, laborer's or mechanic's name, trade, employer's name, and employment starting date (month/day/year). Further, the **Contractor** shall require as a condition of employment on the **Site**, that each and every worker, laborer or mechanic wear the laminated identification badge at all times and that it may be seen by any representative of the **City**. The **Commissioner** may grant a written waiver from the requirement that the laminated identification badge include a photograph if the **Contractor** demonstrates that the identity of an individual wearing a laminated identification badge can be easily verified by another method; and

37.6.5 Language Other Than English Used On **Site**: Provide the **ACCO** notice when three (3) or more employees (worker and/or laborer and/or mechanic) on the **Site**, at any time, speak a language other than English. The **ACCO** will then provide the **Contractor** the notices described in Article 37.6.1 in that language or languages as may be required. The **Contractor** is responsible for all distributions under this Article 37; and

37.6.6 Provision of Records: The **Contractor** and **Subcontractor(s)** shall produce within five (5) **Days** on the **Site** of the **Work** and upon a written order of the **Engineer**, the **Commissioner**, the **ACCO**, the **Agency EAO**, or the **Comptroller,** such records as are required to be kept by this Article 37.6; and

37.6.7 The **Contractor** and **Subcontractor(s)** shall pay employees by check or direct deposit. If this **Contract** is for an amount greater than one million ($1,000,000) dollars, checks issued by the **Contractor** to covered employees shall be generated by a payroll service or automated payroll system (an in-house system may be used if approved by the **Agency**). For any subcontract for an amount greater than seven hundred fifty thousand ($750,000) dollars, checks issued by a **Subcontractor** to covered employees shall be generated by a payroll service or automated payroll system (an in-house system may be used if approved by the **Agency**); and

37.6.8 The failure of the **Contractor** or **Subcontractor(s)** to comply with the provisions of Articles 37.6.1 through 37.6.7 may result in the **Commissioner** declaring the **Contractor** in default and/or the withholding of payments otherwise due under the **Contract**.

37.7 The **Contractor** and its **Subcontractors** shall keep such employment and payroll records as are required by Section 220 of the Labor Law. The failure of the **Contractor** or **Subcontractor(s)** to comply with the provisions of this Article 37.7 may result in the **Commissioner** declaring the **Contractor** in default and/or the withholding of payments otherwise due under the **Contract.**

37.8 At the time the **Contractor** makes application for each partial payment and for final payment, the **Contractor** shall submit to the **Commissioner** a written payroll certification, in the form provided by this **Contract**, of compliance with the prevailing wage, minimum wage, and other provisions and stipulations required by Labor Law Section 220 and of compliance with the training requirements of Labor Law Section 220-h set forth in Article 35.2. This certification of compliance shall be a condition precedent to payment and no payment shall be made to the **Contractor** unless and until each such certification shall have been submitted to and received by the **Commissioner**.

37.9 This **Contract** is executed by the **Contractor** with the express warranty and representation that the **Contractor** is not disqualified under the provisions of Section 220 of the Labor Law from the award of the **Contract**.

37.10 Any breach or violation of any of the foregoing shall be deemed a breach or violation of a material provision of this **Contract**, and grounds for cancellation thereof by the **City**.

ARTICLE 38. PAYROLL REPORTS

38.1 The **Contractor** and its **Subcontractor(s)** shall maintain on the **Site** during the performance of the **Work** the original payrolls or transcripts thereof which the **Contractor** and its **Subcontractor(s)** are required to maintain and shall submit such original payrolls or transcripts, subscribed and affirmed by it as true, within thirty (30) **Days** after issuance of its first payroll, and every thirty (30) **Days** thereafter, pursuant to Labor Law Section 220(3-a)(a)(iii). The **Contractor** and **Subcontractor(s)** shall submit such original payrolls or transcripts along with each and every payment requisition. If payment requisitions are not submitted at least once a month, the **Contractor** and its **Subcontractor(s)** shall submit original payrolls and transcripts both along with its payment requisitions and independently of its payment requisitions.

38.2 The **Contractor** shall maintain payrolls or transcripts thereof for six (6) years from the date of completion of the **Work** on this **Contract**. If such payrolls and transcripts are maintained outside of New York City after the completion of the **Work** and their production is required pursuant to this Article 38, the **Contractor** shall produce such records in New York City upon request by the City.

38.3 The **Contractor** and **Subcontractor(s)** shall comply with any written order, direction, or request made by the **Engineer**, the **Commissioner**, the **ACCO**, the **Agency EAO**, the **Agency Labor Law Investigator(s)**, or the **Comptroller**, to provide to the requesting party any of the following information and/or records within five (5) **Days** of such written order, direction, or request:

38.3.1 Such original payrolls or transcripts thereof subscribed and affirmed by it as true and the statements signed by each worker pursuant to this Chapter VIII; and/or

38.3.2 Attendance sheets for each **Day** on which any employee of the **Contractor** and/or any of the **Subcontractor(s)** performed **Work** on the **Site**, which attendance sheet shall be in a form acceptable to the **Agency** and shall provide information acceptable to the **Agency** to identify each such employee; and/or

38.3.3 Any other information to satisfy the **Engineer**, the **Commissioner**, the **ACCO**, the **Agency EAO**, the **Agency Labor Law Investigator(s)** or the **Comptroller**, that this Chapter VIII and the Labor Law, as to the hours of employment and prevailing rates of wages and/or supplemental benefits, are being observed.

38.4 The failure of the **Contractor** or **Subcontractor(s)** to comply with the provisions of Articles 38.1 and/or 38.2 may result in the **Commissioner** declaring the **Contractor** in default and/or the withholding of payments otherwise due under the **Contract**.

ARTICLE 39. DUST HAZARDS

39.1 Should a harmful dust hazard be created in performing the **Work** of this **Contract**, for the elimination of which appliances or methods have been approved by the Board of Standards and Appeals

of the City of New York, such appliances and methods shall be installed, maintained, and effectively operated during the continuance of such harmful dust hazard. Failure to comply with this provision after notice shall make this **Contract** voidable at the sole discretion of the **City**.

CHAPTER IX: PARTIAL AND FINAL PAYMENTS

ARTICLE 40. CONTRACT PRICE

40.1 The **City** shall pay, and the **Contractor** agrees to accept, in full consideration for the **Contractor's** performance of the **Work** subject to the terms and conditions hereof, the lump sum price or unit prices for which this **Contract** was awarded, plus the amount required to be paid for any **Extra Work** ordered by the **Commissioner** under Article 25, less credit for any **Work** omitted pursuant to Article 29.

ARTICLE 41. BID BREAKDOWN ON LUMP SUM

41.1 Within fifteen (15) **Days** after the commencement date specified in the **Notice to Proceed** or **Order to Work**, unless otherwise directed by the **Resident Engineer**, the **Contractor** shall submit to the **Resident Engineer** a breakdown of its bid price, or of lump sums bid for items of the **Contract**, showing the various operations to be performed under the **Contract**, as directed in the progress schedule required under Article 9, and the value of each of such operations, the total of such items to equal the lump sum price bid. Said breakdown must be approved in writing by the **Resident Engineer**.

41.2 No partial payment will be approved until the **Contractor** submits a bid breakdown that is acceptable to the **Resident Engineer**.

41.3 The **Contractor** shall also submit such other information relating to the bid breakdown as directed by the **Resident Engineer**. Thereafter, the breakdown may be used only for checking the **Contractor's** applications for partial payments hereunder, but shall not be binding upon the **City**, the **Commissioner**, or the **Engineer** for any purpose whatsoever.

ARTICLE 42. PARTIAL PAYMENTS

42.1 From time to time as the **Work** progresses satisfactorily, but not more often than once each calendar month (except where the **Commissioner** approves in writing the submission of invoices on a more frequent basis and for invoices relating to **Work** performed pursuant to a change order), the **Contractor** may submit to the **Engineer** a requisition for a partial payment in the prescribed form, which shall contain an estimate of the quantity and the fair value of the **Work** done during the payment period.

42.2 Partial payments may be made for materials, fixtures, and equipment in advance of their actual incorporation in the **Work**, as the **Commissioner** may approve, and upon the terms and conditions set forth in the General Conditions.

42.3 The **Contractor** shall also submit to the **Commissioner** in connection with every application for partial payment a verified statement in the form prescribed by the **Comptroller** setting forth the information required under Labor Law Section 220-a.

42.4 Within thirty (30) **Days** after receipt of a satisfactory payment application, and within sixty (60) **Days** after receipt of a satisfactory payment application in relation to **Work** performed pursuant to a change order, the **Engineer** will prepare and certify, and the **Commissioner** will approve, a voucher for a partial payment in the amount of such approved estimate, less any and all deductions authorized to be made by the **Commissioner** under the terms of this **Contract** or by **Law**.

ARTICLE 43. PROMPT PAYMENT

43.1 The Prompt Payment provisions of the **PPB** Rules in effect at the time of the bid will be applicable to payments made under this **Contract**. The provisions require the payment to the **Contractor** of interest on payments made after the required payment date, except as set forth in the **PPB** Rules.

43.2 The **Contractor** shall submit a proper invoice to receive payment, except where the **Contract** provides that the **Contractor** will be paid at predetermined intervals without having to submit an invoice for each scheduled payment.

43.3 Determination of interest due will be made in accordance with the **PPB** Rules.

43.4 If the **Contractor** is paid interest, the proportionate share(s) of that interest shall be forwarded by the **Contractor** to its **Subcontractor(s)**.

43.5 The **Contractor** shall pay each **Subcontractor** or **Materialman** not later than seven (7) **Days** after receipt of payment out of amounts paid to the **Contractor** by the **City** for **Work** performed by the **Subcontractor** or **Materialman** under this **Contract**.

43.5.1 If **Contractor** fails to make any payment to any **Subcontractor** or **Materialman** within seven (7) **Days** after receipt of payment by the **City** pursuant to this Article 43.5, then the **Contractor** shall pay interest on amounts due to such **Subcontractor** or **Materialman** at the rate of interest in effect on the date such payment is made by the **Contractor** computed in accordance with Section 756-b (1)(b) of the New York General Business Law. Accrual of interest shall commence on the **Day** immediately following the expiration of the seventh **Day** following receipt of payment by the **Contractor** from the **City** and shall end on the date on which payment is made.

43.6 The **Contractor** shall include in each of its subcontracts a provision requiring each **Subcontractor** to make payment to each of its **Subcontractors** or **Materialmen** for **Work** performed under this **Contract** in the same manner and within the same time period set forth above.

ARTICLE 44. SUBSTANTIAL COMPLETION PAYMENT

44.1 The **Contractor** shall submit with the **Substantial Completion** requisition:

44.1.1 A final verified statement of any pending Article 27 disputes in accordance with the **PPB** Rules and this **Contract** and any and all alleged claims against the **City**, in any way connected with or arising out of this **Contract** (including those as to which details may have been furnished pursuant to Articles 11, 27, 28, and 30) setting forth with respect to each such claim the total amount thereof, the various items of labor and materials included therein, and the alleged value of each item; and if the alleged claim be one for delay, the alleged cause of each such delay, the period or periods of time, giving the dates when the

Contractor claims the performance of the **Work** or a particular part thereof was delayed, and an itemized statement and breakdown of the amount claimed for each such delay.

44.1.1(a) With respect to each such claim, the **Commissioner**, the **Comptroller** and, in the event of litigation, the **City** Corporation Counsel shall have the same right to inspect, and to make extracts or copies of, the **Contractor's** books, vouchers, records, etc., as is referred to in Articles 11, 27, 28, and 30. Nothing contained in this Article 44.1.1(a) is intended to or shall relieve the **Contractor** from the obligation of complying strictly with Articles 11, 27, 28, and 30. The **Contractor** is warned that unless such claims are completely set forth as herein required, the **Contractor** upon acceptance of the **Substantial Completion** payment pursuant to this Article 44, will have waived any such claims.

44.1.2 A **Final Approved Punch List**.

44.1.3 Where required, a request for an extension of time to achieve **Substantial Completion** or final extension of time.

44.2 The **Commissioner** shall issue a voucher calling for payment of any part or all of the balance due for **Work** performed under the **Contract**, including monies retained under Article 21, less any and all deductions authorized to be made by the **Commissioner**, under this **Contract** or by **Law**, and less twice the amount the **Commissioner** considers necessary to ensure the completion of the balance of the **Work** by the **Contractor**. Such a payment shall be considered a partial and not a final payment. No **Substantial Completion** payment shall be made under this Article 44 where the **Contractor** failed to complete the **Work** within the time fixed for such completion in the Schedule A of the General Conditions, or within the time to which completion may have been extended, until an extension or extensions of time for the completion of **Work** have been acted upon pursuant to Article 13.

44.3 No further partial payments shall be made to the **Contractor** after **Substantial Completion**, except the **Substantial Completion** payment and payment pursuant to any **Contractor's** requisition that were properly filed with the **Commissioner** prior to the date of **Substantial Completion**; however, the **Commissioner** may grant a waiver for further partial payments after the date of **Substantial Completion** to permit payments for change order **Work** and/or release of retainage and deposits pursuant to Articles 21 and 24. Such waiver shall be in writing.

44.4 The **Contractor** acknowledges that nothing contained in this Article 44 is intended to or shall in any way diminish the force and effect of Article 13.

ARTICLE 45. FINAL PAYMENT

45.1 After completion and **Final Acceptance** of the **Work**, the **Contractor** shall submit all required certificates and documents, together with a requisition for the balance claimed to be due under the **Contract**, less the amount authorized to be retained for maintenance under Article 24. Such submission shall be within 90 days of the date of the **Commissioner's** written determination of **Final Acceptance**, or within such additional time as may be granted by the **Commissioner** in writing. If the **Contractor** fails to submit all required certificates and documents within the time allowed, no payment of the balance claimed shall be made to the **Contractor** and the **Contractor** shall be deemed to have forfeited its right to payment of any balance claimed. A verified statement similar to that required in connection with applications for partial payments shall also be submitted to the **Commissioner**.

45.2 Amended Verified Statement of Claims: The **Contractor** shall also submit with the final requisition any amendments to the final verified statement of any pending dispute resolution procedures in accordance with the **PPB** Rules and this **Contract** and any and all alleged claims against the **City**, in any way connected with or arising out of this **Contract** (including those as to which details may have been furnished pursuant to Articles 11, 27, 28, and 30) that have occurred subsequent to **Substantial Completion**, setting forth with respect to each such claim the total amount thereof, the various items of labor and materials included therein, and the alleged value of each such item; and if the alleged claim be one for delay, the alleged cause of each such delay, the period or periods of time, giving the dates when the **Contractor** claims the performance of the **Work** or a particular part thereof was delayed, and an itemized statement and breakdown of the amount claimed for each such delay. With reference to each such claim, the **Commissioner**, the **Comptroller** and, in the event of litigation, the **City** Corporation Counsel shall have the same right to inspect, and to make extracts or copies of, the **Contractor's** books, vouchers, records, etc., as is referred to in Articles 11, 27, 28, and 30. Nothing contained in this Article 45.2, is intended to or shall relieve the **Contractor** from the obligation of complying strictly with Articles 11, 27, 28, and 30. The **Contractor** is warned that unless such claims are completely set forth as herein required, the **Contractor**, upon acceptance of the Final Payment pursuant to Article 46, will have waived any such claims.

45.3 Preparation of Final Voucher: Upon determining the balance due hereunder other than on account of claims, the **Engineer** will prepare and certify, for the Commissioner's approval, a voucher for final payment in that amount less any and all deductions authorized to be made by the **Commissioner** under this **Contract** or by **Law**. In the case of a lump sum **Contract**, the **Commissioner** shall certify the voucher for final payment within thirty (30) **Days** from the date of completion and acceptance of the **Work**, provided all requests for extensions of time have been acted upon.

45.3.1 All prior certificates and vouchers upon which partial payments were made, being merely estimates made to enable the **Contractor** to prosecute the **Work** more advantageously, shall be subject to correction in the final voucher, and the certification of the **Engineer** thereon and the approval of the **Commissioner** thereof, shall be conditions precedent to the right of the **Contractor** to receive any money hereunder. Such final voucher shall be binding and conclusive upon the **Contractor**.

45.3.2 Payment pursuant to such final voucher, less any deductions authorized to be made by the **Commissioner** under this **Contract** or by **Law**, shall constitute the final payment, and shall be made by the **Comptroller** within thirty (30) **Days** after the filing of such voucher in his/her office.

45.4 The **Contractor** acknowledges that nothing contained in this Article 45 is intended to or shall in any way diminish the force and effect of Article 13.

ARTICLE 46. ACCEPTANCE OF FINAL PAYMENT

46.1 The acceptance by the **Contractor**, or by anyone claiming by or through it, of the final payment, whether such payment be made pursuant to any judgment of any court, or otherwise, shall constitute and operate as a release of the **City** from any and all claims of and liability to the **Contractor** for anything heretofore done or furnished for the **Contractor** relating to or arising out of this **Contract** and the **Work** done hereunder, and for any prior act, neglect or default on the part of the **City** or any of its officials, agents or employees, excepting only a claim against the **City** for the amounts deducted or retained in accordance with the terms and provisions of this **Contract** or by **Law**, and excepting any claims, not otherwise waived, or any pending dispute resolution procedures which are contained in the

verified statement filed with the **Contractor's** substantial and final requisitions pursuant to Articles 44 and 45.

46.2 The **Contractor** is warned that the execution by it of a release, in connection with the acceptance of the final payment, containing language purporting to reserve claims other than those herein specifically excepted from the operation of this Article 46, or those for amounts deducted by the **Commissioner** from the final requisition or from the final payment as certified by the **Engineer** and approved by the **Commissioner**, shall not be effective to reserve such claims, anything stated to the **Contractor** orally or in writing by any official, agent or employee of the **City** to the contrary notwithstanding.

46.3 Should the **Contractor** refuse to accept the final payment as tendered by the **Comptroller**, it shall constitute a waiver of any right to interest thereon.

46.4 The **Contractor**, however, shall not be barred by this Article 46 from commencing an action for breach of **Contract** to the extent permitted by **Law** and by the terms of the **Contract** for any claims that are contained in the verified statement filed with the **Contractor's** substantial and final requisitions pursuant to Articles 44 and 45 or that arose after submission of the final payment requisition, provided that a detailed and verified statement of claim is served upon the contracting **Agency** and **Comptroller** not later than forty (40) **Days** after the making of such final payment by electronic funds transfer (EFT) or the mailing of such final payment. The statement shall specify the items upon which the claim will be based and any such claim shall be limited to such items.

ARTICLE 47. APPROVAL BY PUBLIC DESIGN COMMISSION

47.1 All works of art, including paintings, mural decorations, stained glass, statues, bas-reliefs, and other sculptures, monuments, fountains, arches, and other structures of a permanent character intended for ornament or commemoration, and every design of the same to be used in the performance of this **Contract**, and the design of all bridges, approaches, buildings, gates, fences, lamps, or structures to be erected, pursuant to the terms of this **Contract**, shall be submitted to the Art Commission, d/b/a the Public Design Commission of the City of New York, and shall be approved by the Public Design Commission prior to the erection or placing in position of the same. The final payment shall not become due or payable under this **Contract** unless and until the Public Design Commission shall certify that the design for the **Work** herein contracted for has been approved by the said Public Design Commission, and that the same has been executed in substantial accordance with the design so approved, pursuant to the provisions of Chapter 37, Section 854 of the **City** Charter, as amended.

CHAPTER X: CONTRACTOR'S DEFAULT

ARTICLE 48. COMMISSIONER'S RIGHT TO DECLARE CONTRACTOR IN DEFAULT

48.1 In addition to those instances specifically referred to in other Articles herein, the **Commissioner** shall have the right to declare the **Contractor** in default of this **Contract** if:

48.1.1 The **Contractor** fails to commence **Work** when notified to do so by the **Commissioner**; or if

48.1.2 The **Contractor** shall abandon the **Work**; or if

48.1.3 The **Contractor** shall refuse to proceed with the **Work** when and as directed by the **Commissioner**; or if

48.1.4 The **Contractor** shall, without just cause, reduce its working force to a number which, if maintained, would be insufficient, in the opinion of the **Commissioner**, to complete the **Work** in accordance with the progress schedule; or if

48.1.5 The **Contractor** shall fail or refuse to increase sufficiently such working force when ordered to do so by the **Commissioner**; or if

48.1.6 The **Contractor** shall sublet, assign, transfer, convert or otherwise dispose of this **Contract** other than as herein specified; or sell or assign a majority interest in the **Contractor**; or if

48.1.7 The **Contractor** fails to secure and maintain all required insurance; or if

48.1.8 A receiver or receivers are appointed to take charge of the **Contractor's** property or affairs; or if

48.1.9 The **Commissioner** shall be of the opinion that the **Contractor** is or has been unnecessarily or unreasonably or willfully delaying the performance and completion of the **Work**, or the award of necessary subcontracts, or the placing of necessary material and equipment orders; or if

48.1.10 The **Commissioner** shall be of the opinion that the **Contractor** is or has been willfully or in bad faith violating any of the provisions of this **Contract**; or if

48.1.11 The **Commissioner** shall be of the opinion that the **Work** cannot be completed within the time herein provided therefor or within the time to which such completion may have been extended; provided, however, that the impossibility of timely completion is, in the **Commissioner's** opinion, attributable to conditions within the **Contractor's** control; or if

48.1.12 The **Work** is not completed within the time herein provided therefor or within the time to which the **Contractor** may be entitled to have such completion extended; or if

48.1.13 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; or if

48.1.14 The **Contractor** or any of its officers, directors, partners, five (5%) percent shareholders, principals, or other persons substantially involved in its activities, commits any of the acts or omissions specified as the grounds for debarment in the **PPB** Rules.

48.2 Before the **Commissioner** shall exercise his/her right to declare the **Contractor** in default, the **Commissioner** shall give the **Contractor** an opportunity to be heard, upon not less than two (2) **Days'** notice.

ARTICLE 49. EXERCISE OF THE RIGHT TO DECLARE DEFAULT

49.1 The right to declare the **Contractor** in default for any of the grounds specified or referred to in Article 48 shall be exercised by sending the **Contractor** a notice, signed by the **Commissioner**, setting forth the ground or grounds upon which such default is declared (hereinafter referred to as a "Notice of Default").

49.2 The **Commissioner's** determination that the **Contractor** is in default shall be conclusive, final, and binding on the parties and such a finding shall preclude the **Contractor** from commencing a plenary action for any damages relating to the **Contract**. If the **Contractor** protests the determination of the **Commissioner**, the **Contractor** may commence an action in a court of competent jurisdiction of the State of New York under Article 78 of the New York Civil Practice Law and Rules.

ARTICLE 50. QUITTING THE SITE

50.1 Upon receipt of such notice the **Contractor** shall immediately discontinue all further operations under this **Contract** and shall immediately quit the **Site**, leaving untouched all plant, materials, equipment, tools, and supplies then on the **Site**.

ARTICLE 51. COMPLETION OF THE WORK

51.1 The **Commissioner**, after declaring the **Contractor** in default, may then have the **Work** completed by such means and in such manner, by contract with or without public letting, or otherwise, as he/she may deem advisable, utilizing for such purpose such of the **Contractor's** plant, materials, equipment, tools, and supplies remaining on the **Site**, and also such **Subcontractors**, as he/she may deem advisable.

51.2 After such completion, the **Commissioner** shall make a certificate stating the expense incurred in such completion, which shall include the cost of re-letting and also the total amount of liquidated damages (at the rate provided for in the **Contract**) from the date when the **Work** should have been completed by the **Contractor** in accordance with the terms hereof to the date of actual completion of the **Work**. Such certificate shall be binding and conclusive upon the **Contractor**, its sureties, and any person claiming under the **Contractor**, as to the amount thereof.

51.3 The expense of such completion, including any and all related and incidental costs, as so certified by the **Commissioner**, and any liquidated damages assessed against the **Contractor**, shall be charged against and deducted out of monies which are earned by the **Contractor** prior to the date of default. Should the expense of such completion, as certified by the **Commissioner**, exceed the total sum which would have been payable under the **Contract** if it had been completed by the **Contractor**, any excess shall be paid by the **Contractor**.

ARTICLE 52. PARTIAL DEFAULT

52.1 In case the **Commissioner** shall declare the **Contractor** in default as to a part of the **Work** only, the **Contractor** shall discontinue such part, shall continue performing the remainder of the **Work** in strict conformity with the terms of this **Contract**, and shall in no way hinder or interfere with any **Other Contractor(s)** or persons whom the **Commissioner** may engage to complete the **Work** as to which the **Contractor** was declared in default.

52.2 The provisions of this Chapter relating to declaring the **Contractor** in default as to the entire **Work** shall be equally applicable to a declaration of partial default, except that the **Commissioner** shall be entitled to utilize for completion of the part of the **Work** as to which the **Contractor** was declared in default only such plant, materials, equipment, tools, and supplies as had been previously used by the **Contractor** on such part.

ARTICLE 53. PERFORMANCE OF UNCOMPLETED WORK

53.1 In completing the whole or any part of the **Work** under the provisions of this Chapter X, the **Commissioner** shall have the power to depart from or change or vary the terms and provisions of this **Contract**, provided, however, that such departure, change or variation is made for the purpose of reducing the time or expense of such completion. Such departure, change or variation, even to the extent of accepting a lesser or different performance, shall not affect the conclusiveness of the **Commissioner's** certificate of the cost of completion referred to in Article 51, nor shall it constitute a defense to an action to recover the amount by which such certificate exceeds the amount which would have been payable to the **Contractor** hereunder but for its default.

ARTICLE 54. OTHER REMEDIES

54.1 In addition to the right to declare the **Contractor** in default pursuant to this Chapter X, the **Commissioner** shall have the absolute right, in his/her sole discretion and without a hearing, to complete or cause to be completed in the same manner as described in Articles 51 and 53, any or all unsatisfactory or uncompleted punch list **Work** that remains after the completion date specified in the **Final Approved Punch List**. A written notice of the exercise of this right shall be sent to the **Contractor** who shall immediately quit the **Site** in accordance with the provisions of Article 50.

54.2 The expense of completion permitted under Article 54.1, including any and all related and incidental costs, as so certified by the **Commissioner**, shall be charged against and deducted out of monies which have been earned by the **Contractor** prior to the date of the exercise of the right set forth in Article 54.1; the balance of such monies, if any, subject to the other provisions of this **Contract**, to be paid to the **Contractor** without interest after such completion. Should the expense of such completion, as certified by the **Commissioner**, exceed the total sum which would have been payable under the **Contract** if it had been completed by the **Contractor**, any excess shall be paid by the **Contractor**.

54.3 The previous provisions of this Chapter X shall be in addition to any and all other remedies available under **Law** or in equity.

54.4 The exercise by the **City** of any remedy set forth herein shall not be deemed a waiver by the **City** of any other legal or equitable remedy contained in this **Contract** or provided under **Law**.

CHAPTER XI: MISCELLANEOUS PROVISIONS

ARTICLE 55. CONTRACTOR'S WARRANTIES

55.1 In consideration of, and to induce, the award of this **Contract** to the **Contractor**, the **Contractor** represents and warrants:

55.1.1 That it is financially solvent, sufficiently experienced and competent to perform the **Work**; and

55.1.2 That the facts stated in its bid and the information given by it pursuant to the Information for Bidders is true and correct in all respects; and

55.1.3 That it has read and complied with all requirements set forth in the **Contract**.

ARTICLE 56. CLAIMS AND ACTIONS THEREON

56.1 Any claim, that is not subject to dispute resolution under the **PPB** Rules or this **Contract**, against the **City** for damages for breach of **Contract** shall not be made or asserted in any action, unless the **Contractor** shall have strictly complied with all requirements relating to the giving of notice and of information with respect to such claims, as herein before provided.

56.2 Nor shall any action be instituted or maintained on any such claims unless such action is commenced within six (6) months after **Substantial Completion**; except that:

56.2.1 Any claims arising out of events occurring after **Substantial Completion** and before **Final Acceptance** of the **Work** shall be asserted within six (6) months of **Final Acceptance** of the **Work**;

56.2.2 If the **Commissioner** exercises his/her right to complete or cause to complete any or all unsatisfactory or uncompleted punch list **Work** that remains after the completion date specified in the **Final Approved Punch List** pursuant to Article 54, any such action shall be commenced within six (6) months from the date the **Commissioner** notifies the **Contractor** in writing that he/she has exercised such right. Any claims for monies deducted, retained or withheld under the provisions of this **Contract** shall be asserted within six (6) months after the date when such monies otherwise become due and payable hereunder; and

56.2.3 If the **Commissioner** exercises his/her right to terminate the **Contract** pursuant to Article 64, any such action shall be commenced within six (6) months of the date the **Commissioner** exercises said right.

ARTICLE 57. INFRINGEMENT

57.1 The **Contractor** shall be solely responsible for and shall defend, indemnify, and hold the **City** harmless from any and all claims (even if the allegations of the lawsuit are without merit) and judgments for damages and from costs and expenses to which the **City** may be subject to or which it may suffer or incur allegedly arising out of or in connection with any infringement by the **Contractor** of any copyright, trade secrets, trademark or patent rights or any other property or personal right of any third party by the **Contractor** and/or its **Subcontractors** in the performance or completion of the **Work**. Insofar as the facts or **Law** relating to any claim would preclude the **City** from being completely indemnified by the **Contractor**, the **City** shall be partially indemnified by the **Contractor** to the fullest extent permitted by **Law**.

ARTICLE 58. NO CLAIM AGAINST OFFICIALS, AGENTS OR EMPLOYEES

58.1 No claim whatsoever shall be made by the **Contractor** against any official, agent or employee of the **City** for, or on account of, anything done or omitted to be done in connection with this **Contract**.

ARTICLE 59. SERVICE OF NOTICES

59.1 The **Contractor** hereby designates the business address, fax number, and email address specified in its bid, as the place where all notices, directions or other communications to the **Contractor** may be delivered, or to which they may be mailed. Any notice, direction, or communication from either party to the other shall be in writing and shall be deemed to have been given when (i) delivered personally; (ii) sent by certified mail, return receipt requested; (iii) delivered by overnight or same day courier service in a properly addressed envelope with confirmation; or (iv) sent by fax or email and, unless receipt of the fax or e-mail is acknowledged by the recipient by fax or e-mail, deposited in a post office box regularly maintained by the United States Postal Service in a properly addressed, postage pre-paid envelope.

59.2 **Contractor's** notice address, email address, or fax number may be changed at any time by an instrument in writing, executed and acknowledged by the **Contractor**, and delivered to the **Commissioner**.

59.3 Nothing herein contained shall, however, be deemed to preclude or render inoperative the service of any notice, direction or other communication upon the **Contractor** personally, or, if the **Contractor** is a corporation, upon any officer thereof.

ARTICLE 60. UNLAWFUL PROVISIONS DEEMED STRICKEN FROM CONTRACT

60.1 If this **Contract** contains any unlawful provision not an essential part of the **Contract** and which shall not appear to have been a controlling or material inducement to the making thereof, the same shall be deemed of no effect and shall, upon notice by either party, be deemed stricken from the **Contract** without affecting the binding force of the remainder.

ARTICLE 61. ALL LEGAL PROVISIONS DEEMED INCLUDED

61.1 It is the intent and understanding of the parties to this **Contract** that each and every provision of **Law** required to be inserted in this **Contract** shall be and is inserted herein. Furthermore, it is hereby stipulated that every such provision is to be deemed to be inserted herein, and if, through mistake or otherwise, any such provision is not inserted, or is not inserted in correct form, then this **Contract** shall forthwith upon the application of either party be amended by such insertion so as to comply strictly with the **Law** and without prejudice to the rights of either party hereunder.

ARTICLE 62. TAX EXEMPTION

62.1 The **City** is exempt from payment of Federal, State, and local taxes, including sales and compensating use taxes of the State of New York and its cities and counties on all tangible personal property sold to the **City** pursuant to the provisions of this **Contract**. These taxes are not to be included in bids. However, this exemption does not apply to tools, machinery, equipment or other property leased by or to the **Contractor**, **Subcontractor** or **Materialman** or to tangible personal property which, even

though it is consumed, is not incorporated into the completed **Work** (consumable supplies) and tangible personal property that the **Contractor** is required to remove from the **Site** during or upon completion of the **Work**. The **Contractor** and its **Subcontractors** and **Materialmen** shall be responsible for and pay any and all applicable taxes, including sales and compensating use taxes, on such leased tools, machinery, equipment or other property and upon all such consumable supplies and tangible personal property that the **Contractor** is required to remove from the **Site** during or upon completion of the **Work**.

62.2 The **Contractor** agrees to sell and the **City** agrees to purchase all tangible personal property, other than consumable supplies and other tangible personal property that the **Contractor** is required to remove from the **Site** during or upon completion of the **Work**, that is required, necessary or proper for or incidental to the construction of the **Project** covered by this **Contract**. The sum paid under this **Contract** for such tangible personal property shall be in full payment and consideration for the sale of such tangible personal property.

62.2.1 The **Contractor** agrees to construct the **Project** and to perform all **Work**, labor and services rendered, necessary, proper or incidental thereto for the sum shown in the bid for the performance of such **Work**, labor, and services, and the sum so paid pursuant to this **Contract** for such **Work**, labor, and services, shall be in full consideration for the performance by the **Contractor** of all its duties and obligations under this **Contract** in connection with said **Work,** labor, and services.

62.3 20 NYCRR Section 541.3(d) provides that a **Contractor**'s purchases of tangible personal property that is either incorporated into real property owned by a governmental entity or purchased for and sold to a governmental entity are exempt from sales and use tax. The **City** shall not pay sales tax for any such tangible personal property that it purchases from the **Contractor** pursuant to the **Contract.** With respect to such tangible personal property, the **Contractor**, at the request of the **City**, shall furnish to the **City** such bills of sale and other instruments as may be required by the **City**, properly executed, acknowledged and delivered assuring to the **City** title to such tangible personal property, free of liens and/or encumbrances, and the **Contractor** shall mark or otherwise identify all such tangible personal property as the property of the **City**.

62.4 Title to all tangible personal property to be sold by the **Contractor** to the **City** pursuant to the provisions of the **Contract** shall immediately vest in and become the sole property of the **City** upon delivery of such tangible personal property to the **Site**. Notwithstanding such transfer of title, the **Contractor** shall have the full and continuing responsibility to install such tangible personal property in accordance with the provisions of this **Contract**, protect it, maintain it in a proper condition and forthwith repair, replace and make good any damage thereto, theft or disappearance thereof, and furnish additional tangible personal property in place of any that may be lost, stolen or rendered unusable, without cost to the **City**, until such time as the **Work** covered by the **Contract** is fully accepted by the **City**. Such transfer of title shall in no way affect any of the **Contractor's** obligations hereunder. In the event that, after title has passed to the **City**, any of the tangible personal property is rejected as being defective or otherwise unsatisfactory, title to all such tangible personal property shall be deemed to have been transferred back to the **Contractor**.

62.5 The purchase by **Subcontractors** or **Materialmen** of tangible personal property to be sold hereunder shall be a purchase or procurement for resale to the **Contractor** (either directly or through other **Subcontractors**) and therefore not subject to the aforesaid sales and compensating use taxes, provided that the subcontracts and purchase agreements provide for the resale of such tangible personal property and that such subcontracts and purchase agreements are in a form similar to this **Contract** with respect to the separation of the sale of consumable supplies and tangible personal property that the

Contractor is required to remove from the **Site** during or upon completion of the **Work** from the **Work** and labor, services, and any other matters to be provided, and provided further that the subcontracts and purchase agreements provide separate prices for tangible personal property and all other services and matters. Such separation shall actually be followed in practice, including the separation of payments for tangible personal property from the payments for other **Work** and labor and other things to be provided.

62.6 The **Contractor** and its **Subcontractors** and **Materialmen** shall furnish a **Contractor** Exempt Purchase Certificate to all persons, firms or corporations from which they purchase tangible personal property for the performance of the **Work** covered by this **Contract**.

62.7 In the event any of the provisions of this Article 62 shall be deemed to be in conflict with any other provisions of this **Contract** or create any ambiguity, then the provisions of this Article 62 shall control.

ARTICLE 63. INVESTIGATION(S) CLAUSE

63.1 The parties to this **Contract** agree to cooperate fully and faithfully with any investigation, audit or inquiry conducted by a United States, a State of New York (State) or a **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 conducted by 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.

63.2 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 examine witnesses under oath concerning the award of or performance under any transaction, agreement, lease, permit, contract, or license entered into with 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;

63.3 If any person refuses to testify for a reason other than the assertion of his/her privilege against self incrimination in an investigation, audit or inquiry conducted by a **City** or State governmental agency or authority empowered directly or by designation to compel the attendance of witnesses and to take testimony under oath, or by the Inspector General of the governmental agency that is a party in interest in, and is seeking testimony concerning the award of, or performance under any transaction, agreement, lease, permit, contract, or license entered into with the **City**, the State, or any political subdivision thereof or any local development corporation within the **City**, then;

63.4 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 (5) **Days**' written notice to the parties involved to determine if any penalties should attach for the failure of a person to testify.

63.5 If any non-governmental party to the hearing requests an adjournment, the **Commissioner** who convened the hearing may, upon granting the adjournment, suspend any contract, lease, permit, or license, pending the final determination pursuant to Article 63.7 without the **City** incurring any penalty or damages for delay or otherwise.

63.6 The penalties which may attach after a final determination by the **Commissioner** may include but shall not exceed:

63.6.1 The disqualification for a period not to exceed five (5) 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 the **City**; and/or

63.6.2 The cancellation or termination of any and all such existing **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** 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 **City**.

63.7 The **Commissioner** shall consider and address in reaching his/her determination and in assessing an appropriate penalty the factors in Articles 63.7.1 and 63.7.2. The **Commissioner** may also consider, if relevant and appropriate, the criteria established in Articles 63.7.3 and 63.7.4, in addition to any other information which may be relevant and appropriate:

63.7.1 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.

63.7.2 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.

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

63.7.4 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 under Article 63.6, provided that the party or entity has given actual notice to the **Commissioner** upon the acquisition of the interest, or at the hearing called for in Article 63.4, 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.

63.8 Definitions:

63.8.1 The term "license" or "permit" as used in this Article 63 shall be defined as a license, permit, franchise or concession not granted as a matter of right.

63.8.2 The term "person" as used in this Article 63 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.

63.8.3 The term "entity" as used in this Article 63 shall be defined as any firm, partnership, corporation, association, joint venture, or person that receives monies, benefits, licenses, leases, or permits from or through the **City** or otherwise transacts business with the **City**.

63.8.4 The term "member" as used in this Article 63 shall be defined as any person associated with another person or entity as a partner, director, officer, principal or employee.

63.9 In addition to and notwithstanding any other provision of this **Contract**, the **Commissioner** may in his/her sole discretion terminate this **Contract** upon not less than three (3) **Days'** written notice in the event the **Contractor** fails to promptly report in writing to the **Commissioner** of the Department of Investigations ("DOI") 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 64. TERMINATION BY THE CITY

64.1 In addition to termination pursuant to any other article of this **Contract**, the **Commissioner** may, at any time, terminate this **Contract** by written notice to the **Contractor**. In the event of termination, the **Contractor** shall, upon receipt of such notice, unless otherwise directed by the **Commissioner**:

64.1.1 Stop **Work** on the date specified in the notice;

64.1.2 Take such action as may be necessary for the protection and preservation of the **City's** materials and property;

64.1.3 Cancel all cancelable orders for material and equipment;

64.1.4 Assign to the **City** and deliver to the **Site** or another location designated by the **Commissioner**, any non-cancelable orders for material and equipment that is not capable of use except in the performance of this **Contract** and has been specifically fabricated for the sole purpose of this **Contract** and not incorporated in the **Work**;

64.1.5 Take no action which will increase the amounts payable by the **City** under this **Contract**.

64.2 In the event of termination by the **City** pursuant to this Article 64, payment to the **Contractor** shall be in accordance with Articles 64.2.1, 64.2.2 or 64.2.3, to the extent that each respective article applies.

64.2.1 Lump Sum Contracts or Items: On all lump sum **Contracts**, or on lump sum items in a **Contract**, the **City** will pay the **Contractor** the sum of the amounts described in Articles 64.2.1(a) and 64.2.1(b), less all payments previously made pursuant to this **Contract**. On lump sum **Contracts** only, the **City** will also pay the **Contractor** an additional sum as provided in Article 64.2.1(c).

64.2.1(a) For **Work** completed prior to the notice of termination, the **Contractor** shall be paid a pro rata portion of the lump sum bid amount, plus approved change orders, based upon the percent completion of the **Work**, as determined by the

Commissioner. For the purpose of determining the pro rata portion of the lump sum bid amount to which the **Contractor** is entitled, the bid breakdown submitted in accordance with Article 41 shall be considered, but shall not be dispositive. The **Commissioner's** determination hereunder shall be final, binding, and conclusive.

64.2.1(b) For non-cancelable material and equipment that is not capable of use except in the performance of this **Contract** and has been specifically fabricated for the sole purpose of this **Contract**, but not yet incorporated in the **Work**, the **Contractor** shall be paid the lesser of the following, less salvage value:

64.2.1(b)(i) The Direct Cost, as defined in Article 64.2.4; or

64.2.1(b)(ii) The fair and reasonable value, if less than Direct Cost, of such material and equipment, plus necessary and reasonable delivery costs.

64.2.1(b)(iii) In addition, the **Contractor** shall be paid five (5%) percent of the amount described in Article 64.2.1(b)(i) or Article 64.2.1(b)(ii), whichever applies.

64.2.1(c) Except as otherwise provided in Article 64.2.1(d), on all lump sum **Contracts**, the **Contractor** shall be paid the percentage indicated below applied to the difference between the total lump sum bid amount and the total of all payments made prior to the notice of termination plus all payments allowed pursuant to Articles 64.2.1(a) and 64.2.1(b):

64.2.1(c)(i) Five (5%) percent of the first five million ($5,000,000) dollars; and

64.2.1(c)(ii) Three (3%) percent of any amount between five million ($5,000,000) dollars and fifteen million ($15,000,000) dollars; plus

64.2.1(c)(iii) One (1%) percent of any amount over fifteen million ($15,000,000) dollars.

64.2.1(d) In the event the **City** terminates a lump sum **Contract** pursuant to this Article 64 within ninety (90) **Days** after registration of the **Contract** with the **Comptroller**, the **Contractor** shall be paid one (1%) percent of the difference between the lump sum bid amount and the total of all payments made pursuant to this Article 64.2.

64.2.2 Unit Price Contracts or Items: On all unit price **Contracts**, or on unit price items in a **Contract**, the **City** will pay the **Contractor** the sum of the amounts described in Articles 64.2.2(a) and 64.2.2(b), less all payments previously made pursuant to this **Contract**:

64.2.2(a) For all completed units, the unit price stated in the **Contract**, and

64.2.2(b) For units that have been ordered but are only partially completed, the **Contractor** will be paid:

64.2.2(b)(i) A pro rata portion of the unit price stated in the **Contract** based upon the percent completion of the unit and

64.2.2(b)(ii) For non-cancelable material and equipment, payment will be made pursuant to Article 64.2.1(b).

64.2.3 Time and Materials Contracts or Items Based on Time and Material Records: On all **Contracts** or items in a **Contract** where payment for the **Work** is based on time and material records, the **Contractor** shall be paid in accordance with Article 26, less all payments previously made pursuant to this **Contract**.

64.2.4 Direct Costs: Direct Costs as used in this Article 64.2 shall mean:

64.2.4(a) The actual purchase price of material and equipment, plus necessary and reasonable delivery costs,

64.2.4(b) The actual cost of labor involved in construction and installation at the **Site**, and

64.2.4(c) The actual cost of necessary bonds and insurance purchased pursuant to requirements of this **Contract** less any amounts that have been or should be refunded by the **Contractor's** sureties or insurance carriers.

64.2.4(d) Direct Costs shall not include overhead.

64.3 In no event shall any payments under this Article 64 exceed the **Contract** price for such items.

64.4 All payments pursuant to Article 64 shall be in the nature of liquidated damages and shall be accepted by the **Contractor** in full satisfaction of all claims against the **City**.

64.5 The **City** may deduct or set off against any sums due and payable pursuant to this Article 64, any deductions authorized by this **Contract** or by **Law** (including but not limited to liquidated damages) and any claims it may have against the **Contractor**. The **City's** exercise of the right to terminate the **Contract** pursuant to this Article 64 shall not impair or otherwise effect the **City's** right to assert any claims it may have against the **Contractor** in a plenary action.

64.6 Where the **Work** covered by the **Contract** has been substantially completed, as determined in writing by the **Commissioner**, termination of the **Work** shall be handled as an omission of **Work** pursuant to Articles 29 and 33, in which case a change order will be issued to reflect an appropriate reduction in the **Contract** sum, or if the amount is determined after final payment, such amount shall be paid by the **Contractor**.

ARTICLE 65. CHOICE OF LAW, CONSENT TO JURISDICTION AND VENUE

65.1 This **Contract** shall be deemed to be executed in the **City** regardless of the domicile of the **Contractor**, and shall be governed by and construed in accordance with the **Laws** of the State of New York and the **Laws** of the United States, where applicable.

65.2 The parties agree that any and all claims asserted against the **City** arising under this **Contract** or related thereto shall be heard and determined in the courts of the State of New York ("New York State Courts") located in the **City** and County of New York. To effect this **Contract** and intent, the **Contractor** agrees:

65.2.1 If the **City** initiates any action against the **Contractor** in Federal court or in a New York State Court, service of process may be made on the **Contractor** either in person, wherever such **Contractor** may be found, or by registered mail addressed to the **Contractor** at its address as set forth in this **Contract**, or to such other address as the **Contractor** may provide to the **City** in writing; and

65.2.2 With respect to any action between the **City** and the **Contractor** in a New York State Court, the **Contractor** hereby expressly waives and relinquishes any rights it might otherwise have:

65.2.2(a) To move to dismiss on grounds of forum non conveniens;

65.2.2(b) To remove to Federal Court; and

65.2.2(c) To move for a change of venue to a New York State Court outside New York County.

65.2.3 With respect to any action brought by the **City** against the **Contractor** in a Federal Court located in the **City**, the **Contractor** expressly waives and relinquishes any right it might otherwise have to move to transfer the action to a Federal Court outside the **City**.

65.2.4 If the **Contractor** commences any action against the **City** in a court located other than in the **City** and County of New York, upon request of the **City**, the **Contractor** shall either consent to a transfer of the action to a New York State Court of competent jurisdiction located in the **City** and County 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 reinstate the action in a New York State Court of competent jurisdiction in New York County.

65.3 If any provision(s) of this Article 65 is held unenforceable for any reason, each and all other provision(s) shall nevertheless remain in full force and effect.

ARTICLE 66. PARTICIPATION IN AN INTERNATIONAL BOYCOTT

66.1 The **Contractor** agrees that neither the **Contractor** nor any substantially owned affiliated company is participating or shall participate in an international boycott in violation of the provisions of the Federal Export Administration Act of 1979, as amended, or the regulations of the United States Department of Commerce (Commerce Department) promulgated thereunder.

66.2 Upon the final determination by the Commerce Department or any other agency of the United States as to, or conviction of the **Contractor** or a substantially-owned affiliated company thereof for participation in an international boycott in violation of the provisions of the Export Administration Act of 1979, as amended, or the regulations promulgated thereunder, the **Comptroller** may, at his/her option, render forfeit and void this **Contract**.

66.3 The **Contractor** shall comply in all respects, with the provisions of Section 6-114 of the Administrative Code and the rules and regulations issued by the **Comptroller** thereunder.

ARTICLE 67. LOCALLY BASED ENTERPRISE PROGRAM

67.1 This **Contract** is subject to the requirements of Section 6-108.1 of the Administrative Code and regulations promulgated thereunder. No construction contract shall be awarded unless and until these requirements have been complied with in their entirety; however, compliance with this Article 67 is not required if the Agency sets Subcontractor Participation Goals for Minority- and Women-Owned Business Enterprises (M/WBEs).

67.2 Unless specifically waived by the **Commissioner** with the approval of the Division of Economic and Financial Opportunity of the **City** Department of Business Services, if any portion of the **Contract** is subcontracted, not less than ten (10%) percent of the total dollar amount of the **Contract** shall be awarded to locally based enterprises (LBEs); except that where less than ten (10%) percent of the total dollar amount of the **Contract** is subcontracted, such lesser percentage shall be so awarded.

67.3 The **Contractor** shall not require performance and payment bonds from LBE **Subcontractors**.

67.4 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 **Commissioner**, which shall be granted only if the **Contractor** makes a good faith effort beginning at least six (6) weeks before the **Work** is to be performed to obtain LBE **Subcontractors** to perform the **Work**.

67.5 If the **Contractor** has not identified sufficient LBE **Subcontractors** prior to award, it shall sign a letter of compliance stating that it complies with Section 6-108.1 of the Administrative Code, recognizes that achieving the LBE requirement is a condition of its **Contract**, and shall submit documentation demonstrating its good faith efforts to obtain LBEs. After award, the **Contractor** shall begin to solicit LBE's to perform subcontracted **Work** at least six (6) 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.

67.6 Failure of the **Contractor** to comply with the requirements of Section 6-108.1 of the Administrative Code and the regulations promulgated thereunder shall constitute a material breach of this **Contract**. Remedy for such breach may include the imposition of any or all of the following sanctions:

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

67.6.2 Declaring the **Contractor** in default;

67.6.3 If the **Contractor** is an LBE, de-certifying and declaring the **Contractor** ineligible to participate in the LBE program for a period of up to three (3) years.

ARTICLE 68. ANTITRUST

68.1 The **Contractor** hereby assigns, sells, and transfers to the **City** all right, title, and interest in and to any claims and causes of action arising under the antitrust **Laws** of New York State or of the United States relating to the particular goods or services purchased or procured by the **City** under this **Contract**.

ARTICLE 69. MacBRIDE PRINCIPLES PROVISIONS

69.1 Notice To All Prospective **Contractors**:

69.1.1 Local Law No. 34 of 1991 became effective on September 10, 1991 and added Section 6-115.1 of the Administrative Code. The local **Law** provides for certain restrictions on **City Contracts** to express the opposition of the people of the **City** to employment discrimination practices in Northern Ireland to promote freedom of work-place opportunity.

69.1.2 Pursuant to Section 6-115.1, prospective **Contractors** for **Contracts** to provide goods or services involving an expenditure of an amount greater than ten thousand ($10,000.) dollars, or for construction involving an amount greater than fifteen thousand ($15,000.) dollars, are asked to sign a rider in which they covenant and represent, as a material condition of their **Contract**, that any business operations in Northern Ireland conducted by the **Contractor** and any individual or legal entity in which the **Contractor** holds a ten (10%) percent or greater ownership interest in the **Contractor** will be conducted in accordance with the MacBride Principles of nondiscrimination in employment.

69.1.3 Prospective **Contractors** are not required to agree to these conditions. However, in the case of **Contracts** let by competitive sealed bidding, whenever the lowest responsible bidder has not agreed to stipulate to the conditions set forth in this notice and another bidder who has agreed to stipulate to such conditions has submitted a bid within five (5%) percent of the lowest responsible bid for a **Contract** to supply goods, services or contraction of comparable quality, the **Agency** shall refer such bids to the Mayor, the Speaker or other officials, as appropriate, who may determine, in accordance with applicable **Law**, that it is in the best interest of the **City** that the **Contract** be awarded to other than the lowest responsible pursuant to Section 313(b)(2) of the **City** Charter.

69.1.4 In the case of **Contracts** let by other than competitive sealed bidding, if a prospective **Contractor** does not agree to these conditions, no **Agency**, elected official or the **City** Council shall award the **Contract** to that bidder unless the **Agency** seeking to use the goods, services or construction certifies in writing that the **Contract** is necessary for the **Agency** to perform its functions and there is no other responsible **Contractor** who will supply goods, services or construction of comparable quality at a comparable price.

69.2 In accordance with Section 6-115.1 of the Administrative Code, the **Contractor** stipulates that such **Contractor** and any individual or legal entity in which the **Contractor** holds a ten (10%) percent or greater ownership interest in the **Contractor** either:

69.2.1 Have no business operations in Northern Ireland, or

69.2.2 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.

69.3 For purposes of this Article, the following terms shall have the following meanings:

69.3.1 "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:

69.3.1(a) increase the representation of individuals from under-represented religious groups in the workforce, including managerial, supervisory, administrative, clerical and technical jobs;

69.3.1(b) take steps to promote adequate security for the protection of employees from under-represented religious groups both at the work-place and while traveling to and from **Work**;

69.3.1(c) ban provocative religious or political emblems from the workplace;

69.3.1(d) publicly advertise all job openings and make special recruitment efforts to attract applicants from under-represented religious groups;

69.3.1(e) establish layoff, recall, and termination procedures which do not in practice favor a particular religious group;

69.3.1(f) abolish all job reservations, apprenticeship restrictions and different employment criteria which discriminate on the basis of religion;

69.3.1(g) develop training programs that will prepare substantial numbers of current employees from under-represented 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 under-represented religious groups;

69.3.1(h) establish procedures to asses, identify, and actively recruit employees from under-represented religious groups with potential for further advancement; and

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

69.4 The **Contractor** agrees that the covenants and representations in Article 69.2 are material conditions to this **Contract**. In the event the **Agency** receives information that the **Contractor** who made the stipulation required by this Article 69 is in violation thereof, the **Agency** shall review such information and give the **Contractor** an opportunity to respond. If the **Agency** finds that a violation has occurred, the **Agency** shall have the right to declare the **Contractor** in default in default and/or terminate this **Contract** for cause and procure supplies, services or **Work** from another source in the manner the **Agency** deems proper. In the event of such termination, the **Contractor** shall pay to the **Agency**, or the **Agency** 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 **Agency** of completing performance of this **Contract** either itself or by engaging another **Contractor** or **Contractors**. In the case of a requirement **Contract**, the **Contractor** shall be liable for such difference in price for the entire amount of supplies required by the **Agency** for the uncompleted term of **Contractor's Contract**. In the case of a construction **Contract**, the **Agency** 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 **Agency** hereunder shall be in addition to, and not in lieu of, any rights and remedies the **Agency** has pursuant to this **Contract** or by operation of **Law**.

ARTICLE 70. ELECTRONIC FILING/NYC DEVELOPMENT HUB

70.1 The **Contractor** shall electronically file all alteration type-2 and alteration type-3 applications via the New York City Development Hub Web site, except applications for the following types of minor alterations: enlargements, curb cuts, legalizations, fire alarms, builders pavement plans, and jobs filed on Landmark Preservation Commission calendared properties. All such filings must be professionally certified. Information about electronic filing via the New York City Development Hub is available on the **City** Department of Buildings Web site at www.nyc.gov/buildings.

ARTICLE 71. PROHIBITION OF TROPICAL HARDWOODS

71.1 Tropical hardwoods, as defined in Section 165 of the New York State Finance Law (Finance Law), shall not be utilized in the performance of this **Contract** except as expressly permitted by Section 165 of the Finance Law.

ARTICLE 72. CONFLICTS OF INTEREST

72.1 Section 2604 of the **City** Charter and other related provisions of the **City** Charter, the Administrative Code, and the Penal Law are applicable under the terms of this **Contract** in relation to conflicts of interest and shall be extended to **Subcontractors** authorized to perform **Work**, labor and services pursuant to this **Contract** and further, it shall be the duty and responsibility of the **Contractor** to so inform its respective **Subcontractors**. Notice is hereby given that, under certain circumstances, penalties may be invoked against the donor as well as the recipient of any form of valuable gift.

ARTICLE 73. MERGER CLAUSE

73.1 The written **Contract** herein, contains all the terms and conditions agreed upon by the parties hereto, and no other agreement, oral or otherwise, regarding the subject matter of this **Contract** shall be deemed to exist or to bind any of the parties hereto, or to vary any of the terms contained herein.

ARTICLE 74. STATEMENT OF WORK

74.1 The **Contractor** shall furnish all labor and materials and perform all **Work** in strict accordance with the **Specifications** and **Addenda** thereto, numbered as shown in Schedule A.

ARTICLE 75. COMPENSATION TO BE PAID TO CONTRACTOR

75.1 The **City** will pay and the **Contractor** will accept in full consideration for the performance of the **Contract**, subject to additions and deductions as provided herein, the total sum shown in Schedule A, this said sum being the amount at which the **Contract** was awarded to the **Contractor** at a public letting thereof, based upon the **Contractor's** bid for the **Contract**.

ARTICLE 76. ELECTRONIC FUNDS TRANSFER

76.1 In accordance with Section 6-107.1 of the Administrative Code, the **Contractor** agrees to accept payments under this **Contract** from the **City** by electronic funds transfer (EFT). An EFT is any

transfer of funds, other than a transaction originated by check, draft or similar paper instrument, which is initiated through an electronic terminal, telephonic instrument or computer or magnetic tape so as to order, instruct or authorize a financial institution to debit or credit an account. Prior to the first payment made under this **Contract**, the **Contractor** shall designate one financial institution or other authorized payment agent and shall complete the attached "EFT Vendor Payment Enrollment Form" in order to provide the Commissioner of the **City** Department of Finance with information necessary for the **Contractor** to receive electronic funds transfer payments through a designated financial institution or authorized payment agent. The crediting of the amount of a payment to the appropriate account on the books of a financial institution or other authorized payment agent designated by the **Contractor** shall constitute full satisfaction by the **City** for the amount of the payment under this **Contract**. The account information supplied by the **Contractor** to facilitate the electronic funds transfer shall remain confidential to the fullest extent provided by **Law**.

76.2 The **Commissioner** may waive the application of the requirements of this Article 76 to payments on contracts entered into pursuant to Section 315 of the **City** Charter. In addition, the Commissioner of the Department of Finance and the Comptroller may jointly issue standards pursuant to which the **Agency** may waive the requirements of this Article 76 for payments in the following circumstances: (i) for individuals or classes of individuals for whom compliance imposes a hardship; (ii) for classifications or types of checks; or (iii) in other circumstances as may be necessary in the interest of the **City**.

ARTICLE 77. RECORDS RETENTION

77.1 The **Contractor** agrees to retain all books, records, and other documents relevant to this **Contract** for six years after the final payment or termination of this **Contract**, whichever is later. **City**, state, and federal auditors and any other persons duly authorized by the **City** shall have full access to and the right to examine any such books, records, and other documents during the retention period.

ARTICLE 78. EXAMINATION AND VIEWING OF SITE, CONSIDERATION OF OTHER SOURCES OF INFORMATION AND CHANGED SITE CONDITIONS

78.1 Pre-Bidding (Investigation) Viewing of Site – Bidders must carefully view and examine the **Site** of the proposed **Work**, as well as its adjacent area, and seek other usual sources of information, for they will be conclusively presumed to have full knowledge of any and all conditions and hazards on, about or above the **Site** relating to or affecting in any way the performance of the **Work** to be done under the **Contract** that were or should have been known by a reasonably prudent bidder. To arrange a date for visiting the **Site**, bidders are to contact the **Agency** contact person specified in the bid documents.

78.2 Should the **Contractor** encounter during the progress of the Work site conditions or environmental hazards at the **Site** materially differing from any shown on the **Contract Drawings** or indicated in the **Specifications** or such conditions or environmental hazards as could not reasonably have been anticipated by the **Contractor**, which conditions or hazards will materially affect the cost of the **Work** to be done under the **Contract**, the attention of the **Commissioner** must be called immediately to such conditions or hazards before they are disturbed. The **Commissioner** shall thereupon promptly investigate the conditions or hazards. If the **Commissioner** finds that they do so materially differ, and that they could not have been reasonably anticipated by the **Contractor**, the **Contract** may be modified with the **Commissioner**'s written approval.

ARTICLE 79. PARTICIPATION BY MINORITY-OWNED AND WOMEN-OWNED BUSINESS ENTERPRISES IN CITY PROCUREMENT

NOTICE TO ALL PROSPECTIVE CONTRACTORS

ARTICLE I. M/WBE PROGRAM

Local Law No. 129 of 2005 added and Local Law 1 of 2013 amended Section 6-129 of the Administrative Code of the City of New York (hereinafter "Section 6-129"). Section 6-129 establishes the program for participation in City procurement ("M/WBE Program") by minority- owned business enterprises ("MBEs") and women-owned business enterprises ("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. The contract provisions contained herein are pursuant to Section 6-129, and the rules of the Department of Small Business Services ("DSBS") promulgated thereunder.

If this Contract is subject to the M/WBE Program established by Section 6-129, the specific requirements of MBE and/or WBE participation for this Contract are set forth in Schedule B of the Contract (entitled the "M/WBE Utilization Plan"), and are detailed below. The Contractor must comply with all applicable MBE and WBE requirements for this Contract.

All provisions of Section 6-129 are hereby incorporated in the Contract by reference and all terms used herein that are not defined herein shall have the meanings given such terms in Section 6-129. Article I, Part A, below, sets forth provisions related to the participation goals for construction, standard and professional services contracts. Article I, Part B, below, sets forth miscellaneous provisions related to the M/WBE Program.

PART A

PARTICIPATION GOALS FOR CONSTRUCTION, STANDARD AND PROFESSIONAL SERVICES CONTRACTS OR TASK ORDERS

1. The **MBE and/or WBE Participation Goals** established for this Contract or Task Orders issued pursuant to this Contract, ("**Participation Goals**"), as applicable, are set forth on Schedule B, Part I to this Contract (see Page 1, line 1 Total Participation Goals) or will be set forth on Schedule B, Part I to Task Orders issued pursuant to this Contract, as applicable.

The **Participation Goals** represent a percentage of the total dollar value of the Contract or Task Order, as applicable, that may be achieved by awarding subcontracts to firms certified with New York City Department of Small Business Services as MBEs and/or WBEs, and/or by crediting the participation of prime contractors and/or qualified joint ventures as provided in Section 3 below, unless the goals have been waived or modified by Agency in accordance with Section 6-129 and Part A, Sections 10 and 11 below, respectively.

2. If **Participation Goals** have been established for this Contract or Task Orders issued pursuant to this Contract, Contractor agrees or shall agree as a material term of the Contract that Contractor shall be subject to the **Participation Goals**, unless the goals are waived or modified by Agency in accordance with Section 6-129 and Part A, Sections 10 and 11 below, respectively.

3. If **Participation Goals** have been established for this Contract or Task Order issued pursuant to this Contract, a Contractor that is an MBE and/or WBE shall be permitted to count its own participation toward fulfillment of the relevant **Participation Goal**, provided that in accordance with Section 6-129 the value of Contractor's participation shall be determined by subtracting from the total value of the Contract or Task Order, as applicable, any amounts that the Contractor pays to direct subcontractors (as defined in Section 6-129(c)(13)), and provided further that a Contractor 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.

A Contractor that is a qualified joint venture (as defined in Section 6-129(c)(30)) shall be permitted to count a percentage of its own participation toward fulfillment of the relevant **Participation Goal**. In accordance with Section 6-129, the value of Contractor's participation shall be determined by subtracting from the total value of the Contract or Task Order, as applicable, any amounts that Contractor 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.

4. A. If **Participation Goals** have been established for this Contract, a prospective contractor shall be required to submit with its bid or proposal, as applicable, a completed Schedule B, M/WBE Utilization Plan, Part II (see Pages 2-4) indicating: (a) whether the contractor is an MBE or WBE, or qualified joint venture; (b) the percentage of work it intends to award to direct subcontractors; and (c) in cases where the contractor 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. In the event that this M/WBE Utilization Plan indicates that the bidder or proposer, as applicable, does not intend to meet the **Participation Goals**, the bid or proposal, as applicable, shall be deemed non-responsive, unless Agency has granted the bidder or proposer, as applicable, a pre- award waiver of the Participation Goals in accordance with Section 6-129 and Part A, Section 10 below.

B. (i) If this Contract is for a master services agreement or other requirements type contract that will result in the issuance of Task Orders that will be individually registered ("Master Services Agreement") and is subject to M/WBE **Participation Goals**, a prospective contractor shall be required to submit with its bid or proposal, as applicable, a completed Schedule B, M/WBE Participation Requirements for Master Services Agreements That Will Require Individually Registered Task Orders, Part II (page 2) indicating the prospective contractor's certification and required affirmations to make all reasonable good faith efforts to meet participation goals established on each individual Task Order issued pursuant to this Contract, or if a partial waiver is obtained or such goals are modified by the Agency, to meet the modified **Participation Goals** by soliciting and obtaining the participation of certified MBE and/or WBE firms. In the event that the Schedule B indicates that the bidder or proposer, as applicable, does not intend to meet the **Participation Goals** that may be established on Task Orders issued pursuant to this Contract, the bid or proposal, as applicable, shall be deemed nonresponsive.

(ii) **Participation Goals** on a Master Services Agreement will be established for individual Task Orders issued after the Master Services Agreement is awarded. If **Participation Goals** have been established on a Task Order, a contractor shall be required to submit a Schedule B – M/WBE Utilization Plan For Independently Registered Task Orders That Are Issued Pursuant to Master Services Agreements, Part II (see Pages 2-4) indicating: (a) whether the contractor is an MBE or WBE, or qualified joint venture; (b) the percentage of work it intends to award to direct subcontractors; and (c) in cases where the contractor 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. The contractor must engage in good faith efforts to meet the **Participation Goals** as established for the Task Order unless Agency has granted the contractor a pre-award waiver of the Participation Goals in accordance with Section 6-129 and Part A, Section 10 below.

C. THE BIDDER/PROPOSER MUST COMPLETE THE SCHEDULE B INCLUDED HEREIN (SCHEDULE B, PART II). A SCHEDULE B SUBMITTED BY THE BIDDER/PROPOSER WHICH DOES NOT INCLUDE THE VENDOR CERTIFICATION AND REQUIRED AFFIRMATIONS (SEE SECTION V OF PART II) WILL BE DEEMED TO BE NON-RESPONSIVE, UNLESS A FULL WAIVER OF THE PARTICIPATION GOALS IS GRANTED (SCHEDULE B, PART III). IN THE EVENT THAT THE CITY DETERMINES THAT THE BIDDER/PROPOSER HAS SUBMITTED A SCHEDULE B WHERE THE VENDOR CERTIFICATION AND REQUIRED AFFIRMATIONS ARE COMPLETED BUT OTHER ASPECTS OF THE SCHEDULE B ARE NOT COMPLETE, OR CONTAIN A COPY OR COMPUTATION ERROR THAT IS AT ODDS WITH THE VENDOR CERTIFICATION AND AFFIRMATIONS, THE BIDDER/PROPOSER 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 COMPLETED SCHEDULE B TO THE AGENCY. FAILURE TO DO SO WILL RESULT IN A DETERMINATION THAT THE BID/PROPOSAL IS NON-RESPONSIVE. RECEIPT OF NOTIFICATION IS DEFINED AS THE DATE NOTICE IS E-MAILED OR FAXED (IF THE BIDDER/PROPOSER HAS PROVIDED AN E-MAIL ADDRESS OR FAX NUMBER), OR NO LATER THAN FIVE (5) CALENDAR DAYS FROM THE DATE OF MAILING OR UPON DELIVERY, IF DELIVERED.

5. Where an **M/WBE** Utilization Plan has been submitted, the Contractor shall, within 30 days of issuance by Agency of a notice to proceed, submit a list of proposed persons or entities to which it intends to award subcontracts within the subsequent 12 months. In the case of multiyear contracts, such list shall also be submitted every year thereafter. The Agency 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)). **PLEASE NOTE: If this Contract is a public works project subject to GML §101(5) (i.e., a contract valued at or below $3M for projects in New York City) or if the Contract is subject to a project labor agreement in accordance with Labor Law §222, and the bidder is required to identify at the time of bid submission its intended subcontractors for the Wicks trades (plumbing and gas fitting; steam heating, hot water heating, ventilating and air conditioning (HVAC); and electric wiring), the Contractor must identify all those to which it intends to award construction subcontracts for any portion of the Wicks trade work at the time of bid submission, regardless of what point in the life of the contract such subcontracts will occur. In identifying intended subcontractors in the bid submission, bidders may satisfy any Participation Goals established for this Contract by proposing one or more subcontractors that are MBEs and/or WBEs for any portion of the Wicks trade work.** In the event that the Contractor's selection of a subcontractor is disapproved, the Contractor shall have a reasonable time to propose alternate subcontractors.

6. MBE and WBE firms must be certified by DSBS in order for the Contractor to credit such firms' participation toward the attainment of the **Participation Goals**. Such certification must occur prior to the

firms' commencement of work. A list of MBE and WBE firms may be obtained 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 St., New York, New York, 10038, 7th floor. Eligible firms that have not yet been certified may contact DSBS in order to seek certification by visiting www.nyc.gov/getcertified, emailing MWBE@sbs.nyc.gov, or calling the DSBS certification helpline at (212) 513-6311. A firm that is certified as both an MBE and a WBE may be counted either toward the goal for MBEs or the goal for WBEs, but not both. No credit shall be given for participation by a graduate MBE or graduate WBE, as defined in Section 6-129(c)(20).

7. Where an **M/WBE** Utilization Plan has been submitted, the Contractor shall, with each voucher for payment, and/or periodically as Agency may require, submit statements, certified under penalty of perjury, which shall include, but not be limited to,: 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; 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 the dates and amounts paid to each MBE or WBE. The Contractor shall also submit, along with its voucher for final payment: 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 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.

8. If payments made to, or work performed by, MBEs or WBEs are less than the amount specified in the Contractor's **M/WBE** Utilization Plan, Agency shall take appropriate action, in accordance with Section 6-129 and Article II below, unless the Contractor has obtained a modification of its **M/WBE** Utilization Plan in accordance with Section 6-129 and Part A, Section 11 below.

9. Where an **M/WBE** Utilization Plan has been submitted, and the Contractor requests a change order the value of which exceeds the greater of 10 percent of the Contract or Task Order, as applicable, or $500,000, Agency 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.

10. Pre-award waiver of the **Participation Goals**. (a) A bidder or proposer, or contractor with respect to a Task Order, may seek a pre-award full or partial waiver of the **Participation Goals** in accordance with Section 6-129, which requests that Agency change one or more **Participation Goals** on the grounds that the **Participation Goals** are 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.

(b) To apply for a full or partial waiver of the **Participation Goals**, a bidder, proposer, or contractor, as applicable, must complete Part III (Page 5) of Schedule B and submit such request no later than seven (7) calendar days prior to the date and time the bids, proposals, or Task Orders are due, in writing to the Agency by email at poped@ddc.nyc.gov or via facsimile at (718) 391-1886. Bidders, proposers, or contractors, as applicable, who have submitted requests will receive an Agency response by no later than two (2) calendar days prior to the due date for bids, proposals, or Task Orders; provided, however, that if that date would fall on a weekend or holiday, an Agency response will be provided by close-of-business on the business day before such weekend or holiday date.

(c) If the Agency determines that the **Participation Goals** are 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 and proposals, or revise the Task Order, as applicable.

(d) Agency may grant a full or partial waiver of the **Participation Goals** to a bidder, proposer or contractor, as applicable, who demonstrates—before submission of the bid, proposal or Task Order, as applicable—that it has legitimate business reasons for proposing the level of subcontracting in its **M/WBE** Utilization Plan. In making its determination, Agency shall consider factors that shall include, but not be limited to, whether the bidder, proposer or contractor, as applicable, 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 Goals**. In making such determination, Agency may consider whether the **M/WBE** Utilization Plan is consistent with past subcontracting practices of the bidder, proposer or contractor, as applicable, whether the bidder, proposer or contractor, as applicable, has made efforts to form a joint venture with a certified firm, and whether the bidder, proposer, or contractor, as applicable, has made good faith efforts to identify other portions of the Contract that it intends to subcontract.

11. Modification of **M/WBE** Utilization Plan. (a) A Contractor may request a modification of its **M/WBE** Utilization Plan after award of this Contract. **PLEASE NOTE: If this Contract is a public works project subject to GML §101(5) (i.e., a contract valued at or below $3M for projects in New York City) or if the Contract is subject to a project labor agreement in accordance with Labor Law §222, and the bidder is required to identify at the time of bid submission its intended subcontractors for the Wicks trades (plumbing and gas fitting; steam heating, hot water heating, ventilating and air conditioning (HVAC); and electric wiring), the Contractor may request a Modification of its M/WBE Utilization Plan as part of its bid submission**. The Agency 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 Goals.** In making such determination, Agency shall consider evidence of the following efforts, as applicable, along with any other relevant factors:

(i) 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;
(ii) The Contractor provided notice of specific opportunities to participate in the Contract, in a timely manner, to minority and women's business organizations;
(iii) 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;
(iv) 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;
(v) The Contractor held meetings with MBEs and/or WBEs prior to the date their bids or proposals were due, for the purpose of explaining in detail the scope and requirements of the work for which their bids or proposals were solicited;
(vi) The Contractor made efforts to negotiate with MBEs and/or WBEs as relevant to perform specific subcontracts, or act as suppliers or service providers;
(vii) Timely written requests for assistance made by the Contractor to Agency's M/WBE liaison officer and to DSBS;
(viii) Description of how recommendations made by DSBS and Agency 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.

Agency's M/WBE officer shall provide written notice to the Contractor of the determination.

(b) The Agency may modify the **Participation Goals** when the scope of the work has been changed by the Agency 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.

12. If this Contract is for an indefinite quantity of construction, standard or professional services 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 Goals**, 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 the Agency has determined that such work is not needed.

13. If **Participation Goals** have been established for this Contract or a Task Order issued pursuant to this Contract, at least once annually during the term of the Contract or Task Order, as applicable, Agency 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.

14. If **Participation Goals** have been established for this Contract or a Task Order issued pursuant to this Contract, Agency 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.

PART B: MISCELLANEOUS

1. The Contractor shall take notice that, if this solicitation requires the establishment of an **M/WBE** Utilization Plan, the resulting contract may be audited by DSBS to determine compliance with Section 6-129. See §6-129(e)(10). Furthermore, such resulting contract may also be examined by the City's Comptroller to assess compliance with the **M/WBE** Utilization Plan.

2. Pursuant to DSBS rules, construction contracts that include a requirement for an **M/WBE** Utilization Plan shall not be subject to the law governing Locally Based Enterprises set forth in Section 6-108.1 of the Administrative Code of the City of New York.

3. DSBS is 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.

4. Prospective contractors are encouraged to enter into qualified joint venture agreements with MBEs and/or WBEs as defined by Section 6-129(c)(30).

5. By submitting a bid or proposal the Contractor hereby acknowledges its understanding of the M/WBE Program requirements set forth herein and the pertinent provisions of Section 6-129, and any rules promulgated thereunder, and if awarded this Contract, the Contractor hereby agrees to comply with the M/WBE Program requirements of this Contract and pertinent provisions of Section 6-129, and any rules promulgated thereunder, 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**.

ARTICLE II. ENFORCEMENT

1. If Agency determines that a bidder or proposer, as applicable, has, in relation to this procurement, violated Section 6-129 or the DSBS rules promulgated pursuant to Section 6-129, Agency may disqualify such bidder or proposer, as applicable, from competing for this Contract and the Agency may revoke such bidder's or proposer's prequalification status, if applicable.

2. Whenever Agency believes that the Contractor or a subcontractor is not in compliance with Section 6-129 or the DSBS rules promulgated pursuant to Section 6-129, or any provision of this Contract that implements Section 6-129, including, but not limited to any **M/WBE** Utilization Plan, Agency shall send a written notice to the Contractor describing the alleged noncompliance and offering the Contractor an opportunity to be heard. Agency 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 Section 6-129, the DSBS rules promulgated pursuant to Section 6-129, or any provision of this Contract that implements Section 6-129, including, but not limited to, any **M/WBE** Utilization Plan, Agency 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 or make proposals 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 an **M/WBE** Utilization Plan has been submitted, and pursuant to this Article II, Section 3, the Contractor has been found to have failed to fulfill its **Participation Goals** contained in its **M/WBE** Utilization Plan or the **Participation Goals** as modified by Agency pursuant to Article I, Part A, Section 11, Agency 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 Goals** 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 the City will suffer by reason of Contractor's failure to meet the **Participation Goals**, the foregoing amount is hereby fixed and agreed as the liquidated damages that the City will suffer by reason of such failure, and not as a penalty. Agency 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 the City, the Contractor shall be liable to pay the difference.

5. Whenever Agency 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)), or has violated any provision of Section 6- 129, Agency shall notify the Commissioner of DSBS who shall determine whether the certification of such business enterprise should be revoked.

6. Statements made in any instrument submitted to Agency pursuant to Section 6-129 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 to Section 6-129 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 Agency determines that a Contractor's compliance with an **M/WBE** Utilization Plan has been unsatisfactory, Agency shall, after consultation with the City Chief Procurement Officer, file an advice of caution form for inclusion in VENDEX as caution data.

IN WITNESS WHEREOF, the Commissioner, on behalf of the City of New York, and the Contractor, have executed this agreement in quadruplicate, two parts of which are to remain with the Commissioner, another to be filed with the Comptroller of the City, and the fourth to be delivered to the Contractor.

THE CITY OF NEW YORK

By: Lorraine Gallo
Commissioner

CONTRACTOR:

By: _____
(Member of Firm or Officer of Corporation)

Title: President

(Where Contractor is a Corporation, add):
Attest:

_____
Secretary

(Seal)

_____

ACKNOWLEDGEMENT OF PRINCIPAL, IF A CORPORATION

State of New York County of kings ss:

On this 27 day of July, 2020, before me personally came Cesare Perletto to me known who, being by me duly sworn did depose and say that he resides at 12 Gorge Road Staten Island that he is the President of the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the directors of said corporation, and that he signed his name thereto by like order.

BRITNEY M. FRANKE
Notary Public, State of New York
No. 01FR6382077
Qualified in Kings County
Commission Expires October 15, 2022

Notary Public or Commissioner of Deeds

ACKNOWLEDGEMENT OF PRINCIPAL, IF A PARTNERSHIP

State of _____ County of _____ ss:

On this _____ day of _____, _____, before me personally appeared _____ to me known, and known to me to be one of the members of the firm of _____ _____ described in and who 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 or Commissioner of Deeds

ACKNOWLEDGEMENT OF PRINCIPAL, IF AN INDIVIDUAL

State of _____ County of _____ ss:

On this _____ day of _____, _____, before me personally appeared _____ to me known, and known to me to be the person described in and who executed the foregoing instrument; and acknowledged that he executed the same.

_____
Notary Public or Commissioner of Deeds

ACKNOWLEDGEMENT BY COMMISSIONER

State of _____ County of _____ ss:

On this _____ day of _____, _____, before me personally came _____ to me known, and known to be the Deputy Commissioner of the Department of Design and Construction of The City of New York, the person described as such in and who as such executed the foregoing instrument and acknowledged to me that he executed the same as Deputy Commissioner for the purposes therein mentioned.

_____

Notary Public or Commissioner of Deeds

AUTHORITY

MAYOR'S CERTIFICATE NO. CBX DATED
BUDGET DIRECTOR'S CERTIFICATE NO. DATED

APPROPRIATION
COMMISSIONER'S CERTIFICATE

In conformity with the provisions of Section 6-101 of the Administrative Code of the City of New York, it is hereby certified that the estimated cost of the work, materials and supplies required by the within Contract, amounting to

one hundred sixty-three million

sixty-six thousand forty-three

Dollars ($ 163,066,043.00)

is chargeable to the fund of the Department of Design and Construction entitled Code

SANDRESM2

Department of Design and Construction

I hereby certify that the specifications contained herein comply with the terms and conditions of the BUDGET.

Lorraine Gallo
Commissioner

COMPTROLLER'S CERTIFICATE

The City of New York

Pursuant to the provisions of Section 6-101 of the Administrative Code of the City of New York, I hereby certify that there remains unapplied and unexpended a balance of the above mentioned fund applicable to this Contract sufficient to pay the estimated expense of executing the same viz:

$

Comptroller

MAYOR'S CERTIFICATE OR CERTIFICATE OF THE DIRECTOR OF THE BUDGET

<u>Performance Bond #1 (Pages 100 to 103)</u>: Use if the total contract price is $5 Million Or Less. Performance Bond #1 has been approved by the U.S. Small Business Administration ("SBA") for participation in its Bond Guarantee Program.

PERFORMANCE BOND #1

KNOW ALL PERSONS BY THESE PRESENTS:,
That we, _____

_____

_____

hereinafter referred to as the "Principal,"
and, _____

_____

_____

hereinafter referred to as the "Surety" ("Sureties") are held and firmly bound to THE CITY OF NEW YORK, hereinafter referred to as the "City" or to its successors and assigns in the penal sum of _____

_____

_____

($_____) Dollars, lawful money of the United States for the payment of which said sum of money well and truly to be made, we, and each of us, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal is about to enter, or has entered, into a Contract in writing with the City for

_____

_____

a copy of which Contract is annexed to and hereby made a part of this bond as though herein set forth in full;

NOW, THEREFORE, the conditions of this obligation are such that if the Principal, his or its representatives or assigns, shall well and faithfully perform the said Contract and all modifications, amendments, additions and alterations thereto that may hereafter be made, according to its terms and its true intent and meaning, including repair and or replacement of defective work and guarantees of maintenance for the periods stated in the Contract, and shall fully indemnify and save harmless the City from all cost and damage which it may suffer by reason of the Principal's default of the Contract, and shall fully reimburse and repay the City for all outlay and expense which the City may incur in making

<u>Performance Bond #1 (Pages 100 to 103)</u>: Use if the total contract price is $5 Million Or Less. Performance Bond #1 has been approved by the U.S. Small Business Administration ("SBA") for participation in its Bond Guarantee Program.

good any such default and shall protect the said City of New York against, and pay any and all amounts, damages, cost and judgments which may or shall be recovered against said City or its officers or agents or which the said City of New York may be called upon to pay any person or corporation by reason of any damages arising or growing out of the Principal's default of the Contract, then this obligation shall be null and void, otherwise to remain in full force and effect.

The Surety (Sureties), for value received, hereby stipulates and agrees, upon written notice from the City that the City has determined that the Principal is in default of the Contract, to (1) pay the City the cost to complete the contract as determined by the City in excess of the balance of the Contract held by the City, plus any damages or costs to which the City is entitled, up to the full amount of the above penal sum, (2) fully perform and complete the Work to be performed under the Contract, pursuant to the terms, conditions, and covenants thereof, or (3) tender a completion Contractor that is acceptable to the City. The Surety (Sureties) further agrees, at its option, either to notify the City that it elects to pay the city the cost of completion plus any applicable damages and costs under option (1) above, or to commence and diligently perform the Work specified in the Contract, including physical site work, within twenty-five (25) business days after written notice thereof from the City and, if the Surety elects to fully perform and complete the Work, then to complete all Work within the time set forth in the Contract or such other time as agreed to between the City and Surety in accordance with the Contract. If the Surety elects to tender payment pursuant to (1) above, then the Surety shall tender such amount within fifteen (15) business days notification from the City of the cost of completion. The Surety and the City reserve all rights and defenses each may have against the other; provided, however, that the Surety expressly agrees that its reservation of rights shall not provide a basis for non-performance of its obligation to pay the City the cost of completion, to commence and complete all Work as provided herein, or to tender a completion contractor.

The Surety (Sureties), for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of said Surety (Sureties) and its bond shall be in no way impaired or affected by any extension of time, modification, omission, addition, or change in or to the said Contract or the Work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or any moneys due or to become due thereunder; and said Surety (Sureties) does hereby waive notice of any and all of such extensions, modifications, omissions, additions, changes, payments, and waivers, and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to subcontractors shall have the same effect as to said Surety (Sureties) as though done or omitted to be done by or in relation to said Principal. Notwithstanding the above, if the City makes payments to the Principal before the time required by the contract that in the aggregate exceed $100,000 or 10% of the Contract price, whichever is less, and that have not become earned prior to the Principal being found to be in default, then all payments made to the Principal before the time required by the Contract shall be added to the remaining contract value available to be paid for the completion of the Contract as if such sums had not been paid to the Principal, but shall not provide a basis for non-performance of its obligation to pay the City the cost of completion, to commence and to complete all Work as provided herein, or to tender a completion contractor.

Performance Bond #1 (Pages 100 to 103): Use if the total contract price is $5 Million Or Less. Performance Bond #1 has been approved by the U.S. Small Business Administration ("SBA") for participation in its Bond Guarantee Program.

IN WITNESS WHEREOF, The Principal and the Surety (Sureties) have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereunto affixed and these presents to be signed by their proper officers, this

_____ day of _____, 20_____.

(Seal)

_____(L.S.)
Principal

By:_____.

(Seal)

Surety

By:_____.
_____.

(Seal)

Surety

By:_____.
_____.

(Seal)

Surety

By:_____.
_____.

(Seal)

Surety

By:_____.
_____.

(Seal)

Surety

By:_____.

Bond Premium Rate _____.

Bond Premium Cost _____.

If the Contractor (Principal) is a partnership, the bond should be signed by each of the individuals who are partners.

If the Contractor (Principal) is a corporation, the bond should be signed in its correct corporate name by a duly authorized officer, agent, or attorney-in-fact.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Contract.

Performance Bond #1 (Pages 100 to 103): Use if the total contract price is $5 Million Or Less. Performance Bond #1 has been approved by the U.S. Small Business Administration ("SBA") for participation in its Bond Guarantee Program.

ACKNOWLEDGMENT OF PRINCIPAL IF A CORPORATION

State of _____ County of _____ ss:

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 _____
_____; that he/she is the _____
of the corporation described in and which executed the foregoing instrument; and that he/she signed his/her name to the foregoing instrument by order of the directors of said corporation as the duly authorized and binding act thereof.

_____
Notary Public or Commissioner of Deeds.

ACKNOWLEDGMENT OF PRINCIPAL IF A PARTNERSHIP

State of _____ County of _____ ss:

On this _____ day of _____, 20 _____ before me personally came _____,
to me known, who, being by me duly sworn did dispose and say that he/she resides at _____
_____; that he/she is _____ partner of _____, a limited/general partnership existing under the laws of the State of _____, the partnership described in and which executed the foregoing instrument; and that he/she signed his/her name to the foregoing instrument as the duly authorized and binding act of said partnership.

_____
Notary Public or Commissioner of Deeds.

ACKNOWLEDGMENT OF PRINCIPAL IF AN INDIVIDUAL

State of _____ County of _____ ss:

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 whose name is subscribed to the within instrument and acknowledged to me that by his/her signature on the instrument, said individual executed the instrument.

_____
Notary Public or Commissioner of Deeds

Each executed bond should be accompanied by: (a) appropriate acknowledgments of the respective parties; (b) appropriate duly certified copy of Power of Attorney or other certificate of authority where bond is executed by agent, officer or other representative of Principal or Surety; (c) a duly certified extract from By-Laws or resolutions of Surety under which Power of Attorney or other certificate of authority of its agent, officer or representative was issued, and (d) certified copy of latest published financial statement of assets and liabilities of Surety.

* * * * * * * *

Affix Acknowledgments and Justification of Sureties.

Performance Bond #2 (Pages 104 to 107): Use if the total contract price is more than $5 Million.

Bond#: PRF9348571

PERFORMANCE BOND #2

KNOW ALL PERSONS BY THESE PRESENTS:,
That we, Perfetto Contracting Co. Inc.

152 41st Street

Brooklyn, NY 11232

hereinafter referred to as the "Principal,"
and, Fidelity and Deposit Company of Maryland

600 Red Brook Boulevard, Suite 600

Owings Mills, MD 21117

hereinafter referred to as the "Surety" ("Sureties") are held and firmly bound to THE CITY OF NEW YORK, hereinafter referred to as the "City" or to its successors and assigns in the penal sum of One Hundred Sixty Three Million Sixty Six Thousand Forty Three and 00/100ths-----

($ 163,066,043.00) Dollars, lawful money of the United States for the payment of which said sum of money well and truly to be made, we, and each of us, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal is about to enter, or has entered, into a Contract in writing with the City for

FMS ID: SANDRESM2; DDC PIN:8502020RC0002C; Installation of East Side Coastal Resiliency from East 15th Street to East 25th Street, Borough of Manhattan

a copy of which Contract is annexed to and hereby made a part of this bond as though herein set forth in full;

NOW, THEREFORE, the conditions of this obligation are such that if the Principal, his or its representatives or assigns, shall well and faithfully perform the said Contract and all modifications, amendments, additions and alterations thereto that may hereafter be made, according to its terms and its true intent and meaning, including repair and or replacement of defective work and guarantees of maintenance for the periods stated in the Contract, and shall fully indemnify and save harmless the City from all cost and damage which it may suffer by reason of the Principal's default of the Contract, and shall fully reimburse and repay the City for all outlay and expense which the City may incur in making

Performance Bond#2(Pages 104to 107): Use if the total contract price is more than $5 Million.

good any such default and shall protect the said City of New York against, and pay any and all amounts, damages, cost and judgments which may or shall be recovered against said City or its officers or agents or which the said City of New York may be called upon to pay any person or corporation by reason of any damages arising or growing out of the Principal's default of the Contract, then this obligation shall be null and void, otherwise to remain in full force and effect.

The Surety (Sureties), for value received, hereby stipulates and agrees, upon written notice from the City that the City has determined that the Principal is in default of the Contract, to either (1) pay the full amount of the above penal sum in complete discharge and exoneration of this bond and of all the liabilities of the Surety relating to this bond, or (2) fully perform and complete the Work to be performed under the Contract, pursuant to the terms, conditions, and covenants thereof. The Surety (Sureties) further agrees, at its option, either to tender the penal sum or to commence and diligently perform the Work specified in the Contract, including physical site work, within twenty-five (25) business days after written notice thereof from the City and to complete all Work within the time set forth in the Contract or such other time as agreed to between the City and Surety in accordance with the Contract. The Surety and the City reserve all rights and defenses each may have against the other; provided, however, that the Surety expressly agrees that its reservation of rights shall not provide a basis for non-performance of its obligation to commence and to complete all Work as provided herein.

The Surety (Sureties), for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of said Surety (Sureties) and its bond shall be in no way impaired or affected by any extension of time, modification, omission, addition, or change in or to the said Contract or the Work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or by any assignment, subletting or other transfer thereof or of any Work to be performed or any moneys due or to become due thereunder, and said Surety (Sureties) does hereby waive notice of any and all of such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers, and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to assignees, subcontractors, and other transferees shall have the same effect as to said Surety (Sureties) as though done or omitted to be done by or in relation to said Principal.

Performance Bond#2 (Pages 104 to 107): Use if the total contract price is more than $5 Million.

IN WITNESS WHEREOF, The Principal and the Surety (Sureties) have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereunto affixed and these presents to be signed by their proper officers, this

27th day of July 20 20 .

(Seal)

Perfetto Contracting Co. Inc (L.S.)
Principal

By: _____

(Seal)

Surety
Fidelity and Deposit Company of Maryland

By: _____

William D. Haas, Attorney-In-Fact
Surety

(Seal)

By: _____

Surety

(Seal)

By: _____

Surety

(Seal)

By: _____

Surety

(Seal)

By: _____

Bond Premium Rate VAR

Bond Premium Cost $1,070,090.00

If the Contractor (Principal) is a partnership, the bond should be signed by each of the individuals who are partners.

If the Contractor (Principal) is a corporation, the bond should be signed in its correct corporate name by a duly authorized officer, agent, or attorney-in-fact.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Contract.

Performance Bond #2 (Pages 104 to 107): Use if the total contract price is more than $5 Million.

ACKNOWLEDGMENT OF PRINCIPAL IF A CORPORATION

State of New York County of Kings ss:

On this 3 day of August, 20 20 before me personally came Cesare Perlena to me known, who being by me duly sworn did depose and say that he resides at 12 George Road Staten Island, NY ; that he/she is the President of the corporation described in and which executed the foregoing instrument; that he/she signed his/her name to the foregoing instrument by order of the directors of said corporation as the duly authorized and binding act thereof.

Notary Public or Commissioner of Deeds.

BRITNEY M. FRANKE
Notary Public, State of New York
No. 01FR6382077
Qualified in Kings County
Commission Expires October 15, 2022

ACKNOWLEDGMENT OF PRINCIPAL IF A PARTNERSHIP

State of _____ County of _____ ss:

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 _____

_____; that he/she is _____ partner of _____, a limited/general partnership existing under the laws of the State of _____, the partnership described in and which executed the foregoing instrument; and that he/she signed his/her name to the foregoing instrument as the duly authorized and binding act of said partnership.

_____
Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT OF PRINCIPAL IF AN INDIVIDUAL

State of _____ County of _____ ss:

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 whose name is subscribed to the within instrument and acknowledged to me that by his/her signature on the instrument, said individual executed the instrument.

_____
Notary Public or Commissioner of Deeds

Each executed bond should be accompanied by: (a) appropriate acknowledgments of the respective parties; (b) appropriate duly certified copy of Power of Attorney or other certificate of authority where bond is executed by agent, Officer or other representative of Principal or Surety; (c) a duly certified extract from By-Laws or resolutions of Surety under which Power of Attorney or other certificate of authority of its agent, Officer or representative was issued, and (d) certified copy of latest published financial statement of assets and liabilities of Surety.

* * * * * * * *

Affix Acknowledgments and Justification of Sureties.

Individual Acknowledgment

State of _____

County of_____

On this _____day of_____, 20____, before me personally came _____to me known, and known to me to be the individual in and who executed the foregoing instrument, and acknowledged to me that he/she executed the same.

My commission expires_____ _____

Notary Public

Corporation Acknowledgment

State of NY
County of Kings

On the 3 day of August, 2020 before me personally came Cesare Perfetto to me known; who being by me duly sworn, did depose and say that he/she/they reside(s) in 12 Gorge Road Staten Island that he/she/they is (are) the President of the Perfetto Contracting Co. Inc., the corporation described in and which executed the above instrument; that he/she/they know(s) the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by authority of the board of directors of said corporation, and that he/she/they signed his/her/their name(s) thereto by like authority.

BRITNEY M. FRANKE
Notary Public, State of New York
No. 01FR6382077
Qualified in Kings County
Commission Expires October 15, 2022

My commission expires _____

Notary Public

Surety Acknowledgment

State of **New York**

County of **Westchester**

On the 27th day of **July, 2020** personally came William D. Haas to me known , who being by me duly sworn did depose and say that he/she is an Attorney-in-Fact of **Fidelity and Deposit Company of Maryland** in and which executed the above Instrument know(s) the corporate seal of said corporation; that the seal affixed to the within instrument is such corporate seal, and that he/she/they signed the said instrument and affixed the said seal as Attorney-in-fact by authority of the Board of Directors of said corporation and by authority of this office under the standing resolution thereof.

MAUREEN A KITTRICK
NOTARY PUBLIC STATE OF NEW YORK
LIC. #01KI4986881
COMMISSION EXPIRES 09-30-2021

My commission expires _____

Notary Public

ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND
POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That the ZURICH AMERICAN INSURANCE COMPANY, a corporation of the State of New York, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, a corporation of the State of Illinois, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND a corporation of the State of Illinois (herein collectively called the "Companies"), by **Robert D. Murray, Vice President**, in pursuance of authority granted by Article V, Section 8, of the By-Laws of said Companies, which are set forth on the reverse side hereof and are hereby certified to be in full force and effect on the date hereof, do hereby nominate, constitute, and appoint, **William D. HAAS, Denese THOMPSON, Marnie GINSBURG and Benedict J. TOCKARSHEWSKY, all of White Plains, New York, EACH,** its true and lawful agent and Attorney-in-Fact, to make, execute, seal and deliver, for, and on its behalf as surety, and as its act and deed: **any and all bonds and undertakings,** and the execution of such bonds or undertakings in pursuance of these presents, shall be as binding upon said Companies, as fully and amply, to all intents and purposes, as if they had been duly executed and acknowledged by the regularly elected officers of the ZURICH AMERICAN INSURANCE COMPANY at its office in New York, New York., the regularly elected officers of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at its office in Owings Mills, Maryland., and the regularly elected officers of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at its office in Owings Mills, Maryland., in their own proper persons.

The said Vice President does hereby certify that the extract set forth on the reverse side hereof is a true copy of Article V, Section 8, of the By-Laws of said Companies, and is now in force.

IN WITNESS WHEREOF, the said Vice-President has hereunto subscribed his/her names and affixed the Corporate Seals of the said **ZURICH AMERICAN INSURANCE COMPANY, COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and FIDELITY AND DEPOSIT COMPANY OF MARYLAND**, this 2nd day of April, A.D. 2019.

ATTEST:

ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND

By: Robert D. Murray
Vice President

By: Dawn E. Brown
Secretary

State of Maryland
County of Baltimore

On this 2nd day of April, A.D. 2019, before the subscriber, a Notary Public of the State of Maryland, duly commissioned and qualified, **Robert D. Murray, Vice President and Dawn E. Brown, Secretary** of the Companies, to me personally known to be the individuals and officers described in and who executed the preceding instrument, and acknowledged the execution of same, and being by me duly sworn, deposeth and saith, that he/she is the said officer of the Company aforesaid, and that the seals affixed to the preceding instrument are the Corporate Seals of said Companies, and that the said Corporate Seals and the signature as such officer were duly affixed and subscribed to the said instrument by the authority and direction of the said Corporations.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my Official Seal the day and year first above written.

Constance A. Dunn, Notary Public
My Commission Expires: July 9, 2019

EXTRACT FROM BY-LAWS OF THE COMPANIES

"Article V, Section 8, Attorneys-in-Fact. The Chief Executive Officer, the President, or any Executive Vice President or Vice President may, by written instrument under the attested corporate seal, appoint attorneys-in-fact with authority to execute bonds, policies, recognizances, stipulations, undertakings, or other like instruments on behalf of the Company, and may authorize any officer or any such attorney-in-fact to affix the corporate seal thereto; and may with or without cause modify of revoke any such appointment or authority at any time."

CERTIFICATE

I, the undersigned, Vice President of the ZURICH AMERICAN INSURANCE COMPANY, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, do hereby certify that the foregoing Power of Attorney is still in full force and effect on the date of this certificate; and I do further certify that Article V, Section 8, of the By-Laws of the Companies is still in force.

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the ZURICH AMERICAN INSURANCE COMPANY at a meeting duly called and held on the 15th day of December 1998.

RESOLVED: "That the signature of the President or a Vice President and the attesting signature of a Secretary or an Assistant Secretary and the Seal of the Company may be affixed by facsimile on any Power of Attorney...Any such Power or any certificate thereof bearing such facsimile signature and seal shall be valid and binding on the Company."

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at a meeting duly called and held on the 5th day of May, 1994, and the following resolution of the Board of Directors of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at a meeting duly called and held on the 10th day of May, 1990.

RESOLVED: "That the facsimile or mechanically reproduced seal of the company and facsimile or mechanically reproduced signature of any Vice-President, Secretary, or Assistant Secretary of the Company, whether made heretofore or hereafter, wherever appearing upon a certified copy of any power of attorney issued by the Company, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seals of the said Companies, this 27th day of July, 2020.

Brian M. Hodges, Vice President

TO REPORT A CLAIM WITH REGARD TO A SURETY BOND, PLEASE SUBMIT A COMPLETE DESCRIPTION OF THE CLAIM INCLUDING THE PRINCIPAL ON THE BOND, THE BOND NUMBER, AND YOUR CONTACT INFORMATION TO:

Zurich Surety Claims
1299 Zurich Way
Schaumburg, IL 60196-1056
www.reportsfclaims@zurichna.com
800-626-4577

THE FIDELITY AND DEPOSIT COMPANY

OF MARYLAND
1299 Zurich Way Schaumburg, IL 60196

Statement of Financial Condition
As Of December 31, 2019

ASSETS

Bonds		$ 255,279,821
Stocks		21,280,401
Cash and Short Term Investments		2,878,421
Reinsurance Recoverable		25,356,035
Federal Income Tax Recoverable		140,480
Other Accounts Receivable		20,383,843
TOTAL ADMITTED ASSETS		$ 325,319,001

LIABILITIES, SURPLUS AND OTHER FUNDS

Reserve for Taxes and Expenses		$ 795,381
Ceded Reinsurance Premiums Payable		43,024,327
Remittances and Items Unallocated		0
Payable to parents, subs and affiliates		0
Securities Lending Collateral Liability		0
TOTAL LIABILITIES		$ 43,819,708
Capital Stock, Paid Up	$ 5,000,000	
Surplus	276,499,293	
Surplus as regards Policyholders		281,499,293
TOTAL		$ 325,319,001

Securities carried at $164,223,431 in the above statement are deposited with various states as required by law.

Securities carried on the basis prescribed by the National Association of Insurance Commissioners. On the basis of market quotations for all bonds and stocks owned, the Company's total admitted assets at December 31, 2019 would be $322,248,132 and surplus as regards policyholders $288,428,424.

I, LAURA J. LAZARCZYK, Corporate Secretary of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, do hereby certify that the foregoing statement is a correct exhibit of the assets and liabilities of the said Company on the 31st day of December, 2019.

Laura J Lazarczyk
Corporate Secretary

State of Illinois
City of Schaumburg } SS:

Subscribed and sworn to, before me, a Notary Public of the State of Illinois, in the City of Schaumburg, this 25th day of February, 2020.

Daryl Joiner
Notary Public

DARRYL JOINER
OFFICIAL SEAL
Notary Public - State of Illinois
My Commission Expires 2/24/2022

Payment Bond (Pages 108 to 111): Use for any contract for which a Payment Bond is required.

Bond#: PRF9348571 PAYMENT BOND (Page 1)

PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS, That we,

Perfetto Contracting Co. Inc.

152 41st Street

Brooklyn, NY 11232

hereinafter referred to as the "Principal', and

Fidelity and Deposit Company of Maryland

600 Red Brook Boulevard, Suite 600

Owings Mills, MD 21117

hereinafter referred to as the "Surety" ("Sureties") are held and firmly bound to THE CITY OF NEW YORK, hereinafter referred to as the "City" or to its successors and assigns, in the penal sum of

One Hundred Sixty Three Million Sixty Six Thousand And 43 and 00/100ths ----------

($163,066,043.00) Dollars, lawful money of the United States, for the payment of which said sum of money well and truly to be made, we, and each of us, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal is about to enter, or has entered, into a Contract in writing with the City for

FMS ID: SANDRESM2; DDC PIN:8502020RC0002C; Installation of East Side Coastal Resiliency from East 15th Street to East 25th Street, Borough of Manhattan -

a copy of which Contract is annexed to and hereby made a part of this bond as though herein set forth in full;

NOW, THEREFORE, the conditions of this obligation are such that if the Principal, his or its representatives or assigns and other Subcontractors to whom Work under this Contract is sublet and his or their successors and assigns shall promptly pay or cause to be paid all lawful claims for

(a) Wages and compensation for labor performed and services rendered by all persons engaged in the prosecution of the Work under said Contract, and any amendment or extension thereof or addition thereto, whether such persons be agents servants or employees of the Principal or any such Subcontractor, including all persons so engaged who perform the work of laborers or mechanics at or in the vicinity of the site

Payment Bond (Pages 108 to 111): Use for any contract for which a Payment Bond is required.

of the Project regardless of any contractual relationship between the Principal or such Subcontractors, or his or their successors or assigns, on the one hand and such laborers or mechanics on the other, but not including office employees not regularly stationed at the site of the project; and

(b) Materials and supplies (whether incorporated in the permanent structure or not), as well as teams, fuels, oils, implements or machinery furnished, used or consumed by said Principal or any subcontractor at or in the vicinity of the site of the Project in the prosecution of the Work under said Contract and any amendment or extension thereof or addition thereto; then this obligation shall be void, otherwise to remain in full force and effect.

This bond is subject to the following additional conditions, limitations and agreements:

(a) The Principal and Surety (Sureties) agree that this bond shall be for the benefit of any materialmen or laborer having a just claim, as well as the City itself.

(b) All persons who have performed labor, rendered services or furnished materials and supplies, as aforesaid, shall have a direct right of action against the Principal and his, its or their successors and assigns, and the Surety (Sureties) herein, or against either or both or any of them and their successors and assigns. Such persons may sue in their own name, and may prosecute the suit to judgment and execution without the necessity of joining with any other persons as party plaintiff.

(c) The Principal and Surety (Sureties) agree that neither of them will hold the City liable for any judgment for costs of otherwise, obtained by either or both of them against a laborer or materialman in a suit brought by either a laborer or materialman under this bond for moneys allegedly due for performing work or furnishing material.

(d) The Surety (Sureties) or its successors and assigns shall not be liable for any compensation recoverable by an employee or laborer under the Workmen's Compensation Law.

(e) In no event shall the Surety (Sureties), or its successors or assigns, be liable for a greater sum than the penalty of this bond or be subject to any suit, action or proceeding hereon that is instituted by any person, firm, or corporation hereunder later than two years after the complete performance of said Contract and final settlement thereof.

The Principal, for himself and his successors and assigns, and the Surety (Sureties), for itself and its successors and assigns, do hereby expressly waive any objection that might be interposed as to the right of the City to require a bond containing the foregoing provisions, and they do hereby further expressly waive any defense which they or either of them might interpose to an action brought hereon by any person, firm or corporation, including subcontractors, materialmen and third persons, for work, labor, services, supplies or material performed rendered, or furnished as aforesaid upon the ground that there is no law authorizing the City to require the foregoing provisions to be place in this bond.

And the Surety (Sureties), for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of said Surety (Sureties), and its bonds shall be in no way impaired or affected by any extension of time, modification, omission, addition, or change in or of the said Contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or by any assignment, subletting or other transfer thereof or of any part thereof, or of any Work to be performed, or any moneys due to become due thereunder and said Surety (Sureties) does hereby waive notice of any and all of such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers, and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to assignees, Subcontractors, and other transferees shall have the same effect as to said Surety (Sureties) as though done or omitted to be done or in relation to said Principal.

Payment Bond (Pages 108 to 111): Use for any contract for which a Payment Bond is required.

IN WITNESS WHEREOF, the Principal and the Surety (Sureties) have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereunto affixed and these presents to be signed by their proper officers, this 27th day of July, 2020.

(Seal) Perfetto Contracting Co. Inc. (L.S.)
Principal

By: _____

(Seal) Fidelity and Deposit Company of Maryland
Surety

By: _____
William D. Haas, Attorney-In-Fact

(Seal) _____
Surety

By: _____

(Seal) _____
Surety

By: _____

(Seal) _____
Surety

By: _____

If the Contractor (Principal) is a partnership, the bond should be signed by each of the individuals who are partners.

If the Contractor (Principal) is a corporation, the bond should be signed in its correct corporate name by a duly authorized officer, agent, or attorney-in-fact.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Contract.

Payment Bond (Pages 108 to 111): Use for any contract for which a Payment Bond is required.

ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION

State of New York County of Kings ss:

On this 3 day of August, 2020, before me personally came Cesare Perlotto to me known, who, being by me duly sworn did depose and say that he resides at 12 George Road Staten Island, NY 10304 that he is the President of the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the directors of said corporation, and that he signed his name thereto by like order.

BRITNEY M. FRANKE
Notary Public, State of New York
No. 01FR6382077
Qualified in Kings County
Commission Expires October 15, 2022

Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP

State of _____ County of _____ ss:

On this _____ day of _____, _____, before me personally appeared _____ to me known, and known to me to be one of the members of the firm of _____ _____ described in and who 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 or Commissioner of Deeds

ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL

State of _____ County of _____ ss:

On this _____ day of _____, _____, before me personally appeared _____ to me known, and known to me to be the person described in and who executed the foregoing instrument; and acknowledged that he executed the same.

_____
Notary Public or Commissioner of Deeds

Each executed bond should be accompanied by: (a) appropriate acknowledgments of the respective parties; (b) appropriate duly certified copy of Power of Attorney or other certificate of authority where bond is executed by agent, officer or other representative of Principal or Surety; (c) a duly certified extract from By-Laws or resolutions of Surety under which Power of Attorney or other certificate of authority of its agent, officer or representative was issued, and (d) certified copy of latest published financial statement of assets and liabilities of Surety.

* * * * * * * *

Affix Acknowledgments and Justification of Sureties.

Individual Acknowledgment

State of _____

County of_____

On this _____day of_____, 20____, before me personally came _____to me known, and known to me to be the individual in and who executed the foregoing instrument, and acknowledged to me that he/she executed the same.

My commission expires_____ _____

Notary Public

Corporation Acknowledgment

State of NY
County of Kings

On the 3 day of August, 2020 before me personally came Cesare Perdetto to me known; who being by me duly sworn, did depose and say that he/she/they reside(s) in 12 Gorge Road Staten Island that he/she/they is (are) the President of the Perdetto Contracting Co. Inc., the corporation described in and which executed the above instrument; that he/she/they know(s) the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by authority of the board of directors of said corporation, and that he/she/they signed his/her/their name(s) thereto by like authority.

BRITNEY M. FRANKE
Notary Public, State of New York
No. 01FR6382077
Qualified in Kings County
Commission Expires October 15, 2022

My commission expires _____

_____

Notary Public

Surety Acknowledgment

State of **New York**

County of **Westchester**

On the 27th day of **July, 2020** personally came William D. Haas to me known , who being by me duly sworn did depose and say that he/she is an Attorney-in-Fact of **Fidelity and Deposit Company of Maryland** in and which executed the above Instrument know(s) the corporate seal of said corporation; that the seal affixed to the within instrument is such corporate seal, and that he/she/they signed the said instrument and affixed the said seal as Attorney-in-fact by authority of the Board of Directors of said corporation and by authority of this office under the standing resolution thereof.

MAUREEN A KITTRICK
NOTARY PUBLIC STATE OF NEW YORK
LIC. #01KI4986881
COMMISSION EXPIRES 09-30-2021

My commission expires _____

_____

Notary Public

ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND
POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That the ZURICH AMERICAN INSURANCE COMPANY, a corporation of the State of New York, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, a corporation of the State of Illinois, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND a corporation of the State of Illinois (herein collectively called the "Companies"), by **Robert D. Murray, Vice President**, in pursuance of authority granted by Article V, Section 8, of the By-Laws of said Companies, which are set forth on the reverse side hereof and are hereby certified to be in full force and effect on the date hereof, do hereby nominate, constitute, and appoint, **William D. HAAS, Denese THOMPSON, Marnie GINSBURG and Benedict J. TOCKARSHEWSKY, all of White Plains, New York, EACH,** its true and lawful agent and Attorney-in-Fact, to make, execute, seal and deliver, for, and on its behalf as surety, and as its act and deed: **any and all bonds and undertakings,** and the execution of such bonds or undertakings in pursuance of these presents, shall be as binding upon said Companies, as fully and amply, to all intents and purposes, as if they had been duly executed and acknowledged by the regularly elected officers of the ZURICH AMERICAN INSURANCE COMPANY at its office in New York, New York., the regularly elected officers of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at its office in Owings Mills, Maryland., and the regularly elected officers of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at its office in Owings Mills, Maryland., in their own proper persons.

The said Vice President does hereby certify that the extract set forth on the reverse side hereof is a true copy of Article V, Section 8, of the By-Laws of said Companies, and is now in force.

IN WITNESS WHEREOF, the said Vice-President has hereunto subscribed his/her names and affixed the Corporate Seals of the said **ZURICH AMERICAN INSURANCE COMPANY, COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and FIDELITY AND DEPOSIT COMPANY OF MARYLAND**, this 2nd day of April, A.D. 2019.

ATTEST:

ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND

By: Robert D. Murray
Vice President

By: Dawn E. Brown
Secretary

State of Maryland
County of Baltimore

On this 2nd day of April, A.D. 2019, before the subscriber, a Notary Public of the State of Maryland, duly commissioned and qualified, **Robert D. Murray, Vice President and Dawn E. Brown, Secretary** of the Companies, to me personally known to be the individuals and officers described in and who executed the preceding instrument, and acknowledged the execution of same, and being by me duly sworn, deposeth and saith, that he/she is the said officer of the Company aforesaid, and that the seals affixed to the preceding instrument are the Corporate Seals of said Companies, and that the said Corporate Seals and the signature as such officer were duly affixed and subscribed to the said instrument by the authority and direction of the said Corporations.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my Official Seal the day and year first above written.

Constance A. Dunn, Notary Public
My Commission Expires: July 9, 2019

EXTRACT FROM BY-LAWS OF THE COMPANIES

"Article V, Section 8, Attorneys-in-Fact. The Chief Executive Officer, the President, or any Executive Vice President or Vice President may, by written instrument under the attested corporate seal, appoint attorneys-in-fact with authority to execute bonds, policies, recognizances, stipulations, undertakings, or other like instruments on behalf of the Company, and may authorize any officer or any such attorney-in-fact to affix the corporate seal thereto; and may with or without cause modify of revoke any such appointment or authority at any time."

CERTIFICATE

I, the undersigned, Vice President of the ZURICH AMERICAN INSURANCE COMPANY, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, do hereby certify that the foregoing Power of Attorney is still in full force and effect on the date of this certificate; and I do further certify that Article V, Section 8, of the By-Laws of the Companies is still in force.

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the ZURICH AMERICAN INSURANCE COMPANY at a meeting duly called and held on the 15th day of December 1998.

RESOLVED: "That the signature of the President or a Vice President and the attesting signature of a Secretary or an Assistant Secretary and the Seal of the Company may be affixed by facsimile on any Power of Attorney...Any such Power or any certificate thereof bearing such facsimile signature and seal shall be valid and binding on the Company."

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at a meeting duly called and held on the 5th day of May, 1994, and the following resolution of the Board of Directors of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at a meeting duly called and held on the 10th day of May, 1990.

RESOLVED: "That the facsimile or mechanically reproduced seal of the company and facsimile or mechanically reproduced signature of any Vice-President, Secretary, or Assistant Secretary of the Company, whether made heretofore or hereafter, wherever appearing upon a certified copy of any power of attorney issued by the Company, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seals of the said Companies, this 27th day of July, 2020.

Brian M. Hodges, Vice President

TO REPORT A CLAIM WITH REGARD TO A SURETY BOND, PLEASE SUBMIT A COMPLETE DESCRIPTION OF THE CLAIM INCLUDING THE PRINCIPAL ON THE BOND, THE BOND NUMBER, AND YOUR CONTACT INFORMATION TO:

Zurich Surety Claims
1299 Zurich Way
Schaumburg, IL 60196-1056
www.reportsfclaims@zurichna.com
800-626-4577

THE FIDELITY AND DEPOSIT COMPANY

OF MARYLAND
1299 Zurich Way Schaumburg, IL 60196

Statement of Financial Condition
As Of December 31, 2019

ASSETS

Bonds		$ 255,279,821
Stocks		21,280,401
Cash and Short Term Investments		2,878,421
Reinsurance Recoverable		25,356,035
Federal Income Tax Recoverable		140,480
Other Accounts Receivable		20,383,843
TOTAL ADMITTED ASSETS		$ 325,319,001

LIABILITIES, SURPLUS AND OTHER FUNDS

Reserve for Taxes and Expenses		$ 795,381
Ceded Reinsurance Premiums Payable		43,024,327
Remittances and Items Unallocated		0
Payable to parents, subs and affiliates		0
Securities Lending Collateral Liability		0
TOTAL LIABILITIES		$ 43,819,708
Capital Stock, Paid Up	$ 5,000,000	
Surplus	276,499,293	
Surplus as regards Policyholders		281,499,293
TOTAL		$ 325,319,001

Securities carried at $164,223,431 in the above statement are deposited with various states as required by law.

Securities carried on the basis prescribed by the National Association of Insurance Commissioners. On the basis of market quotations for all bonds and stocks owned, the Company's total admitted assets at December 31, 2019 would be $322,248,132 and surplus as regards policyholders $288,428,424.

I, LAURA J. LAZARCZYK, Corporate Secretary of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, do hereby certify that the foregoing statement is a correct exhibit of the assets and liabilities of the said Company on the 31st day of December, 2019.

Laura J. Lazarczyk
Corporate Secretary

State of Illinois
City of Schaumburg } SS:

Subscribed and sworn to, before me, a Notary Public of the State of Illinois, in the City of Schaumburg, this 25th day of February, 2020.

Daryl Joiner
Notary Public

DARRYL JOINER
OFFICIAL SEAL
Notary Public - State of Illinois
My Commission Expires 2/24/2022

Client#: 1667785 PERFECON7

ACORD™ CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 8/14/2020

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer any rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Katlen M. Yesse	
USI Insurance Svcs - KORE CL 180 Park Avenue Suite 103 Florham Park, NJ 07932	PHONE (A/C, No, Ext): 973 965-3100	FAX (A/C, No): 610 537-2349
	E-MAIL ADDRESS: katlen.yesse@usi.com	

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : New York Marine & General Insurance Co.	16608
INSURER B : Zurich American Insurance Company	16535
INSURER C : Navigators Insurance Company	42307
INSURER D : Hartford Life & Accident Insurance Co.	70815
INSURER E : North River Insurance Company	21105
INSURER F :	

INSURED
Perfetto Contracting Co. Inc.
152 41st Street
Brooklyn, NY 11232

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY			PK201900015274	12/22/2019	12/22/2020	EACH OCCURRENCE	$2,000,000
	CLAIMS-MADE X OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$300,000
							MED EXP (Any one person)	$5,000
							PERSONAL & ADV INJURY	$2,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$4,000,000
	POLICY X PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$4,000,000
	OTHER:							$
E	AUTOMOBILE LIABILITY			1337469327	12/22/2019	12/22/2020	COMBINED SINGLE LIMIT (Ea accident)	$1,000,000
	X ANY AUTO						BODILY INJURY (Per person)	$
	OWNED AUTOS ONLY / SCHEDULED AUTOS			Comp Ded: $1,000			BODILY INJURY (Per accident)	$
	X HIRED AUTOS ONLY / X NON-OWNED AUTOS ONLY			Coll Ded: $1,000			PROPERTY DAMAGE (Per accident)	$
	X Phys Damage							$
A	X UMBRELLA LIAB X OCCUR			UM201900007604	12/22/2019	12/22/2020	EACH OCCURRENCE	$8,000,000
B	X EXCESS LIAB CLAIMS-MADE			AEC023055303	12/22/2019	12/22/2020	AGGREGATE	$8,000,000
	DED RETENTION $							$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N: N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		WC201900018546	12/22/2019	12/22/2020	X PER STATUTE / OTH-ER	
							E.L. EACH ACCIDENT	$1,000,000
							E.L. DISEASE - EA EMPLOYEE	$1,000,000
							E.L. DISEASE - POLICY LIMIT	$1,000,000
C	Pollution Li			NY19ECPX00096NV	12/22/2019	12/22/2020	Occ/Agg: $5,000,000	
D	NY Disability			LNY617471	10/01/2018	Continuous	Statutory Limits	
A	Inst. Floater			PK201900015274	12/22/2019	12/22/2020	Limit: $100K/$1K Ded	

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

RE: FMS ID: SANDRESM2; E-PIN: 85020B0029001; DDC PIN: 8502020RC0002C INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET-BOROUGH OF MANHATTAN
The General Liability, Business Auto and Umbrella policy includes an automatic Additional Insured endorsement that provides Additional Insured status to City of New York, including its officials and employees; U.S. Department of Housing and Urban Development (HUD), including its officials and employees;
(See Attached Descriptions)

CERTIFICATE HOLDER

NYC Department of Design and Construction
30-30 Thomson Avenue, 4th Floor
Long Island City, NY 11101

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

DESCRIPTIONS (Continued from Page 1)

New York City Housing Authority (NYCHA) , including its officials and employees; New York City Economic Development Corporation (EDC) , including its officials and employees; Consolidated Edison, Inc.; Empire City Subway (ECS) / Verizon; U.S. Department of Veterans Affairs (VA), including its officials and employees. 9. New York City Transit Authority (NYCTA), the Manhattan and Bronx Surface Transit Operating Authority (MaBSTOA), the Staten Island Rapid Transit Operating Authority (SIRTOA), MTA Capital Construction Co., the Metropolitan Transportation Authority (MTA) including its subsidiaries and affiliates, only when there is a written contract that requires such status, and only with regard to work performed on behalf of the named insured.

The General Liability, Business Auto & Umbrella policy(s) provide a Blanket Waiver of Subrogation when required by written contract, except as prohibited by law.

The General Liability, Business Auto & Umbrella policy(s) contains a special endorsement with "Primary and Noncontributory" wording, when required by written contract.

Client#: 1667785 PERFECON7

ACORD™

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 9/11/2020

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer any rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Katlen M. Yesse	
USI Insurance Svcs - KORE CL 180 Park Avenue Suite 103 Florham Park, NJ 07932	PHONE (A/C, No, Ext): 973 965-3100	FAX (A/C, No): 610 537-2349
	E-MAIL ADDRESS: katlen.yesse@usi.com	
	INSURER(S) AFFORDING COVERAGE	NAIC #
	INSURER A : James River Insurance Company	12203
INSURED	INSURER B : Axis Surplus Insurance Company	26620
Perfetto Contracting Co. Inc. 152 41st Street Brooklyn, NY 11232	INSURER C : Colony Specialty Insurance Company	36927
	INSURER D :	
	INSURER E :	
	INSURER F :	

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE [ ] OCCUR [X] GEN'L AGGREGATE LIMIT APPLIES PER: POLICY [ ] PRO-JECT [X] LOC [ ] OTHER:			00107318-0	10/01/2020	10/01/2024	EACH OCCURRENCE	$6,000,000
							DAMAGE TO RENTED PREMISES (Ea occurrence)	$50,000
							MED EXP (Any one person)	$Excluded
							PERSONAL & ADV INJURY	$6,000,000
							GENERAL AGGREGATE	$6,000,000
							PRODUCTS - COMP/OP AGG	$6,000,000
								$
	AUTOMOBILE LIABILITY ANY AUTO OWNED AUTOS ONLY / SCHEDULED AUTOS HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY						COMBINED SINGLE LIMIT (Ea accident)	$
							BODILY INJURY (Per person)	$
							BODILY INJURY (Per accident)	$
							PROPERTY DAMAGE (Per accident)	$
								$
B	X UMBRELLA LIAB X OCCUR			XST01102020	10/01/2020	10/01/2024	EACH OCCURRENCE	$44,000,000
C	X EXCESS LIAB CLAIMS-MADE			CXL20201001-01	10/01/2020	10/01/2024	AGGREGATE	$44,000,000
	DED RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? [ ] (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N / A					PER STATUTE / OTH-ER	
							E.L. EACH ACCIDENT	$
							E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

RE: FMS ID: SANDRESM2; E-PIN: 85020B0029001; DDC PIN: 8502020RC0002C INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET-BOROUGH OF MANHATTAN

The General Liability & Excess policies includes an automatic Additional Insured endorsement that provides Additional Insured status to City of New York, including its officials and employees; U.S. Department of Housing and Urban Development (HUD), including its officials and employees; (See Attached Descriptions)

CERTIFICATE HOLDER	CANCELLATION
NYC Department of Design and Construction 30-30 Thomson Avenue, 4th Floor Long Island City, NY 11101	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE [signature]

DESCRIPTIONS (Continued from Page 1)

New York City Housing Authority (NYCHA) , including its officials and employees; New York City Economic Development Corporation (EDC) , including its officials and employees; Consolidated Edison, Inc.; Empire City Subway (ECS) / Verizon; U.S. Department of Veterans Affairs (VA), including its officials and employees. 9. New York City Transit Authority (NYCTA), the Manhattan and Bronx Surface Transit Operating Authority (MaBSTOA), the Staten Island Rapid Transit Operating Authority (SIRTOA), MTA Capital Construction Co., the Metropolitan Transportation Authority (MTA) including its subsidiaries and affiliates, only when there is a written contract that requires such status, and only with regard to work performed on behalf of the named insured.

The General Liability & Excess policies provide a Blanket Waiver of Subrogation when required by written contract, except as prohibited by law.

The General Liability & Excess policies contains a special endorsement with "Primary and Noncontributory" wording, when required by written contract.

Project ID.: SANDRESM2

CITY OF NEW YORK

CERTIFICATION BY INSURANCE BROKER OR AGENT

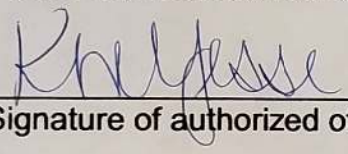
The undersigned insurance broker represents to the City of New York that the attached Certificate of Insurance is accurate in all material respects.

USI Insurance Services, LLC
[Name of broker or agent (typewritten)]

180 Park Avenue, 1st Floor, Florham Park, NJ 07932
[Address of broker or agent (typewritten)]

katlen.yesse@usi.com
[Email address of broker or agent (typewritten)]

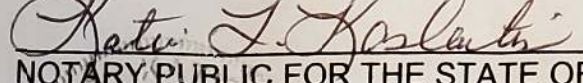
973-965-3166/610-537-4508
[Phone number/Fax number of broker or agent (typewritten)]

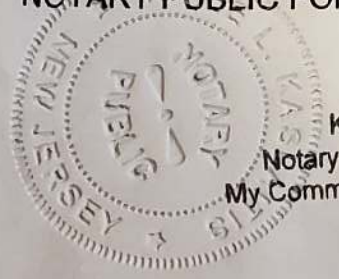

[Signature of authorized official, broker, or agent]

Katlen M. Yesse, Broker
[Name and title of authorized official, broker, or agent (typewritten)]

State of **New Jersey**)
) ss.:
County of **Sussex**)

Sworn to before me this **14th** day of **August**, 20**20**


NOTARY PUBLIC FOR THE STATE OF **New Jersey**



Katie L. Kaslaitis
Notary Public of New Jersey
My Commission Expires 10/4/2021

NEW YORK STATE | Workers' Compensation Board

CERTIFICATE OF NYS WORKERS' COMPENSATION INSURANCE COVERAGE

1a. Legal Name & Address of Insured (use street address only)	1b. Business Telephone Number of Insured
Perfetto Contracting Co. Inc. 152 41st Street Brooklyn, NY 11232	718-858-8600 1c. NYS Unemployment Insurance Employer Registration Number of Insured 48-50945
Work Location of Insured *(Only required if coverage is specifically limited to certain locations in New York State, i.e., a Wrap-Up Policy)*	1d. Federal Employer Identification Number of Insured or Social Security Number 11-2814026
2. Name and Address of Entity Requesting Proof of Coverage (Entity Being Listed as the Certificate Holder) NYC Department of Design and Construction 30-30 Thomson Avenue Long Island, NY 11101	3a. Name of Insurance Carrier NY Marine & General Insurance Company 3b. Policy Number of Entity Listed in Box "1a" WC201900018546 3c. Policy effective period 12/22/2019 to 12/22/2020 3d. The Proprietor, Partners or Executive Officers are [X] included. (Only check box if all partners/officers included) [ ] all excluded or certain partners/officers excluded.

This certifies that the insurance carrier indicated above in box "3" insures the business referenced above in box "1a" for workers' compensation under the New York State Workers' Compensation Law. **(To use this form, New York (NY) must be listed under Item 3A on the INFORMATION PAGE of the workers' compensation insurance policy).** The Insurance Carrier or its licensed agent will send this Certificate of Insurance to the entity listed above as the certificate holder in box "2".

The insurance carrier must notify the above certificate holder and the Workers' Compensation Board within 10 days IF a policy is canceled due to nonpayment of premiums or within 30 days IF there are reasons other than nonpayment of premiums that cancel the policy or eliminate the insured from the coverage indicated on this Certificate. (These notices may be sent by regular mail.) **Otherwise, this Certificate is valid for one year after this form is approved by the insurance carrier or its licensed agent, or until the policy expiration date listed in box "3c", whichever is earlier.**

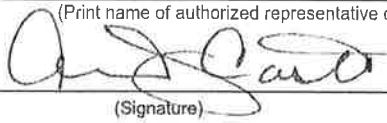
This certificate is issued as a matter of information only and confers no rights upon the certificate holder. This certificate does not amend, extend or alter the coverage afforded by the policy listed, nor does it confer any rights or responsibilities beyond those contained in the referenced policy.

This certificate may be used as evidence of a Workers' Compensation contract of insurance only while the underlying policy is in effect.

Please Note: Upon cancellation of the workers' compensation policy indicated on this form, if the business continues to be named on a permit, license or contract issued by a certificate holder, the business must provide that certificate holder with a new Certificate of Workers' Compensation Coverage or other authorized proof that the business is complying with the mandatory coverage requirements of the New York State Workers' Compensation Law.

Under penalty of perjury, I certify that I am an authorized representative or licensed agent of the insurance carrier referenced above and that the named insured has the coverage as depicted on this form.

Approved by: Andy Castle
(Print name of authorized representative or licensed agent of insurance carrier)

Approved by:  12/23/2019
(Signature) (Date)

Title: Broker

Telephone Number of authorized representative or licensed agent of insurance carrier: 973-965-3166

Please Note: Only insurance carriers and their licensed agents are authorized to issue Form C-105.2. Insurance brokers are NOT authorized to issue it.

Workers' Compensation Law

Section 57. Restriction on issue of permits and the entering into contracts unless compensation is secured.

1. The head of a state or municipal department, board, commission or office authorized or required by law to issue any permit for or in connection with any work involving the employment of employees in a hazardous employment defined by this chapter, and notwithstanding any general or special statute requiring or authorizing the issue of such permits, shall not issue such permit unless proof duly subscribed by an insurance carrier is produced in a form satisfactory to the chair, that compensation for all employees has been secured as provided by this chapter. Nothing herein, however, shall be construed as creating any liability on the part of such state or municipal department, board, commission or office to pay any compensation to any such employee if so employed.

2. The head of a state or municipal department, board, commission or office authorized or required by law to enter into any contract for or in connection with any work involving the employment of employees in a hazardous employment defined by this chapter, notwithstanding any general or special statute requiring or authorizing any such contract, shall not enter into any such contract unless proof duly subscribed by an insurance carrier is produced in a form satisfactory to the chair, that compensation for all employees has been secured as provided by this chapter.

CERTIFICATE OF INSURANCE COVERAGE

DISABILITY AND PAID FAMILY LEAVE BENEFITS LAW

PART 1. To be completed by Disability and Paid Family Leave Benefits Carrier or Licensed Insurance Agent of that Carrier

1a. Legal Name & Address of Insured (use street address only)

PERFETTO CONTRACTING CO INC.
152 41ST STREET
BROOKLYN, NY 11232

Work Location of Insured *(Only required if coverage is specifically limited to certain locations in New York State, i.e., Wrap-Up Policy)*

1b. Business Telephone Number of Insured

718-858-8600

1c. Federal Employer Identification Number of Insured or Social Security Number

112814026

2. Name and Address of Entity Requesting Proof of Coverage (Entity Being Listed as the Certificate Holder)

NYC Department of Design & Construction
30-30 Thomson Avenue
Long Island City, NY 11101

3a Name of Insurance Carrier

HARTFORD LIFE AND ACCIDENT

3b Policy Number of Entity Listed in Box "1a"

LNY617471

3c Policy effective period

10-01-2019 to 09-30-2020

4. Policy provides the following benefits:

- [x] **A. Both disability and paid family leave benefits.**
- [ ] **B. Disability benefits only.**
- [ ] **C. Paid family leave benefits only.**

5. Policy covers:

- [x] **A. All of the employer's employees eligible under the NYS Disability and Paid Family Leave Benefits Law.**
- [ ] **B. Only the following class or classes of employer's employees:**

Under penalty of perjury, I certify that I am an authorized representative or licensed agent of the insurance carrier referenced above and that the named insured has NYS Disability and/or Paid Family Leave Benefits insurance coverage as described above.

Date Signed 09-30-2019 *Elizabeth Tello*

(Signature of insurance carrier's authorized representative or NYS Licensed Insurance Agent of that insurance carrier)

Telephone Number (212) 553-8074 **Name and Title:** Elizabeth Tello – Assistant Director, Statutory Services

IMPORTANT: If Boxes 4A and 5A are checked, and this form is signed by the insurance carrier's authorized representative or NYS Licensed Insurance Agent of that carrier, this certificate is COMPLETE. Mail it directly to the certificate holder.

If Box 4B, 4C or 5B is checked, this certificate is NOT COMPLETE for purposes of Section 220, Subd. 8 of the NYS Disability and Paid Family Leave Benefits Law. It must be mailed for completion to the Workers' Compensation Board, Plans Acceptance Unit, PO Box 5200, Binghamton, NY 13902-5200.

PART 2. To be completed by the NYS Workers' Compensation Board (Only if Box 4C or 5B of Part 1 has been checked)

State of New York
Workers' Compensation Board

According to information maintained by the NYS Workers' Compensation Board, the above-named employer has complied with the NYS Disability and Paid Family Leave Benefits Law with respect to all of his/her employees.

Date Signed **By**

(Signature of Authorized NYS Workers' Compensation Board Employee)

Telephone Number **Name and Title**

Please Note: Only insurance carriers licensed to write NYS disability and paid family leave benefits insurance policies and NYS licensed insurance agents of those insurance carriers are authorized to issue Form DB-120.1. Insurance brokers are NOT authorized to issue this form.

Additional Instructions for Form DB-120.1

By signing this form, the insurance carrier identified in Box 3 on this form is certifying that it is insuring the business referenced in box "1 a" for disability and/or paid family leave benefits under the New York State Disability and Paid Family Leave Benefits Law. The Insurance Carrier or its licensed agent will send this Certificate of Insurance to the entity listed as the certificate holder in Box 2.

The insurance carrier must notify the above certificate holder and the Workers' Compensation Board within 10 days IF a policy is cancelled due to nonpayment of premiums or within 30 days IF there are reasons other than nonpayment of premiums that cancel the policy or eliminate the insured from coverage indicated on this Certificate. (These notices my be sent by regular mail.) Otherwise, this Certificate is valid for one year after this form is approved by the insurance carrier or its licensed agent, or until the policy expiration date listed in Box 3c, whichever is earlier

This certificate is issued as a matter of information only and confers no rights upon the certificate holder. This certificate does not amend, extend or alter the coverage afforded by the policy listed, nor does it confer any rights or responsibilities beyond those contained in the referenced policy.

This certificate may be used as evidence of a Disability and/or Paid Family Leave Benefits contract of insurance only while the underlying policy is in effect.

Please Note: Upon the cancellation of the disability and/or paid family leave benefits policy indicated on this form, if the business continues to be named on a permit, license or contract issued by a certificate holder, the business must provide that certificate holder with a new Certificate of NYS Disability and/or Paid Family Leave Benefits Coverage or other authorized proof that the business is complying with the mandatory coverage requirements of the New York State Disability and Paid Family Leave Benefits Law.

DISABILITY AND PAID FAMILY LEAVE BENEFITS LAW

§220. Subd. 8

(a) The head of a state or municipal department, board, commission or office authorized or required by law to issue any permit for or in connection with any work involving the employment of employees in employment as defined in this article, and not withstanding any general or special statute requiring or authorizing the issue of such permits, shall not issue such permit unless proof duly subscribed by an insurance carrier is produced in a form satisfactory to the chair, that the payment of disability benefits and after January first, two thousand and twenty-one, the payment of family leave benefits for all employees has been secured as provided by this article. Nothing herein, however, shall be construed as creating any liability on the part of such state or municipal department, board, commission or office to pay any disability benefits to any such employee if so employed.

(b) The head of a state or municipal department, board, commission or office authorized or required by law to enter into any contract for or in connection with any work involving the employment of employees in employment as defined in this article and notwithstanding any general or special statute requiring or authorizing any such contract, shall not enter into any such contract unless proof duly subscribed by an insurance carrier is produced in a form satisfactory to the chair, that the payment of disability benefits and after January first, two thousand eighteen, the payment of family leave benefits for all employees has been secured as provided by this article.

LABOR LAW ARTICLE 8 - NYC PUBLIC WORKS

Workers, Laborers and Mechanics employed on a public work project must receive not less than the prevailing rate of wage and benefits for the classification of work performed by each upon such public work. Pursuant to Labor Law Article 8 the Comptroller of the City of New York has promulgated this schedule solely for Workers, Laborers and Mechanics engaged by private contractors on New York City public work projects. Prevailing rates are required to be annexed to and form part of the public work contract pursuant to § 220 (3).

This schedule is a compilation of separate determinations of the prevailing rate of wage and supplements made by the Comptroller for each trade classification listed herein pursuant to New York State Labor Law section § 220 (5). The source of the wage and supplement rates, whether a collective bargaining agreement, survey data or other, is listed at the end of each classification.

Agency Chief Contracting Officers should contact the Bureau of Labor Law's Classification Unit with any questions concerning trade classifications, prevailing rates or prevailing practices with respect to procurement on New York City public work contracts. Contractors are advised to review the Comptroller's Prevailing Wage Schedule before bidding on public work contracts. Contractors with questions concerning trade classifications, prevailing rates or prevailing practices with respect to public work contracts in the procurement stage must contact the contracting agency responsible for the procurement.

Any error as to compensation under the prevailing wage law or other information as to trade classification, made by the contracting agency in the contract documents or in any other communication, will not preclude a finding against the contractor of prevailing wage violation.

Any questions concerning trade classifications, prevailing rates or prevailing practices on New York City public work contracts that have already been awarded may be directed to the Bureau of Labor Law's Classification Unit by calling (212) 669-4443. All callers must have the agency name and contract registration number available when calling with questions on public work contracts. Please direct all other compliance issues to: Bureau of Labor Law, Attn: Wasyl Kinach, P.E., Office of the Comptroller, 1 Centre Street, Room 651, New York, N.Y. 10007; Fax (212) 669-4002.

The appropriate schedule of prevailing wages and benefits must be posted at all public work sites pursuant to Labor Law § 220 (3-a) (a).

This schedule is applicable to work performed during the effective period, unless otherwise noted. Changes to this schedule are published on our web site comptroller.nyc.gov/wages. Contractors must pay the wages and supplements in effect when the worker, laborer, mechanic performs the work. Preliminary schedules for future one-year periods appear in the City Record on or about June 1 each succeeding year. Final schedules appear on or about July 1 in the City Record and on our web site comptroller.nyc.gov/wages.

The Comptroller's Office has attempted to include all overtime, shift and night differential, Holiday, Saturday, Sunday or other premium time work. However, this schedule does not set forth every prevailing practice with respect to such rates with which employers must comply. All such practices are nevertheless part of the employer's prevailing wage obligation and contained in the collective bargaining agreements of the prevailing wage unions. These collective bargaining agreements are available for inspection by appointment. Requests for appointments may be made by calling (212) 669-4443, Monday through Friday between the hours of 9 a.m. and 5 p.m.

Prevailing rates and ratios for apprentices are published in the Construction Apprentice Prevailing Wage Schedule. Pursuant to Labor Law § 220 (3-e), only apprentices who are individually registered in a bona fide program to which the employer contractor is a participant, registered with the New York State Department of Labor, may be paid at the apprentice rates. Apprentices who are not so registered must be paid as journey persons.

New York City public work projects awarded pursuant to a Project Labor Agreement ("PLA") in accordance with Labor Law section 222 may have different labor standards for shift, premium and overtime work. Please refer to the PLA's pre-negotiated labor agreements for wage and benefit rates applicable to work performed outside of the regular workday. More information is available at the Mayor's Office of Contract Services (MOCS) web page at:

https://www1.nyc.gov/site/mocs/legal-forms/project-labor-agreements.page

All the provisions of Labor Law Article 8 remain applicable to PLA work including, but not limited to, the enforcement of prevailing wage requirements by the Comptroller in accordance with the trade classifications in this schedule; however, we will enforce shift, premium, overtime and other non-standard rates as they appear in a project's pre-negotiated labor agreement.

In order to meet their obligation to provide prevailing supplemental benefits to each covered employee, employers must either:

1) **Provide bona fide fringe benefits which cost the employer no less than the prevailing supplemental benefits rate; or**
2) **Supplement the employee's hourly wage by an amount no less than the prevailing supplemental benefits rate; or**
3) **Provide a combination of bona fide fringe benefits and wage supplements which cost the employer no less than the prevailing supplemental benefits rate in total.**

Although prevailing wage laws do not require employers to provide bona fide fringe benefits (as opposed to wage supplements) to their employees, other laws may. For example, the Employee Retirement Income Security Act, 29 U.S.C. § 1001 et seq., the Patient Protection and Affordable Care Act, 42 U.S.C. § 18001 et seq., and the New York City Paid Sick Leave Law, N.Y.C. Admin. Code § 20-911 et seq., require certain employers to provide certain benefits to their employees. Labor agreements to which employers are a party may also require certain benefits. The Comptroller's Office does not enforce these laws or agreements.

Employers must provide prevailing supplemental benefits at the straight time rate for each hour worked unless otherwise noted in the classification.

Paid Holidays, Vacation and Sick Leave when listed must be paid or provided in addition to the prevailing hourly supplemental benefit rate.

For more information, please refer to the Comptroller's Prevailing Wage Law Regulations in Title 44 of the Rules of the City of New York, Chapter 2, available at comptroller.nyc.gov/wages.

Wasyl Kinach, P.E.
Director of Classifications
Bureau of Labor Law

TABLE OF CONTENTS

ASBESTOS HANDLER
SEE HAZARDOUS MATERIAL HANDLER

BLASTER

Blaster

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $55.86
Supplemental Benefit Rate per Hour: $44.48

Blaster- Hydraulic Trac Drill

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $50.00
Supplemental Benefit Rate per Hour: $44.48

Blaster - Wagon: Air Trac: Quarry Bar: Drillrunners

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $49.17
Supplemental Benefit Rate per Hour: $44.48

Blaster - Journeyperson

(Laborer, Chipper/Jackhammer including Walk Behind Self Propelled Hydraulic Asphalt and Concrete Breakers and Hydro (Water) Demolition, Powder Carrier, Hydraulic Chuck Tender, Chuck Tender and Nipper)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $42.65
Supplemental Benefit Rate per Hour: $44.48

Blaster - Magazine Keepers: (Watch Person)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $21.33
Supplemental Benefit Rate per Hour: $44.48

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays

Double time the regular rate for work on the following holiday(s).
New Year's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Thanksgiving Day
Christmas Day

Paid Holidays

Labor Day
Thanksgiving Day

Shift Rates

When two shifts are employed, single time rate shall be paid for each shift. When three shifts are found necessary, each shift shall work seven and one half hours (7 ½), but shall be paid for eight (8) hours of labor, and be permitted one half hour for lunch.

(Local #731)

BOILERMAKER

Boilermaker

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $59.17
Supplemental Benefit Rate per Hour: $44.59
Supplemental Note: For time and one half overtime - $66.44 For double overtime - $88.28

Overtime Description

For Repair and Maintenance work:
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
For New Construction work:
Double time the regular rate after an 8 hour day.
Double time the regular time rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays

Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day

Columbus Day
Election Day
Veteran's Day
Thanksgiving Day
Christmas Day

Quadruple time the regular rate for work on the following holiday(s).
Labor Day

Paid Holidays

Good Friday
Day after Thanksgiving
Day before Christmas
Day before New Year's Day

Shift Rates

When shifts are required, the first shift shall work eight (8) hours at the regular straight-time hourly rate. The second shift shall work seven and one-half (7 ½) hours and receive eight hours at the regular straight time hourly rate plus twenty-five cents ($0.25) per hour. The third shift shall work seven (7) hours and receive eight hours at the regular straight time hourly rate plus fifty cents ($0.50) per hour. A thirty (30) minute lunch period shall not be considered as time worked. Work in excess of the above shall be paid overtime at the appropriate new construction work or repair work overtime wage and supplemental benefit hourly rate.

(Local #5)

BRICKLAYER

Bricklayer

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $56.32
Supplemental Benefit Rate per Hour: $33.11

Overtime

Time and one half the regular rate after a 7 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays

Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day

Thanksgiving Day
Christmas Day

Paid Holidays
None

Shift Rates
Overtime rates to be paid outside the regular scheduled work day.

(Bricklayer District Council)

CARPENTER - BUILDING COMMERCIAL

Building Commercial

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $52.50
Supplemental Benefit Rate per Hour: $46.38

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
Washington's Birthday
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

Shift Rates
The employer may work two (2) shifts with the first shift at the straight time wage rate starting at the established time between 7 a.m. and 9 a.m. The second shift will receive one hour at the double time rate of pay for the last hour of the shift; eight (8) hours pay for seven (7) hours of work, nine (9) hours pay for eight (8) hours of work.

When it is not possible to conduct alteration work during regular working hours in a building occupied by tenants, the rule for the second shift will apply.

(Carpenters District Council)

CARPENTER - HEAVY CONSTRUCTION WORK
(Construction of Engineering Structures and Building Foundations)

Heavy Construction Work

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $54.68
Supplemental Benefit Rate per Hour: $51.73

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

Shift Rates
Off shift work commencing between 5:00 P.M. and 11:00 P.M. shall work eight and one half hours allowing for one half hour for lunch. The wage rate shall be 113% of the straight time hourly wage rate.

(Carpenters District Council)

CARPENTER - HIGH RISE CONCRETE FORMS
(Excludes Engineering Structures and Building Foundations)

Carpenter High Rise A

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $50.78
Supplemental Benefit Rate per Hour: $43.44

Carpenter High Rise B

Carpenter High Rise B worker is excluded from high risk operations such as erection decking, perimeter debris netting, leading edge work, self-climbing form systems, and the installation of cocoon systems unless directly supervised by a Carpenter High Rise A worker.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $40.19
Supplemental Benefit Rate per Hour: $16.75

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays
Time and one half the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

Shift Rates
The second shift wage rate shall be 113% of the straight time hourly wage rate. There must be a first shift in order to work a second shift.

(Carpenters District Council)

CARPENTER - SIDEWALK SHED, SCAFFOLD AND HOIST

Carpenter - Hod Hoist

(Assisted by Mason Tender)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $50.50
Supplemental Benefit Rate per Hour: $39.56

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

Shift Rates
The second shift will receive one hour at the double time rate of pay for the last hour of the shift; eight hours pay for seven hours of work, nine hours pay for eight hours of work. There must be a first shift in order to work a second shift.

(Carpenters District Council)

CARPENTER - WOOD WATER STORAGE TANK

Tank Mechanic

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $34.14
Supplemental Benefit Rate per Hour: $19.00

Tank Helper

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $27.30
Supplemental Benefit Rate per Hour: $19.00

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Time and one half the regular rate for work on a holiday plus the day's pay.

Paid Holidays

New Year's Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Thanksgiving Day
Day after Thanksgiving
1/2 day on Christmas Eve if work is performed in the A.M.
1/2 day on New Year's Eve if work is performed in the A.M.

Vacation

Employed for one (1) year.....one (1) week vacation (40 hours)
Employed for three (3) years.....two (2) weeks vacation (80 hours)
Employed for more than twenty (20) years.....three (3) weeks vacation (120 hours)

SICK LEAVE:
Two (2) sick days after being employed for twenty (20) years.

(Carpenters District Council)

CEMENT & CONCRETE WORKER

Cement & Concrete Worker

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $43.53

Supplemental Benefit Rate per Hour: $28.95
Supplemental Note: $32.45 on Saturdays; $35.95 on Sundays & Holidays

Cement & Concrete Worker - (Hired after 2/6/2016)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $33.05
Supplemental Benefit Rate per Hour: $20.95
Supplemental Note: $22.45 on Saturdays; $23.95 on Sundays & Holidays

Overtime Description
Time and one half the regular rate after 7 hour day (time and one half the regular rate after an 8 hour day when working with Dockbuilders on pile cap forms and for work below street level to the top of the foundation wall, not to exceed 2 feet or 3 feet above the sidewalk-brick shelf, when working on the foundation and structure.)

Overtime
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Christmas Day

Paid Holidays
1/2 day before Christmas Day
1/2 day before New Year's Day

Shift Rates
On shift work extending over a twenty-four hour period, all shifts are paid at straight time.

(Cement Concrete Workers District Council)

CEMENT MASON

Cement Mason

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: $44.97
Supplemental Benefit Rate per Hour: $40.56
Supplemental Note: Supplemental benefit time and one half rate: $71.19; Double time rate: double the base supplemental benefit rate.

Overtime Description
Time and one-half the regular rate after an 8 hour day, double time the regular rate after 10 hours. Time and one-half the regular rate on Saturday, double time the regular rate after 10 hours. Double time the regular rate on Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Christmas Day

Paid Holidays
Any worker who reports to work on Christmas Eve or New Year's Eve pursuant to his employer's instruction shall be entitled to three (3) hours afternoon pay without working.

Shift Rates
For an off shift day, (work at times other than the regular 7:00 A.M. to 3:30 P.M. work day) a cement mason shall be paid at the regular hourly rate plus a 25% per hour differential. Four Days a week at Ten (10)hour day.

(Local #780) (BCA)

CORE DRILLER

Core Driller

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $40.44
Supplemental Benefit Rate per Hour: $26.70

Core Driller Helper

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $32.12
Supplemental Benefit Rate per Hour: $26.70

Core Driller Helper(Third year in the industry)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $28.91
Supplemental Benefit Rate per Hour: $26.70

Core Driller Helper (Second year in the industry)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $25.70
Supplemental Benefit Rate per Hour: $26.70

Core Driller Helper (First year in the industry)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $22.48
Supplemental Benefit Rate per Hour: $26.70

Overtime Description

Time and one half the regular rate for work on a holiday plus Holiday pay when worked.

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Time and one half the regular rate for work on the following holiday(s).

Paid Holidays

New Year's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Shift Rates

The shift day shall be the continuous eight and one-half (8½) hours from 6:00 A.M. to 2:30 P.M. and from 2:30 P.M. to 11:00 P.M., including one-half (½) hour of employees regular rate of pay for lunch. When two (2) or more shifts are employed, single time shall be paid for each shift, but those employees employed on a shift other than from 8:00 A.M. to 5:00 P.M. shall, in addition, receive seventy-five cents ($0.75) per hour differential for each hour worked. When three (3) shifts are needed, each shift shall work seven and one-half (7 ½) hours paid for eight (8) hours of labor and be permitted one-half (½) hour for mealtime.

(Carpenters District Council)

DERRICKPERSON AND RIGGER

Derrick Person & Rigger

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $50.91
Supplemental Benefit Rate per Hour: $54.11
Supplemental Note: The above supplemental rate applies for work performed in Manhattan, Bronx, Brooklyn and Queens. $55.53 - For work performed in Staten Island.

Derrick Person & Rigger - Site Work

Assists the Stone Mason-Setter in the setting of stone and paving stone.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $42.59
Supplemental Benefit Rate per Hour: $42.37

Overtime Description
The first two hours of overtime on weekdays and the first seven hours of work on Saturdays are paid at time and one half for wages and supplemental benefits. All additional overtimes is paid at double time for wages and supplemental benefits. Deduct $1.42 from the Staten Island hourly benefits rate before computing overtime.

Overtime
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
Washington's Birthday
Good Friday
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays
1/2 day on Christmas Eve if work is performed in the A.M.

(Local #197)

DIVER

Diver (Marine)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $69.22
Supplemental Benefit Rate per Hour: $51.73

Diver Tender (Marine)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $49.14
Supplemental Benefit Rate per Hour: $51.73

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

Shift Rates
When three shifts are utilized each shift shall work seven and one half-hours (7 1/2 hours) and paid for 8 hours, allowing for one half hour for lunch.

(Carpenters District Council)

DOCKBUILDER - PILE DRIVER

Dockbuilder - Pile Driver

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $54.63
Supplemental Benefit Rate per Hour: $51.73

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

Shift Rates
Off shift work commencing between 5:00 P.M. and 11:00 P.M. shall work eight and one half hours allowing for one half hour for lunch. The wage rate shall be 113% of the straight time hourly wage rate.

(Carpenters District Council)

DRIVER: TRUCK (TEAMSTER)

Driver - Dump Truck

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $41.18
Supplemental Benefit Rate per Hour: $49.65
Supplemental Note: Over 40 hours worked: at time and one half rate - $22.08; at double time rate - $29.44

Driver - Tractor Trailer

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $43.84
Supplemental Benefit Rate per Hour: $49.03
Supplemental Note: Over 40 hours worked: at time and one half rate - $19.80; at double time rate - $26.40

Driver - Euclid & Turnapull Operator

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $44.40
Supplemental Benefit Rate per Hour: $49.03
Supplemental Note: Over 40 hours worked: at time and one half rate - $19.80; at double time rate - $26.40

Overtime Description
For Paid Holidays: Holiday pay for all holidays shall be prorated based two hours per day for each day worked in the holiday week, not to exceed 8 hours of holiday pay. For Thanksgiving week, the prorated share shall be 5 1/3 hours of holiday pay for each day worked in Thanksgiving week.

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Shift Rates
Off single shift work commencing between 6:00 P.M. and 5:00 A.M. shall work eight and one half (8 1/2) hours allowing for one half hour for lunch and be paid 117.3% of the straight time hourly wage rate.

Driver Redi-Mix (Sand & Gravel)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $39.00

Supplemental Benefit Rate per Hour: $45.52
Supplemental Note: Over 40 hours worked: time and one half rate $16.78; double time rate $22.37

Overtime Description
For Paid Holidays: Employees working two (2) days in the calendar week in which the holiday falls are to paid for these holidays, provided they shape each remaining workday during that calendar week.

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
President's Day
Columbus Day
Veteran's Day

Triple time the regular rate for work on the following holiday(s).
New Year's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Election Day
Thanksgiving Day
Christmas Day

(Local #282)

ELECTRICIAN
(Including installation of low voltage cabling carrying data, video and/or voice on building construction/alteration/renovation projects.)

Electrician "A" (Regular Day / Day Shift)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: $56.00
Supplemental Benefit Rate per Hour: $56.54

Electrician "A" (Regular Day Overtime after 7 hrs / Day Shift Overtime after 8 hrs)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $84.00
Supplemental Benefit Rate per Hour: $60.07

Electrician "A" (Swing Shift)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $65.71
Supplemental Benefit Rate per Hour: $64.36

Electrician "A" (Swing Shift Overtime After 7.5 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $98.57
Supplemental Benefit Rate per Hour: $68.51

Electrician "A" (Graveyard Shift)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $73.60
Supplemental Benefit Rate per Hour: $70.94

Electrician "A" (Graveyard Shift Overtime After 7 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $110.40
Supplemental Benefit Rate per Hour: $75.59

Overtime
Time and one half the regular rate after a 7 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.

Overtime Holidays
Time and one half the regular rate for work on a holiday.
New Year's Day
Martin Luther King Jr. Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving

Christmas Day

Paid Holidays
None

Shift Rates
When so elected by the Employer, one or more shifts of at least five days duration may be scheduled as follows: Day Shift: 8:00 am to 4:30 pm, Swing Shift 4:30 pm to 12:30 am, Graveyard Shift: 12:30 am to 8:00 am.

For multiple shifts of temporary light and/or power, the temporary light and/or power employee shall be paid for 8 hours at the straight time rate. For three or less workers performing 8 hours temporary light and/or power the supplemental benefit rate is $24.92.

Electrician "M" (First 8 hours)

"M" rated work shall be defined as jobbing: electrical work of limited duration and scope, also consisting of repairs and/or replacement of electrical and tele-data equipment. Includes all work necessary to retrofit, service, maintain and repair all kinds of lighting fixtures and local lighting controls and washing and cleaning of foregoing fixtures.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $29.00
Supplemental Benefit Rate per Hour: $23.43
First and Second Year "M" Wage Rate Per Hour: $24.50
First and Second Year "M" Supplemental Rate: $21.07

Electrician "M" (Overtime After First 8 hours)

"M" rated work shall be defined as jobbing: electrical work of limited duration and scope, also consisting of repairs and/or replacement of electrical and tele-data equipment. Includes all work necessary to retrofit, service, maintain and repair all kinds of lighting fixtures and local lighting controls and washing and cleaning of foregoing fixtures.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $43.50
Supplemental Benefit Rate per Hour: $25.26
First and Second Year "M" Wage Rate Per Hour: $36.75
First and Second Year "M" Supplemental Rate: $22.62

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.

Overtime Holidays
Time and one half the regular rate for work on the following holiday(s).
New Year's Day
Martin Luther King Jr. Day

President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

(Local #3)

ELECTRICIAN - ALARM TECHNICIAN
(Scope of Work - Inspect, test, repair, and replace defective, malfunctioning, or broken devices, components and controls of Fire, Burglar and Security Systems)

Alarm Technician

Effective Period: 7/1/2019 - 3/9/2020
Wage Rate per Hour: $33.40
Supplemental Benefit Rate per Hour: $17.68
Supplemental Note: $16.06 only after 8 hours worked in a day

Effective Period: 3/10/2020 - 6/30/2020
Wage Rate per Hour: $33.90
Supplemental Benefit Rate per Hour: $18.43
Supplemental Note: $16.80 only after 8 hours worked in a day

Overtime Description
Time and one half the regular rate for work on the following holidays: Columbus Day, Veterans Day, Day after Thanksgiving.
Double time the regular rate for work on the following holidays: New Year's day, Martin Luther King Jr. Day, President's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day.

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Paid Holidays
New Year's Day

Martin Luther King Jr. Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Shift Rates

Night Differential is based upon a ten percent (10%) differential between the hours of 4:00 P.M. and 12:30 A.M. and a fifteen percent (15%) differential for the hours 12:00 A.M. to 8:00 A.M.

Vacation

At least 1 year of employment.....ten (10) days
5 years or more of employment.....fifteen (15) days
10 years of employment.....twenty (20) days
Plus one Personal Day per year

Sick Days:
One day per Year. Up to 4 vacation days may be used as sick days.

(Local #3)

ELECTRICIAN-STREET LIGHTING WORKER

Electrician - Electro Pole Electrician

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $56.00
Supplemental Benefit Rate per Hour: $58.44

Electrician - Electro Pole Foundation Installer

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $42.66
Supplemental Benefit Rate per Hour: $43.52

Electrician - Electro Pole Maintainer

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $36.61
Supplemental Benefit Rate per Hour: $39.16

Overtime Description

Electrician - Electro Pole Electrician: Time and one half the regular rate after a 7 hour day and after 5 consecutive days worked per week.
Electrician - Electro Pole Foundation Installer: Time and one half the regular rate after 8 hours within a 24 hour period and Saturday and Sunday.
Electrician - Electro Pole Maintainer: Time and one half the regular rate after a 7 hour day and after 5 consecutive days worked per week. Saturdays and Sundays may be used as a make-up day at straight time when a day is lost during the week to inclement weather.

Overtime Holidays

Time and one half the regular rate for work on the following holiday(s).
New Year's Day
Martin Luther King Jr. Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays

None

(Local #3)

ELEVATOR CONSTRUCTOR

Elevator Constructor

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate per Hour: $66.95
Supplemental Benefit Rate per Hour: $36.65

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate per Hour: $69.56
Supplemental Benefit Rate per Hour: $37.47

Overtime Description

For New Construction: work performed after 7 or 8 hour day, Saturday, Sunday or between 4:30pm and 7:00am shall be paid at double time rate.

Existing buildings: work performed after an 8 hour day, Saturday, Sunday or between 5:30pm and 7:00 am shall be paid time and one half.

Overtime

Double time the regular rate for work on the following holiday(s).

Paid Holidays

New Year's Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Vacation

Employer contributes 8% of regular basic hourly rate as vacation pay for employees with more than 15 years of service, and 6% for employees with 5 to 15 years of service, and 4% for employees with less than 5 years of service.

(Local #1)

ELEVATOR REPAIR & MAINTENANCE

Elevator Service/Modernization Mechanic

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate per Hour: $52.44
Supplemental Benefit Rate per Hour: $36.55

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate per Hour: $54.56
Supplemental Benefit Rate per Hour: $37.37

Overtime Description

For Scheduled Service Work: Double time - work scheduled in advance by two or more workers performed on Sundays, Holidays, and between midnight and 7:00am.

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.
Time and one half the regular rate for work on a holiday plus the day's pay.

Paid Holidays

New Year's Day
President's Day

Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Shift Rates

Afternoon shift - regularly hourly rate plus a (15%) fifteen percent differential. Graveyard shift - time and one half the regular rate.

Vacation

Employer contributes 8% of regular basic hourly rate as vacation pay for employees with more than 15 years of service, and 6% for employees with 5 to 15 years of service, and 4% for employees with less than 5 years of service.

(Local #1)

ENGINEER

Engineer - Heavy Construction Operating Engineer I

Cherrypickers 20 tons and over and Loaders (rubber tired and/or tractor type with a manufacturer's minimum rated capacity of six cubic yards and over).

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $70.71
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime
Shift Wage Rate: $113.14

Engineer - Heavy Construction Operating Engineer II

Backhoes, Basin Machines, Groover, Mechanical Sweepers, Bobcat, Boom Truck, Barrier Transport (Barrier Mover) & machines of similar nature. Operation of Churn Drills and machines of a similar nature, Stetco Silent Hoist and machines of similar nature, Vac-Alls, Meyers Machines, John Beam and machines of a similar nature, Ross Carriers and Travel Lifts and machines of a similar nature, Bulldozers, Scrapers and Turn-a-Pulls: Tugger Hoists (Used exclusively for handling excavated material); Tractors with attachments, Hyster and Roustabout Cranes, Cherrypickers. Austin Western, Grove and machines of a similar nature, Scoopmobiles, Monorails, Conveyors, Trenchers: Loaders-Rubber Tired and Tractor: Barber Greene and Eimco Loaders and Eimco Backhoes; Mighty Midget and similar breakers and Tampers, Curb and Gutter Pavers and Motor Patrol, Motor Graders and all machines of a similar nature. Locomotives 10 Tons or under. Mini-Max, Break-Tech and machines of a similar nature; Milling machines, robotic and demolition machines and machines of a similar nature, shot blaster, skid steer machines and machines of a similar nature including bobcat, pile rig rubber-tired excavator (37,000 lbs. and under), 2 man auger.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $68.58
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime
Shift Wage Rate: $109.73

Engineer - Heavy Construction Operating Engineer III

Minor Equipment such as Tractors, Post Hole Diggers, Ditch Witch (Walk Behind), Road Finishing Machines, Rollers five tons and under, Tugger Hoists, Dual Purpose Trucks, Fork Lifts, and Dempsey Dumpers, Fireperson.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $65.00
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime
Shift Wage Rate: $104.00

Engineer - Heavy Construction Maintenance Engineer I

Installing, Repairing, Maintaining, Dismantling and Manning of all equipment including Steel Cutting, Bending and Heat Sealing Machines, Mechanical Heaters, Grout Pumps, Bentonite Pumps & Plants, Screening Machines, Fusion Coupling Machines, Tunnel Boring Machines Moles and Machines of a similar nature, Power Packs, Mechanical Hydraulic Jacks; all drill rigs including but not limited to Churn, Rotary Caisson, Raised Bore & Drills of a similar nature; Personnel, Inspection & Safety Boats or any boats used to perform functions of same, Mine Hoists, Whirlies, all Climbing Cranes, all Tower Cranes, including but not limited to Truck Mounted and Crawler Type and machines of similar nature; Maintaining Hydraulic Drills and machines of a similar nature; Well Point System-Installation and dismantling; Burning, Welding, all Pumps regardless of size and/or motor power, except River Cofferdam Pumps and Wells Point Pumps; Motorized Buggies (three or more); equipment used in the cleaning and televising of sewers, but not limited to jet-rodder/vacuum truck, vacall/vactor, closed circuit television inspection equipment; high powered water pumps, jet pumps; screed machines and concrete finishing machines of a similar nature; vermeers.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $68.25
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime
Shift Wage Rate: $109.20

Engineer - Heavy Construction Maintenance Engineer II

On Base Mounted Tower Cranes

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $90.00
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime
Shift Wage Rate: $144.00

Engineer - Heavy Construction Maintenance Engineer III

On Generators, Light Towers

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $44.64
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime
Shift Wage Rate: $71.42

Engineer - Heavy Construction Maintenance Engineer IV

On Pumps and Mixers including mud sucking

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $45.83
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime
Shift Wage Rate: $73.33

Engineer - Steel Erection Maintenance Engineers

Derrick, Travelers, Tower, Crawler Tower and Climbing Cranes

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $65.31
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime
Shift Wage Rate: $104.50

Engineer - Steel Erection Oiler I

On a Truck Crane

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $61.05
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime
Shift Wage Rate: $97.68

Engineer - Steel Erection Oiler II

On a Crawler Crane

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $46.18
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime
Shift Wage Rate: $73.89

Overtime Description

On jobs of more than one shift, if the next shift employee fails to report for work through any cause over which the employer has no control, the employee on duty who works the next shift continues to work at the single time rate.

Overtime

Double time the regular rate after an 8 hour day.
Double time the regular time rate for Saturday.
Double time the regular rate for Sunday.
Double time the regular rate for work on the following holiday(s).

Paid Holidays

New Year's Day
Lincoln's Birthday
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day
Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

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Engineer - Building Work Maintenance Engineers I

Installing, repairing, maintaining, dismantling (of all equipment including: Steel Cutting and Bending Machines, Mechanical Heaters, Mine Hoists, Climbing Cranes, Tower Cranes, Linden Peine, Lorain, Liebherr, Mannes, or machines of a similar nature, Well Point Systems, Deep Well Pumps, Concrete Mixers with loading Device, Concrete Plants, Motor Generators when used for temporary power and lights), skid steer machines of a similar nature including bobcat.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $62.45
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime

Engineer - Building Work Maintenance Engineers II

On Pumps, Generators, Mixers and Heaters

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $48.26
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime

Engineer - Building Work Oilers I

All gasoline, electric, diesel or air operated Gradealls: Concrete Pumps, Overhead Cranes in Power Houses: Their duties shall be to assist the Engineer in oiling, greasing and repairing of all machines; Driving Truck Cranes: Driving and Operating Fuel and Grease Trucks, Cherrypickers (hydraulic cranes) over 70,000 GVW, and machines of a similar nature.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $59.33
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime

Engineer - Building Work Oilers II

Oilers on Crawler Cranes, Backhoes, Trenching Machines, Gunite Machines, Compressors (three or more in Battery).

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $43.78
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime

Overtime Description
On jobs of more than one shift, if an Employee fails to report for work through any cause over which the Employer has no control, the Employee on duty will continue to work at the rate of single time.

Overtime
Double time the regular rate after an 8 hour day.
Double time the regular time rate for Saturday.
Double time the regular rate for Sunday.
Double time the regular rate for work on the following holiday(s).

Paid Holidays
New Year's Day
Lincoln's Birthday
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Christmas Day
Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

Shift Rates
Off Shift: double time the regular hourly rate.

(Local #15)

ENGINEER - CITY SURVEYOR AND CONSULTANT

Party Chief

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $40.41
Supplemental Benefit Rate per Hour: $22.75
Supplemental Note: Overtime Benefit Rate - $27.25 per hour (time & one half) $31.75 per hour (double time).

Instrument Person

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $33.13
Supplemental Benefit Rate per Hour: $22.75
Supplemental Note: Overtime Benefit Rate - $27.25 per hour (time & one half) $31.75 per hour (double time).

Rodperson

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $28.54
Supplemental Benefit Rate per Hour: $22.75
Supplemental Note: Overtime Benefit Rate - $27.25 per hour (time & one half) $31.75 per hour (double time).

Overtime Description

Time and one half the regular rate after an 8 hour day, Time and one half the regular rate for Saturday for the first eight hours worked, Double time the regular time rate for Saturday for work performed in excess of eight hours, Double time the regular rate for Sunday and Double time the regular rate for work on a holiday.

Paid Holidays

New Year's Day
Lincoln's Birthday
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day
Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

(Operating Engineer Local #15-D)

ENGINEER - FIELD (BUILDING CONSTRUCTION)
(Construction of Building Projects, Concrete Superstructures, etc.)

Field Engineer - BC Party Chief

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $65.44
Supplemental Benefit Rate per Hour: $35.12
Supplemental Note: Overtime Benefit Rate - $49.33 per hour (time & one half) $63.54 per hour (double time).

Field Engineer - BC Instrument Person

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $50.83
Supplemental Benefit Rate per Hour: $35.12
Supplemental Note: Overtime Benefit Rate - $49.33 per hour (time & one half) $63.54 per hour (double time).

Field Engineer - BC Rodperson

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $32.84
Supplemental Benefit Rate per Hour: $35.12
Supplemental Note: Overtime Benefit Rate - $49.33 per hour (time & one half) $63.54 per hour (double time).

Overtime Description
Time and one half the regular rate after a 7 hour work and time and one half the regular rate for Saturday for the first seven hours worked, Double time the regular time rate for Saturday for work performed in excess of seven hours, Double time the regular rate for Sunday and Double time the regular rate for work on a holiday.

Paid Holidays
New Year's Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Christmas Day
Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

(Operating Engineer Local #15-D)

ENGINEER - FIELD (HEAVY CONSTRUCTION)

(Construction of Roads, Tunnels, Bridges, Sewers, Building Foundations, Engineering Structures etc.)

Field Engineer - HC Party Chief

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $74.18
Supplemental Benefit Rate per Hour: $36.51
Supplemental Note: Overtime benefit rate - $51.29 per hour (time & one half), $66.07 per hour (double time).

Field Engineer - HC Instrument Person

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $54.47
Supplemental Benefit Rate per Hour: $36.51
Supplemental Note: Overtime benefit rate - $51.29 per hour (time & one half), $66.07 per hour (double time).

Field Engineer - HC Rodperson

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $45.70
Supplemental Benefit Rate per Hour: $36.51
Supplemental Note: Overtime benefit rate - $51.29 per hour (time & one half), $66.07 per hour (double time).

Overtime Description

Time and one half the regular rate after an 8 hour day, Time and one half the regular rate for Saturday for the first eight hours worked, Double time the regular time rate for Saturday for work performed in excess of eight hours, Double time the regular rate for Sunday and Double time the regular rate for work on a holiday.

Paid Holidays

New Year's Day
Lincoln's Birthday
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Christmas Day
Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

(Operating Engineer Local #15-D)

ENGINEER - FIELD (STEEL ERECTION)

Field Engineer - Steel Erection Party Chief

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $69.15
Supplemental Benefit Rate per Hour: $36.01
Supplemental Note: Overtime benefit rate - $50.54 per hour (time & one half), $65.07 per hour (double time).

Field Engineer - Steel Erection Instrument Person

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $53.88
Supplemental Benefit Rate per Hour: $36.01
Supplemental Note: Overtime benefit rate - $50.54 per hour (time & one half), $65.07 per hour (double time).

Field Engineer - Steel Erection Rodperson

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $36.04
Supplemental Benefit Rate per Hour: $36.01
Supplemental Note: Overtime benefit rate - $50.54 per hour (time & one half), $65.07 per hour (double time).

Overtime Description
Time and one half the regular rate for Saturday for the first eight hours worked.
Double time the regular rate for Saturday for work performed in excess of eight hours.

Overtime
Time and one half the regular rate after an 8 hour day.
Double time the regular rate for Sunday.
Double time the regular rate for work on the following holiday(s).

Paid Holidays
New Year's Day
Lincoln's Birthday
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Christmas Day
Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

(Operating Engineer Local #15-D)

ENGINEER - OPERATING

Operating Engineer - Road & Heavy Construction I

Back Filling Machines, Cranes, Mucking Machines and Dual Drum Paver.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $81.17
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $129.87

Operating Engineer - Road & Heavy Construction II

Backhoes, Power Shovels, Hydraulic Clam Shells, Steel Erection, Moles and machines of a similar nature.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $84.01
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $134.42

Operating Engineer - Road & Heavy Construction III

Mine Hoists, Cranes, etc. (Used as Mine Hoists)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $86.69
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $138.70

Operating Engineer - Road & Heavy Construction IV

Gradealls, Keystones, Cranes on land or water (with digging buckets), Bridge Cranes, Vermeer Cutter and machines of a similar nature, Trenching Machines.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $84.62
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $135.39

Operating Engineer - Road & Heavy Construction V

Pile Drivers & Rigs (employing Dock Builder foreperson): Derrick Boats, Tunnel Shovels.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $82.96
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $132.74

Operating Engineer - Road & Heavy Construction VI

Mixers (Concrete with loading attachment), Concrete Pavers, Cableways, Land Derricks, Power Houses (Low Air Pressure Units).

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $78.85
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $126.16

Operating Engineer - Road & Heavy Construction VII

Barrier Movers , Barrier Transport and Machines of a Similar Nature.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $63.81
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $102.10

Operating Engineer - Road & Heavy Construction VIII

Utility Compressors

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $49.67
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $62.44

Operating Engineer - Road & Heavy Construction IX

Horizontal Boring Rig

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $75.02
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $120.03

Operating Engineer - Road & Heavy Construction X

Elevators (manually operated as personnel hoist).

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $69.01
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $110.42

Operating Engineer - Road & Heavy Construction XI

Compressors (Portable 3 or more in battery), Driving of Truck Mounted Compressors, Well-point Pumps, Tugger Machines Well Point Pumps, Churn Drill.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $53.74
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $85.98

Operating Engineer - Road & Heavy Construction XII

All Drills and Machines of a similar nature.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $79.68
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $127.49

Operating Engineer - Road & Heavy Construction XIII

Concrete Pumps, Concrete Plant, Stone Crushers, Double Drum Hoist, Power Houses (other than above).

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $77.19
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $123.50

Operating Engineer - Road & Heavy Construction XIV

Concrete Mixer

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $73.82
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $118.11

Operating Engineer - Road & Heavy Construction XV

Compressors (Portable Single or two in Battery, not over 100 feet apart), Pumps (River Cofferdam) and Welding Machines, Push Button Machines, All Engines Irrespective of Power (Power-Pac) used to drive auxiliary equipment, Air, Hydraulic, etc.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $49.99
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $79.98

Operating Engineer - Road & Heavy Construction XVI

Concrete Breaking Machines, Hoists (Single Drum), Load Masters, Locomotives (over ten tons) and Dinkies over ten tons, Hydraulic Crane-Second Engineer.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $70.53
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $112.85

Operating Engineer - Road & Heavy Construction XVII

On-Site concrete plant engineer, On-site Asphalt Plant Engineer, and Vibratory console.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $71.06
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $113.70

Operating Engineer - Road & Heavy Construction XVIII

Tower Crane

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $101.71
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $162.74

Operating Engineer - Paving I

Asphalt Spreaders, Autogrades (C.M.I.), Roto/Mil

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $78.85
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Shift Wage Rate: $126.16

Operating Engineer - Paving II

Asphalt Roller

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $76.83
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $122.93

Operating Engineer - Paving III

Asphalt Plants

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $65.08
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $104.13

Operating Engineer - Concrete I

Cranes

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $84.25
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Operating Engineer - Concrete II

Compressors

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $50.37
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Operating Engineer - Concrete III

Micro-traps (Negative Air Machines), Vac-All Remediation System.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $67.45
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Operating Engineer - Steel Erection I

Three Drum Derricks

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $87.14
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $139.42

Operating Engineer - Steel Erection II

Cranes, 2 Drum Derricks, Hydraulic Cranes, Fork Lifts and Boom Trucks.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $83.75
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $134.00

Operating Engineer - Steel Erection III

Compressors, Welding Machines.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $49.95
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95overtime hours
Shift Wage Rate: $79.92

Operating Engineer - Steel Erection IV

Compressors - Not Combined with Welding Machine.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $47.58
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $76.13

Operating Engineer - Building Work I

Forklifts, Plaster (Platform machine), Plaster Bucket, Concrete Pump and all other equipment used for hoisting material.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $69.51
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Operating Engineer - Building Work II

Compressors, Welding Machines (Cutting Concrete-Tank Work), Paint Spraying, Sandblasting, Pumps (with the exclusion of Concrete Pumps), All Engines irrespective of Power (Power-Pac) used to drive Auxiliary Equipment, Air, Hydraulic, Jacking System, etc.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $52.21
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Operating Engineer - Building Work III

Double Drum

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $79.02
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Operating Engineer - Building Work IV

Stone Derrick, Cranes, Hydraulic Cranes Boom Trucks.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $83.68
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Operating Engineer - Building Work V

Dismantling and Erection of Cranes, Relief Engineer.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $77.15
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Operating Engineer - Building Work VI

4 Pole Hoist, Single Drum Hoists.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $76.35
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Operating Engineer - Building Work VII

Rack & Pinion and House Cars

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $60.84
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
For New House Car projects Wage Rate per Hour $48.70

Overtime Description

On jobs of more than one shift, if an Employee fails to report for work through any cause over which the Employer has no control, the Employee on duty will continue to work at the rate of single time.

For House Cars and Rack & Pinion only: Overtime paid at time and one-half for all hours in excess of eight hours in a day, Saturday, Sunday and Holidays worked.

Overtime

Double time the regular rate after an 8 hour day.
Double time the regular time rate for Saturday.
Double time the regular rate for Sunday.
Double time the regular rate for work on the following holiday(s).

Paid Holidays

New Year's Day
Lincoln's Birthday
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day
Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

Shift Rates

For Steel Erection Only: Shifts may be worked at the single time rate at other than the regular working hours (8:00 A.M. to 4:30 P.M.) on the following work ONLY: Heavy construction jobs on work below the street level, over railroad tracks and on building jobs.

(Operating Engineer Local #14)

FLOOR COVERER

(Interior vinyl composition tile, sheath vinyl linoleum and wood parquet tile including site preparation and synthetic turf not including site preparation)

Floor Coverer

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $50.50
Supplemental Benefit Rate per Hour: $45.98

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
1/2 day on Christmas Eve if work is performed in the A.M.
1/2 day on New Year's Eve if work is performed in the A.M.

Shift Rates
Two shifts may be utilized with the first shift working 8 a.m. to the end of the shift at straight time rate of pay. The wage rate for the second shift consisting of 7 hours shall be paid at 114.29% of straight time wage rate. The wage rate for the second shift consisting of 8 hours shall be paid 112.5% of the straight time wage rate.
There must be a first shift to work the second shift.

(Carpenters District Council)

GLAZIER
(New Construction, Remodeling, and Alteration)

Glazier

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $46.05
Supplemental Benefit Rate per Hour: $43.39
Supplemental Note: Supplemental Benefit Overtime Rate: $65.10

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.

Overtime Holidays
Time and one half the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

Shift Rates
Shifts shall be any 8 consecutive hours after the normal working day for which the Glazier shall receive 9 hours pay for 8 hours worked.

(Local #1281)

GLAZIER - REPAIR & MAINTENANCE
(For the Installation of Glass - All repair and maintenance work on a particular building, whenever performed, where the total cumulative contract value is under $141,750)

Craft Jurisdiction for repair, maintenance and fabrication

Plate glass replacement, Residential glass replacement, Residential mirrors and shower doors, Storm windows and storm doors, Residential replacement windows, Herculite door repairs, Door closer repairs, Retrofit apartment house (non-commercial buildings), Glass tinting.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $25.64
Supplemental Benefit Rate per Hour: $22.29

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Sunday.
Time and one half the regular rate for work on the following holiday(s).

Time and one half the regular hourly rate after 40 hours in any work week.

Paid Holidays

New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day
Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

(Local #1281)

HAZARDOUS MATERIAL HANDLER

(Removal, abatement, encapsulation or decontamination of asbestos, lead, mold, or other toxic or hazardous waste/materials)

Handler

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $36.50
Supplemental Benefit Rate per Hour: $16.45

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Sunday.
Time and one half the regular hourly rate after 40 hours in any work week.

Overtime Holidays

Time and one half the regular rate for work on the following holiday(s).
New Year's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day
Easter

Paid Holidays

None

(Local #78 and Local #12A)

HEAT AND FROST INSULATOR

Heat & Frost Insulator

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $61.46
Supplemental Benefit Rate per Hour: $40.46

Overtime Description
Double time shall be paid for supplemental benefits during overtime work.
8th hour paid at time and one half.

Overtime
Double time the regular rate after an 8 hour day.
Double time the regular time rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
Martin Luther King Jr. Day
President's Day
Memorial Day
Independence Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Triple time the regular rate for work on the following holiday(s).
Labor Day

Paid Holidays
None

Shift Rates
The first shift shall work seven hours at the regular straight time rate. The second and third shift shall work seven hours the regular straight time hourly rate plus a fourteen percent wage and benefit premium.

(Local #12) (BCA)

HOUSE WRECKER
(TOTAL DEMOLITION)

House Wrecker - Tier A

On all work sites the first, second, eleventh and every third House Wrecker thereafter will be Tier A House Wreckers (i.e. 1st, 2nd, 11th, 14th etc). Other House Wreckers may be Tier B House Wreckers.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $37.18
Supplemental Benefit Rate per Hour: $29.77

House Wrecker - Tier B

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $26.41
Supplemental Benefit Rate per Hour: $22.18

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

(Mason Tenders District Council)

IRON WORKER - ORNAMENTAL

Iron Worker - Ornamental

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: $45.15
Supplemental Benefit Rate per Hour: $55.62
Supplemental Note: Supplemental benefits are to be paid at the applicable overtime rate when overtime is in effect.

Overtime Description
Time and one half the regular rate after a 7 hour day for a maximum of two hours on any regular work day (the 8th and 9th hour) and double time shall be paid for all work on a regular work day thereafter, time and one half the regular rate for Saturday for the first seven hours of work and double time shall be paid for all work on a Saturday thereafter.

Overtime
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

Shift Rates
For off shift work - 8 hours pay for 7 hours of work. When two or three shifts are employed on a job, Monday through Friday, the workday for each shift shall be seven hours and paid for ten and one-half hours at the single time rate. When two or three shifts are worked on Saturday, Sunday or holidays, each shift shall be seven hours and paid fifteen and three-quarters hours.

(Local #580)

IRON WORKER - STRUCTURAL

Iron Worker - Structural

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $51.05
Supplemental Benefit Rate per Hour: $76.89
Supplemental Note: Supplemental benefits are to be paid at the applicable overtime rate when overtime is in effect.

Overtime Description

Monday through Friday- the first eight hours are paid at straight time, the 9th and 10th hours are paid at time and one-half the regular rate, all additional weekday overtime is paid at double the regular rate. Saturdays- the first eight hours are paid at time and one-half the regular rate, double time thereafter. Sunday-all shifts are paid at double time.

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays

Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays

1/2 day on Christmas Eve if work is performed in the A.M.
1/2 day on New Year's Eve if work is performed in the A.M.

Shift Rates

Monday through Friday - First Shift: First eight hours are paid at straight time, the 9th & 10th hours are paid at time and a half, double time paid thereafter. Second and third Shifts: First eight hours are paid at time and one-half, double time thereafter. Saturdays: All shifts, first eight hours paid at time and one-half, double time thereafter: Sunday all shifts are paid at double time.

(Local #40 & #361)

LABORER
(Foundation, Concrete, Excavating, Street Pipe Layer and Common)

Laborer

Excavation and foundation work for buildings, heavy construction, engineering work, and hazardous waste removal in connection with the above work. Landscaping tasks in connection with heavy construction work, engineering work and building projects. Projects include, but are not limited to pollution plants, sewers, parks, subways, bridges, highways, etc.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $42.65
Supplemental Benefit Rate per Hour: $44.48

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays

Double time the regular rate for work on the following holiday(s).
New Year's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Thanksgiving Day
Christmas Day

Paid Holidays

Labor Day
Thanksgiving Day

Shift Rates

When two shifts are employed, single time rate shall be paid for each shift. When three shifts are found necessary, each shift shall work seven and one half hours (7 ½), but shall be paid for eight (8) hours of labor, and be permitted one half hour for lunch.

(Local #731)

LANDSCAPING

(Landscaping tasks, as well as tree pruning, tree removing, spraying and maintenance in connection with the planting of street trees and the planting of trees in city parks but not when such activities are performed as part of, or in connection with, other construction or reconstruction projects.)

Landscaper (Year 6 and above)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $31.75
Supplemental Benefit Rate per Hour: $16.05

Landscaper (Year 3 - 5)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $30.72
Supplemental Benefit Rate per Hour: $16.05

Landscaper (up to 3 years)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $28.14
Supplemental Benefit Rate per Hour: $16.05

Groundperson

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $28.14
Supplemental Benefit Rate per Hour: $16.05

Tree Remover / Pruner

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $36.92
Supplemental Benefit Rate per Hour: $16.05

Landscaper Sprayer (Pesticide Applicator)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $26.59
Supplemental Benefit Rate per Hour: $16.05

Watering - Plant Maintainer

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $21.40
Supplemental Benefit Rate per Hour: $16.05

Overtime Description

For all overtime work performed, supplemental benefits shall include an additional seventy-five ($0.75) cents per hour.

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Time and one half the regular rate for work on a holiday plus the day's pay.

Paid Holidays

New Year's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Shift Rates

Work performed on a 4pm to 12am shift has a 15% differential. Work performed on a 12am to 8am shift has a 20% differential.

(Local #175)

MARBLE MECHANIC

Marble Setter

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $54.44
Supplemental Benefit Rate per Hour: $40.77

Marble Finisher

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $42.86
Supplemental Benefit Rate per Hour: $38.22

Marble Polisher

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $39.81
Supplemental Benefit Rate per Hour: $30.35

Marble Maintenance Finisher

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $24.31
Supplemental Benefit Rate per Hour: $13.34

Overtime Description

Supplemental Benefit contributions are to be made at the applicable overtime rates. Time and one half the regular rate after a 7 hour day or time and one half the regular rate after an 8 hour day - chosen by Employer at the start of the project and then would last for the full duration of the project.

Overtime

Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays

Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Good Friday

Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

(Local #7)

MASON TENDER

Mason Tender

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $38.40
Supplemental Benefit Rate per Hour: $31.04

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

Shift Rates
The employer may work two (2) shifts with the first shift at the straight time wage rate and the second shift receiving eight (8) hours paid for seven (7) hours work at the straight time wage rate. When it is not possible to conduct alteration work during regular working hours in a building occupied by tenants, the rule for the second shift will apply.

(Local #79)

MASON TENDER (INTERIOR DEMOLITION WORKER)

Mason Tender Tier A

Tier A Interior Demolition Worker performs all burning, chopping, and other technically skilled tasks related to interior demolition work.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $36.44
Supplemental Benefit Rate per Hour: $24.50

Mason Tender Tier B

Tier B Interior Demolition Worker performs manual work and work incidental to demolition work, such as loading and carting of debris from the work site to an area where it can be loaded in to bins/trucks for removal. Also performs clean-up of the site when demolition is completed.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $25.63
Supplemental Benefit Rate per Hour: $18.82

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

(Local #79)

METALLIC LATHER

Metallic Lather

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $46.23
Supplemental Benefit Rate per Hour: $46.67
Supplemental Note: Overtime Supplemental Benefit rate - $57.92

Overtime Description
Overtime would be time and one half the regular rate after a seven (7) or eight (8) hours workday, which would be set at the start of the job.

Overtime
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
Washington's Birthday
Memorial Day
Independence Day
Labor Day
Columbus Day
Thanksgiving Day
Christmas Day

Paid Holidays
1/2 day on Christmas Eve if work is performed in the A.M.
1/2 day on New Year's Eve if work is performed in the A.M.

Shift Rates
There will be no shift differential paid on the first shift if more than one shift is employed. The shift differential will remain $12/hour on the second and third shift for the first eight (8) hours if worked. There will be no pyramiding on overtime worked on second and third shifts. The time and one half (1.5x) rate will be against the base wage rate, not the shift differential

(Local #46)

MILLWRIGHT

Millwright

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: $54.20
Supplemental Benefit Rate per Hour: $53.81

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Christmas Day

Paid Holidays
1/2 day on Christmas Eve if work is performed in the A.M.
1/2 day on New Year's Eve if work is performed in the A.M.

Shift Rates
The first shift shall receive the straight time rate of pay. The second shift receives the straight time rate of pay plus fifteen (15%) per cent. Members of the second shift shall be allowed one half hour to eat, with this time being included in the hours of the workday established. There must be a first shift to work a second shift. All additional hours worked shall be paid at the time and one-half rate of pay plus fifteen (15%) per cent for weekday hours.

(Local #740)

MOSAIC MECHANIC

Mosaic Mechanic - Mosaic & Terrazzo Mechanic

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $49.91
Supplemental Benefit Rate per Hour: $43.24

Mosaic Mechanic - Mosaic & Terrazzo Finisher

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $48.31
Supplemental Benefit Rate per Hour: $43.24

Mosaic Mechanic - Machine Operator Grinder

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $48.31
Supplemental Benefit Rate per Hour: $43.24

Overtime
Time and one half the regular rate after a 7 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
Washington's Birthday
Good Friday
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

(Local #7)

PAINTER

Painter - Brush & Roller

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $43.00
Supplemental Benefit Rate per Hour: $32.49
Supplemental Note: $ 37.75 on overtime

Spray & Scaffold / Decorative / Sandblast

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $46.00

Supplemental Benefit Rate per Hour: $32.49
Supplemental Note: $ 37.75 on overtime

Overtime
Time and one half the regular rate after a 7 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.

Overtime Holidays
Time and one half the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

(District Council of Painters #9)

PAINTER - LINE STRIPING (ROADWAY)

Striping - Machine Operator

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $35.00
Supplemental Benefit Rate per Hour: $12.37
Supplemental Note: Overtime Supplemental Benefit rate - $8.02; New Hire Rate (0-3 months) - $0.00

Lineperson (Thermoplastic)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $39.00
Supplemental Benefit Rate per Hour: $12.37
Supplemental Note: Overtime Supplemental Benefit rate - $8.02; New Hire Rate (0-3 months) - $0.00

Overtime Description
For Paid Holidays: Employees will only receive Holiday Pay for holidays not worked if said employee worked both the weekday before and the weekday after the holiday.

Overtime
Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.
Time and one half the regular rate for work on the following holiday(s).

Paid Holidays

New Year's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Shift Rates

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

Vacation

Employees with one to two years service shall accrue vacation based on hours worked: 250 hours worked - 1 day vacation; 500 hours worked - 2 days vacation; 750 hours worked - 3 days vacation; 900 hours worked - 4 days vacation; 1,000 hours worked - 5 days vacation. Employees with two to five years service receive two weeks vacation. Employees with five to twenty years service receive three weeks vacation. Employees with twenty to twenty-five years service receive four weeks vacation. Employees with 25 or more years service receive five weeks vacation. Vacation must be taken during winter months.

(Local #1010)

PAINTER - METAL POLISHER

METAL POLISHER

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $30.58
Supplemental Benefit Rate per Hour: $7.16

METAL POLISHER - NEW CONSTRUCTION

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $31.53
Supplemental Benefit Rate per Hour: $7.16

METAL POLISHER - SCAFFOLD OVER 34 FEET

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: $34.08
Supplemental Benefit Rate per Hour: $7.16

Overtime Description
All work performed on Saturdays shall be paid at time-in-a half. The exception being; for suspended scaffold work and work deemed as a construction project; an eight (8) hour shift lost during the week due to circumstances beyond the control of the employer, up to a maximum of eight (8) hours per week, may be worked on Saturday at the straight time rate.

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.
Triple time the regular rate for work on the following holiday(s).

Paid Holidays
New Year's Day
Martin Luther King Jr. Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Shift Rates
Four Days a week at Ten (10) hours straight a day.

Local 8A-28A

PAINTER - SIGN

Sign Painter

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $41.98
Supplemental Benefit Rate per Hour: $20.10

Assistant Sign Painter

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: $35.67
Supplemental Benefit Rate per Hour: $18.47

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.
Double time the regular rate for work on the following holiday(s).

Paid Holidays

New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Election Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Vacation

At least 1 year of employment.....1 week
2 years or more of employment.....2 weeks
8 years or more of employment.....3 weeks

(Local #8A-28A)

PAINTER - STRUCTURAL STEEL

Painters on Structural Steel

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $49.50
Supplemental Benefit Rate per Hour: $41.83

Painter - Power Tool

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $55.50
Supplemental Benefit Rate per Hour: $41.83
Overtime Wage Rate: $6.00 above the "Painters on Structural Steel" overtime rate.

Overtime Description

Supplemental Benefits shall be paid for each hour worked, up to forty (40) hours per week for the period of May 1st to November 15th or up to fifty (50) hours per week for the period of November 16th to April 30th.

Overtime
Time and one half the regular rate after a 7 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

Shift Rates
Regular hourly rates plus a ten per cent (10%) differential

(Local #806)

PAPERHANGER

Paperhanger

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $45.40
Supplemental Benefit Rate per Hour: $34.74
Supplemental Note: Supplemental benefits are to be paid at the appropriate straight time and overtime rate.

Overtime
Time and one half the regular rate after a 7 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.

Overtime Holidays
Time and one half the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays

None

Shift Rates

Evening shift - 4:30 P.M. to 12:00 Midnight (regular rate of pay); any work performed before 7:00 A.M. shall be at time and one half the regular base rate of pay.

(District Council of Painters #9)

PAVER AND ROADBUILDER

Paver & Roadbuilder - Formsetter

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $46.85
Supplemental Benefit Rate per Hour: $44.86
Supplemental Note: For time and one half overtime - $48.74 For double overtime - $52.61

Paver & Roadbuilder - Laborer

Paving and road construction work, regardless of material used, including but not limited to preparation of job sites, removal of old surfaces, asphalt and/or concrete, by whatever method, including but not limited to milling; laying of concrete; laying of asphalt for temporary, patchwork, and utility paving (but not production paving); site preparation and incidental work for installation of rubberized materials and similar surfaces; installation and repair of temporary construction fencing; slurry/seal coating, paving stones, maintenance of safety surfaces; play equipment installation, and other related work.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $42.98
Supplemental Benefit Rate per Hour: $44.86
Supplemental Note: For time and one half overtime - $48.74 For double overtime - $52.61

Production Paver & Roadbuilder - Screed Person

(Production paving is asphalt paving when using a paving machine or on a project where a paving machine is traditionally used)

Adjustment of paving machinery on production paving jobs.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $47.45
Supplemental Benefit Rate per Hour: $44.86
Supplemental Note: For time and one half overtime - $48.74 For double overtime - $52.61

Production Paver & Roadbuilder - Raker

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $46.85
Supplemental Benefit Rate per Hour: $44.86
Supplemental Note: For time and one half overtime - $48.74 For double overtime - $52.61

Production Paver & Roadbuilder - Shoveler

General laborer (except removal of surfaces - see Paver and Roadbuilder-Laborer) including but not limited to tamper, AC paint and liquid tar work.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $42.98
Supplemental Benefit Rate per Hour: $44.86
Supplemental Note: For time and one half overtime - $48.74 For double overtime - $52.61

Overtime Description
If an employee works New Year's Day or Christmas Day, they receive the single time rate plus 25%.

For Paid Holidays: Holiday pay for all holidays shall be prorated based two hours per day for each day worked in the holiday week, not to exceed 8 hours of holiday pay.

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
Memorial Day
Independence Day
Labor Day
Columbus Day
Thanksgiving Day

Paid Holidays
Memorial Day
Independence Day
Labor Day
Thanksgiving Day

Shift Rates
When two shifts are employed, the work period for each shift shall be a continuous eight (8) hours. When three shifts are employed, each shift will work seven and one half (7 ½) hours but will be paid for eight (8) hours since only one half (1/2) hour is allowed for meal time.
When two or more shifts are employed, single time will be paid for each shift.

Night Work - On night work, the first eight (8) hours of work will be paid for at the single time rate, except that production paving work shall be paid at 10% over the single time rate for the screed person, rakers and shovelers directly involved only. This differential is to be paid when there is only one shift and the shift works at night. All other workers will be exempt. Hours worked over eight (8) hours during said shift shall be paid for at the time and one-half rate.

(Local #1010)

PLASTERER

Plasterer

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $45.93
Supplemental Benefit Rate per Hour: $26.52

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

Shift Rates
When it is not possible to conduct work during regular working hours (between 6:30am and 4:30pm), a shift differential shall be paid at the regular hourly rate plus a twelve per cent (12%) per hour differential. Workers on shift work shall be allowed a paid one-half hour meal break.

(Local #262)

PLASTERER - TENDER

Plasterer - Tender

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $38.40
Supplemental Benefit Rate per Hour: $31.04

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
Washington's Birthday
Memorial Day
Independence Day
Labor Day
Presidential Election Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

Shift Rates
When work commences outside regular work hours, workers receive an hour additional (differential) wage and supplement payment. Eight hours pay for seven hours work or nine hours pay for eight hours work.

(Mason Tenders District Council)

PLUMBER

Plumber

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $69.00
Supplemental Benefit Rate per Hour: $37.20
Supplemental Note: Supplemental benefit contributions are to be made at the applicable overtime rates.

Plumber - Temporary Services

Temporary Services - When there are no Plumbers on the job site, there may be three shifts designed to cover the entire twenty-four hour period, including weekends if necessary, at the following rate straight time.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $55.28
Supplemental Benefit Rate per Hour: $29.68

Overtime Description
Double time the regular rate after a 7 hour day - unless for new construction site work where the plumbing contract price is $1.5 million or less, the hours of labor can be 8 hours per day at the employers option. On Alteration jobs when other mechanical trades at the site are working an eighth hour at straight time, then the plumber shall also work an eighth hour at straight time.

Overtime
Double time the regular time rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Shift Rates
Shift work, when directly specified in public agency or authority documents where plumbing contract is $8 million or less, will be permitted. 30% shift premium shall be paid for wages and fringe benefits for 4:00 pm and midnight shifts Monday to Friday. 50% shift premium shall be paid for wages and fringe benefits for 4:00 pm and midnight shift work performed on weekends. For shift work on holidays, double time wages and fringe benefits shall be paid.

(Plumbers Local #1)

PLUMBER (MECHNICAL EQUIPMENT AND SERVICE)
(Mechanical Equipment and Service work shall include any repair and/or replacement of the present plumbing system.)

Plumber

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $43.05
Supplemental Benefit Rate per Hour: $17.71

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.

Overtime Holidays
Time and one half the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

(Plumbers Local # 1)

PLUMBER (RESIDENTIAL RATES FOR 1, 2 AND 3 FAMILY HOME CONSTRUCTION)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $47.89
Supplemental Benefit Rate per Hour: $26.74

Overtime
Double time the regular rate after an 8 hour day.
Double time the regular time rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

Shift Rates
30% shift premium shall be paid for wages and fringe benefits for 4:00 pm and midnight shifts Monday to Friday. 50% shift premium shall be paid for wages and fringe benefits for 4:00 pm and midnight shift work performed on weekends. For shift work on holidays, double time wages and fringe benefits shall be paid.

(Plumbers Local #1)

PLUMBER: PUMP & TANK
Oil Trades (Installation and Maintenance)

Plumber - Pump & Tank

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $67.45
Supplemental Benefit Rate per Hour: $25.26

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.

Overtime Holidays
Time and one half the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

Shift Rates
All work outside the regular workday (8:00 A.M. to 3:30 P.M.) is to be paid at time and one half the regular hourly rate

(Plumbers Local #1)

POINTER, WATERPROOFER, CAULKER, SANDBLASTER, STEAMBLASTER
(Exterior Building Renovation)

Journeyperson

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $53.42
Supplemental Benefit Rate per Hour: $26.52

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays
Time and one half the regular rate for work on the following holiday(s).
New Year's Day
Martin Luther King Jr. Day
President's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

Shift Rates
All work outside the regular work day (an eight hour workday between the hours of 6:00 A.M. and 4:30 P.M.) is to be paid at time and one half the regular rate.

(Bricklayer District Council)

ROOFER

Roofer

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $43.50
Supplemental Benefit Rate per Hour: $33.81

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.

Overtime Holidays
Time and one half the regular rate for work on the following holiday(s).
New Year's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

Shift Rates
Second shift - Regular hourly rate plus a 10% differential. Third shift - Regular hourly rate plus a 15% differential.

(Local #8)

SHEET METAL WORKER

Sheet Metal Worker

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $50.15
Supplemental Benefit Rate per Hour: $50.55
Supplemental Note: Supplemental benefit contributions are to be made at the applicable overtime rates.

Sheet Metal Worker - Fan Maintenance

(The temporary operation of fans or blowers in new or existing buildings for heating and/or ventilation, and/or air conditioning prior to the completion of the project.)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $40.12
Supplemental Benefit Rate per Hour: $50.55

Sheet Metal Worker - Duct Cleaner

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $16.08
Supplemental Benefit Rate per Hour: $11.63

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
Martin Luther King Jr. Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

Shift Rates
Work that can only be performed outside regular working hours (eight hours of work between 7:30 A.M. and 3:30 P.M.) - First shift (work between 3:30 P.M. and 11:30 P.M.) - 10% differential above the established hourly rate. Second shift (work between 11:30 P.M. and 7:30 A.M.) - 15% differential above the established hourly rate.

For Fan Maintenance: On all full shifts of fan maintenance work the straight time hourly rate of pay will be paid for each shift, including nights, Saturdays, Sundays, and holidays.

(Local #28

SHEET METAL WORKER - SPECIALTY
(Decking & Siding)

Sheet Metal Specialty Worker

The first worker to perform this work must be paid at the rate of the Sheet Metal Worker. The second and third workers shall be paid the Specialty Worker Rate. The ratio of One Sheet Metal Worker, then Two Specialty Workers shall be utilized thereafter.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $46.30
Supplemental Benefit Rate per Hour: $25.95
Supplemental Note: Supplemental benefit contributions are to be made at the applicable overtime rates.

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays

Double time the regular rate for work on the following holiday(s).
New Year's Day
Martin Luther King Jr. Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Christmas Day

Paid Holidays

None

(Local #28)

SHIPYARD WORKER

Shipyard Mechanic - First Class

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $28.50
Supplemental Benefit Rate per Hour: $3.95

Shipyard Mechanic - Second Class

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $19.07
Supplemental Benefit Rate per Hour: $3.59

Shipyard Laborer - First Class

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $23.40
Supplemental Benefit Rate per Hour: $3.75

Shipyard Laborer - Second Class

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $17.38
Supplemental Benefit Rate per Hour: $3.52

Shipyard Dockhand - First Class

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $21.57
Supplemental Benefit Rate per Hour: $3.68

Shipyard Dockhand - Second Class

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $17.28
Supplemental Benefit Rate per Hour: $3.52

Overtime Description
Work performed on holiday is paid double time the regular hourly wage rate plus holiday pay.

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Time and one half the regular hourly rate after 40 hours in any work week.

Paid Holidays
New Year's Day
Martin Luther King Jr. Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Based on Survey Data

SIGN ERECTOR
(Sheet Metal, Plastic, Electric, and Neon)

Sign Erector

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $49.35
Supplemental Benefit Rate per Hour: $54.63

Overtime
Time and one half the regular rate after a 7 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.
Time and one half the regular rate for work on the following holiday(s).

Paid Holidays
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Election Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Shift Rates
Time and one half the regular hourly rate is to be paid for all hours worked outside the regular workday either (7:00 A.M. through 2:30 P.M.) or (8:00 A.M. through 3:30 P.M.)

(Local #137)

STEAMFITTER

Steamfitter I

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $57.50
Supplemental Benefit Rate per Hour: $57.29
Supplemental Note: Overtime supplemental benefit rate: $113.84

Steamfitter -Temporary Services

The steamfitters shall not do any other work and shall not be permitted to work more than one shift in a twenty-four hour day. When steamfitters are present during the regular working day, no temporary services steamfitter will be required

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $43.70
Supplemental Benefit Rate per Hour: $46.54

Overtime

Double time the regular rate after a 7 hour day.
Double time the regular time rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays

Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays

None

Shift Rates

Work performed between 3:30 P.M. and 7:00 A.M. and on Saturdays, Sundays and Holidays shall be at double time the regular hourly rate and paid at the overtime supplemental benefit rate above.

Steamfitter II

For heating, ventilation, air conditioning and mechanical public work contracts with a dollar value not to exceed $30,000,000 and for fire protection/sprinkler public work contracts not to exceed $3,000,000.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $57.50
Supplemental Benefit Rate per Hour: $57.29
Supplemental Note: Overtime supplemental benefit rate: $113.84

Steamfitter -Temporary Services

The steamfitters shall not do any other work and shall not be permitted to work more than one shift in a twenty-four hour day. When steamfitters are present during the regular working day, no temporary services steamfitter will be required.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $43.70
Supplemental Benefit Rate per Hour: $46.54

Overtime
Double time the regular rate after an 8 hour day.
Double time the regular time rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

Shift Rates
May be performed outside of the regular workday except Saturday, Sunday and Holidays. A shift shall consist of eight working hours. All work performed in excess of eight hours shall be paid at double time. No shift shall commence after 7:00 P.M. on Friday or 7:00 P.M. the day before holidays. All work performed after 12:01 A.M. Saturday or 12:01 A.M. the day before a Holiday will be paid at double time. When shift work is performed the wage rate for regular time worked is a 15% percent premium on wage and 15% percent premium on supplemental benefits.

On Transit Authority projects, where work is performed in the vicinity of tracks all shift work on weekends and holidays may be performed at the regular shift rates.

Local #638

STEAMFITTER - REFRIGERATION AND AIR CONDITIONER
(Maintenance and Installation Service Person)

Refrigeration and Air Conditioner Mechanic

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $42.35
Supplemental Benefit Rate per Hour: $17.46

Refrigeration and Air Conditioner Service Person V

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $34.80
Supplemental Benefit Rate per Hour: $15.59

Refrigeration and Air Conditioner Service Person IV

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $28.83
Supplemental Benefit Rate per Hour: $14.05

Refrigeration and Air Conditioner Service Person III

Filter changing and maintenance thereof, oil and greasing, tower and coil cleaning, scraping and painting, general housekeeping, taking of water samples.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $24.74
Supplemental Benefit Rate per Hour: $12.91

Refrigeration and Air Conditioner Service Person II

Filter changing and maintenance thereof, oil and greasing, tower and coil cleaning, scraping and painting, general housekeeping, taking of water samples.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $20.51
Supplemental Benefit Rate per Hour: $11.83

Refrigeration and Air Conditioner Service Person I

Filter changing and maintenance thereof, oil and greasing, tower and coil cleaning, scraping and painting, general housekeeping, taking of water samples.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $15.01
Supplemental Benefit Rate per Hour: $10.60

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays

Double time the regular rate for work on the following holiday(s).
New Year's Day
Independence Day
Labor Day
Veteran's Day
Thanksgiving Day
Christmas Day

Double time and one half the regular rate for work on the following holiday(s).
Martin Luther King Jr. Day
President's Day
Memorial Day
Columbus Day

Paid Holidays

New Year's Day
Martin Luther King Jr. Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Christmas Day

(Local #638B)

STONE MASON - SETTER

Stone Mason - Setter

(Assisted by Derrickperson and Rigger)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $54.17
Supplemental Benefit Rate per Hour: $42.65

Overtime

Time and one half the regular rate after a 7 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays

Double time the regular rate for work on the following holiday(s).
New Year's Day

Washington's Birthday
Good Friday
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays

1/2 day on Christmas Eve if work is performed in the A.M.

Shift Rates

For all work outside the regular workday (8:00 A.M. to 3:30 P.M. Monday through Friday), the pay shall be straight time plus a ten percent (10%) differential.

(Bricklayers District Council)

TAPER

Drywall Taper

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $47.82
Supplemental Benefit Rate per Hour: $26.81

Overtime

Time and one half the regular rate after a 7 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.

Overtime Holidays

Time and one half the regular rate for work on the following holiday(s).
New Year's Day
Martin Luther King Jr. Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Thanksgiving Day
Christmas Day

Paid Holidays

Any worker who reports to work on Christmas Eve or New Year's Eve pursuant to his employer's instruction shall be entitled to three (3) hours afternoon pay without working.

(Local #1974)

TELECOMMUNICATION WORKER

(Install/maintain/repair telecommunications cables carrying data, video, and/or voice except for installation on building construction/alteration/renovation projects.)

Telecommunication Worker

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $44.75
Supplemental Benefit Rate per Hour: $23.15
Supplemental Note: The above rate applies for Manhattan, Bronx, Brooklyn, Queens. $22.84 for Staten Island only.

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.

Overtime Holidays

Time and one half the regular rate for work on the following holiday(s).
New Year's Day
Lincoln's Birthday
Washington's Birthday
Memorial Day
Independence Day
Labor Day
Columbus Day
Election Day
Veteran's Day
Thanksgiving Day
Christmas Day

Paid Holidays

New Year's Day
Lincoln's Birthday
Washington's Birthday
Memorial Day
Independence Day
Labor Day
Columbus Day
Election Day
Veteran's Day
Thanksgiving Day
Christmas Day

Employees have the option of observing either Martin Luther King's Birthday or the day after Thanksgiving instead of Lincoln's Birthday

Shift Rates

For any workday that starts before 8A.M. or ends after 6P.M. there is a 10% differential for the applicable worker's hourly rate.

Vacation

After 6 months.....one week.
After 12 months but less than 7 years.....two weeks.
After 7 or more but less than 15 years.....three weeks.
After 15 years or more but less than 25 years.....four weeks.

(C.W.A.)

TILE FINISHER

Tile Finisher

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $42.72
Supplemental Benefit Rate per Hour: $33.57

Overtime

Time and one half the regular rate after a 7 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays

Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays

None

Shift Rates

Off shift work day (work performed outside the regular 8:00 A.M. to 3:30 P.M. workday): shift differential of one and one quarter (1¼) times the regular straight time rate of pay for the seven hours of actual off-shift work.

(Local #7)

TILE LAYER - SETTER

Tile Layer - Setter

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $54.84
Supplemental Benefit Rate per Hour: $38.32

Overtime
Time and one half the regular rate after a 7 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Shift Rates
Off shift work day (work performed outside the regular 8:00 A.M. to 3:30 P.M. workday): shift differential of one and one quarter (1¼) times the regular straight time rate of pay for the seven hours of actual off-shift work.

(Local #7)

TIMBERPERSON

Timberperson

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $50.05
Supplemental Benefit Rate per Hour: $51.03

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.
Time and one half the regular hourly rate after 40 hours in any work week.

Overtime Holidays

Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Christmas Day

Paid Holidays

None

Shift Rates

Off shift work commencing between 5:00 P.M. and 11:00 P.M. shall work eight and one half hours allowing for one half hour for lunch. The wage rate shall be 113% of the straight time hourly wage rate.

(Local #1536)

TUNNEL WORKER

Blasters, Mucking Machine Operators (Compressed Air Rates)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $65.42
Supplemental Benefit Rate per Hour: $56.42

Tunnel Workers (Compressed Air Rates)

Includes shield driven liner plate portions or solidification portions work (8 hour shift) during excavation phase.

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: $63.21
Supplemental Benefit Rate per Hour: $54.60

Top Nipper (Compressed Air Rates)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $62.02
Supplemental Benefit Rate per Hour: $53.57

Outside Lock Tender, Outside Gauge Tender,Muck Lock Tender (Compressed Air Rates)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $60.84
Supplemental Benefit Rate per Hour: $52.63

Bottom Bell & Top Bell Signal Person: Shaft Person (Compressed Air Rates)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $60.84
Supplemental Benefit Rate per Hour: $52.63

Changehouse Attendant: Powder Watchperson (Compressed Air Rates)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $53.40
Supplemental Benefit Rate per Hour: $49.60

Blasters (Free Air Rates)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $62.41
Supplemental Benefit Rate per Hour: $54.17

Tunnel Workers (Free Air Rates)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $59.72
Supplemental Benefit Rate per Hour: $51.89

All Others (Free Air Rates)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $55.18
Supplemental Benefit Rate per Hour: $48.03

Microtunneling (Free Air Rates)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $47.78
Supplemental Benefit Rate per Hour: $41.51

Overtime Description

For work performed during excavation and primary concrete tunnel lining phases - Double time the regular rate after an 8 hour day and Saturday, Sunday and on the following holiday(s) listed below.
For Repair-Maintenance Work on Existing Equipment and Facilities - Time and one half the regular rate after a 7 hour day, Saturday, Sunday and double time the regular rate for work on the following holiday(s) listed below.
For Small-Bore Micro Tunneling Machines - Time and one-half the regular rate shall be paid for all overtime.
For work not listed above - Time and one half the regular rate after an 8 hour day and Saturday and double time the regular rate on Sunday and on the following holiday(s) listed below.

Paid Holidays

New Year's Day
Lincoln's Birthday
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Election Day
Veteran's Day
Thanksgiving Day
Christmas Day

(Local #147)

UTILITY LOCATOR
(Locate & mark underground utilities for street excavation.)

Utility Locator (Year 7 and above)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $31.56
Supplemental Benefit Rate per Hour: $1.93

Utility Locator (Year 5 - 6)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $22.85
Supplemental Benefit Rate per Hour: $1.93

Utility Locator (Year 4)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $21.54
Supplemental Benefit Rate per Hour: $1.93

Utility Locator (Year 3)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $20.30
Supplemental Benefit Rate per Hour: $1.93

Utility Locator (Year 2)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $19.13
Supplemental Benefit Rate per Hour: $1.93

Utility Locator (Year 1)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $18.04
Supplemental Benefit Rate per Hour: $1.93

Utility Locator (Up to 1 year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $17.00
Supplemental Benefit Rate per Hour: $1.93
Supplemental Note: No benefits for the first 90 days of employment.

Overtime
Time and one half the regular rate for work on the following Paid Holiday(s).
Time and one half the regular hourly rate after 40 hours in any work week.

Paid Holidays
New Year's Day
Memorial Day
Independence Day
Thanksgiving Day
Christmas Day

Shift Rates
10% shift differential to employees working any shift starting between noon and 5 AM.

Vacation
For up to 1 year ..... 0 hours
For year 1 - 2 ..... 48 hours per year
For year 3 - 9 ..... 96 hours per year
For year 10 or more ..... 144 hours per year

Sick Days:
For up to 1 year employee receives 40 hours paid sick leave.
For year 1 employee earns 2 hours of paid sick leave for every 100 overtime hours worked.
For year 2 - 9 years employee earns 4 hours of paid sick leave for every 100 overtime hours worked.
For year 10 or more employee earns 6 hours of paid sick leave for every 100 overtime hours worked.

(C.W.A.)

WELDER
TO BE PAID AT THE RATE OF THE JOURNEYPERSON IN THE TRADE PERFORMING THE WORK.

OFFICE OF THE COMPTROLLER

CITY OF NEW YORK

CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

Pursuant to Labor Law § 220 (3-e), only apprentices who are individually registered in a bona fide program to which the employer contractor is a participant and registered with the New York State Department of Labor, may be paid at the apprentice rates in this schedule. Apprentices who are not so registered must be paid as journey persons in accordance with the trade classification of the work they actually performed.

Apprentice ratios are established to ensure the proper safety, training and supervision of apprentices. A ratio establishes the number of journey workers required for each apprentice in a program and on a job site. Ratios are interpreted as follows: in the case of a 1:1, 1:4 ratio, there must be one journey worker for the first apprentice, and four additional journey workers for each subsequent apprentice.

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BOILERMAKER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Boilermaker (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $31.76

Boilermaker (Second Year: 1st Six Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $33.59

Boilermaker (Second Year: 2nd Six Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $35.43

Boilermaker (Third Year: 1st Six Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $37.25

Boilermaker (Third Year: 2nd Six Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 85% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $39.08

Boilermaker (Fourth Year: 1st Six Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $40.93

Boilermaker (Fourth Year: 2nd Six Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 95% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $42.75

(Local #5)

BRICKLAYER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Bricklayer (First 750 Hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.61

Bricklayer (Second 750 Hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.61

Bricklayer (Third 750 Hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.61

Bricklayer (Fourth 750 Hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.61

Bricklayer (Fifth 750 Hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.61

Bricklayer (Sixth 750 Hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 95% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.61

(Bricklayer District Council)

CARPENTER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Carpenter (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Benefit Rate Per Hour For Building Apprentice: $31.44
Supplemental Benefit Rate Per Hour For Heavy Apprentice: $33.49

Carpenter (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour For Building Apprentice: $31.44
Supplemental Benefit Rate Per Hour For Heavy Apprentice: $33.49

Carpenter (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Rate Per Hour For Building Apprentice: $31.44
Supplemental Benefit Rate Per Hour For Heavy Apprentice: $33.49

Carpenter (Fourth Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour For Building Apprentice: $31.44
Supplemental Benefit Rate Per Hour For Heavy Apprentice: $33.49

(Carpenters District Council)

CARPENTER - HIGH RISE CONCRETE FORMS
(Ratio of Apprentice to Journeyperson: 1 to 1, 2 to 5)

Carpenter - High Rise (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $17.52
Supplemental Benefit Rate per Hour: $16.30

Carpenter - High Rise (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $23.95
Supplemental Benefit Rate per Hour: $16.43

Carpenter - High Rise (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $30.53
Supplemental Benefit Rate per Hour: $16.56

Carpenter - High Rise (Fourth Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $38.15
Supplemental Benefit Rate per Hour: $16.71

(Carpenters District Council)

CEMENT MASON
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Cement Mason (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's Rate

Cement Mason (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's Rate

Cement Mason (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 70% of Journeyperson's Rate

(Local #780)

CEMENT AND CONCRETE WORKER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Cement & Concrete Worker (First 1333 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.00

Cement & Concrete Worker (Second 1333 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $25.45

Cement & Concrete Worker (Last 1334 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $26.95

Cement & Concrete Worker (Hired after 2/6/2016 - First 1334 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 53% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $14.04

Cement & Concrete Worker (Hired after 2/6/2016 - Second 1334 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 69% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $18.97

Cement & Concrete Worker (Hired after 2/6/2016 - Last 1334 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 85% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.05

(Cement Concrete Workers District Council)

DERRICKPERSON & RIGGER (STONE)
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Derrickperson & Rigger (stone) - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: 50% of Journeyperson's rate

Derrickperson & Rigger (stone) - Second Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: 75% of Journeyperson's rate

Derrickperson & Rigger (stone) - Second Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: 75% of Journeyperson's rate

Derrickperson & Rigger (stone) - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: 75% of Journeyperson's rate

(Local #197)

DOCKBUILDER/PILE DRIVER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 6)

Dockbuilder/Pile Driver (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $34.12

Dockbuilder/Pile Driver (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $34.12

Dockbuilder/Pile Driver (Third Year)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $34.12

Dockbuilder/Pile Driver (Fourth Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $34.12

(Carpenters District Council)

ELECTRICIAN
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Electrician (First Term: 0-6 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $15.75
Supplemental Benefit Rate per Hour: $14.03
Overtime Supplemental Rate Per Hour: $15.07

Electrician (First Term: 7-12 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $16.25
Supplemental Benefit Rate per Hour: $14.28
Overtime Supplemental Rate Per Hour: $15.36

Electrician (Second Term: 0-6 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $17.25
Supplemental Benefit Rate per Hour: $14.79
Overtime Supplemental Rate Per Hour: $15.94

Electrician (Second Term: 7-12 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $18.25
Supplemental Benefit Rate per Hour: $15.30
Overtime Supplemental Rate Per Hour: $16.51

Electrician (Third Term: 0-6 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $19.25
Supplemental Benefit Rate per Hour: $15.81
Overtime Supplemental Rate Per Hour: $17.09

Electrician (Third Term: 7-12 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $20.25
Supplemental Benefit Rate per Hour: $16.32
Overtime Supplemental Rate Per Hour: $17.67

Electrician (Fourth Term: 0-6 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $21.25
Supplemental Benefit Rate per Hour: $16.83
Overtime Supplemental Rate Per Hour: $18.24

Electrician (Fourth Term: 7-12 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $23.25
Supplemental Benefit Rate per Hour: $17.85
Overtime Supplemental Rate Per Hour: $19.39

Electrician (Fifth Term: 0-12 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $24.50
Supplemental Benefit Rate per Hour: $21.07
Overtime Supplemental Rate Per Hour: $22.62

Electrician (Fifth Term: 13-18 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $29.00
Supplemental Benefit Rate per Hour: $23.43
Overtime Supplemental Rate Per Hour: $25.26

Overtime Description

Overtime Wage paid at time and one half the regular rate

(Local #3)

ELEVATOR CONSTRUCTOR
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 2)

Elevator (Constructor) - First Year

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $31.52

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $32.14

Elevator (Constructor) - Second Year

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $32.03

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $32.67

Elevator (Constructor) - Third Year

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: $33.06

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: $33.74

Elevator (Constructor) - Fourth Year

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: $34.08

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: $34.80

(Local #1)

ELEVATOR REPAIR & MAINTENANCE
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 2)

Elevator Service/Modernization Mechanic (First Year)

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Per Hour: $31.47

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Per Hour: $32.09

Elevator Service/Modernization Mechanic (Second Year)

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Benefit Per Hour: $31.98

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Benefit Per Hour: $32.62

Elevator Service/Modernization Mechanic (Third Year)

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Per Hour: $32.99

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Per Hour: $33.67

Elevator Service/Modernization Mechanic (Fourth Year)

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Benefit Per Hour: $34.01

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Benefit Per Hour: $34.73

(Local #1)

ENGINEER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 5)

Engineer - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $25.38
Supplemental Benefit Rate per Hour: $26.69

Engineer - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $31.72
Supplemental Benefit Rate per Hour: $26.69

Engineer - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $34.89
Supplemental Benefit Rate per Hour: $26.69

Engineer - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $38.06
Supplemental Benefit Rate per Hour: $26.69

(Local #15)

ENGINEER - OPERATING
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 5)

Operating Engineer - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour 40% of Journeyperson's Rate
Supplemental Benefit Per Hour: $22.45

Operating Engineer - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's Rate

Supplemental Benefit Per Hour: $22.45

Operating Engineer - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 60% of Journeyperson's Rate
Supplemental Benefit Per Hour: $22.45

(Local #14)

FLOOR COVERER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Floor Coverer (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Rate Per Hour: $31.24

Floor Coverer (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $31.24

Floor Coverer (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: $31.24

Floor Coverer (Fourth Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: $31.24

(Carpenters District Council)

GLAZIER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Glazier (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate

Glazier (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate

Glazier (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

Glazier (Fourth Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 80% of Journeyperson's rate

(Local #1281)

HAZARDOUS MATERIAL HANDLER
(Ratio of Apprentice Journeyperson: 1 to 1, 1 to 3)

Handler (First 1000 Hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 78% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $14.25

Handler (Second 1000 Hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $14.25

Handler (Third 1000 Hours)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate Per Hour: 83% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $14.25

Handler (Fourth 1000 Hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 89% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $14.25

(Local #78)

HEAT & FROST INSULATOR
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Heat & Frost Insulator (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 35% of Journeyperson's rate

Heat & Frost Insulator (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 45% of Journeyperson's rate

Heat & Frost Insulator (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 55% of Journeyperson's rate

Heat & Frost Insulator (Fourth Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 65% of Journeyperson's rate

(Local #12)

HOUSE WRECKER
(TOTAL DEMOLITION)
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

House Wrecker - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $21.17
Supplemental Benefit Rate per Hour: $19.09

House Wrecker - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $22.32
Supplemental Benefit Rate per Hour: $19.09

House Wrecker - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $23.97
Supplemental Benefit Rate per Hour: $19.09

House Wrecker - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $26.53
Supplemental Benefit Rate per Hour: $19.09

(Mason Tenders District Council)

IRON WORKER - ORNAMENTAL
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Iron Worker (Ornamental) - 1st Ten Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $40.20

Iron Worker (Ornamental) - 11 -16 Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $41.44

Iron Worker (Ornamental) - 17 - 22 Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: $42.68

Iron Worker (Ornamental) - 23 - 28 Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: $45.17

Iron Worker (Ornamental) - 29 - 36 Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: $47.65

(Local #580)

IRON WORKER - STRUCTURAL
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 6)

Iron Worker (Structural) - 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $26.62
Supplemental Benefit Rate per Hour: $53.09

Iron Worker (Structural) - 7- 18 Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $27.22
Supplemental Benefit Rate per Hour: $53.09

Iron Worker (Structural) - 19 - 36 months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $27.83
Supplemental Benefit Rate per Hour: $53.09

(Local #40 and #361)

LABORER (FOUNDATION, CONCRETE, EXCAVATING, STREET PIPE LAYER & COMMON)

(Ratio Apprentice to Journeyperson: 1 to 1, 1 to 3)

Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) - First 1000 hours

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $44.48

Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) - Second 1000 hours

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: $44.48

Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) - Third 1000 hours

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: $44.48

Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) - Fourth 1000 hours

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Rate Per Hour: $44.48

(Local #731)

MARBLE MECHANICS

(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Cutters & Setters - First 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate

NO BENEFITS PAID DURING THE FIRST TWO MONTHS (PROBATIONARY PERIOD)

Cutters & Setters - Second 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 45% of Journeyperson's rate

Cutters & Setters - Third 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate

Cutters & Setters - Fourth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 55% of Journeyperson's rate

Cutters & Setters - Fifth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

Cutters & Setters - Sixth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 65% of Journeyperson's rate

Cutters & Setters - Seventh 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 70% of Journeyperson's rate

Cutters & Setters - Eighth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 75% of Journeyperson's rate

Cutters & Setters - Ninth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 85% of Journeyperson's rate

Cutters & Setters - Tenth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 95% of Journeyperson's rate

Polishers & Finishers - First 900 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 70% of Journeyperson's rate

NO BENEFITS PAID DURING THE FIRST TWO MONTHS (PROBATIONARY PERIOD)

Polishers & Finishers - Second 900 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 80% of Journeyperson's rate

Polishers & Finishers - Third 900 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 90% of Journeyperson's rate

(Local #7)

MASON TENDER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Mason Tender - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $21.39
Supplemental Benefit Rate per Hour: $19.90

Mason Tender - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $22.54
Supplemental Benefit Rate per Hour: $19.90

Mason Tender - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $24.29
Supplemental Benefit Rate per Hour: $19.90

Mason Tender - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $26.95
Supplemental Benefit Rate per Hour: $19.90

(Local #79)

METALLIC LATHER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Metallic Lather (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $23.04
Supplemental Benefit Rate per Hour: $20.00

Metallic Lather (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $28.38
Supplemental Benefit Rate per Hour: $20.66

Metallic Lather (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $34.68
Supplemental Benefit Rate per Hour: $21.32

Metallic Lather (Fourth Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $37.18
Supplemental Benefit Rate per Hour: $21.82

(Local #46)

MILLWRIGHT
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Millwright (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $29.16
Supplemental Benefit Rate per Hour: $34.66

Millwright (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $34.46
Supplemental Benefit Rate per Hour: $38.31

Millwright (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $39.76
Supplemental Benefit Rate per Hour: $42.61

Millwright (Fourth Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $50.36
Supplemental Benefit Rate per Hour: $49.27

(Local #740)

PAINTER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Painter - Brush & Roller - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $17.20
Supplemental Benefit Rate per Hour: $15.05

Painter - Brush & Roller - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $21.50
Supplemental Benefit Rate per Hour: $19.39

Painter - Brush & Roller - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $25.80
Supplemental Benefit Rate per Hour: $22.79

Painter - Brush & Roller - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $34.40
Supplemental Benefit Rate per Hour: $29.16

(District Council of Painters)

PAINTER - METAL POLISHER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Metal Polisher (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $13.00
Supplemental Benefit Rate per Hour: $5.13

Metal Polisher (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $13.00
Supplemental Benefit Rate per Hour: $5.13

Metal Polisher (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $15.75
Supplemental Benefit Rate per Hour: $5.13

(Local 8A-28)

PAINTER - STRUCTURAL STEEL
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Painters - Structural Steel (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate

Painters - Structural Steel (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

Painters - Structural Steel (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 80% of Journeyperson's rate

(Local #806)

PAVER AND ROADBUILDER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Paver and Roadbuilder - First Year (Minimum 1000 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $28.86
Supplemental Benefit Rate per Hour: $21.40

Paver and Roadbuilder - Second Year (Minimum 1000 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $30.50
Supplemental Benefit Rate per Hour: $21.40

(Local #1010)

PLASTERER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Plasterer - First Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Rate Per Hour: $13.88

Plasterer - First Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 45% of Journeyperson's rate
Supplemental Rate Per Hour: $14.36

Plasterer - Second Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $16.44

Plasterer - Second Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: $17.53

Plasterer - Third Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: $19.72

Plasterer - Third Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: $20.81

(Local #530)

PLASTERER - TENDER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Plasterer Tender - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $21.39
Supplemental Benefit Rate per Hour: $19.90

Plasterer Tender - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $22.54
Supplemental Benefit Rate per Hour: $19.90

Plasterer Tender - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $24.29
Supplemental Benefit Rate per Hour: $19.90

Plasterer Tender - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $26.95
Supplemental Benefit Rate per Hour: $19.90

(Local #79)

PLUMBER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Plumber - First Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $16.28
Supplemental Benefit Rate per Hour: $5.43

Plumber - First Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $19.28
Supplemental Benefit Rate per Hour: $6.43

Plumber - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $27.23
Supplemental Benefit Rate per Hour: $19.80

Plumber - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $29.33
Supplemental Benefit Rate per Hour: $19.80

Plumber - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $32.18
Supplemental Benefit Rate per Hour: $19.80

Plumber - Fifth Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $33.58
Supplemental Benefit Rate per Hour: $19.80

Plumber - Fifth Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $45.65
Supplemental Benefit Rate per Hour: $19.80

(Plumbers Local #1)

POINTER, WATERPROOFER, CAULKER, SANDBLASTER, STEAMBLASTER
(Exterior Building Renovation)
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Pointer, Waterproofer, Caulker, Sandblaster, Steamblaster - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $26.36
Supplemental Benefit Rate per Hour: $14.00

Pointer, Waterproofer, Caulker, Sandblaster, Steamblaster - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $29.42
Supplemental Benefit Rate per Hour: $18.97

Pointer, Waterproofer, Caulker, Sandblaster, Steamblaster - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $34.80
Supplemental Benefit Rate per Hour: $21.72

Pointer, Waterproofer, Caulker, Sandblaster, Steamblaster - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $41.93
Supplemental Benefit Rate per Hour: $22.72

(Bricklayer District Council)

ROOFER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 2)

Roofer - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 35% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $3.36

Roofer - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $16.92

Roofer - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.29

Roofer - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $25.37

(Local #8)

SHEET METAL WORKER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Sheet Metal Worker (0-6 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 25% of Journeyperson's rate
Supplemental Rate Per Hour: $6.51

Sheet Metal Worker (7-18 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 35% of Journeyperson's rate
Supplemental Rate Per Hour: $18.57

Sheet Metal Worker (19-30 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 45% of Journeyperson's rate
Supplemental Rate Per Hour: $25.40

Sheet Metal Worker (31-36 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $29.95

Sheet Metal Worker (37-42 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $29.95

Sheet Metal Worker (43-48 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: $36.83

Sheet Metal Worker (49-54 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: $36.83

Sheet Metal Worker (55-60 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: $41.42

(Local #28)

SIGN ERECTOR
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Sign Erector - First Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 35% of Journeyperson's rate
Supplemental Rate Per Hour: $15.75

Sign Erector - First Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Rate Per Hour: $17.86

Sign Erector - Second Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 45% of Journeyperson's rate
Supplemental Rate Per Hour: $19.98

Sign Erector - Second Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $22.12

Sign Erector - Third Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $29.92

Sign Erector - Third Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: $32.56

Sign Erector - Fourth Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: $35.92

Sign Erector - Fourth Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: $38.65

Sign Erector - Fifth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: $41.33

Sign Erector - Sixth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: $44.01

(Local #137)

STEAMFITTER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Steamfitter - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate and Supplemental Per Hour: 40% of Journeyperson's rate

Steamfitter - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate and Supplemental Rate Per Hour: 50% of Journeyperson's rate.

Steamfitter - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate and Supplemental Rate per Hour: 65% of Journeyperson's rate.

Steamfitter - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate and Supplemental Rate Per Hour: 80% of Journeyperson's rate.

Steamfitter - Fifth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate and Supplemental Rate Per Hour: 85% of Journeyperson's rate.

(Local #638)

STONE MASON - SETTER
(Ratio Apprentice of Journeyperson: 1 to 1, 1 to 2)

Stone Mason - Setters - First 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Second 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Third 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Fourth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Fifth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Sixth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 100% of Journeyperson's rate
Supplemental Rate Per Hour: 50% of Journeyperson's rate

(Bricklayers District Council)

TAPER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Drywall Taper - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate

Drywall Taper - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

Drywall Taper - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 80% of Journeyperson's rate

(Local #1974)

TILE LAYER - SETTER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Tile Layer - Setter - First 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate

Tile Layer - Setter - Second 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 55% of Journeyperson's rate

Tile Layer - Setter - Third 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 65% of Journeyperson's rate

Tile Layer - Setter - Fourth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 75% of Journeyperson's rate

Tile Layer - Setter - Fifth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 85% of Journeyperson's rate

Tile Layer - Setter - Sixth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 95% of Journeyperson's rate

(Local #7)

TIMBERPERSON
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 6)

Timberperson - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Rate Per Hour: $33.76

Timberperson - Second Year

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $33.76

Timberperson - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: $33.76

Timberperson - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: $33.76

(Local #1536)

THE CITY OF NEW YORK
OFFICE OF THE COMPTROLLER
1 CENTRE STREET ROOM 1120
NEW YORK, N.Y. 10007-2341

TELEPHONE: (212) 669-362
FAX NUMBER: (212) 669-849

Leonard A. Mancusi
SENIOR ASSISTANT COMPTROLLER

ALAN G. HEVESI
COMPTROLLER

MEMORANDUM

November 6, 2000

To *Agency Chief Contracting Officers*

From: *Leonard A. Mancusi*

Re: *Security at Construction Sites*

Prior to the enactment of Administrative Code §6-109, security guards on construction sites were not subject to prevailing wages. Security guards under the New York State labor law are covered under §230 which provides that prevailing wages are to be paid for security guards in existing buildings. §6-109 of the Administrative Code which was enacted in 1996 closed this loophole by including all security guards working pursuant to a city contract as a prevailing wage trade.

Although some construction contract boilerplate language has been amended to include §6-109, sub-contractors performing security services have advised us that they were not aware of this provision and, since traditionally, security guards were not a covered trade on construction sites, and they were not advised by a prime contractor that they would have to pay prevailing wages, they have not been doing so.

To avoid the possibility of issuing stop payments against prime contractors for the failure of their security service sub-contractors to pay

prevailing wages, we suggest that you write to all your existing security guard sub-contractors and their primes and in the future, upon approval of a security guard sub-contractor, advise the contractors of their obligation to pay prevailing wages under §6-109 of the Administrative Code.

As always, your cooperation is appreciated.

LAM:er
ACCO.SECURITY AT SITES

Department of Design and Construction

INFRASTRUCTURE DIVISION
BUREAU OF DESIGN

VOLUME 2 OF 3

PROJECT ID: SANDRESM2

INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET

TOGETHER WITH ALL WORK INCIDENTAL THERETO INCLUDING FLOOD PROTECTION SYSTEM, ROLLER AND SWING GATES, PARK RECONSTRUCTION, SEWER, STREET LIGHTING, AND TRAFFIC WORK

Together With All Work Incidental Thereto
BOROUGH OF MANHATTAN
CITY OF NEW YORK

PERFETTO CONTRACTING CO., INC.
Contractor.

Dated August 6th, 2020

APPROVED AS TO FORM
CERTIFIED AS TO LEGAL AUTHORITY

Acting Corporation Counsel CAJ 2/3/2020

Dated February 3, 2020

Department of Design and Construction

THE CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF INFRASTRUCTURE
30-30 THOMSON AVENUE
LONG ISLAND CITY, NY, 11101
TEL: 718.391.1000
WEB: www.nyc.gov/ddc

DDC SPONSOR AGENCY:

NEW YORK CITY DEPARTMENT OF PARKS AND RECREATION

PREPARED BY:

AKRF / KSE JV

DATE PREPARED:

OCTOBER 31 2019

VOLUME 3 OF 3

FOR FURNISHING ALL LABOR AND MATERIALS NECESSARY AND REQUIRED FOR:

PROJECT ID: SANDRESM2

SCHEDULE A SPECIFICATIONS AND REVISIONS TO STANDARD SPECIFICATIONS

FOR FURNISHING ALL LABOR AND MATERIALS NECESSARY AND REQUIRED FOR:

INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET

TOGETHER WITH ALL WORK INCIDENTAL THERETO INCLUDING FLOOD PROTECTION SYSTEM, ROLLER AND SWING GATES, PARK RECONSTRUCTION, SEWER, STREET LIGHTING, AND TRAFFIC WORK

TOGETHER WITH ALL WORK INCIDENTAL THERETO

BOROUGH OF MANHATTAN

CITY OF NEW YORK

HUD FUNDED

20-053

VOLUME 3 OF 3

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SPECIFICATIONS AND STANDARDS OF NEW YORK CITY

The following New York City Department of Transportation (NYCDOT) reference documents are available online at: http://www1.nyc.gov/site/ddc/resources/publications.page and https://www1.nyc.gov/html/dot/html/about/dotlibrary.shtml#spec or for purchase between 9:00 A.M. and 3:00 P.M. Bid Window, at 55 Water St., Ground Floor, NYC, N.Y. 10041. Tel. (212) 839-9435.

1. NYCDOT Standard Highway Specifications, August 1, 2015
2. NYC DOT Standard Details of Construction, July 2010 (Revised March 15, 2016)
3. NYCDOT Division of Street Lighting Specifications
4. NYCDOT Division of Street Lighting Standard Drawings
5. NYCDOT Standard Specifications for Traffic Signals
6. NYCDOT Standard Drawings for Traffic Signals

The following reference documents for New York City Department of Environmental Protection (NYCDEP) are available online at: http://www1.nyc.gov/site/ddc/resources/publications.page or for pick up between 8:00 A.M. and 4:00 P.M. at 30-30 Thomson Avenue, 3rd Floor, Division of Infrastructure, Long Island City, N.Y. 11101.
Contact: Mr. Nader Soliman, Tel. (718) 391-1179

1. NYCDEP Standard Sewer and Water Main Specifications, July 1, 2014
2. NYCDEP Instructions for Concrete Specifications, Jan. 92
3. NYCDEP General Specification 11-Concrete, November 1991
4. NYCDEP Sewer Design Standards, (September 2007) Revised August 2018

The following reference documents for New York City Department of Environmental Protection (NYCDEP) are available online at: https://www1.nyc.gov/site/dep/water/green-infrastructure.page or for pick up between 8:00 A.M. and 4:00 P.M. at 30-30 Thomson Avenue, 3rd Floor, Division of Infrastructure, Long Island City, N.Y. 11101.
Contact: Mr. Robert Kuhlmann, Tel. (718) 391-2145

1. NYCDEP Water Main Standard Drawings, November 2010
2. Specifications for Trunk Main Work, July 2014
3. Standard Design and Guidelines for Green Infrastructure Practices, latest version, available only online at: https://www1.nyc.gov/assets/dep/downloads/pdf/water/stormwater/green-infrastructure/green-infrastructure-standard-designs.pdf

Water main work material specifications are available at the Department of Environmental Protection, 59-17 Junction Boulevard, 3rd Floor Low-Rise Building, Flushing, N.Y. 11373-5108.
Contact: Mr. Tarlock Sahansra, P.E., Tel. (718) 595-5302
E-mail: TSAHANSRA@DEP.NYC.GOV

Standard Specifications and Drawings for New York City Fire Department Communications facilities of New York City are available online at https://www1.nyc.gov/assets/fdny/downloads/pdf/about/fdny-plant-operations-standard-drawings-specifications.pdf or for pick up from the FDNY Facilities Management Bureau, Plant Operations Engineering, 316 Sgt. Beers Avenue Cluster 1 Box 16, Fort Totten, N.Y. 11359.
Contact: Mr. Ed Durkin, Tel. (718) 281-3933

Tree Planting Standards of the City of New York Parks & Recreation are available at the following Department of Parks & Recreation website:
http://www.nycgovparks.org/pagefiles/53/Tree-Planting-Standards.pdf

SPECIFICATIONS AND STANDARDS OF PRIVATE UTILITIES

The Following reference document for Private Utility Work is available for pick up between 8:30 A.M. and 4:00 P.M. at 30-30 Thomson Avenue, First Floor Bid Procurement Room, L.I.C., N.Y. 11101.

1. CET SPECIFICATIONS AND SKETCHES dated November 2010.

SCHEDULE A

(GENERAL CONDITIONS TO CONSTRUCTION CONTRACT (INCLUDING GENERAL CONDITIONS RELATED TO ARTICLE 22 – INSURANCE)

PART I. REQUIRED INFORMATION

INFORMATION FOR BIDDERS SECTION 26 BID SECURITY The **Contractor** shall obtain a bid security in the amount indicated to the right.	Required provided the TOTAL BID PRICE set forth on the Bid Form is $1,000,000. or more. Certified Check: 2% of Bid Amount or Bond: 10% of Bid Amount
INFORMATION FOR BIDDERS SECTION 26 PERFORMANCE AND PAYMENT BONDS The **Contractor** shall obtain performance and payment bonds in the amount indicated to the right.	Required for contracts in the amount of $1,000,000 or more. Performance Security and Payment Security shall each be in an amount equal to 100% of the Contract Price.
INFORMATION FOR BIDDERS DEPARTMENT OF DESIGN AND CONSTRUCTION SAFETY REQUIREMENTS The **Contractor** shall provide the safety personnel as indicated to the right.	■ Project Safety Representative ■ Dedicated, full-time Project Safety Manager
CONTRACT ARTICLE 14 DATE FOR SCHEDULED SUBSTANTIAL COMPLETION The **Contractor** shall substantially complete the **Work** in the number of calendar days indicated to the right.	1428 CCD; Also see Page SA5
SECTION HW-900 DATE FOR ACCELERATED SUBSTANTIAL COMPLETION	1413 CCD
CONTRACT ARTICLE 15 LIQUIDATED DAMAGES If the **Contractor** fails to substantially complete the **Work** within the time fixed for substantial completion plus authorized time extensions or if the **Contractor**, in the sole determination of the **Commissioner**, has abandoned the **Work**, the **Contractor** shall pay to the **City** the amount indicated to the right.	$20,000. for each consecutive calendar day over substantial completion time

CONTRACT ARTICLE 17. **SUB-CONTRACTOR** The **Contractor** shall not make subcontracts totaling an amount more than the percentage of the total **Contract** price indicated to the right.	Not to exceed 49 % of the **Contract** price
CONTRACT ARTICLE 21. **RETAINAGE** The **Commissioner** shall deduct and retain until the substantial completion of the **Work** the percent value of the **Work** indicated to the right.	5 % of the value of the **Work**
CONTRACT ARTICLE 22. **(Per Directions Below)**	See pages SA-6 through SA-13
CONTRACT ARTICLE 24. **DEPOSIT GUARANTEE** As security for the faithful performance of its obligations, the **Contractor**, upon filing its requisition for payment on **Substantial Completion**, shall deposit with the **Commissioner** a sum equal to the percentage of the **Contract** price indicated to the right.	1% of **Contract** price
CONTRACT ARTICLE 24. **PERIOD OF GUARANTEE** Periods of maintenance and guarantee other than the period set forth in Article 24.1 are indicated to the right.	Eighteen (18) Months, excluding Trees Twenty-four (24) Months for Tree Planting
CONTRACT ARTICLE 74. **STATEMENT OF WORK** The **Contractor** shall furnish all labor and materials and perform all **Work** in strict accordance with the **Contract Drawings**, **Specifications,** and all **Addenda** thereto, as **shown in the column to the right.**	**Addenda**, numbered: 15
CONTRACT ARTICLE 75. **COMPENSATION TO BE PAID TO CONTRACTOR** The **City** shall pay and the **Contractor** shall accept in full consideration for the performance of the **Contract**, subject to additions and deductions as provided herein**,** the total sum **shown in the column to the right,** being the amount at which the **Contract** was awarded to the **Contractor** at a public letting thereof, based upon the **Contractor's** bid for the **Contract.**	Amount for which the **Contract** was Awarded: one hundred sixty-three million sixty-six thousand forty-three Dollars ($ 163,066,043.00)

CONTRACT ARTICLE 79. PARTICIPATION BY MINORITY-OWNED AND WOMEN-OWNED BUSINESS ENTERPRISES IN CITY PROCUREMENT	See M/WBE Utilization Plan in the Bid Booklet
SECTION HW-900P LIQUIDATED DAMAGES FOR PHASE COMPLETION If the **Contractor** fails to substantially complete the **Phase A Work** within the time fixed for Phase A scheduled completion plus authorized time extensions, or if the **Contractor**, in the sole determination of the **Commissioner**, has abandoned the Work, the **Contractor** shall pay to the **City** the amount indicated to the right.	Phases 1, 2, 3, 4, and 5: $20,000.00 for each calendar day over substantial completion time
SECTION HW-900P PHASE 5 SCHEDULED COMPLETION DATE The Contractor must substantially complete the Phase A Work, as defined in **Section HW-900P** by the Phase A scheduled completion date determined in accordance with the terms and conditions set forth herein.	The Phase 5 scheduled completion date is **August 1, 2023**.
SECTION HW-900P DATE FOR PHASE 5 ACCELERATED PHASE COMPLETION DATE	**July 17, 2023**
STANDARD HIGHWAY SPECIFICATIONS SECTION 6.40 LIQUIDATED DAMAGES FOR ENGINEER'S FIELD OFFICE If the Contractor fails to satisfactorily provide the field office and all equipment specified in **Section 6.40 - Engineer's Field Office**, and/or if a cited deficiency exceed seventy two (72) hours after notice from the Engineer in writing, or is permitted to recur, liquidated damages will be assessed in the amount specified herein for each subsequent calendar day or part thereof that a cited deficiency resulting in nonpayment, as described in **Section 6.40.5**, is not corrected.	$ 500.00 for each calendar day of deficiency
STANDARD HIGHWAY SPECIFICATIONS SECTION 6.70 LIQUIDATED DAMAGES FOR MAINTENANCE AND PROTECTION OF TRAFFIC	$ 250.00 for each instance of failure to comply with the Maintenance and Protection of Traffic requirements within three (3) hours after written notice from the Engineer. $ 500.00 for each and every hour of failing to open the entire width of roadway to traffic the morning following a night/weekend work operation.

STANDARD HIGHWAY SPECIFICATIONS **SECTION 7.13** **LIQUIDATED DAMAGES FOR MAINTENANCE OF SITE** If the Contractor fails to comply, within three (3) consecutive hours after written notice from the Engineer, with the requirements of **Section 7.13 - Maintenance of Site**, the Contractor shall pay to the City of New York, until such notice has been complied with or rescinded, the sum specified above per calendar day, for each instance of such failure, as liquidated damages and not as a penalty, for such default.	$ 6,000.00 for each calendar day, for each occurrence

Date for Substantial Completion (Reference: Article 14)

The Contractor shall substantially complete the Work within the Final Contract Duration determined in accordance with the terms and conditions set forth herein.

The Base Contract Duration for this project is 1428 consecutive calendar days ("ccds").

The Final Contract Duration shall be the Base Contract Duration when a check mark is indicated before the word "NO", below, and shall be the Base Contract Duration adjusted by the table set forth below when a check mark is indicated before the word "YES", below.

_____ YES __√__ NO

When the Final Contract Duration is indicated above to be adjusted by the table below, the table may increase the Base Contract Duration depending on the date of scheduled substantial completion to avoid a scheduled substantial completion of the Work during the winter months. The date of scheduled substantial completion shall be determined by adding the Base Contract Duration to the date specified to commence work in the written Notice to Proceed. The Final Contract Duration shall then be determined as follows:

(a) Find the row that corresponds to the month of substantial completion based on the Base Contract Duration added to the date specified to commence work in the written Notice to Proceed.

(b) Find the number of days to be added to the Base Contract Duration in the table below. Add that number of days to the Base Contract Duration to obtain the Final Contract Duration in consecutive calendar days.

Month of Substantial Completion based on the Base Contract Duration	Number of Days of adjustment
January	150
February	120
March	90
April	60
May	30
June	0
July	0
August	0
September	0
October	0
November –December 15	0
December 16 – December 31	180

(GENERAL CONDITIONS RELATING TO ARTICLE 22 – INSURANCE)

PART II. TYPES OF INSURANCE, MINIMUM LIMITS AND SPECIAL CONDITIONS

Note: All certificate(s) of insurance submitted pursuant to Contract Article 22.3. 3 must be accompanied by a Certification by Broker consistent with Part III below and include the following information:

- **For each insurance policy, the name and NAIC number of issuing company, number of policy, and effective dates;**
- **Policy limits consistent with the requirements listed below;**
- **Additional insureds or loss payees consistent with the requirements listed below; and**
- **The number assigned to the Contract by the City (in the "Description of Operations" field).**

Insurance indicated by a blackened box (■) or by X in a □ to left will be required under this contract

Types of Insurance (per Article 22 in its entirety, including listed paragraph)	Minimum Limits and Special Conditions
■ Commercial General Liability Art. 22.1.1	The minimum limits shall be $ 3,000,000 per occurrence and $ 6,000,000 per project aggregate applicable to this **Contract.** Additional Insureds: 1. City of New York, including its officials and employees, with coverage at least as broad as ISO Form CG 20 10 and CG 20 37, 2. All person(s) or organization(s), if any, that Article 22.1.1(b) of the **Contract** requires to be named as Additional Insured(s), with coverage at least as broad as ISO Form CG 20 26. The Additional Insured endorsement shall either specify the entity's name, if known, or the entity's title (e.g., Project Manager), 3. U.S. Department of Housing and Urban Development (HUD), including its officials and employees. 4. New York City Housing Authority (NYCHA) , including its officials and employees. 5. New York City Economic Development Corporation (EDC) , including its officials and employees. 6. Consolidated Edison, Inc. 7. Empire City Subway (ECS) / Verizon. 8. U.S. Department of Veterans Affairs (VA), including its officials and employees. 9. New York City Transit Authority (NYCTA), the Manhattan and Bronx Surface Transit Operating Authority (MaBSTOA), the Staten Island Rapid Transit Operating Authority (SIRTOA), MTA Capital Construction Co., the Metropolitan Transportation Authority (MTA) including its subsidiaries and affiliates

■ Workers' Compensation Art. 22.1.2 ■ Disability Benefits Insurance Art. 22.1.2 ■ Employers' Liability Art. 22.1.2 ■ Jones Act Art. 22.1.3 ■ U.S. Longshoremen's and Harbor Workers Compensation Act Art. 22.1.3	Workers' Compensation, Employers' Liability, and Disability Benefits Insurance: Statutory per New York State law without regard to jurisdiction. **Note:** The following forms are acceptable: (1) New York State Workers' Compensation Board Form No. C-105.2, (2) State Insurance Fund Form No. U-26.3, (3) New York State Workers' Compensation Board Form No. DB-120.1 and (4) Request for WC/DB Exemption Form No. CE-200. The City will not accept an ACORD form as proof of Workers' Compensation or Disability Insurance. Jones Act and U.S. Longshoremen's and Harbor Workers' Compensation Act: Statutory per U.S. Law. ☐ Additional Requirements:
☐ Builders' Risk Art. 22.1.4	☐ Required: 100% of total bid amount ☐ Required: 100 % of total bid amount for Item(s): **Contractor** the Named Insured; the **City** both an Additional Insured and one of the loss payees as its interests may appear. If the **Work** does not involve construction of a new building or gut renovation work, the **Contractor** may provide an installation floater in lieu of Builders Risk insurance. Note: Builders Risk Insurance may terminate upon **Substantial Completion** of the **Work** in its entirety.

■ Commercial Auto Liability Art. 22.1.5	$ 2,000,000 per accident combined single limit If vehicles are used for transporting hazardous materials, the **Contractor** shall provide pollution liability broadened coverage for covered vehicles (endorsement CA 99 48) as well as proof of MCS 90 Additional Insureds: 1. City of New York, including its officials and employees
☐Contractors Pollution Liability Art. 22.1.6	$ 5,000,000 per occurrence $ 5,000,000 aggregate Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____
☐ Marine Protection and Indemnity Art. 22.1.7(a)	$_____ each occurrence $_____ aggregate Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____
☐ Hull and Machinery Insurance Art. 22.1.7(b)	$_____ per occurrence $_____ aggregate Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____

☐ Marine Pollution Liability Art. 22.1.7(c)	$ 1,000,000 per occurrence $ 1,000,000 aggregate Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____
[OTHER] Art. 22.1.8 ■ Railroad Protection Liability Policy (ISO-RIMA or equivalent form) approved by Permittor covering the work to be performed at the designated site and affording protection for damages arising out of bodily injury or death, physical damage to or destruction of property, including damage to the Insured's own property and conforming to the following: • Policy Endorsement CG 28 31 - Pollution Exclusion Amendment is required to be endorsed onto the policy when environmental-related work and/or exposures exist. • Indicate the Name and address of the Contractor to perform the work, the Contract # and the name of the railroad property where the work is being performed and the Agency Permit. • Evidence of Railroad Protective Liability Insurance, must be provided in the form of the Original Policy. A detailed Insurance Binder (ACORD or Manuscript Form) will be accepted pending issuance of the Original Policy, which must be provided within 30 days of the Binder Approval.	$ 2,000,000 per occurrence $ 6,000,000 annual aggregate Named Insureds: 1. New York City Transit Authority (NYCTA), the Manhattan and Bronx Surface Transit Operation Authority (MaBSTOA), the Staten Island Rapid Transit Operation Authority (SIRTOA), MTA Capital Construction Co., the Metropolitan Transportation Authority (MTA) including its subsidiaries and affiliates, and the City of New York (as Owner) and all other indemnified parties.

[OTHER] Art. 22.1.8

■ Professional Liability

A. The Contractor's Professional Engineer shall maintain and submit evidence of Professional Liability Insurance in the minimum amount of $1,000,000 per claim. The policy or policies shall include an endorsement to cover the liability assumed by the Contractor under this Contract arising out of the negligent performance of professional services or caused by an error, omission or negligent act of the Contractor's Professional Engineer or anyone employed by the Contractor's Professional Engineer.

B. Claims-made policies will be accepted for Professional Liability Insurance. All such policies shall have an extended reporting period option or automatic coverage of not less than two (2) years. If available as an option, the Contractor's Professional Engineer shall purchase extended reporting period coverage effective on cancellation or termination of such insurance unless a new policy is secured with a retroactive date, including at least the last policy year.

[OTHER] Art. 22.1.8 ■ Engineer's Field Office **Section 6.40, Standard Highway Specifications**	Fire insurance, extended coverage and vandalism, malicious mischief and burglary, and theft insurance coverage in the amount of $40,000

[OTHER] Art. 22.1.8

■ The Following Additional Insurance Must Be Provided:

Umbrella/Excess Liability Insurance - The Contractor shall provide Umbrella/Excess Liability Insurance in the minimum amount of $50,000,000 per Occurrence and $50,000,000 in Aggregate. The policy terms and condition should be at least as broad as the underlying policies. The underlying policies should comply with the insurance provision as outlined by the contract. Defense cost should be in addition to the limit of liability. The City of New York, including its officials and employees, should be included as additional insured as respects to the noted project.

SCHEDULE A
(GENERAL CONDITIONS TO CONSTRUCTION CONTRACT)
(GENERAL CONDITIONS RELATING TO ARTICLE 22 – INSURANCE)

PART III. CERTIFICATES OF INSURANCE

All certificates of insurance (except certificates of insurance solely evidencing Workers' Compensation Insurance, Employer's Liability Insurance, and/or Disability Benefits Insurance) must be accompanied by one of the following:

(1) the Certification by Insurance Broker or Agent on the following page setting forth the required information and signatures;

-- OR --

(2) copies of all policies as certified by an authorized representative of the issuing insurance carrier that are referenced in such certificate of insurance. If any policy is not available at the time of submission, certified binders may be submitted until such time as the policy is available, at which time a certified copy of the policy shall be submitted.

CITY OF NEW YORK

CERTIFICATION BY INSURANCE BROKER OR AGENT

The undersigned insurance broker represents to the City of New York that the attached Certificate of Insurance is accurate in all material respects.

_____
[Name of broker or agent (typewritten)]

_____
[Address of broker or agent (typewritten)]

_____
[Email address of broker or agent (typewritten)]

_____
[Phone number/Fax number of broker or agent (typewritten)]

_____
[Signature of authorized official, broker, or agent]

_____
[Name and title of authorized official, broker, or agent (typewritten)]

State of ……)
) ss.:
County of ……)

Sworn to before me this _____ day of _____, 20____

_____
NOTARY PUBLIC FOR THE STATE OF _____

SCHEDULE A

(GENERAL CONDITIONS TO CONSTRUCTION CONTRACT)

PART IV. ADDRESS OF COMMISSIONER

Wherever reference is made in Article 7 or Article 22 to documents to be sent to the **Commissioner** (e.g., notices, filings, or submissions), such documents shall be sent to the address set forth below or, in the absence of such address, to the **Commissioner's** address as provided elsewhere in this **Contract**.

DDC Director, Insurance Risk Manager

30 – 30 Thomson Avenue, 4th Floor (IDCNY Building)

Long Island City, NY 11101

(NO FURTHER TEXT ON THIS PAGE)

REVISIONS TO STANDARD SPECIFICATIONS

NOTICE

The Specification Bulletin(s) ("SB(s)") referenced in this Section (R-Pages) may consist of revisions to the following Standard Specifications:

- New York City Department of Transportation ("NYC DOT") Standard Highway Specifications, dated 8/1/2015;
- New York City Department of Environmental Protection ("NYC DEP") Standard Sewer and Water Main Specifications, dated 7/1/2014; and
- NYC DEP Specifications for Trunk Main Work, dated 7/2014.

The SB(s) modify and supersede portions of the applicable Standard Specifications. The provisions contained in this Contract's I-Pages, S-Pages and SW-Pages may further modify the applicable Standard Specifications.

The following SB(s) are included as part of this contract:

- SB 16-001 – REVISIONS TO THE NYC DOT STANDARD HIGHWAY SPECIFICATIONS.
- SB 16-002 – REVISIONS TO THE NYC DEP STANDARD SEWER AND WATER MAIN SPECIFICATIONS.
- SB 17-001 – UV CURED-IN-PLACE-PIPE (CIPP) LINING METHOD
- *SB 17-002 – SUPERSEDED BY SB 18-001*
- SB 17-003 – ENGINEERS FIELD OFFICE
- SB 17-004 – FIRE DEPARTMENT FACILITIES
- SB 17-005 – DIGITAL PHOTOGRAPHS
- SB 17-006 – RECORDS OF SUBSURFACE STRUCTURES
- SB 17-007 – MOBILIZATION
- SB 17-008 – QUALIFICATION CARDS
- SB 17-009 – SALVAGEABLE MATERIALS
- SB 17-010 – MILLED ASPHALTIC CONCRETE AGGREGATE
- SB 17-011 – DETECTABLE WARNING UNIT COLOR

- SB 17-012 – TEMPORARY HOUSE CONNECTION MATERIAL
- SB 18-001 – RODENT AND WATERBUG PEST CONTROL
- SB 18-002 – COLOR SURFACE TREATMENT FOR PAVEMENTS
- SB 18-003 – WATER AND SEWER GENERAL PROVISIONS
- SB 18-004 – CUTTING DUCTILE IRON PIPE
- SB 18-005 – STOCKPILES
- SB 19-001 – RESTORATION OF PAVEMENT SURFACE
- SB 19-002 – SCHEDULE OF OPERATIONS

The SB(s) are available online at:
http://www1.nyc.gov/site/ddc/resources/specification-bulletins.page or for pickup between 8:00 AM and 4:00 PM at 30-30 Thomson Avenue, 3rd Floor, Division of Infrastructure, Long Island City, NY 11101. Contacts:

- Mr. Richard Jones, (718) 391-1417
- Mr. Salman Macktoom, (718) 391-2041

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PROJECT DESCRIPTION

PROJECT DESCRIPTION AND NYSDOT SPECIFICATION REFERENCES

SANDRESM2

The following pages provide the project description and the parameters for using New York State Department of Transportation (NYSDOT) specifications as part of the Contract Work.

Project Description:

The project is located on the East Side of the Borough of Manhattan, New York County, NY. The Project Area is approximately 21 acres and extends from East 15th Street to East 25th Street. In addition to the FDR Drive right-of-way, this Project Area includes the Consolidated Edison Company of New York (Con Edison) East 14th Street Substation and the East River Generating Station, Murphy Brothers Playground, Stuyvesant Cove Park, Asser Levy Recreation Center and Playground, the VA Medical Center, and in-street segments along East 20th Street, East 25th Street, and along and under the FDR Drive.

The purpose of the project is to install a flood protection system comprised of a combination of floodwalls and closure structures. Specifically, the project includes the construction of above ground floodwall, a transition retaining wall, and installation of 16 swing and roller type steel flood gates and supporting infrastructure improvements that together would reduce risk of damage from coastal storms in the project area. In addition, there will be improvements to parks along the flood protection alignment including Murphy Brothers Playground, Stuyvesant Cove Park, and Asser Levy Playground.

Concrete

The architectural concrete construction used for the exposed floodwall and retaining wall require review, selection and acceptance of samples and mockups at an early stage. The use of a formliner is required continually for the floodwall and retaining walls. In order to ensure consistent color throughout the project, the concrete mix should be comprised from uniform aggregate sources and types not varied without approval of the Engineer. A no cost substitute for an alternative concrete mix is acceptable only if it provides consistent color throughout the project. The use of pigmented admixtures is limited to the floodwall located in Asser Levy Park.

Overlapping Scopes of Work

Due to the size, complexity, and varied types of work in this Contract, certain elements of work may be covered under multiple pay items and/or multiple specification sections. The bidder must clearly read the specifications and fully understand what scope is included in each pay item. Just because an item exists does not imply that the item will be used in all portions of the Contract Work.

Example: Bid Item 50.11CS036050, “3'-6"W X 5'-0"H SINGLE BARREL FLAT TOP REINFORCED CONCRETE COMBINED SEWER”, includes excavation and shoring in the bid unit price per NYCDEP Standard Sewer and Water Specifications Section 50.11.6. The Contractor will not be paid under Bid Item PK-667 “TEMPORARY SHORING” for installation of shoring when installing pipe under Bid Item 50.11CS036050.

Example: The PARKS-Pages includes Bid Item PK-ESCR-646, “Miscellaneous Iron And Steel” and the FLOODWALL-Pages includes Bid Item ESCR-564, “Structural Steel.” These items will not be used interchangeably but will be used for the scope of work listed at the beginning of the PARKS-Pages and the FLOODWALL-Pages.

NYSDOT Specifications

All requirements as defined in the City of New York Standard Construction Contract ("Standard Construction Contract") are to be followed. NYSDOT specific construction management and contractual requirements that are referenced in NYSDOT specifications are not to be inadvertently incorporated or take precedent over Contract requirements, including the Standard Construction Contract, Special Specifications or Provisions, the New York City Department of Transportation Standard Highway Specifications, or the New York City Department of Environmental Protection Standard Sewer and Water Specifications.

References are made herein to certain NYSDOT specifications. All references to the "Department", "Materials Bureau", "Regional Engineer", "Regional Landscape Architect", "Landscape Architect", "DCES", or other reference to NYSDOT offices or personnel are deemed to mean the "ENGINEER" as that term is defined in the Standard Construction Contract. However, where references are made to materials or contractors or subcontractors being required to appear on NYSDOT approved lists, these references and requirements remain unchanged.

Reference to NYSDOT specifications will not be deemed to imply NYSDOT or New York State involvement in any testing and approval of materials or in the supervision of construction. In the event of a conflict, the Standard Construction Contract, the contract drawings and New York City specifications will prevail over any NYSDOT specifications, unless the ENGINEER directs otherwise.

ITEM NUMBER	SPECIFICATION NAME	SPECIFICATION TYPE
551.014089	STEEL H-PILES (HP 14X89)	NYSDOT STANDARD
551.13	FURNISHING EQUIPMENT FOR DRIVING PILES	NYSDOT STANDARD
551.14000111	DYNAMIC PILE MONITORING	PIN APPROVED
551.50220017	STATIC PILE LOAD TEST	PIN APPROVED
551.99492017	DRILLED SHAFTS, 2.0 FEET	PIN APPROVED
551.99493017	DRILLED SHAFTS, 3.0 FEET	PIN APPROVED
551.99502017	DRILLED SHAFTS (LOW OVERHEAD CLEARANCE), 2.0 FEET	PIN APPROVED
551.99503017	DRILLED SHAFTS (LOW OVERHEAD CLEARANCE), 3.0 FEET	PIN APPROVED

ITEM NUMBER	SPECIFICATION NAME	SPECIFICATION TYPE
557.2001	STRUCTURAL APPROACH SLAB WITH INTEGRAL WEARING SURFACE - TYPE 1 FRICTION	NYSDOT STANDARD
586.0201	DRILLING AND GROUTING BOLTS OR REINFORCEMENT BARS	NYSDOT STANDARD
587.21	THRIE BEAM BRIDGE RAIL – NEW POST INSTALLATION MOUNTED ON CONCRETE SURFACES	NYSDOT STANDARD
603.98101204	POLYVINYL CHLORIDE (PVC) SEWER PIPE & FITTINGS 12” DIAMETER	NYSDOT STANDARD
606.30330008	CONCRETE MEDIAN BARRIER (MODIFIED)	NYSDOT STANDARD
606.3053	SINGLE-SLOPE CONCRETE MEDIAN BARRIER-WIDE (CAST-IN-PLACE)	NYSDOT STANDARD
606.3061	SINGLE-SLOPE CONCRETE HALF SECTION BARRIER (OPTIONAL)	NYSDOT STANDARD
606.3063	SINGLE-SLOPE CONCRETE HALF SECTION BARRIER (CAST IN PLACE)	NYSDOT STANDARD
606.90000011	CONCRETE MEDIAN BARRIER TRANSITION (CAST IN PLACE)	NYSDOT STANDARD
619.01991308	DAILY WORK ZONE TRAFFIC CONTROL - BARRIER OR SHADOW VEHICLE	NYSDOT STANDARD
619.1802	TEMPORARY IMPACT ATTENUATOR	NYSDOT STANDARD
619.1812	TEMPORARY IMPACT ATTENUATOR – GATING (TEST LEVEL 2)	NYSDOT STANDARD
619.3610	QUICK-CHANGE MOVEABLE CONCRETE BARRIER TRANSFER VEHICLE (QMCBTV) – LEASE AND MAINTAIN	SPECIAL
619.3614	QUICK-CHANGE MOVEABLE CONCRETE BARRIER TRANSFER VEHICLE (QMCB) – PURCHASE AND DELIVERY	SPECIAL

ITEM NUMBER	SPECIFICATION NAME	SPECIFICATION TYPE
619.37	QUICK-CHANGE MOVEABLE CONCRETE BARRIER TRANSFER VEHICLE (QMCB) – OPERATION	SPECIAL
623.12	CRUSHED STONE (IN-PLACE MEASURE)	NYSDOT STANDARD
644.11	ANCHOR BOLTS	NYSDOT STANDARD
644.20	DRILLED SHAFT FOR OVERHEAD SIGN STRUCTURES	NYSDOT STANDARD
644.421525	TRUSSED ARM CANTILEVER SIGN STRUCTURE (15YD ARM, 25SY SIGNAREA)	NYSDOT STANDARD
644.434590	SINGLE SPAN SIGN STRUCTURE (45YD MAX SPAN, 90YD MAX SIGNAREA)	NYSDOT STANDARD
645.62	OVERHEAD SIGN PANELS WITH HIGH-VISABILITY SHEETING	NYSDOT STANDARD
647.20	REMOVAL OF CANTILEVER OVERHEAD SIGN PANEL(S), STRUCTURE, AND FOUNDATIONS	NYSDOT STANDARD
647.21	REMOVAL OF SINGLE SPAN OVERHEAD SIGN PANEL(S), STRUCTURE, AND FOUNDATIONS	NYSDOT STANDARD
654.5032	EXPENDABLE IMPACT ATTENUATOR, TL 3, >2FT OBSTRUCTION WIDTH<=5FT	NYSDOT STANDARD
698.05	FUEL PRICE ADJUSTMENT	NYSDOT STANDARD
698.06	STEEL/IRON PRICE ADJUSTMENT	NYSDOT STANDARD

PIN APPROVED SPECIFICATIONS ARE LOCATED IN THE NYSDOT PAY ITEM CATALOG: www.dot.ny.gov/pic

NYSDOT STANDARD SPECIFICATIONS ARE LOCATED ON THE NYSDOT WEBSITE: www.dot.ny.gov/main/business-center/engineering/specifications/updated-standard-specifications-us

Special specifications are located in Volume 3 of this Contract.

GENERAL

GENERAL SPECIAL SPECIFICATIONS

SANDRESM2

The specifications in the GENERAL-Pages provide requirements for construction management and execution of the Work.

The GENERAL-Pages supplement and modify the specifications shown on the Specifications and Standards of New York City sheet at the beginning of this Volume 3, which apply to the work except as modified in these Contract Documents.

TABLE OF CONTENTS

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NOTICE TO BIDDERS -
NEW BID SUBMISSION PROCEDURES DUE TO COVID-19

The bid submission and opening procedures for this contract will follow the procedures set forth below. The Bid Due Date and the Bid Opening Date, as shown on the Bid Information page of the Bid Booklet (Attachment 1), will now be on different dates and different times.

THE BIDDER MUST CAREFULLY READ THE DATES AND TIMES ON ATTACHMENT 1, AS THEY NOW DIFFER FROM PREVIOUS DDC PROJECTS.

Bid Submission Procedures

1. The representative delivering the bid must maintain required social distancing measures – keep at least 6 feet away from others, and a mask or face covering must be worn.
2. All bids must be delivered by hand within the time shown on Attachment A. No bids will be accepted by mail or parcel service (USPS, FedEx, UPS, DHL, etc.).
3. Bid submissions must be in a single, sealed envelope and clearly labeled on the outside with the following:
    a. Project ID
    b. Project Name
    c. e-PIN no.
    d. Name of Contractor
    e. Contact person
    f. Email address
    g. Phone number
4. Bid submissions must not contain any staples or paper clips.
5. The representative delivering the bid will be required to fill out a sign-in sheet acknowledging delivery of the bid.
6. The ACCO staff will provide a time stamp sticker to be applied to the bid envelope.

Bid Opening Procedures

1. Using the information from the sign-in sheet, all bidders will receive an email with a link to view the bid opening live, in real-time.
2. The sealed bids will be opened and the bid prices will be read aloud.
3. The bids will be ranked and the apparent low bidder will be announced.
4. After the bid opening, the following will be posted to the City Record On Line (CROL) and the DDC website:
    a. A scanned copy of the bid submission sign-in sheet
    b. A link to view the video recording of the bid opening

SECTION HW-900H - ALLOWANCE FOR CITY WORK ACCELERATION

Under this Section, the Contractor will be paid for City work deemed necessary by DDC's Commissioner to accelerate the City work items in the project during critical periods but the use of this item will expire on the original contract substantial completion date. Such accelerated City work includes:

A. 100% of the premium portions of overtime pay for working during non-scheduled work hours which must be defined as those hours of work outside the permissible hours stated in the original contract OCMC Traffic Stipulations; or,

B. The premium portion of overtime pay for overtime actually worked beyond the 40-hour work week but within the permissible hours of work stated in the original contract OCMC Traffic Stipulations; or,

C. All other incidental expenditures caused by modifications of project site regulations or administrative requirements ordered by the Commissioner that result in additional costs to perform contract work as specified.

Such accelerated City work must be paid for under this item in accordance with the requirements of **Articles 25 and 26** of the Standard Construction Contract.

Payment made under this Fixed Sum item must cover the cost of all labor, materials, plant, equipment, insurance, and incidentals necessary to accelerate the City work as ordered by DDC's Commissioner.

No guarantee is given that this allowance item will in fact be required in this contract. The estimated "fixed sum" amount shown in the Bid Schedule is included in the total bid solely to insure a method of payment for any accelerated work performed by the Contractor, as directed by DDC's Commissioner.

Payment will be made under:

Item No.	**Item**	**Pay Unit**
HW-900H	ALLOWANCE FOR CITY WORK ACCELERATION	F.S.

Section 6.39 B - Mobilization

6.39.1. DESCRIPTION. Under this section, the Contractor must set up all necessary general plant and facilities, including shops, storage areas, office and such sanitary and other facilities as are required by City, State or Federal law or regulation. Unless otherwise provided, the cost of required bonds and/or any other similar significant initial expenses required for the initiation of the contract work must also be included in this section. The determination of the adequacy of Contractor's facilities, except as noted above, will be made by the Engineer.

6.39.2. MATERIALS. Unless otherwise specified, materials required under this section are not part of the completed contract and may be as selected by the Contractor.

6.39.3. CONSTRUCTION METHODS. Such work as is done in providing the facilities and services under this section must be done in a safe and workmanlike manner and must conform with any pertinent City, State or Federal law, regulation or code. The Contractor must provide facilities and services under this section that are planned and executed to ensure the maintenance of safety and good housekeeping at the construction site.

6.39.4. PRICE TO COVER.

Payment will be made by lump sum. The amount bid will include the furnishing and maintaining of any plant, services or other facilities noted under "Description" to the extent and at the time the Contractor deems them necessary for the Contractor's operations, consistent with the requirements of this section and the contract. The amount bid for this lump sum item will be payable to the Contractor when the following items are submitted and approved by the Engineer:

1. The provision of a Field Office per Section 6.40 CR;
2. The Site Safety Plan per the Safety Requirements section of the Information for Bidders;
3. The Preliminary CPM Schedule and Baseline CPM Schedule per the "CRITICAL PATH METHOD (CPM) SCHEDULE" article in the S-Pages;
4. The Progress Schedule per Standard Construction Contract Article 9;
5. Preconstruction Photographs per Section 6.43 D of the NYCDOT Standard Highway Specifications are submitted to the Engineer; and
6. Construction Report per Item ESCR-76.11CR.

However, should the Contract be terminated, or its term expires prior to completion of at least fifty percent (50%) of the original price bid for the Contract, then the Contractor will be paid a proportionate amount of this item (hereinafter referred to as the "Adjusted Mobilization Payment") based on the following formula:

$$\text{Adjusted Mobilization Payment} = \text{As Bid Mobilization Cost} \times \frac{\text{Total Actual Payments to the Contractor approved by the Engineer}}{\text{Original Total Bid Price + Approved and Registered Change Orders}}$$

Where the Contractor has already received the original total payment for this item and the Contract has been terminated or expired prior to completion of at least fifty percent (50%) of the work covered under the original price bid for the Contract, then any monies owed by the City due to the above specified reduction in payment will be withheld from the monies the City owes to the Contractor and/or the City reserves a claim to such funds from the Contractor.

The amount bid for Mobilization must not exceed eight percent (8%) of the total contract price, excluding the price bid for Mobilization, and in no case will payment under this item exceed the original price bid for this item.

Payment will be made under:

Item No.	Item	Pay Unit
6.39 B	MOBILIZATION	L.S.

Section 6.40 CR – Engineer's Field Office

1.0 DESCRIPTION

The Contractor shall provide, furnish and maintain a fully equipped field office for the exclusive use of and occupancy by the Department's engineering personnel and/or Supervising Consultant (herein after called "City personnel"), and by the engineering personnel of private utilities when specified. The field office shall be at a location approved by the Engineer and shall be a commercial building, store front, or with the approval of both Office of Construction Mitigation and Coordination (OCMC) and the Community Board it may be a mobile trailer(s). If a trailer is used it shall be subject to approval by the Engineer, and all necessary permits shall be obtained by the Contractor. The Contractor may have facilities in an adjoining area separated by a lockable door, provided such facilities are in a location approved by the Engineer. The field office shall be within ½ mile of the job site at a location approved by the Engineer. Field offices located more than ½ mile from the job site shall require approval by the Engineer.

The field office structure and occupancy thereof shall conform to the requirements of all laws, rules, regulations and orders applicable to it.

The field office and all equipment, except as otherwise specified, may be new materials or may be used materials in good condition and satisfactory to the Engineer.

2.0 MATERIALS

2.0.1 General Construction

The Engineer's Field Office shall be in an approved and weatherproof building. It shall have a minimum ceiling height of seven (7') feet and be partitioned to provide the number of rooms required for the type of office specified. Floor space shall be subdivided into work areas based on a floor plan provided by the City to the Contractor upon notification of space availability.

2.0.2 General Facilities

The field office shall contain or have the following facilities incorporated:

1. Lighting – Electric light, non-glare type luminaries to provide a minimum illumination level of 100 ft.- candles at desk height level.

2. Heating and Cooling – Adequate equipment to maintain an ambient air temperature of 70° F. ±5°.

3. Electrical Energy Outlets– In accordance with all applicable codes and placed as necessary.

4. Toilet – A separate enclosed room, properly ventilated per code and complying with applicable sanitary codes shall contain a lavatory with running hot and cold water, flush-type toilet, mirror, electric hand dryer, and paper towel dispenser.

5. Showers – Shower facilities, with attached dressing rooms, shall be provided adjacent to the restrooms. The shower rooms shall have a ventilation and heating systems, separate locked doors, and privacy curtains.

6. Potable Water – Potable water supplied from an existing system or five (5) gallon capacity water cooler of a type to be approved by the Engineer shall be provided for use by City personnel. Replacement bottles of water shall be provided by the Contractor, when required.

7. Signs – Store front locations shall have a window graphic sign in black and white lettering with the following inscription. Other locations shall have a wood or metal sign affixed on the outside wall of

the building with the following inscription painted in black block lettering on a white background. Paints shall be approved exterior enamels.

CITY OF NEW YORK	2-1/2"
DEPARTMENT OF DESIGN AND CONSTRUCTION	3-1/2"
INFRASTRUCTURE	2-1/2"
RESIDENT ENGINEER'S FIELD OFFICE	2-1/2"

8. Electric Refrigerator – five (5) cubic feet minimum capacity for use by City personnel.

9. Microwave, Toaster Oven and Coffee Maker – Basic reheating kitchen equipment or approved appliances for use by City personnel.

10. Windows and Doors – All windows and doors shall be weatherproof and each equipped with adequate locking devices. Each window shall be equipped with vertical blinds. Exterior doors shall be provided with two (2) separate "high security" dead bolt type cylinder locks, keyed alike, and three (3) keys shall be furnished for each lock. All windows and doors shall be alarmed with an audible alarm system with signals sent to a 24-hour security response service.

11. Partitions – Partitions for work space enclosures shall be either permanent walls or of the modular type similar to Herman Miller's standard fabric covered line.

12. Kitchen Sink – Mechanism to provide non-drinking, hot and cold, running water.

2.0.3 Office Equipment

1. Pencil Sharpener – One standard pencil sharpener for use by City personnel.

2. Telephone Answering Machine – The telephone answering machine to be provided shall be an electronic digital voice machine with emergency call forwarding capability. It shall be operable twenty-four (24) hours per day and, when unattended, shall transmit to the caller the dolling message:

   "You have reached the Field Office of the New York City Dept. of Design and Construction. No one is here now. We check our incoming messages frequently. We will get back to you as soon as possible. Please leave your name, message and phone number where you may be reached. In case of emergency, call the New York City Hotline at 311. Again, the emergency number is 311."

   All electronic voicemail messages shall be automatically forwarded as email attachments, to allow for the voicemails to be played remotely.

2.0.3.1 Computer Equipment

Computers furnished by the Contractor for use by City Personnel, for the duration of the contract, shall be in accordance with Table 1 - ADDITIONAL SPECIFIC REQUIREMENTS, contained herein, and shall meet the following minimum requirements:

Personal Computer(s) – Workstation Configuration

1. Make and Model: Dell; HP; Gateway; Acer; or, an approved equivalent. (Note: an approved equivalent requires written approval of the Assistant Commissioner of ITS.)
2. Processor: i5 (4MB Cache, 3.0GHz) or faster computer - Dual Processor.
3. System Ram: Minimum of 16GB (Gigabytes) Dual Channel DDR3 SDRAM at 1333MHz – 2 DIMMSs
4. Hard Disk Drive(s): 500 GB (Gigabytes) Serial ATA (7200RPM) w/DataBurst Cache, or larger.
5. CD-RW: Internal CD-RW, 48x Speed or faster.

6. 16X DVD+/-RW: DVD Burner (with double layer write capability) 16x Speed or faster
7. I/O Ports: Must have at least one (1) Serial Port, one (1) Parallel Port and three (3) USB Ports.
8. Video Display Card: HD Graphics (VGA, HDMI) with a minimum of 64 MB of RAM.
9. Monitor: 22" W, 23.0 Inch VIS, Widescreen, VGA/DVI LCD Monitor.
10. Available Exp. Slots: System as configured above shall have at least two (2) full size PCI Slots available.
11. Network Interface: Integrated 10/100/1000 Ethernet card.
12. Other Peripherals: Optical scroll Mouse, 101 Key Keyboard, Mouse Pad and all necessary cables.
13. Software Requirements: Microsoft Windows 10 Professional SP1, 32 bit or 64 bit; Microsoft Office Professional 365; Microsoft Project 365; Basic Adobe Acrobat Package; Anti-Virus software package with 4 year updates subscription; and, either Auto Cad LT or Microsoft Visio Standard Edition, as directed by the Engineer.

All field offices requiring computers shall be provided with the following:

1. One (1) broad-band internet service account. Wideband Internet connectivity at a minimum throughput of 15 Mbps download and 50 Mbps upload is required. Telephone service should be bundled together with Internet connectivity. Because of throughput requirements Verizon FIOS is the preferred connectivity provider where available.
   This account will be active for the life of the project. The e-mail name for the account shall be the DDC Field Office/project Id (preferably Gmail or Outlook - e.g., SANDRESM2@gmail.com).

2. All necessary Cabling.

3. Storage Boxes for and Blank CDs/DVDs.

4. UPS/Surge Suppressor combo.

5. 30 USB Thumb (or flash) Drives – 16 GB each

All computers required for use in the Engineer's Field Office shall be delivered, installed, and setup in the Field Office by the Contractor.

All Computer Hardware shall come with a three (3) year warranty for on- site repair or replacement. Additionally, and notwithstanding any terms of the warranty to the contrary, the Contractor is responsible for rectifying all computer problems or equipment failures within one (1) business day.

An adequate supply of blank CDs/DVDs, and paper and toner cartridges for the printer shall be provided by the Contractor and shall be replenished by the Contractor as required by the Engineer.

It is the Contractor's responsibility to ensure that electrical service and phone connections are also available at all times; that is, the Field Office Computer(s) is to be powered and turned on twenty-four (24) hours each day.

Broadband connectivity is preferred at each field office location. Please take into consideration that an extra phone line dedicated to the modem must be ordered as part of the contract unless Internet broadband connectivity, via Cable or DSL, is available at the planned field office location. Any questions regarding this policy should be directed to the Assistant Commissioner of Information Technology Services at 718-391-1761.

2.0.3.2 Data Access

Electronic access to the EquipmentWatch Retail Rental Rates database (formerly known as The AED Green Book published by Equipment Watch), shall be provided.

2.0.4 Field Testing Equipment

1. 2 – Air Entrainment Meters – Pressure Type, with carrying case for use by City personnel. Each meter shall be capable of producing an accurate test result in approximately five (5) minutes and shall comply with ASTM Designation C 231.

2. 2 – Slump Test Sets – Slump cone and test sets conforming to the requirements of ASTM Designation C 143, complete with rod and scoop for use by City personnel.

3. Thermometers: For use by City personnel.

   - 1 – Minimum-maximum thermometer.
   - 3 – Asphalt thermometers of stainless steel construction with an accuracy of 0.5% of the full scale, able to measure temperatures from 50 to 500 degrees F. in 5 degree increments.
   - 3 – Surface Thermometers able to measure temperatures of flat surfaces similar to Sargent-Welsh Model S81441-D, or an approved equivalent.

4. Nonsparking Pinch Bar – For use in opening manholes.

5. Gas Meters – For use in detecting the presence of explosive gases and vapors for use by City personnel.

6. Straight Edge – One 10 foot long straight edge for use by City personnel in detecting pavement surface tolerance.

7. 48" Smart Level – For use in determining pedestrian ramp and sidewalk slopes.

8. Chlorine Test Kits – For testing residual chlorine levels following water main flushing.

9. Green Florescent Power Trace Dye – For testing sewer connections.

10. 10 – One Million Candlepower Rechargeable Flashlights.

11. Distance Measuring Wheel – For measuring long distances.

3.0 SPECIFIC REQUIREMENTS FOR ENGINEER'S FIELD OFFICE

In addition to the general requirements, the Field Office shall have a minimum floor area of 10,000 SF, calculated based on usable area only, excluding any loss factors. Loss factors are defined as those areas such as lobby, sidewalk, window ledge, elevator shafts, and stairways. The Contractor shall provide and maintain furnishings for each type of Field Office in the quantity specified in Table 1. The furnishings shall be new or used equipment satisfactory to the Engineer.

The office shall have a minimum of two outside doors and four windows.

The Field Office shall be partitioned to provide thirty-five (35) rooms, one of which shall be at least 150 s.f. in area (for use by private utilities).

TABLE 1
ADDITIONAL SPECIFIC REQUIREMENTS

SPECIFIC REQUIREMENTS	TYPE CR
Minimum useable floor space (Square Feet) †	10,000
Office desks, at least 4'-8" x 2'-8", with drawers, locks, and keys.	40*
Swivel chairs, with arms, for the above.	40*
Office folding chairs, metal, with padded seats and backs.	20**
Steel supply cabinets (approximate size 72" high by 36" wide by 18" deep), with four adjustable shelves, tumbler lock and 3 keys.	3
Fire resistant cabinet, 4-drawer, legal size with lock and three (3) keys, meeting the requirements for "Filing devices, Insulated (36 E 9)" Class D Label, of the Underwriters' Laboratories, Inc. Specifications.	6***
Individual lockers (17" wide x 18" deep x 72" high) with flat key locks and two (2) keys each.	10
Calculating machines, tape type with digital display registering at least ten (10) digits.	40*
Standalone networked color laser printer carriage, standard 16	1
Waste paper baskets (metal, approximately 12" square by 16" high).	40
Fire extinguishers, non-toxic, dry chemical type meeting Underwriters Laboratories, Inc., approval for Class A, Class B and Class C fires with a minimum rating of 2A:lOB:10C.	5****
First Aid Kit kept properly stocked with appropriate first aid supplies at all times.	2
Drafting tables (3'-0" x 5'-0") with storage drawers and stool.	5****
Photocopying Machine – Stand-alone, heavy duty, electric, dry-process color photocopying type with color scan and send capability via e-mail, a minimum production rate of 70 pages per minute and an adequate supply of copy paper, toner, etc. The machine shall be capable of duplex copying paper sizes of 8-1/2 x 11 inches, 8-1/2 x 14 inches and 11 x 17 inches, and have separate trays for each paper size. It shall have a document feeder, collator, stapler, and the capability to reduce/enlarge copies between each paper size. The supply of each size copy paper, toner, etc. shall be replenished and the machines shall be maintained for the duration of the contract by the Contractor as required by the Engineer. Make and model can be Minolta, Canon, IBM, Epson, or an approved equivalent, and shall be networked to the office computers for printing capability.	1
Standalone networked color laser printer. (Not required if photocopying machine prints in color)	1
Vertical filing plan racks for six sets of 22"x36" plans each rack.	5****
Telephone lines for calls with no territorial limitation including international calling, where one shall be dedicated for the Fax Machine, one for each computer fax/modem and the others for telephone instruments.	20‡
Telephone instruments.	20
Telephone answering machine.	1
Fax Machine – With an adequate supply of copy paper, toner, etc. The supply of copy paper, toner, etc. shall be replenished and the machines shall be maintained for the duration of the contract by the Contractor as required by the Engineer.	1
Personal Computer – Workstation Configuration	40

Bottled water with refrigerator unit-hot/cold water. (For private utilities room.)	1
Heavy duty commercial grade diamond cut shredder with automatic start. The shredder shall be able to receive 8-1/2 inch wide paper and shred a minimum of 15 sheets simultaneously along with CDs and staples.	1
Projector – 1080p LCD with a min. of 2200 ANSI Lumens, 1920 x 1080, 16:9, 40,000:1 contrast ratio, HDMI, VGA, USB, and a 10' diagonal, 16:9 Projection Screen.	1
Conference Room, 320 square foot (20'x16' minimum, equipped with (2) 3'x6.5' tables and (30) chairs.	1

‡ *Provide one (1) telephone line and two (2) telephone instruments for the exclusive use by private utilities personnel. The line shall interconnect the two telephone instruments by push button control.*

* *Provide four (4) each of Office Desks, Swivel Chairs and Waste Paper Baskets in private utilities room.*

** *Provide eight (8) Folding Chairs in private utilities room.*

*** *Provide two (2) Fire Resistant 4-Drawer Legal Size Cabinets in private utilities room.*

**** *Provide one (1) each of Fire Extinguisher, Drafting Table and Vertical File Rack in private utilities room.*

3.0.1 Construction Methods

The building shall be fully equipped and made available for use and occupancy by the Department's personnel and/or Supervision Consultant not less than thirty (30) days prior to the start of any contract work.

The building interior (including access foyers, stairwells, etc.) shall be maintained in good, clean, and sanitary working condition by the Contractor for the duration of the contract. The Contractor shall provide and pay all costs for electrical service, telephone service for calls within New York City limits, hot and cold water, heat and fuel, and daily janitor service. Staples, such as paper towels, hand soap, toilet paper, and similar supplies, shall always be available.

Where necessary, the site for a mobile trailer(s) shall be graded and shoulder stone placed and maintained as directed by the Engineer to provide a parking area for City personnel and, if necessary, an approach road shall be provided. Plumbing work shall include all water supply, drainage and piping required for the operation of a complete installation. Temporary water service shall be provided from an existing main and extended into the trailer and all fixtures requiring water supply shall be properly connected up. All necessary soil, waste, vent and drainage piping shall be provided and connected to the existing sewer or as otherwise directed.

The office, incorporated facilities, equipment, and personal property of the Department's employees shall be protected by the Contractor against loss or damage from fire, theft, or other causes, at all hours of the day and night. The Contractor shall provide fire insurance, extended coverage and vandalism, malicious mischief and burglary, and theft insurance coverage in the amount of forty thousand dollars ($40,000.00) for office equipment of the City of New York in the Engineer's field office and for property of City personnel that is used in the contract work and stored in the office. All insurance coverage shall be written by a company approved by the Commissioner and payable in case of loss to the City of New York. The office shall be maintained by the Contractor in first class condition until final acceptance of the work.

At the direction of the Engineer, any equipment on the above lists may be deleted. The Engineer may direct that other equipment of equivalent value be supplied by the Contractor or an appropriate credit be taken for the value of equipment not provided.

When directed by the Engineer, the Contractor shall disconnect all services and remove and dispose of all temporary installations from the site, including fencing, surfacing and utilities, the area shall then be cleaned, loamed and seeded if required and left in a neat and acceptable condition. On and after the date of the Engineer's Final Acceptance, the temporary structure and all installed equipment shall become the property of the Contractor, and shall be disposed of, by the Contractor, away from the site of the work. Engineer's Final Acceptance shall be when the Contractor has completed all punch list work and Official Completion Date has been set.

4.0 NON-CONFORMANCE

No payment will be made under Engineer's Field Office for each calendar day during which there are deficiencies in compliance with the requirements of any subsection of this specification. The first calendar day shall commence twenty-four (24) hours after notice to the Contractor of such a deficiency. This non-payment shall be deducted from the Contractor's next estimate as a charge to the Contractor on the item. The amount of such calendar day non-payment will be determined by dividing the unit price bid per month by 30.

In addition, the Contractor may be subject to liquidated damages in accordance with Schedule A.

5.0 MEASUREMENT

The quantity to be measured for payment under this item shall be the number of months that the Field Office is available for occupancy by the Field Engineers during the period of the contract. Payment will begin the first month that the office is fully equipped and accepted, serviced as specified, and made available for occupancy. The Field Office is to be continuously made available and Monthly payments will continue for the duration of the contract through a period not to exceed 6 months past the substantial completion date. When directed in writing by the Commissioner, the Field Office will be provided and paid for a period of time beyond 6 months past the substantial completion date. Payment for each month's occupancy after the date of substantial completion acceptance will be made as part of the final estimate. Monthly payments may be terminated on a specified date prior to acceptance of the contract by written notification by the Engineer that such office will no longer be required on the contract.

6.0 PRICE TO COVER

The unit price bid per month for the item Engineer's Field Office shall include the cost of furnishing all labor, materials, equipment, ground rental, fire and theft insurance, and utility charges necessary to complete the work of providing or constructing the field office; making all necessary electrical, water, sewer, and other connections required to make the above facilities operative; payment of all rental costs; furnishing and paying for heating fuel, as required; all electrical energy; private telephone services; staples, as specified; and all necessary incidentals to complete the work - all in accordance with the specifications and the directions of the Engineer.

Payment will be made under:

Item No.	Item	Pay Unit
6.40 CR	ENGINEER'S FIELD OFFICE (COASTAL RESILIENCY)	MONTH

Section 6.52 FED - Uniformed Flagperson

6.52FED.1. INTENT. This section describes the employment of uniformed flagpersons to direct and detour traffic.

6.52FED.2. DESCRIPTION. The Contractor must furnish an adequate number of flagpersons to control vehicular and pedestrian traffic when it is necessary to maintain alternating one-way traffic in one lane of a two-way roadway, and at all other locations where construction operations, construction vehicles and equipment, detours, and temporary traffic patterns related to the construction operations require positive temporary traffic control for safe, efficient traffic operations.

6.52FED.3. METHODS. All flagpersons must be English speaking and adequately trained and certified in flagging operations by a recognized training program such as that provided by the American Traffic Safety Services Association, the National Safety Council, unions or construction industry associations, or by an individual who holds a current certification as a flagger training instructor from such a program.

All flagpersons, their apparel, hand-signaling devices, active two-way radios, and procedures to be used by them must be in compliance with the requirements of Chapter 6E. FLAGGER CONTROL, in the Federal "U.S. Department of Transportation, Federal Highway Administration, "Manual on Uniform Traffic Control Devices for Streets and Highways" current edition.

Prior to the start of flagging operations, the Contractor must provide to the Engineer a list of certified flagpersons to be used in the contract, identifying the source of flagger training for each individual. When requested by the Engineer, flagpersons must demonstrate their competency in flagging procedures. Flagpersons not competent in flagging procedures to the satisfaction of the Engineer must be retrained or replaced at once.

The Contractor will be given a minimum of 12 hours advance notice by the Engineer as to when to furnish a flagperson.

6.52FED.4. METHOD OF MEASUREMENT. The fixed price lump sum shown in the bid proposal for this item will be considered the price bid, although actual payment will be based on the authorized work performed by the Uniformed Flagpersons. The fixed sum is not to be altered in any manner by the bidder.

It is agreed that the quantity to be measured for payment will be the number of person-hours of uniformed flagperson service actually performed, as authorized by the Engineer.

Laborers who are not certified uniformed flagpersons will not be measured for payment as flagperson under this item.

6.52FED.5. BASIS OF PAYMENT. The Contract price for this item will be a lump sum price for the work performed under this item and will be equal to the total sum of the amount of allowed wages paid for all authorized Uniformed Flagpersons performing vehicular and pedestrian traffic management.

The amount to be paid per person-hour will be calculated as follows:

For the Entity directly employing the flagperson:

Wages & Benefits:	The hourly rates for wages & benefits ("supplemental") will be the rates listed in the prevailing wage schedule for Laborers *(Notes 1, 2)*.
Worker's Compensation Insurance:	Worker's Compensation Insurance will be paid for at cost, subject to the provisions of Article 26.2.9 of the Standard Construction Contract.
Taxes:	Applicable payroll taxes will be paid for at the appropriate cost.
Overhead & Profit:	12% overhead markup and 10% profit markup will be applied to the wage & benefit amounts. 5% combined overhead & profit markup will be applied to the Worker's Compensation Insurance amount. 0% overhead or profit markup on the premium portion of overtime wages. 0% overhead or profit markup on payroll taxes.

For the Contractor only, if the Entity directly employing the flagperson is a subcontractor:	
Overhead & Profit:	5% overhead and profit on subcontractor amounts as calculated above.

Note 1: If the contract has multiple prevailing wage schedules (e.g., NYC Comptroller Section 220 prevailing wage schedule or Federal Davis Bacon prevailing wage schedule) with different Laborer wage & benefit rates, the higher wage & benefit rates will be used. The Laborer rates appropriate for the type of work being performed will be used.
Note 2: The prevailing wages & benefits in effect at the time of work will be used.

Overhead will include without limitation, all costs and expenses in connection with administration, management superintendence, and all material costs for their apparel, hand-signaling devices, active two-way radios, and any other equipment required, and insurance required by Schedule A of the General Conditions other than Workers' Compensation Insurance.

The Contactor must submit to the Engineer satisfactory evidence of payment on certified payroll forms published by the Comptroller of the City of New York. No retainage will be withheld by the Department on such payments made under this section.

The total estimated cost of this item is the "fixed sum" amount shown for this item in the Bid Schedule. No guarantee is given that the actual total cost for this item will in fact be the "fixed sum" amount. The "fixed sum" amount is included in the total bid solely to ensure that sufficient monies will be available to pay the Contractor for these services.

The "fixed sum" is for bidding purposes only and must not be varied in the bid. The Contractor will be paid for the actual amount regardless of the fixed sum, which may be more or less than the fixed sum amount.

The Contractor must maintain separate books of accounts and must not charge any portion of the wages and benefits for Uniformed Flagpersons to another part of the work. Payment and partial payments under this item will be treated separately from the rest of the contract items.

The Comptroller's certified payroll report forms must be completed on a weekly basis and submitted to the Engineer every thirty days or whenever a payment requisition is submitted in less than thirty days. The Contractor must submit signed original daily sign-in sheets and any required daily reports, as required under this contract or directed by the Engineer.

Payment will be made under:

Item No.	Item	Pay Unit
6.52 FED	UNIFORMED FLAGPERSON	FIXED SUM

Section ESCR 15 - Operation and Maintenance Data

1.1 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for submittal requirements as specified herein. Payment for the work covered under this section shall be distributed throughout the existing bid items. Payment for materials incorporated in the work will not be made if required approval has not been obtained.

1.2 SUBMISSION OF OPERATION AND MAINTENANCE DATA

Submit Operation and Maintenance (O&M) Data specifically applicable to this contract and a complete and concise depiction of the provided equipment, product, or system, stressing and enhancing the importance of system interactions, troubleshooting, and long-term preventative maintenance and operation. The Contractor shall prepare O&M instructions including component data from subcontractors and deliver to the Engineer prior to the training of maintenance personnel. The Contractor shall compile and prepare aggregate O&M data including clarifying and updating the original sequences of operation to as-built conditions. Organize and present information in sufficient detail to clearly explain O&M requirements at the system, equipment, component, and subassembly level. Include an index preceding each submittal.

1.2.1 Package Quality

Documents must be fully legible. Poor quality copies and material with hole punches obliterating the text or drawings will not be accepted.

1.2.2 Package Content

Data package content shall be as shown in the Section 1.4 titled "Schedule of Operation and Maintenance Data Packages." Comply with the data package requirements specified in Section 1.4, including the content of the packages and addressing each product, component, and system designated for data package submission.

1.2.3 Changes to Submittals

Manufacturer-originated changes or revisions to submitted data shall be furnished by the Contractor if a component of an item is so affected subsequent to acceptance of the O&M Data. Changes, additions, or revisions required by the Engineer for final acceptance of submitted data, shall be submitted by the Contractor within 30 calendar days of the notification of this change requirement.

1.2.4 Review and Approval

The Engineer shall review the gate Systems and equipment submittals for completeness and applicability. The Engineer shall verify that the systems and equipment provided meet the requirements of the Contract documents and design intent, particularly as they relate to functionality, energy performance, water performance, maintainability, sustainability, system cost, and local environmental impacts.

1.2.5 O&M Database

The Contractor shall develop a database that contains the information required to start a preventative maintenance program for all components in accordance with manufacturer instructions.

1.3 TYPES OF INFORMATION REQUIRED IN O&M DATA PACKAGES

1.3.1 Operating Instructions

Include specific instructions, procedures, and illustrations for the following phases of operation for the installed model and features of each system:

1.4.1.1 Safety Precautions

List personnel hazards and equipment or product safety precautions for all operating conditions.

1.4.1.2 Operator Prestart

Include procedures required to install, set up, and prepare each system for use.

1.4.1.3 Startup, Shutdown, and Post-Shutdown Procedures

Provide narrative description for Startup, Shutdown and Post-shutdown operating procedures including the control sequence for each procedure.

1.4.1.4 Normal Operations

Provide narrative description of normal operating procedures. Include Control Diagrams where applicable with data to explain operation and control of systems and specific equipment.

1.4.1.5 Alternative Operations

Provide narrative description of alternative operating procedures. Include Control Diagrams where applicable with data to explain alternative operation and control of systems and specific equipment.

1.4.1.6 Labeling

Labeling of key parts, lubrication points, and direction of rotation for all equipment shall be provided by the Contractor.

1.4.1.7 Operator Service Requirements

Include instructions for services to be performed by the operator such as lubrication, adjustment, and inspection.

1.4.1.8 Environmental Conditions

Include a list of Environmental Conditions (temperature, humidity, and other relevant data) that are best suited for the operation of each product, component, or system. Describe conditions under which the item or equipment should not be allowed to operate.

1.3.2 Preventative Maintenance

Include the following information for preventive and scheduled maintenance to minimize corrective maintenance and repair for the installed model and features of each system. Include potential environmental impacts of recommended maintenance procedures and materials.

1.3.2.1 Lubrication Data

Include preventative maintenance lubrication data, in addition to instructions for lubrication provided under Subsection 1.4.1.7 titled "Operator Service Requirements":

a. A table showing recommended lubricants for specific temperature ranges and applications.
b. Charts with a schematic diagram of the equipment showing lubrication points, recommended types and grades of lubricants, and capacities.

c. A Lubrication Schedule showing service interval frequency.

1.3.2.2 Preventative Maintenance Plan and Schedule

Include manufacturer's schedule for routine preventive maintenance, inspections, tests and adjustments required to ensure proper and economical operation and to minimize corrective maintenance. For periodic calibrations, provide manufacturer's specified frequency and procedures for each separate operation. Include detailed instructions for servicing and changing casters and caster assemblies on roller gates, servicing and changing moveable parts for adjustable seals, adjusting rubber seals, gate lifting for transporting to shops for major maintenance.

1.3.2.3 Cleaning Recommendations

Provide cleaning recommendations for each product, component, or system.

1.3.3 Corrective Maintenance (Repair)

Include manufacturer's recommended procedures and instructions for correcting problems and making repairs for the installed model and features of each system. Include potential environmental impacts of recommended maintenance procedures and materials.

1.3.3.1 Troubleshooting Guides and Diagnostic Techniques

Include step-by-step procedures to promptly isolate the cause of typical malfunctions. Describe clearly why the checkout is performed and what conditions are to be sought. Identify tests or inspections and test equipment required to determine whether parts and equipment may be reused or require replacement.

1.3.3.2 Wiring Diagrams and Control Diagrams

Wiring diagrams and control diagrams where applicable shall be point-to-point drawings of wiring and control circuits including factory-field interfaces. Provide a complete and accurate depiction of the actual job specific wiring and control work. On diagrams, number electrical and electronic wiring and pneumatic control tubing and the terminals for each type, identically to actual installation configuration and numbering.

1.3.3.3 Maintenance and Repair Procedures

Include instructions and a list of tools required to repair or restore the product or equipment to proper condition or operating standards.

1.3.3.4 Removal and Replacement Instructions

Include step-by-step procedures and a list of required tools and supplies for removal, replacement, disassembly, and assembly of components, assemblies, subassemblies, accessories, and attachments. Provide tolerances, dimensions, settings, and adjustments required. Instructions shall include a combination of text and illustrations.

1.3.3.5 Spare Parts and Supply Lists

Include lists of spare parts and supplies required for maintenance and repair to ensure continued service or operation without unreasonable delays. Identify spare parts and supplies that have a long lead-time to obtain.

1.3.4 Appendices

Provide information required below and information not specified in the preceding paragraphs but pertinent to the maintenance or operation of the product or equipment. Include the following:

1.3.4.1 Product Submittal Data

Provide a copy of all catalog cuts, illustrations, schedules, diagrams, performance charts, instructions, and brochures illustrating size, physical appearance, and other characteristics of materials, systems, or equipment for some portion of the work.

1.3.4.2 Manufacturer's Instructions

Provide a copy of all preprinted material describing installation of a product, system, or material, including special notices and information concerning impedances, hazards, and safety precautions.

1.3.4.3 O&M Submittal Data

Provide a copy of all:

- Data provided by the manufacturer, or the system provider, including manufacturer's help and product line documentation, necessary to maintain and install equipment, for operating and maintenance use by facility personnel
- Data required by operating and maintenance personnel for the safe and efficient operation, maintenance and repair of the item
- Data incorporated in an operations and maintenance manual or control system.

1.3.4.4 Parts Identification

Provide identification and coverage for all parts of each component, assembly, subassembly, and accessory of the end items subject to replacement. Include special hardware requirements, such as requirement to use high-strength bolts and nuts. Identify parts by make, model, serial number, and source of supply to allow reordering without further identification. Provide clear and legible illustrations, drawings, and exploded views to enable easy identification of the items. When illustrations omit the part numbers and description, both the illustrations and separate listing shall show the index, reference, or key number that will cross-reference the illustrated part to the listed part. Parts shown in the listings shall be grouped by components, assemblies, and subassemblies in accordance with the manufacturer's standard practice. Parts data may cover more than one model or series of equipment, components, assemblies, subassemblies, attachments, or accessories, such as typically shown in a master parts catalog.

1.3.4.5 Warranty Information

List and explain the various warranties and clearly identify the servicing and technical precautions prescribed by the manufacturers or contract documents in order to keep warranties in force. Include warranty information for primary components.

1.3.4.6 Personnel Orientation Requirements

.Provide narrated instructional video footage of opening, closing, and latching of gates and reverse order to open and secure gates in the opened position using all instructed methods.

1.3.4.7 Testing Equipment and Special Tool Information

Include information on test equipment required to perform specified tests and on special tools needed for the operation, maintenance, and repair of components.

1.3.4.8 Testing and Performance Data

Include completed prefunctional checklists, functional performance test forms, and monitoring reports. Include recommended schedule for retesting and blank test forms. Checklist items include but are not limited to:

- Tide gates, swing gates and roller gates operate and move freely
- Latching handles on roadway gates operate and move freely
- Gates are secure when stored in locked position
- Coatings are intact with no rust
- Rubber gate seals are secured and protected with no tears
- Visible steel members and beams are correctly aligned
- Drain holes are clear of debris or other obstructions
- Tension rods are tight and lubricated
- Roller gate tracks and rails are aligned

1.3.4.9 Contractor Information

Provide a list that includes the name, address, and telephone number of the General Contractor and each Subcontractor who installed the product or equipment, or system. For each item, also provide the name address and telephone number of the manufacturer's representative and service organization that can provide replacements most convenient to the project site. Provide the name, address, and telephone number of the product, equipment, and system manufacturers.

1.4 SCHEDULE OF OPERATION AND MAINTENANCE DATA PACKAGES

Furnish the O&M data packages specified here for specific project components. The required information for each O&M data package is as follows:

Swing gates

a. Safety precautions
b. Operator prestart
c. Normal operations
d. Alternative operations
e. Operator service requirements
f. Lubrication data
g. Preventative maintenance plan and schedule
h. Removal and replacement instructions
i. Spare parts and supply list
j. Product submittal data
k. Manufacturer's instructions
l. O&M submittal data
m. Parts identification
n. Testing equipment and special tool information
o. Warranty information
p. Personnel training requirements
q. Testing and performance data
r. Contractor information

Roller gates

a. Safety precautions
b. Operator prestart
c. Normal operations
d. Alternative operations
e. Operator service requirements
f. Lubrication data
g. Preventative maintenance plan and schedule
h. Cleaning recommendations
i. Removal and replacement instructions
j. Spare parts and supply list
k. Product submittal data
l. Manufacturer's instructions
m. O&M submittal data
n. Parts identification
o. Testing equipment and special tool information
p. Warranty information
q. Personnel training requirements
r. Testing and performance data
s. Contractor information

1.5 MEASUREMENT AND PAYMENT

No separate payment will be made for compliance with the requirements of this Section.

Section HW-908 – Allowance for Extra Work Due to Archeological Discoveries

In accordance with the Special Provisions article titled "ARCHAEOLOGICAL DISCOVERIES", should extra work be ordered by the Engineer as a result of any archaeological discoveries being found under this project, it must be paid for under this item as extra work in accordance with the requirements of Article 26 in the Standard Construction Contract dated January 2018.

Payment made under this Fixed Sum item must cover the cost of all labor, materials, plant, equipment, insurance, and incidentals necessary to complete any extra work ordered by the Engineer due to archaeological discoveries found at the site.

No guarantee is given that this allowance item will in fact be required in this contract. The estimated "fixed sum" amount shown in the Bid Schedule is included in the total bid solely to insure a method of payment for any extra work performed by the Contractor, as directed by the Engineer in consultation with the City's Archaeologist due to archaeological discoveries found at the site.

Payment will be made under:

Item No.	Item	Pay Unit
HW-908	ALLOWANCE FOR EXTRA WORK DUE TO ARCHAEOLOGICAL DISCOVERIES	F.S.

SECTION ESCR 9.30 - Stormwater Pollution Prevention

9.30.1. INTENT.

The intent of this section is to address erosion and sediment control as well as control of pollutants generated during construction activities that disturb an area of one acre or more. It also includes activities involving soil disturbances of less than one acre where the Department has determined that a SPDES permit is required for Stormwater discharges that may contribute to a violation of a water quality standard. The objective is to implement a Stormwater Pollution Prevention Plan (SWPPP) that will minimize the pollutants entering the storm sewer systems in compliance with the New York's State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Runoff from Construction Activity, GP-0-20-001, issued pursuant to Article 17, Titles 7, 8 and Article 70 of the Environmental Conservation Law (ECL) and in compliance with the City's Separate Municipal Separate Storm Sewer System Construction Permitting (MS4CP) Program. The MS4CP Program was established to meet the requirements of the SPDES Permit, NY-0287890, issued on August 1, 2015 for MS4s owned or operated by the City of New York.

New York City Department of Design and Construction (NYCDDC) is currently pursuing a 5-acre waiver with New York State Department of Environmental Conservation (NYSDEC) and New York City Department of Environmental Protection (NYCDEP) for the overall ESCR Project, the provisions and requirements of which will be made available to the Contractor. The maximum concurrent land disturbance associated with SANDRESM2 work shall be less than 5 acres and any exceedances shall be coordinated with the separate ESCR Contracts to ensure that the total maximum concurrent land disturbance across all ESCR Contracts does not exceed the limit granted by the NYCDEP.

A copy of the SWPPP (March 2020) for the ESCR Contracts is attached to the specifications and includes copies of the General Permit and the Notice of Intent (NOI) for New York. Copies of the MS4 SPDES Permit and other Information on the City's MS4CP Program are available at the following website: https://www1.nyc.gov/site/dep/water/municipal-separate-storm-sewer-system.page

The erosion and sediment controls shown in the SWPPP and Erosion and Sediment Control drawings were developed for the ESCR project; any changes to scheduling or sequencing would need to be coordinated and in compliance with the NYSDEC's GP-0-20-001 and the New York City MS4 Stormwater Construction Permit (SCP).

9.30.2. MATERIALS AND METHODS.

The Contractor and their subcontractor(s) must sign onto the SWPPP as the operator and be responsible for implementing and maintaining the SWPPP prepared for this Contract. The Contractor shall retain the services of an independent Licensed/Certified Professional with practical experience in the principles and practices of erosion and sediment control and Stormwater management, to perform the role of the "Qualified Inspector." The "Qualified Inspector" must be a Professional Engineer or a Landscape Architect licensed to practice in New York State, or a Soil and Water Conservation Society Certified Professional in Erosion and Sediment Control (CPESC) who is independent from the Contractor.

The Contractor shall implement Stormwater Management Practices (SMPs) that are to be used to reduce the pollutants in stormwater discharges, their sequence of implementation and associated design details of the SMPs to be installed for their designated contract as shown in the ESCR SWPPP. All practices included in the SWPPP shall be in conformance with the most current version of the New York State Standard and Specifications for Erosion and Sediment Control.

The Contractor shall provide site specific updates to Erosion and Sediment Control (E&SC) Plans contained in the SWPPP to accommodate their means and methods of construction and submit these for approval. The updated E&SC Plans shall include a minimum of the following in accordance with SMPs described in the SWPPP:

a. A site map/construction drawing(s) showing the total site area, all improvements, areas of disturbance, areas that will not be disturbed, existing vegetation, the specific locations, sizes and length of each erosion and sediment control practice, on-site and adjacent off-

site surface waters, wetlands and drainage patterns that could be affected by the construction activity, existing and final slopes, equipment storage areas and locations of the stormwater discharge;

b. A Construction phasing plan and sequence of operations describing the intended order of construction activities, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance. The construction phasing plan must include a timeline in accordance with the overall project schedule;
c. A description of the minimum erosion and sediment control practices to be installed or implemented for each construction activity that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;
d. A temporary or permanent soil stabilization plan that meets the requirements of the most current version of the New York Standards and Specifications for Erosion and Sediment Control, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of final stabilization;
e. The dimensions, material specifications, installation details, and operation and maintenance requirements for all sediment control practices;
f. An inspection schedule for the Contractor and Sub-Contractor(s) identified in the SWPPP, to ensure continuous and effective operation of the erosion and sediment control practices; and,
g. a description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a pollutant source in the stormwater discharges.

The Contractor must obtain and maintain a copy of the prepared SWPPP materials for the SANDRES Contracts, including the SWPPP, SWPPP MS4 Acceptance Form from NYCDEP, and NYSDEC NOI. The Contractor is responsible for the preparation, submittal, and procurement of the Permit Initiation Form associated with the NYCDEP SCP. Work must not begin until the permit identification number is issued by the NYSDEC, SCP is issued for the project by NYCDEP, and an initial inspection is conducted by the Qualified Inspector certifying that the appropriate control measures specified in the SWPPP have been adequately implemented to the satisfaction of the Engineer in consultation with the Engineering Support Unit. There are multiple SANDRES Contracts and any coordination of overlapping work required to fully implement the SWPPP is the responsibility of the Contractor(s) and must be completed at no additional cost to the City.

9.30.3. DEVIATIONS AND AMENDMENTS.

Any Contractor-initiated amendments to the SWPPP materials for the SANDRES Contracts that deviates from the NYSDEC technical standard and/or the NYCDEP Stormwater Design Manual must have a section justifying any non-conformance. The justification must include, but not be limited to, the following:

a. Statement of each deviation from City and State requirements;
b. Statement of the reasons for each deviation and reasons for supporting adopted alternatives;
c. Provide information which demonstrates that the deviation or alternative design is equivalent to the Technical Standards and the Stormwater Design Manual;
d. Analysis of the water quality impacts; and,
e. Determination of no-net-increase changes, if applicable.

The Contractor must maintain the SWPPP current and have the Qualified Inspector amend the SWPPP whenever:

1. There is a significant change in construction or operation which may have a significant effect on the potential for the discharge of pollutants to the waters of the New York State and which has not otherwise been addressed in the SWPPP; or,
2. The SWPPP proves to be ineffective in:
    a) Eliminating or significantly minimizing pollutants generated from sources identified in the SWPPP as required by this general permit, or

b) Achieving the general objectives of controlling pollutants in stormwater discharges from permitted construction activities.

Additionally, the SWPPP must be amended to identify any new Contractor or Sub-contractor that will implement any measures of the SWPPP. Any Contractor-initiated amendments to the SWPPP prepared for the SANDRES Contracts shall be made at no additional cost to the City.

9.30.4. CERTIFICATION.

The SWPPP must clearly identify the Contractor and Sub-contractors that will implement each measure identified in the SWPPP. The Contractor and all Subcontractors identified in the SWPPP and who perform professional services at the site must implement the provisions of the plan and provide certification of the SWPPP in accordance with the provisions of the general permit GP-0-20-001 and the SCP The Contractor must also certify in the SWPPP that all appropriate stormwater and erosion control measures will be in place before commencement of construction of any segment of the project that requires such measures. Such certifications must become part of the SWPPP for the construction activity covered under this general permit. The Certification must include the name and title of the person providing signature of this permit; the name address and telephone number of the contracting firm; the address or other identifying description of the site; and, the date the certification is made.

9.30.5. SITE ASSESSMENT, INSPECTION AND MAINTENANCE.

The Contractor must have the Qualified Inspector conduct an assessment of the site prior to commencement of construction and certify in an inspection report that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed or implemented to ensure overall preparedness of the site before the commencement of construction. Following the commencement of construction, site inspections must be conducted by the Qualified Inspector at least every seven (7) calendar days and within twenty-four (24) hours of the end of each rainfall event of 0.5 inches or greater. For construction sites where soil disturbance is greater than five (5) acres at one time, the Qualified Inspector must conduct at least two (2) site inspections every seven (7) calendar days and within twenty-four (24) hours of the end of each rainfall event of 0.5 inches or greater and any additional inspections as required by NYSDEC or NYCDEP. The two inspections must be separated by a minimum of two (2) full calendar days. Subsequent to each inspection, the Qualified Inspector must prepare an inspection report and submit the original to the Resident Engineer and one copy to the Infrastructure-Engineering Support Unit. At a minimum, the inspection report must include, but not limited to, the following information:

1. Date and Time of inspection;
2. Name and Title of person performing the inspection;
3. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;
4. A description of the condition runoff at all points of discharged from the construction site. This must include identification of any discharges of sediment from the construction site;
5. A description of the condition of all-natural surface waterbodies located within or immediately adjacent to the properties boundaries of the construction site which receive runoff from disturbed areas. This must include identification of any discharges of sediment to the surface waterbody;
6. Record of any evidence of soil erosion on the site, potential for pollutants entering the drainage systems, problems at discharge points (such as turbidity in receiving water) and signs of soil and mud transport from the site to the public road at the limits of the project;
7. Identification of all erosion and sediment control practices that need repair or maintenance;
8. Identification of all erosion and sediment practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;
9. Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection;
10. Corrective actions that must be taken to install, repair, replace or maintain erosion and sediment control practices; and to correct deficiencies identified with the construction of post-construction stormwater management practices;
11. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The Qualified Inspector must attach paper color

copies of the digital photographs to the inspection report. He must also take digital photographs with date stamp, that clearly show the conditions of the practice(s) after the corrective actions has been completed;

12. Within one business day of the completion of an inspection, the Qualified Inspector must notify the Contractor and the Resident Engineer of any corrective actions that need to be taken. The Contractor must begin implementing the corrective actions within one business day of this notification; and,
13. All the inspection reports must be signed by the Qualified Inspector.

The Contractor must retain a signed copy of the General Permit GP-0-20-001, NOI, SWPPP, signed MS4 SWPPP Acceptance form, NOI Acknowledgment Letter, the SCP, and all original inspection reports required by this general permit at the construction site in a prominent place for public viewing from the date of initiation of construction activities to the date of final stabilization and the Notice of Termination (NOT) has been submitted to the NYSDEC and NYCDEP. These documents must be made available to the permitting authority upon request. Prior to starting construction, the Contractor must certify in the site logbook that the SWPPP was prepared in accordance with the requirements of the permit and it meets all federal, state and local erosion and sediment control requirements.

In addition, the Contractor and Subcontractors must identify at least one person who is an employee of the company that will be responsible for a day to day implementation of the SWPPP. The name and telephone number of this person should be listed in the SWPPP. This person must be known as the Trained Contractor and must have received a DEC-endorsed four (4) hours of Erosion and Sediment Control training. After receiving the initial training, the Trained Contractor must attend a four (4) hours training every three (3) years. The Contractor must ensure that at least one Trained Contractor is on site on a daily basis when soil disturbance activities are being performed.

Each Contractor performing work under the separate SANDRESM1, SANDRESM2, and SANDRESPC Contracts shall be aware that construction is part of the ESCR Project, a larger common plan of development, as defined in Part I.A.1. of the SPDES General Permit (GP-0-20-001). As such, each Contractor shall provide for meetings between their project manager(s), Trained Contractor(s) and Qualified Inspector(s) on a monthly basis (at a minimum), to coordinate erosion and sediment control across the ESCR Project and their respective project schedules. These meetings shall facilitate Contractors coordination for the on-going construction activities covered under the separate Contracts to maintain the maximum acreage of concurrent land disturbance granted by the NYCDEP is not exceeded at any given time and that the SWPPP is implemented in accordance with the provisions of the General Permit (GP-0-20-001) and the SCP.

Performing implementation of a SWPPP on a permitted construction project without a Trained Contractor on site daily is a violation of Part III.A.6 of the SPDES General Permit. Stormwater controls must be maintained in good operating condition until all disturbed soils are permanently stabilized. Control devices in need of repair should be repaired promptly after identification.

Once construction is completed, the Contractor must submit the NYSDEC Notice of Termination (NOT) to DEP for the MS4 acceptance signature. If required, the Contractor shall prepare a Stormwater Maintenance Permit application consisting of the NOT, as-built plan(s), operation and maintenance manual that designates the entity responsible for long term maintenance of SMPs, and any required fees as specified in the NYCDEP MS4 Stormwater Rule. NYCDEP may inspect the SMP(s) at any time and any deficiencies must be resolved by the Contractor at no additional cost to the City. Prior to filing of the Notice of Termination (NOT), or at the end of the permit term, the Contractor must have the Qualified Inspector perform a final site inspection. The Qualified Inspector must certify that the site has undergone final stabilization using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long term erosion control have been removed. Subsequently, the Contractor must submit a complete NOT to the Engineering Support Unit to terminate the permit coverage.

Additionally, the Qualified Inspector must identify all permanent Stormwater management structures that have been constructed, and provide the owner(s) of such structures with a manual describing the operation and maintenance practices that will be necessary in order for the structures to function as designed after the site has been stabilized.

The Qualified Inspector must also certify that the permanent structures have been constructed as described in the SWPPP.

9.30.6. STABILIZATION.

The Contractor must initiate stabilization measures by the end of the next business day in areas of the site where construction activities have temporarily or permanently ceased, and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that directly discharge to one of the 303(d) segments listed in the Appendix E of the General SPDES permit, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance ceased.

9.30.7. CONTRACTOR'S LIABILITY.

The Contractor must be liable for any discharge that either causes or contributes to a violation of water quality standards as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York. Should any stormwater runoff from the site violate the water quality standards, the Contractor will be directed to take immediate steps, at the Contractor's own expense, to rectify the situation and prevent any further sediment from entering the storm sewer system.

In the event that pollutants are discharged to the stormwater system due to the Contractor's negligence, the Engineer will direct the Contractor to cease any or all construction activities contributing to the release of these pollutants. The Contractor must be held responsible, at the Contractor's own cost, for any and all necessary actions to remedy the damage.

Furthermore, failure of the Contractor and Sub-contractor(s) to strictly adhere to any permit requirements must constitute a permit violation that could result in substantial criminal, civil, and administrative penalties.

It is the Contractor's responsibility to pay all the SPDES permit fees which must consist of the yearly regulatory fee, the initial authorization fee per acre of land disturbed and per acre of future impervious area. The Contractor must be liable for all penalties incurred due to the Contractor's failure to pay these fees on time.

9.30.8. MEASUREMENT AND PAYMENT.

Payment will be made at the lump sum price bid for the item Stormwater Pollution Prevention, which must include, but not be limited to, the cost of furnishing all the labor, materials, fees, permits and testing required to provide and construct all erosion and sediment control devices in accordance with the approved SWPPP; providing a Qualified Inspector to design, report, inspect and monitor the work; comply with NYSDEC permitting requirements and all necessary incidentals to complete the work all in accordance with the specifications and the directions of the Engineer.

Ten percent (10%) of the lump sum price bid will be paid when both NYSDEC and NYCDEP have issued a permit identification number and SCP for the project, respectively.

Seventy percent (70%) will be paid in proportion to the percentage of construction completion.

Twenty percent (20%) will be paid when the operation is demobilized and removed from the site, the Notice of Termination (NOT) is filed with NYSDEC and all SPDES permit fees have been paid.

Payment will be made under:

Item No.	Item	Pay Unit
ESCR 9.30	STORMWATER POLLUTION PREVENTION	L.S.

SECTION ESCR 6.25 GS - Greenway Rerouting Signs

ESCR 6.25.1. DESCRIPTION. The work shall consist of the fabrication, furnishing, installation, and maintenance of temporary Greenway detour signs required to properly stage the work and maintain bicycle traffic. The work shall include the furnishing of signs, and sign posts, including all accessories; installation of signs and sign posts, including footings, at locations specified on the Contract Plans and as directed by the Engineer; and the maintenance, removal and disposal of temporary detour signs.

ESCR 6.25.2. MATERIALS. All materials and the details of fabrication and assembly shall be as shown on the Contract Drawings, outlined in the Special Provisions, and in accordance with the applicable standards of the New York City Department of Transportation, Division of Traffic Operations or the National Manual on Uniform Traffic Control Devices for Streets and Highways (National MUTCD), 2009 or latest Edition, where applicable, the following requirements, and as approved by the Engineer.

(A) Sign shall be made of flat unpainted Aluminum, Alloy 6061-T6 or approved equivalent, of the thickness 0.025".

No painted signs will be permitted and all orange reflective sheeting applied to rigid substrates shall be one of the following listed fluorescent orange reflective sheeting materials or an approved equal:

> Scotchlite Durable Fluorescent Diamond Grade Sheeting 3924 F/G Orange as manufactured by the 3M Company, Traffic Control Materials Division. Diamond shaped signs shall use 3924F reflective sheeting. Square or rectangular shaped signs shall use 3924G reflective sheeting.
>
> Stimsonite Florescent Orange High-Performance Grade Retroreflective Sheeting No. 4380.

Approved reflective sheeting shall be installed in accordance with the manufacturer's written instructions, and to the satisfaction and approval of the Engineer.

(B) Posts shall be of the steel rail type, furnished with a baked green alkyd resin, without anchor plates and shall be rolled from material meeting the requirements of ASTM Designation A 499.

(C) Concrete for footings shall be Class B-32, Type IIA; cement - Type II Portland; sand - Type 1A; coarse aggregate Type 1, Grade B, or Type 2, Size No. 57; and an approved air-entraining agent shall be added at the time that concrete is mixed. Concrete, cement and aggregate shall comply with the requirements of Section 3.05.

(D) All other unspecified materials shall be approved by the Engineer.

ESCR 6.25.3. METHODS.

(A) SIGNS
All greenway rerouting signs used during the construction period are to be furnished by the Contractor, as required. The Contractor shall install these signs where indicated on the plans

and as directed by the Engineer, and, when no longer required, shall remove these signs and dispose.

(B) INSTALLATION OF SIGNS

The erection of a sign shall include all work necessary to secure the sign to the sign post, including the furnishing and installation of clamps, brackets, and all necessary appurtenances and the attachment of the sign in the prescribed location and alignment, as indicated on the Contract Drawings. The erection of the signs shall comply with the applicable details of Drawing Nos. SD-225A, SD-225B and SD-225F of the Division of Traffic Operations, and the directions of the Engineer.

All signs shall be erected plumb and facing in the proper direction and angle as directed by the Engineer. The use of wire, twine or other similar temporary measures to fasten the signs to the post will not be permitted.

The back of each sign shall be clearly labeled with the Contractor's Company Logo, the Agency Name (NYCDDC) and the Contract Number, each from 1-1/2 to 2 inches in height, as approved by the Engineer.

(C) SIGN POSTS

All sign posts of the steel rail type furnished shall be of a uniform, modified, flanged channel section such that the area of contact between the post and the sign is symmetrical with the vertical axis of sign and posts.

The minimum dimensions of posts shall be as follows:

Width of Flange Face	Width of Back	Depth from Face of Flange to Back
3-1/2"	1-7/8"	1-3/4"

The minimum weight of each post before holes are punched shall be 3.0 pounds per foot. There may be a weight tolerance of plus or minus 5%.
The length shall be 12'- 0" with a tolerance of plus or minus one inch.

All posts shall be punched with 3/8" diameter holes on the centerline spaced at 1" centers beginning 1" from top of post for the entire length.

The finished posts shall be machine straightened and have a smooth uniform finish free from cracks, flaws, injurious seams, laps, blisters, ragged, sharp and imperfect edges, or other defects affecting strength, durability, or appearance. Bolt holes of the diameter specified shall be accurately spaced vertically and centered horizontally, so that the holes will register for back to back application. All holes and sheared ends shall be free from burrs.
All posts shall be painted with a weather-resistant, rust-inhibitive, high-quality, dark green enamel, which shall produce hard, mar-resistant coating, free from paint cracks, blisters or other defects. Before painting, all posts shall be thoroughly cleaned of all dirt, rust, loose scale, oil or grease. The quality of the paint and prior preparation shall be such that when the finished post is struck a light blow with a sharp tool, the paint shall not crack or chip, and if scratched with a knife, shall not powder. The minimum thickness of the dry film enamel shall

be one mil. It shall pass a standard 100 hour salt spray test (20% solution by spray or fog at 70 degrees). Painting shall be the final process after fabrication and punching has been completed.

(D) INSTALLATION OF SIGN POSTS

1. General. The work to be done shall be the installation of sign posts of the steel rail type only. The posts shall be installed in existing sidewalk, or earth. The work shall include excavation, backfilling, the restoration of the sidewalk, and the placement of concrete footing for the posts.

2. Installation Method. The installation of steel rail type sign posts shall be done in accordance with the details shown on the appropriate Division of Traffic Operations Standard Drawings Nos. SG-104, SG-105, SG-104B, or SG-105B. The Contractor may elect to set the sign post in concrete foundation as shown on the Standard Drawings, as modified by the Engineer.

3. Concrete Footing for Posts. The Contractor shall cut a neat hole in the sidewalk or earth, and excavate to the required depth, then pour the concrete and install the sign post in the fresh concrete, as shown on the D.T.O Standard Drawings. Where the sidewalk is made of brick paver, the concrete footings shall be poured prior to installation of the brick paver sidewalk. The concrete mix and placement shall meet the requirements of Section 3.05 and 4.06 respectively. The exposed surface shall be troweled to a neat, smooth finish, sloped to provide drainage away from the post.

The Contractor shall dispose of all unused fill and other materials, leaving the site in a clean and neat condition. He shall also restore sidewalk areas which have been disturbed, in a neat and workmanlike manner, to the satisfaction of the Engineer.

To protect the restored sidewalk areas from mutilation, the Contractor shall use a temporary protective disc of cardboard, of sheetmetal, or other satisfactory method, and remove same when concrete is cured as determined by the Engineer.

(E) REMOVAL OF SIGNS

The removal of a sign shall include all work necessary to detach the sign from the sign post, including disassembling of clamps, brackets, and all appurtenances, and cutting and removal of the sign post to a minimum one (1) inch below the surface. The work shall also include restoration of sidewalk areas which have been disturbed to the satisfaction of the Engineer. Removed sign panels, attachment assemblies and sign posts shall become a property of the Contractor.

ESCR 6.25.4. MEASUREMENT. The quantity to be measured for payment shall be the number of temporary Greenway detour signs initially furnished and installed, and properly removed when no longer required.

ESCR 6.25.5. PRICE TO COVER. The contract price per each sign shall cover the cost of all labor, materials, plant, equipment, and incidentals necessary to install the post on sidewalk or earth, to excavate and backfill for footing, to place the concrete footing and to restore all disturbed areas, all as shown on contract documents, and in accordance with the specifications and directions of the Engineer.

The contract price per each sign removed shall cover the cost of all labor, materials, plant, equipment, and incidentals necessary to remove temporary sign and sign post, including repairing of the sidewalk disturbed by the removal of the posts.

Payment will be made under:

Item No.	Item	Pay Unit
ESCR 6.25 GS	INSTALL GREENWAY REROUTING SIGNS	EA
ESCR 6.25 GSX	REMOVE GREENWAY REROUTING SIGNS	EA

SECTION ESCR-10 AIR QUALITY MONITORING

ESCR-10.1 DESCRIPTION

A. This section specifies the procedures and requirements for Construction Air Quality Monitoring (AQM) and Reporting.

B. Prior to construction commencement, the Contractor must develop and implement a construction AQM plan that will measure air pollutant emissions at selected locations during construction activities. The air quality monitoring plan must be submitted to the Engineer for approval.

C. The AQM plan must specify the monitoring locations, the alert thresholds, the procedures for monitoring, the distribution list for regular air emissions data reports, the course of action for reporting and responding to exceedances of air quality alert thresholds, and maintenance protocols.

ESCR-10.2 GENERAL REQUIREMENTS

A. It is expected that AQM during construction will be conducted in a minimum of four (4) locations or as determined by the Engineer. It is also expected that the AQM stations will be relocated as necessary during construction to reflect the sequence of construction, as approved and directed by the Engineer. The Contractor will also develop a distribution and action plan for the monitoring data.

B. AQM stations must be maintained to continuously record particulate matter concentrations and meteorological data on a real-time basis. Monitoring must be performed prior to the start of construction to obtain pre-construction background data.

C. Particulate matter ($PM_{2.5}$, and PM_{10}) must be collected continuously, 24-hours a day and 7 days a week, for the duration of the construction period. Meteorological data, which will include barometric pressure, humidity, precipitation, temperature, wind speed, and wind direction, must be collected from stations that include meteorological monitoring equipment.

D. The AQM stations must be configured to obtain the data averaged over 1-minute intervals, and the data will be used to record running 15-minute averages for particulate matter ($PM_{2.5}$ and PM_{10}) monitoring. These 15-minute averages must be compared with the background concentrations to monitor conformance with the applicable allowable limits which would be established as part of the AQM plan and determine any changes in air emissions levels due to construction activities.

E. Annual calibration and maintenance in conformance with the manufacturer's specifications must be conducted for the AQM and meteorological instrumentation.

ESCR-10.3 AIR QUALITY REQUIREMENTS

A. Construction activity must not increase limits beyond the National Ambient Air Quality Standards.

B. Measures must be taken to reduce pollutant emissions during construction in accordance with all applicable laws, regulations, and building codes, including Local Law 77 of 2003 which requires the use of ULSD and best available technology (BAT):

C. Clean Fuel. Ultra Low Sulfur Diesel (ULSD) fuel must be used exclusively for all diesel engines throughout the construction site, including marine equipment.

D. Dust Control Measures. To minimize dust emissions from construction activities, a dust control plan including a robust watering program is required. This plan must include that all trucks hauling loose material must be equipped with tight-fitting tailgates and their loads securely covered prior to leaving the project area; water sprays must be used for all excavation and transfer of soils to ensure that materials will be dampened as necessary to avoid the suspension of dust into the air. Loose materials (e.g., on-site material storage piles) will be watered or covered. All construction-related dust reduction measures required by DEP's Construction Dust Rules will be implemented.

E. Idling Restriction. In accordance with Title 24, Chapter 1, Subchapter 7, Section 24-163 of the NYC Administrative Code, the local law restricting unnecessary idling on roadways, truck idle time must be restricted to three minutes except for those vehicles that are not using their engines to operate a loading, unloading, or processing device (e.g., concrete mixing trucks) or otherwise required for the proper operation of the engine.

F. Best Available Tailpipe Reduction Technologies. Nonroad diesel engines with a power rating of 50 hp or greater, and controlled truck fleets (i.e., truck fleets under long-term contract with the proposed project), including, but not limited to concrete mixing and pumping trucks, must utilize BAT for reducing diesel particulate matter emissions. Diesel particulate filters (DPFs) have been identified as being the tailpipe technology currently proven to have the highest emissions reduction capability and must be used on all nonroad diesel engines rated at 50 hp or greater, either installed by the original equipment manufacturer or retrofitted. Retrofitted DPFs must be verified by the EPA or the California Air Resources Board. Other technologies proven to achieve an equivalent emissions reduction may also be used.

G. Utilization of Newer Equipment. All nonroad construction equipment with a power rating of 50 hp or greater must meet at least the Tier 3 emissions standard.

H. Diesel Equipment Reduction. the Contractor's means and methods must minimize the use of diesel engines and utilize electric engines to the highest extent practicable. Equipment that should use electric engines in lieu of diesel engines includes, but may not be limited to, welders, compressors, and rebar benders.

ESCR-10.4 SUBMISSION REQUIREMENTS

A. AQM plan for Engineer's approval.

B. Monthly reports of AQM results, including detailed air quality data at each monitoring location throughout each workday during the monitoring period.

ESCR-10.5 MEASUREMENT

Air quality monitoring will be measured for payment as the number of months satisfactorily performed, measured to the nearest month.

No payment will be made for periods where the air quality monitoring is not performed to the requirements of this section, the AQM plan, or as directed by the Engineer.

ESCR-10.6 PRICE TO COVER

The unit price bid per month must include the cost of furnishing all labor, materials, equipment, insurance, and other necessary incidentals required to complete the work in accordance with the specifications and the directions of the Engineer.

Item No.	Item	Pay Unit
ESCR-10	AIR QUALITY MONITORING	MONTH

SECTION ESCR-11 - NOISE MONITORING AND REPORTING

ESCR-11.1 DESCRIPTION

A. This section specifies the procedures and requirements for Construction Noise Monitoring and Reporting.

B. Prior to the construction commencement, the Contractor must develop and implement a construction noise monitoring plan that will continously measure both equivalent (L_{eq}) and maximum (L_{max}) noise levels at selected locations during construction activities. The noise monitoring plan will provide measured noise levels during construction to determine whether construction-generated noise levels do/do not exceed the applicable limits on construction noise in the NYC Noise Control Code.

C. The noise monitoring plan must specify the proposed monitoring locations, the alert thresholds, the procedures for monitoring, a distribution list for regular noise data reports, the course of action for reporting and responding to exceedances of noise alert thresholds, and maintenance protocols.

ESCR-11.2 GENERAL REQUIREMENTS

A. It is expected that noise monitoring during construction will be conducted at a minimum of four (4) locations, or as required to document the noise requirements below, or as determined by the Engineer. It is also expected that the noise monitoring stations will be relocated as necessary to reflect the sequence of construction and more intensive noise emissions in accordance with the protocol and as directed by the Engineer. The Contractor will also develop a distribution and action plan for the monitoring data.

B. At each noise monitoring location, noise monitoring must be conducted using a Type I or Type II sound level meter that allows for wireless remote data transfer and is capable of measurements using the Fast or Slow time-weighting as described in the NYC Noise Control Code. In the event of construction-induced noise exceeding the alert threshold, a short audio recording must automatically be made, and an email alert must be sent to designated recipients. In the event that the permissible thresholds are repeatedly exceeded, the Contractor must re-evaluate and adjust the Contractor's construction methods before proceeding.

C. Noise monitoring must be performed as follows at each location:

1. Prior to the start of all construction activities to obtain baseline levels; and
2. During construction to continuously monitor conformance with allowable limits and determine any changes in noise levels due to construction activities.

ESCR-11.3 NOISE REQUIREMENTS

A. Pile installation activities associated with the floodwall and closures structures that are within 50 feet of any residences, must produce no more than an 80 dBA Lmax noise level (i.e., sound pressure level) at a distance of 50 feet.

Pile installation activities, where feasible and practicable, must be limited to between the hours of 7 AM and 6 PM. This excludes any activities that need to occur adjacent to the FDR Drive where work needs to be conducted during night time as per DOT's OCMC requirements.

B. For construction activity that will occur during night-time (i.e., 6 PM to 7 AM) and weekend hours within 50 feet of any residence, the Leq(1) noise level resulting from construction must not exceed 80 dBA as measured at the exterior façade of any residential dwelling unit.

C. Quieter equipment models for cranes, generators, compressors, and lifts that result in up to a reduction in noise levels may be necessary to achieve the noise requirements above.

D. Using barging for deliveries of construction materials (including concrete) and importing of fill to the project sites, rather than trucks on roadways to from the construction work areas may be necessary to achieve the noise requirements above.

E. Construction equipment that would operate on barges or within the river would be required to comply with all of the same regulations and commitments as on-land equipment that are subject to the New York City Noise Control Code.

ESCR-11.4 SUBMISSION REQUIREMENTS

A. Noise monitoring plan for Engineer's approval.

B. Monthly reports of noise monitoring results, including detailed noise level data at each monitoring location throughout each workday during the monitoring period.

ESCR-11.5 MEASUREMENT

Noise monitoring will be measured for payment as the number of months satisfactorily performed, measured to the nearest month.

No payment will be made for periods where the noise monitoring is not performed to the requirements of this section, the noise monitoring plan, or as directed by the Engineer.

ESCR-11.6 PRICE TO COVER

The unit price bid per month must include the cost of furnishing all labor, materials, equipment, insurance, and other necessary incidentals required to complete the work in accordance with the specifications and the directions of the Engineer.

Item No.	Item	Pay Unit
ESCR-11	NOISE MONITORING	MONTH

SECTION 9.06 HW - Allowance for Decorative Mesh Fabric

9.06 HW.1. DESCRIPTION.

Under this section, the Contractor will be paid to furnish and install panels of breathable mesh fabric upon which art work is printed in a maximum of four (4) colors, as directed by the Engineer. Each panel must be mounted on the construction barrier identified by the Engineer, typically Temporary Chain Link Fence (Item No. 6.34 ACTP), Fencing (Item No. 70.31), or metal Pedestrian Barricade identified by the Engineer (Item No. 7.36), unless an alternate method of mounting the panels is proposed by the Contractor and approved by the Engineer.

At the completion of the work the panels must be uninstalled and delivered to the Engineer, unless otherwise directed. Panels must remain the property of the City, unless otherwise directed.

9.06 HW.2. MATERIALS

A. Artwork. Contractor must engage the services of an Artist selected by the City. The Artist, in consultation with the Engineer and DDC's Public Art Unit must develop the artwork.

B. Mesh Fabric Panels. Fabric must be a breathable mesh fabric, with metal grommets installed at a one (1) foot maximum spacing around the perimeter of the fabric. Fabric panels must have sufficient air vent slits (u-cuts) to prevent overturning of the fence or barricade that it is mounted to. Slits must be approximately 6" wide semi-circles, spaced no further than 2' on center, staggered vertically. Slit edges to be electrically cauterized to prevent fraying. Slit and grommet locations must be shown on the shop drawings.

C. Submittals. Contractor must submit to the Engineer for approval, in consultation with DDC's Public Art Unit:

1. Final Artwork package (provided by the Artist) for printing panels;
2. Shop Drawings for each panel, showing artwork, grommets, and air vent slits;
3. Samples and catalog cuts for fabric panel material;
4. Name and qualifications of printing company that will prepare the panels.

9.06 HW.3 PRICE TO COVER

The lump sum payment made under this item must be equal to the sum total of all invoices submitted by the Contractor, as approved by the Engineer, for design of artwork, furnishing and installing decorative mesh fabric materials, to the satisfaction of the Engineer, plus an allowance of 12% overhead and 10% profit.

The total estimated cost of this item is the "fixed sum" amount shown for this item in the Bid Schedule and must not be varied in the bid. No guarantee is given that the actual lump sum cost for this item will in fact be the "fixed sum" amount. The "fixed sum" amount is included in the bid solely to ensure that sufficient monies will be available to pay the Contractor for this work, which may be more or less than the fixed amount. This "fixed sum" amount must be included with the other amounts bid by the Contractor for all the other items under this contract.

The unit price must cover the cost of all labor, materials, equipment, insurance, and incidentals necessary to complete the work under this section in accordance with the drawings, the specifications and the directions of the Engineer.

Payment will be made under:

Item No.	Item	Pay Unit
9.06 HW	Allowance for Decorative Mesh Fabric	F.S.

SECTION HW-900P - Allowance For Maximum Incentive For Early Phase Completion/Liquidated Damages

HW-900P.1 GENERAL.

Incentives paid and liquidated damages assessed under this **Section HW-900P** are separate and in addition to incentives and liquidated damages under **Section HW-900.**

Since Project SANDRESM2 is critical to the City and the coastal resiliency of Manhattan and TIME IS OF THE ESSENCE, the City is making available to the Contractor certain incentive payments.

The incentive payment amount will be tied to an Accelerated Phase 5 Completion Date for this Capital Project, as described below in **Section HW-900P.3**. To earn an incentive payment amount, the Contractor must meet the Accelerated Phase 5 Completion Date for this Capital Project. Please be advised that in the event the Scheduled Phase Completion Date for this Capital Project is extended by the Commissioner in accordance with **Article 13 "Extension Of Time For Performance"** of the Standard Construction Contract, the Accelerated Phase 5 Completion Date may be extended accordingly.

Any dispute, negotiation and/or any other cause resulting in a delay, whether caused by the City, the Utilities, or any other party, which results in the Contractor's failure to meet the Accelerated Phase 5 Completion Date as set forth in **Subsection HW-900P.2**, will result in no payment of the entire incentive and the Contractor agrees that it shall not bring a claim against the City for the incentive payment. (See below for more details.)

The Contractor is a sophisticated business entity involved in the construction industry with access to legal representation and understands that by entering into this Contract with the City that the Contractor hereby waives any and all claims it may have against the City or any of its officials, employees or agencies for the Contractor failing to meet the Accelerated Phase 5 Completion Date and, thus not receiving any incentive payment available for this Capital Project. This includes any portion of the incentive payment, which the Contractor forfeits by failing to meet the Accelerated Phase 5 Completion Date. As a sophisticated business entity involved in the construction industry, the Contractor understands that it is possible that it may not receive any incentive under this Contract and that it cannot bring any claim or lawsuit in any jurisdiction against the City if it does not meet the Accelerated Phase 5 Completion Date for any reason and does not earn the incentive payment.

Furthermore, the Contractor will not have a claim against the City for a compensable delay under **Article 11** of the Standard Construction Contract, or any other claim against the City, if the City does not pay any incentive for this Capital Project because the Contractor did not meet the Accelerated Phase 5 Completion Date, and the Contractor's failure to meet such Accelerated Phase 5 Completion Date is due to a delay by the City or any City agency, any Utilities or any other cause whatsoever.

The early completion incentive is separate and distinct from **Article 11** of the Standard Construction Contract and the Contractor agrees and understands that the incentive payment cannot be claimed under **Article 11** of the Standard Construction Contract.

Moreover, the Contractor hereby waives any and all rights (and hereby understands what it is waiving as described herein) the Contractor may have or thinks it has in law (contract law or torts law) or in this Contract to bring any kind of claim against the City, if the City, based on this Contract, does not pay the incentive amount for this Capital Project for any reason.

Furthermore, the Contractor shall be assessed liquidated damages, per Article 15 of the Standard Construction Contract and as shown in Schedule A, in the event the Contractor fails to substantially

complete all Work within the time fixed for such completion in Schedule A, or fails to substantially complete each Phase within the time fixed for such completion in Schedule A.

HW-900P.2 PHASES, INCENTIVES, AND LIQUIDATED DAMAGES.

(1) Phase Descriptions

Timely completion of all phase work is essential to this Project. In order to ensure timely completion, this Project is divided into the following phases:

1. Phases 1, 2, 3, and 4: as detailed in Contract Drawing sheets PH001 and AM001 through AM004.
2. Phase 5: Floodwall between stations 150+00 and 224+51. This includes the following work along the floodwall alignment:
    a. The floodwall, including all sheet piles, concrete cap, and L-wall, installed to elevation +16.5' or higher;
    b. All gates and closure structures along the floodwall alignment installed and operational;
    c. All floodwall and gate/closure structure foundation elements, including:
        i. Foundation piles under the concrete floodwall elements;
        ii. Foundation piles under the gate/closure structures;
        iii. Jet grout and concrete seals along the floodwall alignment; and
        iv. All seepage and cutoff walls along the floodwall alignment.

Phase	General Description	Scheduled Phase Start (Access Restraints)	Scheduled Phase Completion	Phase Duration	Incentive Amount	Liquidated Damages ($/day)
1	Complete Asser Levy Park	Date set forth in the NTP for commencement of the Work	487 CCDs from the date set forth in the NTP for commencement of Work	487 CCD	N/A	$20,000 until Phase 1 is completed
2	Complete Stuyvesant Cove Park	312 CCDs from the date set forth in NTP for commencement of the Work	1187 CCDs from the date set forth in the NTP for commencement of Work	875 CCD	N/A	$20,000 until Phase 2 is completed
3	Complete Murphy Brothers Park	676 CCDs from the date set forth in NTP for commencement of the Work	1428 CCDs from the date set forth in the NTP for commencement of Work	752 CCD	N/A	$20,000 until Phase 3 is completed
4	Complete floodwall, gates, and utilities between stations 213+50 and	Date set forth in the NTP for commencement of the Work	302 CCDs from the date set forth in the NTP for commencement of Work	302 CCD	N/A	$20,000 until Phase 4 is completed

	216+10 in the Solar 1 work zone					
5	Completion of the floodwall as described above	Date set forth in the NTP for commencement of the Work	August 1, 2023	---	Up to $1.9M	$20,000 until Phase 5 is completed

The Scheduled Phase Start and Phase Completion dates in the table above are calendar days from date set forth in the NTP for the commencement of the Work.

(2) General Provisions:

(a) Two (2) types of incentive payment amounts are available to the Contractor under this **Section HW-900P.** The amounts are set forth below in **Paragraph (6)** of this **Subsection HW-900P.2.**

(b) An incentive payment will be authorized to the Contractor only if all work within Phase 5, including, but not limited to, all change order work for Phase 5, receives a determination of Phase Completion, as defined in **Paragraph (8)** of this **Subsection HW-900P.2**, below, by the Accelerated Phase 5 Completion Date, as defined in **Paragraph (4)** of this **Subsection HW-900P.2**, below.

(c) No incentive will be authorized for the completion of Phase 5 in the event that Phase Completion of work within Phase 5 occurs after the Accelerated Phase 5 Completion Date for Phase 5, regardless of delays, including delays attributable to the City. Examples of delays that may cause the Contractor to miss the Accelerated Phase 5 Completion Date and not earn the available incentive payment amounts include, without limitation, delays resulting from subsurface conditions at the site materially differing from any shown on the Contract Drawings or indicated in the Specifications, delays resulting from such subsurface conditions as could not reasonably have been anticipated by the Contractor and were not anticipated by the City, and delays due to private utilities, which conditions will materially affect the cost of the work to be done under the contract. Notwithstanding the above, the Commissioner may grant an extension of time in accordance with **Article 13** of the Standard Construction Contract for any or all of such delays.

(d) Incentive payments are not provided for completion of Phases 1, 2, 3, and 4 of the Project. However, the City is making incentive payments available in the event the Contractor meets the Accelerated Substantial Completion Date for the Project, as further described in Section HW-900.

(e) Liquidated damages will be assessed by the City against the Contractor if Phase Completion of work within each Phase does not occur by the Scheduled Phase Completion Date for the respective Phases, plus authorized time extensions pursuant to **Article 13** of the Standard Construction Contract.

(f) The determination of incentive payment or liquidated damage assessment will be made solely by the Commissioner, and the Commissioner's decision with respect thereto shall be accepted as final, binding, and conclusive.

(3) Scheduled Phase Completion Date: Both the scheduled commencement date, and the Scheduled Phase Completion Date, for each Phase are to be set forth in the written Notice to Proceed to be issued by the Commissioner in accordance with **Article 8** of the Standard Construction Contract.

The Scheduled Phase Completion Date for Phase 5 is **August 1, 2023**.

(4) Accelerated Phase 5 Completion Date: The Accelerated Phase 5 Completion date for Phase 5 is set at fifteen (15) calendar days before the Scheduled Phase Completion Date for Phase 5.

The Accelerated Phase 5 Completion Date is **July 17, 2023**.

(5) Incentive and Liquidated Damages Payments:

(a) Incentive Payments for Phase 5 ONLY:

(i) Potential Incentive Payment No. 1: If the work within Phase 5, including, but not limited to, all change order work for Phase 5, receives a determination of Phase Completion, as defined in **Paragraph (8)** of this **Subsection HW-900P.2**, below, by the Accelerated Phase 5 Completion Date, as defined in **Paragraph (4)** of this **Subsection HW-900P.2**, above, plus authorized time extensions under **Article 13** of the Standard Construction Contract, then the City will authorize Incentive Payment No. 1 to the Contractor in accordance with **Paragraph (6)** of this **Subsection HW-900P.2**, below, less any and all deductions authorized by this contract or by law; and,

(ii) Potential Incentive Payment No. 2: If the work within Phase 5 including, but not limited to, all change order work for Phase 5, receives a determination of Phase Completion, as defined in **Paragraph (8)** of this **Subsection HW-900P.2**, below, prior to the Accelerated Phase Completion Date set for the contract, as defined in **Paragraph (4)** of this **Subsection HW-900P.2**, above, plus authorized time extensions under **Article 13** of the Standard Construction Contract, then the City, will authorize Incentive Payment No. 2 to the Contractor in accordance with **Paragraph (6)** of this **Subsection HW-900P.2**, below, less any and all deductions authorized by this contract or by law.

(b) Liquidated Damages: Should Phase Completion of work within each Phase, as defined in **Paragraph (8)** of this **Subsection HW-900P.2**, below, occur after the Scheduled Phase Completion Date set for each Phase, plus authorized time extensions pursuant to **Article 13** of the Standard Construction Contract, or, if the Contractor, in the sole determination of the Commissioner, should abandon the work, the City will assess liquidated damages against the Contractor in an amount determined as follows: the liquidated damage amount for the contract as stated in **Paragraph (6)** of this **Subsection HW-900P.2**, below, multiplied by the number of calendar days in which Phase Completion of work within each Phase occurs after the Scheduled Phase Completion Date set for each Phase, plus authorized extensions; which said sum, in view of the difficulty of accurately ascertaining the loss which the City will suffer by reason of delay in the completion of the work hereunder, is hereby fixed and agreed as the liquidated damages that the City will suffer by reason of such delay, and not as a penalty.

This article shall also apply to the Contractor if it is defaulted pursuant to **Chapter X** of this Standard Construction Contract. Neither the failure to assess liquidated damages nor the granting of any time extension shall operate as a waiver or release of any claim the City may have against the Contractor for either actual or liquidated damages.

(c) Calculation: For the purposes of calculating the number of calendar days for incentive payment for Phase 5, such calculation shall include the day on which the Phase Completion occurs.

For the purposes of calculating the number of calendar days for liquidated damage assessment, such calculation shall not include the day of the Scheduled Phase Completion.

(6) Incentive/Liquidated Damage Amounts:

(a) Incentive Amounts for Phase 5:

- Potential Incentive Payment No. 1: For Phase 5 Completion of work by the Accelerated Phase 5 Completion Date, the incentive payment is equal to $1,000,000.00.
- Potential Incentive Payment No. 2: For early Phase 5 Completion of work before the Accelerated Phase 5 Completion Date, the additional incentive payment is equal to $20,000.00 per calendar day for a maximum of forty-five (45) calendar days before the Accelerated Phase 5 Completion Date ($900,000.00 maximum additional incentive).

(b) Liquidated Damage Amount: In the event the Contractor fails to meet the Scheduled Phase Completion Date for each Phase, the liquidated damages amount is $20,000.00 per calendar day for each Phase.

(7) Maximum Incentive/Liquidated Damage Amounts:

(a) Maximum Incentive Payment for Phase 5: The maximum incentive amounts payable to the Contractor under this Section shall equal the incentive amounts indicated in **Paragraph (6)** of this **Subsection HW-900P.2**, above, as follows:

$1,000,000.00 + ($20,000.00/day x 45 days) = $1,900,000.00

(b) Liquidated Damage: There is no limit to the amount of liquidated damages assessed for the failure to complete each Phase by its respective Scheduled Phase Completion Date. Liquidated damages will be assessed individually and will be compounded until the Contractor completes each Phase.

(8) Phase Completion: Construction within each Phase shall have achieved "Phase Completion", when, in the sole determination of the Commissioner, all work within each Phase and all change order work for each Phase, has been completely installed, tested, made operational, and accepted by the Engineer and the Commissioner, exclusive of the punch list work. The Commissioner will declare Phase Completion in accordance with Article 14 of the Standard Construction Contract for each Phase Work when Phase Completion for specific Phase is achieved.

HW-900P.3 BASIS OF PAYMENT.

Payment for any incentives earned by the Contractor under this Section shall be made in accordance with the applicable **Subsection HW-900P.2(5)** above.

The total estimated cost of this item is the "fixed sum" amount shown for this item in the Bid Schedule. No guarantee is given that the actual lump sum cost for this item will in fact be the "fixed sum" amount. The "fixed sum" amount is included in the total bid solely to ensure that sufficient monies will be available to pay any incentives earned by the Contractor.

The "fixed sum" is for bidding purposes only and shall not be varied in the bid. The Contractor will be paid for the actual amount of any incentives earned, less any and all deductions authorized by this contract or by law, regardless of the fixed sum.

Payment will be made under:

Item No.	Item Description	Pay Unit
HW-900P	ALLOWANCE FOR MAXIMUM INCENTIVE FOR EARLY PHASE COMPLETION	F.S.

S - PAGES

SPECIAL PROVISIONS

NOTICE

THE PAGES CONTAINED HEREIN (S-PAGES) ARE GENERAL SPECIAL PROVISIONS AND PROJECT SPECIFIC PROVISIONS THAT SHALL APPLY TO AND BECOME A PART OF THE CONTRACT.

(NO TEXT ON THIS PAGE)

(A) GENERAL SPECIAL PROVISIONS

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(A) GENERAL SPECIAL PROVISIONS

A1. LINES AND GRADES. The Contractor shall furnish lines and grades in accordance with Section 1.06.27 of the NYCDOT Standard Highway Specifications, except that survey controls established for this project may no longer exist and the Contractor shall be required to re-establish the survey control information using official Borough Survey Control Monuments and Bench Marks, where they exist. The Contractor shall check with Topographic Section of the Borough President's Office as to the reliability and accuracy of the data to be used for lines and grades.

A2. SPECIFIC TRAFFIC STIPULATIONS. Under this contract, the Contractor shall perform the work in strict accordance with the requirements of Section 6.70 in the Standard Highway Specifications, specific traffic stipulations as called for on the plans, OCMC Traffic Stipulations attached to the end of these Special Provisions, and the directions of the Engineer. In case of a conflict, the Engineer's decision shall be final.

In addition, the cost of compliance with requirements of the OCMC Traffic Stipulations, unless otherwise provided for, shall be deemed included in the prices bid for all scheduled items.

A3. HOLIDAY CONSTRUCTION EMBARGO. A special Holiday Construction Embargo shall be in effect on the Friday of the week preceding Thanksgiving Day week from 6:00 AM to 11:59 PM and again from the Monday of Thanksgiving Day week from 6:00 AM through January 2, at 11:59 PM. Roadway and sidewalk construction activities will be restricted during the embargo period on the streets listed below*.

Any permits issued prior to the date of this notice, for work during this embargo period on the streets listed below which do not already have the permit stipulation "410" are hereby suspended for the period noted above. All permittees must comply with this embargo unless a special waiver is granted by OCMC. Waiver requests must be
filed at least thirteen days before Thanksgiving Day, in the Permit Office by filing a "Request for Roadway/Sidewalk Permits During
"Embargo Periods" and submitting supporting documentation. Waiver requests should only be submitted for critical reasons for a specific project. If a waiver is granted, the applicant will be notified so they can apply for the approved permits. Waivers **are not** required for ongoing Building Construction Activity Permits which already include the "410" permit stipulation. Waiver request forms may be obtained at any Permit Office or on the Department of Transportation's website at: **http://www.nyc.gov/html/dot/downloads/pdf/holidayembapp.pdf**

Prior to this embargo period all necessary measures must be taken so that all roadways and sidewalks are in proper condition to allow for the expeditious and safe movement of vehicular, bicycle and pedestrian traffic. Tool carts, cable reels, containers, and material stored on roadways must be removed during the embargo period.

The opening of utility access covers is prohibited on any of the streets noted below between the hours of 6:00 AM and midnight unless the utility or Contractor files for an Emergency Authorization Number as required by section 2-07 of the Department of Transportation's Highway Rules. The planned opening of utility access covers may occur during the hours of 12:01 AM and 5:59 AM where no authorization number is required.

Temporary restoration of the streets and sidewalks and removal thereof, if required for the Holiday Embargo period, will be paid for under the appropriate scheduled items.

No extension of time due to the shutdown period will be granted to the Contractor for completion of the work.

*** Please note that this embargo only applies to NYCDOT construction permits.**
*** List of street and maps of the affected locations are available by borough on the Department of Transportation's website at:**
http://www.nyc.gov/html/dot/html/motorist/trafalrt.shtml

A4. CONTRACT ITEMS THAT INCLUDE BACKFILL AS A PART OF THEIR WORK. The following shall pertain to all contract items that have backfill as a part of their work: Backfilling shall comply with Subsection 4.11.3 of the Standard Specifications and no additional payment will be made for any Highway or Street Lighting work item requiring Contractor to furnish additional fill material to meet these requirements when backfilling.

A5. ACCELERATED PROJECT SCHEDULE AND COMBINATION OF STAGES. Contractor shall plan and/or stage the Contractor's work schedule using all hours/days available. Contractor is advised that all applicable unit prices shall include, for the purpose of this contract, all overtime costs, premium time costs, shift differentials required to complete construction within the specified "Time(s) of Completion" stipulated in this contract.

Contractor shall be permitted to accelerate this project, to combine stages and/or work sequences. Any such changes shall be shown in the construction schedule, to be furnished in accordance with the General Provisions of the Standard Specifications and the "CRITICAL PATH METHOD (CPM) SCHEDULE" Article and shall be submitted for approval of the Engineer.

A6. DISPOSAL OF EXCESS EXCAVATED MATERIAL. All excess excavated material, with the exception of contaminated material, shall become the property of the Contractor and shall be properly disposed of away from the site, at the Contractor's expense. Contaminated material shall be disposed of separately in accordance with contract requirements.

A7. NO EXTENSION OF TIME FOR WINTER SHUT-DOWN. Where the Contractor's approved work schedule for installing sidewalk, curb, roadway base and/or pavement falls within the winter period of December 1st through April 1st, the Contractor will NOT be granted an extension of time for completion of this contract due to the winter shut-down period, unless otherwise provided in Schedule A.

A8. PRIVATE UTILITY HARDWARE ADJUSTMENTS. will be performed by the owning utility company or its agent, at its expense. The Contractor shall notify the utility company 72 hours prior to start of work at each location where its hardware requires adjustment.

A9. SURVEY MONUMENTS. When working in the vicinity of survey monument the Contractor shall hand excavate per Item 8.02 A and 8.02 B at City Survey Monuments, for a distance of five (5) feet around each monument, as directed by the Engineer.

A10. RESTORATION OF ADJACENT AREAS. The Contractor shall be required to remove all form work. In planting strip areas, the Contractor shall be required to restore areas damaged as a result of the Contractor's operations, to the satisfaction of the Engineer, with sod. The Contractor shall also, as directed by the Engineer, make safe adjacent areas to the Contractor's work, such as: restoring missing or damaged pavement markings that were removed or damaged as a result of the Contractor's operations (as per requirements of Section 6.44 in the Standard Specifications); resetting granite blocks in tree pits; and, applying asphaltic concrete mixture (Item 4.02 CB) where badly broken sidewalk or curb

may create a dangerous condition just outside the Contractor's area of operation, where and when directed by the Engineer.

All restoration work shall be done to the satisfaction of the Engineer.

A11. USE OF CITY WATER. The Contractor is notified that for use of City water under this project the Contractor shall be required to obtain a water use permit from the Department of Environmental Protection at the Contractor's own cost.

A12. ITEM NO. "6.52 FED". The contractor is notified that wherever the Item No. "6.52 CG" and words "Crossing Guard" are used in the Contract Documents and Drawings it shall mean the Item No. "6.52 FED" and the words "Uniformed Flagperson", respectively.

A13. FUEL COST. The Contractor is notified that the fuel cost per gallon used in the formula under Sub-Article 26.2.8 of the Standard Construction Contract for **Extra Work** will be derived from the fuel price index for the United States East Coast published weekly by the United States Energy Information Administration ("USEIA"), and available on its website at http://www.eia.gov/petroleum/gasdiesel/. The USEIA-published cost per gallon for the applicable fuel on the East Coast for the week in which the first day of each calendar quarter during the contract term occurs (i.e., January 1st, April 1st, July 1st and September 1st) will be used in the reimbursement formula for all **Extra Work** invoiced that was performed during that calendar quarter. Should the USEIA stop publishing this fuel price index, the fuel cost per gallon will be determined by reference to a substitute index to be agreed upon by the Contractor and the City. Fuel reimbursed under the method described in this article is not eligible for the Fuel Price Adjustment payment under Item 698.05.

A14. DPR CONSTRUCTION PERMITS. NYC Department of Parks and Recreation (DPR) Construction Permits are required for all work on parkland or on sidewalks adjacent to parks or other areas maintained by DPR.

A15. START OF CONTRACT WORK. The Contractor is notified that a Notice To Proceed (NTP) date will be issued for work to commence within 21 to 30 Days of Contract Registration.

A16. N.Y.C. TRANSIT INSURANCE. The Contractor (Permittee) shall indemnify and save harmless the City of New York and the New York City Transit (Permittor) in accordance with the following "Insurance Requirements" and proof that the necessary insurance is in effect will be required before work can commence:

NYCT "OUTSIDE CONTRACT" INSURANCE REQUIREMENTS

1. The Permittee at its sole cost and expense shall carry or cause to carried and shall maintain at all times during the period of performance under this Agreement policies of insurance as herein below set forth below:

(A) Workers' Compensation Insurance (including Employer's Liability Insurance) with limits as specified in Schedule A, which limit may be met by a combination of primary and excess insurance meeting the statutory limits of New York State. The policy shall be endorsed to include Longshoreman's and Harbor Workers' Compensation Act/Maritime Coverage Endorsement and/or Jones Act Endorsement when applicable.

(B) Commercial General Liability Insurance (I.S.O. 2001 Form or equivalent) approved by Permittor in the Permittee's name with limits of liability as specified in Schedule A for each occurrence

on a combined single limit basis for injuries to persons (including death) and damages to property. The limits may be provided in the form of a primary policy or combination of primary and umbrella/excess policy. When the minimum contract amounts can only be met when applying the umbrella/excess policy; the Umbrella/Excess Policy must follow form of the underlying policy and be extended to "drop down" to become primary in the event primary limits are reduced or aggregate limits are exhausted. Such insurance shall be primary and non-contributory to any other valid and collectable insurance and must be exhausted before implicating any Permittor/MTA policy available.

Such policy should be written on an occurrence form; and shall include:

- Contractual coverage for liability assumed by the Permittee under this agreement;
- Personal and Advertising Injury Coverage;
- Products-Completed. Operations;
- Independent Contractors Coverage;
- "XCU" coverage (Explosion, Collapse, and Underground Hazards) where necessary;
- Contractual Liability Exclusion, applicable to construction or demolition operations to be performed within 50 feet of railroad tracks, must be voided, where necessary; and,
- Additional Insured Endorsement (I.S.O. Form CG 20 26 07/04 version or equivalent) approved the Permittor naming:

New York City Transit Authority (NYCTA), the Manhattan and Bronx Surface Transit Operating Authority (MaBSTOA), the Staten Island Rapid Transit Operating Authority (SIRTOA), MTA Capital Construction Co., the Metropolitan Transportation Authority (MTA) including its subsidiaries and affiliates, and the City of New York (as Owner).

(C) Business Automobile Liability Insurance Policy - (I.S.O. Form CA 00 01 10 01 or equivalent) approved by the Permittor is required if Permitee's vehicle enters Permittor property. The insurance must be in the name of the Permittee or its contractor entering the Permittor property with limits of liability in the amount specified in Schedule A for claims for bodily injuries (including death) to persons and for damage to property arising out of the ownership, maintenance or use of any owned, hired or non-owned motor vehicle.

(D) Railroad Protective Liability Insurance policy shall be required as specified in Schedule A.

(E) Environmental/Pollution Exposures In the event environmental or pollution exposures exist, the Permittee shall require the environmental contractor or sub-contactor to provide the applicable insurance covering such exposure. The limits and type of insurance provided shall be satisfactory to the Permittor and will be confirmed to the parties prior to the start of the work.

2. General Requirements Applicable to Insurance Policies

(a) All of the insurance required by this Article shall be with Companies licensed or authorized to do business in the State of New York with an A.M. Best Company rating of not less than A-/VII or better and reasonably approved by the *Permittor/MTA and shall deliver evidence of such policies.*

(b) Except for Workers Compensation, all references to forms and coverages referred to above shall be the most recent used by the Insurance Services Office, Inc. (ISO") or equivalent forms approved by the Insurance Department of the State of New York, provided, however, that excess coverages may be written on forms reasonably acceptable to Permittor containing provisions other than those contained in ISO forms but otherwise conforming in substance to the requirements of this Article.

(c) The Permittee or its Contractor performing the work shall furnish evidence of all policies before any work is started to the permittor:

For NYCT Contract Inspection
C/O Mr. John Malvasio
Director, MOW Engineering
130 Livingston Street, Room 8044F
Brooklyn, NY 11201
Telephone: (718) 694-1358

These policies must: (i) be written in accordance with the requirements of the paragraphs above, as applicable; (ii) be endorsed in form acceptable to include a provision that the policy will not be canceled, materially changed, or not renewed, unless otherwise indicated herein, at least thirty (30) days prior written notice to the Permittor c/o MTA Risk and Insurance Management (MTA RIM) Department – Standards, Enforcement & Claims Unit, 2 Broadway – 21st floor, New York, NY 10004; and (iii) state or be endorsed to provide that the coverage afforded under the contractor's policies shall apply on a primary and not on an excess or contributing basis with any policies which may be available to the Permittor/MTA, and also that the contractor's policies, primary and excess, must be exhausted before implicating any Permittor/MTA policy available. (iv) In addition, contractor's policies shall state or be endorsed to provide that, if a subcontractor's policy contains any provision that may adversely affect whether contractor's policies are primary and must be exhausted before implicating any Permittor/MTA policy available, contractor's and subcontractor's policies shall nevertheless be primary and must be exhausted before implicating any Permittor/MTA policy available. Except for Professional Liability, policies written on claims made basis are not acceptable. At least two (2) weeks prior to the expiration of the policies, contractor shall endeavor to provide evidence of renewal or replacement policies of insurance, with terms and limits no less favorable than the expiring policies. Except as otherwise indicated in the detailed coverage paragraphs below, self-insured retentions and policy deductibles shall not exceed $100,000, unless such increased deductible or retention is approved by Permittor/MTA. The Permittee shall be responsible for all claim expense and loss payments within the deductible or self-insured retention. The insurance monetary limits required herein may be met through the combined use of the insured's primary and umbrella/excess policies.

(d) Certificates of Insurance may be supplied as evidence of policies of the above policies, except for Policy (D) Railroad Protective Liability Insurance Policy. However, if requested by the Permittor, the Permittee shall deliver to the Authority, within forty-five (45) days of be request, a copy of such policies, certified by the insurance carrier as being true and complete. The Railroad Protective Liability Insurance Policy must be provided in the form of the Original Policy. A detailed Insurance Binder may be provided, ACORD or Manuscript Form, pending issuance of the Original Policy. The Original Policy must be submitted to MTA RIM within 30 days of the Binder Approval.

(e) If a Certificate of Insurance is submitted, it must: (1) be provided on the Permittor Certificate of Insurance Form or MTA Certificate of Insurance Form for Joint Agency Agreements; (2) be signed by an authorized representative of the insurance carrier or producer and notarized; {3) disclose any deductible, self-insured retention, sub-limit, aggregate limit or any exclusions to the policy that materially change the coverage; (4) indicate the Additional Insureds and Named Insureds as required

herein, along with a physical copy of the Additional Insured Endorsement (I.S.O. Form CG 20 26 07/04 version or equivalent), as applicable and the endorsement(s) must include policy number(s); (5) reference the Contract by number on the face of the certificate; and (6) expressly reference the inclusion of all required endorsements.

(f) The minimum amounts of insurance required in the detail description of policies (A), (B), (C), and (D) above shall not be construed to limit the extent of the Permittee's liability under this Agreement.

(g) If, at any time during the period of this Agreement, insurance as required is not in effect, or proof thereof is not provided to the Permittor, the Permittor shall have the options to:

(i) direct the Permittee to suspend work or operation with no additional cost or extension of time due on account thereof; or
(ii) treat such failure as an Event of Default.

A17. TREE BARRIERS. The Contractor shall furnish, install, maintain and subsequently remove temporary Protective Tree Barriers. Protective Tree Barriers shall be Type B, unless otherwise directed by the Engineer, and shall be constructed and installed as shown on the Protective Tree Barrier sketch in Department Of Transportation, Standard Highway Details Of Construction, Drawing No. H-1046A, as directed by the Engineer, and in accordance with Department of Parks and Recreation requirements.

Price of the tree barriers must be deemed included in the in the unit prices bid for all scheduled items.

A18. UTILITIES. All utility locations and invert elevations are not guaranteed, nor is there any guarantee that all existing utilities, whether functional or abandoned within the project area are shown.

A19. HOUSE CONNECTIONS. All existing house connections shall be maintained and supported during construction. The Contractor shall replace any existing house connection damaged as a result of the Contractor's construction operations as ordered by the Engineer at no cost to the City.

A20. VICTAULIC STYLE 77 COUPLING. The Contractor is notified that Victaulic Style 77 Coupling is no longer acceptable for use in any steel water main work. All reference to Victaulic Style 77 Coupling within the Standard Sewer And Water Main Specifications of the Department of Environmental Protection (dated July 1, 2014), the Water Main Standard Drawings of the Department of Environmental Protection (latest revisions), the Specifications For Trunk Main Work (dated July 2014), and the contract drawings, shall be replaced with Bolted Split-Sleeve Restrained Coupling.

A21. STREET LIGHT AND TRAFFIC SIGNAL. The Contractor is responsible for any damage to the existing street lighting and traffic signal equipment, including underground conduits and the safety of both pedestrian and vehicular traffic for the duration of the contract.

Should any conduits, cables or foundations need repair due to the Contractor's negligent operations during construction, all work shall be performed according to NYCDOT Bureau of Traffic's Standard Drawings and Specifications and City of New York DOT System Engineering Specifications (dated November 2013) at the sole expense of the Contractor.

It is the Contractor's responsibility to secure an approved electrical contractor to perform all traffic signal work (if any). For list of approved electrical contractors, contact Mr. Michael R. LeFosse of New York City Department of Transportation at (212) 839-3799.

A22. SAW CUT. The Contractor is advised that where the existing roadway pavement is designated to be replaced from curb to curb, then no full depth saw cutting of pavement for sewer and water main trenches will be required, except at the limits of full width pavement restoration. No separate or additional payment will be made for any saw cutting.

A23. PRE-CONSTRUCTION STAGE. The Contractor is advised that the Base Contract Duration (consecutive calendar days "ccds") must also include pre-construction stage from the Notice To Proceed date. During this stage the contractor is required to submit the necessary shop drawings, obtain all permits and submit the health and safety plan for review and approval. The Engineer's field office will also need to be established during this pre-construction stage period. Failure to comply with the pre-construction stage requirements may result in assessing liquidated damages to the contractor for everyday beyond the pre-construction stage duration. The liquidated damage will be of equivalent value as identified in the Schedule A for work beyond the construction completion date.

A24. EXISTING SEWERS, WATER AND APPURTENANCE. The Contractor is notified that at some locations there may exists sewers, manholes, water mains, etc., which are to remain undisturbed and are in close proximity to the line of the proposed work. The Contractor shall exercise extreme care, minimize the trench width of the proposed sewers and take all necessary precautions in placing sheeting and during excavation of the trenches to prevent any damage to the existing structures, pavement, curbs, and sidewalks that are to remain while working adjacent to them. The Contractor maybe restricted to use wood sheeting at certain critical locations as directed by the Engineer. Should any damage occur to any portion of the existing structures that are to remain due to the Contractor's operations, the Contractor shall make all repairs to the existing structures to the satisfaction of and as directed by the Engineer. The cost of such repair shall be borne by the Contractor, at no cost to the City. Additional cost to use wood sheeting specifically to ensure integrity of existing sewer structures will be deem included in all bid items for work.

A25. RECONNECTING EXISTING SEWERS TO NEW MANHOLES. If there are locations on the contract plans, where the Contractor is required to reconnect all existing sewers to the proposed manholes in this contract. The said manholes shall be fabricated to provide openings for the existing sewers at the specified invert elevations as shown on the contract drawings. The cost of reconnecting existing sewer pipes to new manholes, including concrete collar with steel reinforcements and/or grouting around the existing sewer pipes at the openings and all work necessary to complete the pipe reconnection, to the satisfaction of the Resident Engineer shall be deemed included in the prices bid for all items of work. No additional payment shall be made.

A26. THE CONTRACTOR IS ADVISED that during pre-construction stage from the Notice To Proceed date; the contractor is required to submit the necessary shop drawings, obtain permits and submit the health and safety plan for review and approval. The Engineer's field office will also need to be established during this pre-construction stage period. Failure to comply with the pre-construction stage requirements may result in assessing liquidated damages to the contractor for everyday beyond the pre-construction stage duration. The liquidated damage will be of equivalent value as identified in the Schedule A for work beyond the construction completion date.

A27. THE CONTRACTOR IS ADVISED that any City owned light poles, traffic signals, street name signs, traffic signs and encumbrances including, but not limited to, underground conduit displaced as the result of the installation of the new sewers, water mains, catch basins, catch basin connections

and appurtenances shall be replaced in kind and as directed by the Engineer. The cost of such work shall be deemed included in the prices bid for all items of work under this contract.

A28. NO ADDITIONAL PAYMENT. The Contractor is advised that any fences, guardrails, boulders, asphalt walkway of the park, fixtures, other encumbrances removed within project limits during construction shall be replaced in kind to the satisfaction of the Engineer. The cost of such work shall be deemed included in the prices bid for all contract items of work and no additional or separate payment shall be made.

A29. SHEETING AND EXCAVATION AT TRANSIT FACILITIES. In case of transit facilities like MTA, LIRR, METRO NORTH etc., the Contractor shall exercise extreme caution and take all necessary precautions in placing sheeting and excavation to prevent any damage to the existing underground or overhead structures and its appurtenances during construction work throughout the project area. The Contractor must take full responsibility to protect the said structures and its appurtenances and any damage caused by the Contractor's operations ~~shall~~ must be made good by the Contractor to the satisfaction of the Engineer at no additional cost to the City.

The Contractor shall submit shop drawings to the Transit facilities showing all the details and methods of construction, such as, sheeting and bracing, including the Contractor's procedure and sequence of construction, supporting and/or protection of the existing structures and its appurtenances, with necessary design calculations for approval prior to starting of the construction. The design shall be made by a New York State Licensed Professional Engineer skilled in this type of construction and as further evidenced by the imprint of Professional Engineer's seal and signature on all drawings. The cost of this work shall be deemed included in the price bid for all items of work under this contract.

A30. ARCHAEOLOGICAL DISCOVERIES. The Contractor is notified that the Resident Engineer will retain the services of an Archaeologist (the "City's Archaeologist") for this project.

The City's Archaeologist shall be notified in advance and shall be present on site during sub-surface excavations as he deems necessary. The City's Archaeologist shall be authorized to halt construction at any time in order to record and/or recover any archaeological resources encountered during excavations, and to stabilize in place any human remains encountered. For the purpose of evaluating and recording archaeological resources, the City's Archaeologist shall be allowed to enter trenches provided all standard safety requirements are met. It is understood that some construction down time may be necessary.

In the event that human remains and/or other significant archaeological deposits are encountered during construction or archaeological investigations, Landmarks Preservation Commission (LPC) shall be notified as directed by the City's Archaeologist and the State Historic Preservation Office (SHPO) requires that the following protocol is implemented:

- At all times human remains must be treated with the utmost dignity and respect. Should human remains be encountered work in the general area of the discovery will stop immediately and the location will be immediately secured and protected from damage and disturbance.

- Human remains or associated artifacts will be left in place and not disturbed. No skeletal remains or materials associated with the remains will be collected or removed until appropriate consultation has taken place and a plan of action has been developed.

- The County coroner and local law enforcement as well as the SHPO and the involved agency will be notified immediately. The coroner and local law enforcement will make the official ruling on the nature of the remains, being either forensic or archeological. If the remains are archeological in nature, a bioarchaeologist will confirm the identification as human.

- If human remains are determined to be Native American, the remains will be left in place and protected from further disturbance until a plan for their protection or removal can be generated. The involved agency will consult SHPO and appropriate Native American groups to determine a plan of action that is consistent with the Native American Graves Protection and Repatriation Act (NAGPRA) guidance.

- If human remains are determined not to be Native American, the remains will be left in place and protected from further disturbance until a plan for their avoidance or removal can be generated. Consultation with the SHPO and other appropriate parties will be required to determine a plan of action.

Should extra work be ordered by the Resident Engineer as a result of any archaeological discoveries, it shall be paid for as extra work in accordance with the requirements of Article 26 in the Standard Construction Contract.

A31. PRICES TO INCLUDE. No direct payment will be made for costs incurred in complying with the foregoing Special Provisions, unless otherwise provided. Said costs will be deemed to have been included in the prices bid for all the scheduled contract items.

(B) HIGHWAY SPECIAL PROVISIONS (JOB SPECIFIC)

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B1. CRITICAL PATH METHOD (CPM) SCHEDULE

The requirements of this article supersede the requirements of NYCDOT Standard Highway Specifications **Section 1.06.25**.

1.1 DESCRIPTION

A. This section specifies the procedures and requirements, which the Contractor must follow for documenting the progress of the Work. Among the requirements specified are schedule development and maintenance as well as associated submittal requirements.

B. The Contractor must submit a Progress Schedule in compliance with Article 9 of the Standard Construction Contract. The Contractor's Progress schedule must be a Critical Path Method Progress Schedule prepared using Primavera P6 software (P6), which demonstrates complete fulfillment of all work shown in the contract documents. The Contractor must, on at least a monthly basis, revise and update the Progress Schedule, and use it in planning, coordinating, and performing all work. Schedule activities must accurately depict the entire scope of work to be performed to complete the project including, but not limited to, all work to be performed by the Contractor, subcontractors, fabricators, suppliers, consultants, the Department, and others, contributing to the project.

1.2 RELATED DOCUMENTS

- Payment Procedures (Articles 41, 42, 43, 44, 45 and 46 of the Standard Construction Contract).
- Request for Information or Approval (Article 10 of the Standard Construction Contract).
- Submittal Procedures (Article B2 of the Special Provisions [S-Pages]).
- Definitions (Article 2 of the Standard Construction Contract).
- Progress Schedules –(Article 9 of the Standard Construction Contract).

1.3 ACTION SUBMITTALS

A. Project Scheduler's Resume: The name, resume and work experience of the Contractor's Project Scheduler must be submitted to the Engineer and approved before Work on the Schedule Document begins. The resume of the proposed Project Scheduler must include the duties, responsibilities, and accomplishments which establish the candidate's scheduling and construction experience. Should the Contractor utilize a Scheduling Consultant, the Consultant's name and work experience must be submitted to the Engineer and approved before the Consultant begins work on the Schedule Document. If either, the proposed Consultant or the Contractor's Project Scheduler are not approved, the Contractor must propose an alternate Consultant or another Project Scheduler that meets the experience requirements within five (5) working days. The Engineer has the right to reject the Project Scheduler and/or the Consultant based upon lack of experience as required herein. Rejection by the Engineer of the proposed Project Scheduler and/or the Consultant will not be allowed as a basis for an extension of time to submit any of the required Schedule Document(s).

B. CPM Schedule: The CPM Schedule must be prepared using Primavera Project Management Software P6 V15 or newer. Using Critical Path Method ("CPM") techniques, the schedule must accurately represent the Contractor's plan for the timely completion of the Work and must be submitted in the following formats:

1. Preliminary CPM Schedule: No later than 15 Days (CCD) after receipt of the Notice to Proceed, the Contractor must make a presentation to the Engineer concurrently with the submittal for acceptance of the Preliminary CPM Schedule defining the Contractor's

planned activities during the first 90 Days. The Preliminary CPM Schedule must contain in detail the Contractor's proposed schedule of Work to be commenced within the first 90 Days after the Notice to Proceed. This Preliminary CPM Schedule must include, in a summary format, the balance of Work leading to the Project's Substantial Completion. The Preliminary CPM Schedule package may be conditionally accepted by the Engineer pending acceptance of the Baseline CPM Schedule. The conditionally accepted Preliminary CPM Schedule must be updated monthly until the Detailed CPM Schedule is accepted. The Contractor may make no changes to the conditionally accepted Preliminary CPM Schedule without the approval of the Engineer.

2. Baseline CPM Schedule: No later than 45 Days after receipt of the Notice to Proceed, the Contractor must make a presentation to the Engineer concurrently with the submittal for acceptance of the complete CPM Schedule Documents which must incorporate the entire scope of the Work. This schedule, once approved by the Engineer, will be the Baseline CPM Schedule and will be considered the schedule of record unless a Baseline CPM Schedule revision is accepted by the Engineer. The most up to date Baseline CPM Schedule or Baseline CPM Schedule revision accepted by the Engineer must be considered the Current Baseline Schedule or the schedule of record.

3. Changes to the Baseline Schedule: No changes are permitted to the Baseline CPM Schedule including but not limited to Activity ID, logic, durations, budgeted quantities of both materials and man-hours unless submitted, reviewed and accepted by the Engineer prior to their insertion into the CPM Schedule.

4. CPM Logic Diagrams: CPM Logic Diagrams must be submitted on sheets 11 x 17 inch paper and as Adobe Acrobat PDF or as otherwise directed by the Engineer. The activity box must include at a minimum the activity number, description, responsibility code, early dates, total float, original and remaining durations. Logic Diagrams must be submitted until both the Preliminary and Baseline CPM Schedules are accepted. Upon acceptance of the Preliminary and Baseline CPM Schedules one set of the CPM Logic Diagrams must be submitted. The CPM Logic Diagrams must be resubmitted for approval when a revision to the schedule logic is made.

5. Monthly CPM Updated Schedule: No later than the third (3rd) working day of the month, the Contractor must submit an update of the CPM Schedule. This Schedule update must be derived from the Baseline CPM Schedule and includes progress of the Work as of the data date and as agreed to each month in the monthly schedule review/update meeting. Except for recording the work progress, no changes are permitted to the updated CPM Schedule including, but not limited to, Activity ID, logic, durations, budgeted quantities of both material and man-hours unless submitted, reviewed and accepted by the Engineer prior to their insertion into the updated CPM Schedule. The Contractor agrees that this Schedule update accurately represents the progress of the Work to date and balance of the Work to be completed.

6. Hard and Electronic Copies: The submittal of the Preliminary, Baseline, and Monthly CPM Schedule Updates, in detail and in summary format, must include three (3) collated paper copies on 11 x 17 and must also be submitted in Adobe Acrobat PDF and in native Primavera Project Management P6 software files (Version 15.0 or newer).

1.4 PROJECT SCHEDULER

A. The Contractor must employ or retain a project Scheduler with a minimum of five (5) years of

experience in the use of Oracle's Primavera Project Management Primavera Project Management (P6 or later) for the purpose of developing, monitoring, maintaining and updating the Contractor's detailed Project's Schedule utilizing the latest version of Primavera Project Management P6 software (Version 15.0 or higher). The Project Scheduler must also possess at least five (5) years of relevant experience in construction, planning, scheduling, expediting and tracking the progress of the work for projects of a similar nature, size, and complexity. The Project Scheduler must be responsible for adhering to all requirements of this schedule specification, attending all job progress review/update meetings, and other meetings as requested by the Engineer. The Project Scheduler must be dedicated fully to this Contract and is expected to function as part of the Contractor's project team and actively contribute to the planning, mitigation and coordinated maintenance and upkeep of the Project Schedule deliverables of this Contract.

3.1 GENERAL REQUIREMENTS

A. To enable the Work to be performed in an orderly and expeditious manner, the Work must be monitored closely by the Contractor using a CPM Schedule. The scheduling of all the Work, i.e. design, submittals, approvals, procurement, construction, testing, etc. is the responsibility of the Contractor.

B. Progress Payment: The monthly CPM Schedule update submission, showing updated activities and status in accordance with the requirements of this Section must be a condition precedent to the start of the monthly progress payment cycle. **The Engineer will not process the monthly progress payment until the CPM Schedule update submission has been received.**

C. Time is of the essence in the performance of all Work under this Contract including but not limited to providing the required Schedule information. The CPM Schedule must at all times accurately reflect the Contractor's CPM schedule of record for the Work and must be updated as required herein, in a timely manner. The CPM Schedule must be the primary tool utilized by the Contractor to accurately document the progress of the Work and to communicate its plan for the timely completion of the Work.

D. Float Suppression: Pursuant to float sharing requirements of this Article, the use of float suppression techniques such as preferential sequencing or logic, special lead/lag logic restraints, and extended activity times or durations is prohibited. Approval of any schedule by the Engineer does not preclude the Engineer's later correction of float suppression techniques or of any other deficiency.

E. If the Contractor elects to propose an Early Completion Schedule, such schedule must be subject to the acceptance of the Engineer and in compliance with any interim milestones specified in the Contract Documents. Early Completion Schedules are subject to Articles 8 and 9 of the Standard Construction Contract.

F. The Contractor must include an activity (milestone) in its schedule that represents Substantial Completion; such activity (milestone) will only be acceptable if it meets all the requirements of the Standard Construction Contract set forth in Article 14.

G. Scheduling Kickoff Meeting: Upon Notice to Proceed, the Contractor and the Engineer will hold a Scheduling Kickoff Meeting to review these requirements and any related Contract Documents. This meeting must be attended by the Contractor's Project Manager, Contractor's Project Scheduler, representatives from key subcontractors, and the Engineer's staff, including the Engineer's project scheduler. Specific items to be covered will include Contract

schedule requirements, project phasing, intermediate milestones, workday calendars, activity coding, schedule updating, schedule revisions, progress payment process, and any other items related to the project schedule document development.

3.2 DETAILED SCHEDULE REQUIREMENTS

A. Schedule Detail: The CPM Schedule must contain sufficient design, procurement, and construction activities to represent the Work, subject to the acceptance by the Engineer, with a means to monitor and follow progress of all phases of Work; comply with limits imposed by the scope of Work, with contractually specified seasonal restrictions, interim milestones and completion dates; and with constraints, restraints, or sequences included in the Contract. The schedule detail must be subject to acceptance by the Engineer. Factors to be considered include, but are not limited to:

1. Organization by major areas of Work Breakdown Structure (WBS).
2. Submittals, submittal reviews and approvals, manufacture, tests, delivery, installation activities for long lead items, training syllabus, critical materials and equipment, system testing as well as seasonal restrictions must be represented in the CPM Schedule. Description of the activity must include sufficient detail to identify the unique scope of that activity. Whenever possible, like items must be combined in a single submittal. If multiple items are included in a single submittal, that submittal must be identified in the Schedule by an activity in accordance with the following conditions:
   a. The "Review and Approval" activity for that submittal must be a condition precedent to every activity representing fabrication and delivery of any of the materials submitted.
   b. If and when the submittal receives authorization for the activity to partially proceed and that partial authorization is sufficient to enable the commencement of some, but not all, successor activities, then the original submittal activity must be broken down into multiple activities, as necessary to accurately reflect the logic of Contractor's current plan.
3. Deliveries of furnished equipment and/or materials in accordance with dates or schedule windows of times set forth in the Contract. Activities representing the delivery of materials or equipment for more than one installation activity will be permitted in accordance with the following conditions:
   a. The delivery activity must precede each activity representing the installation of that material in each area.
   b. When partial deliveries are received and are adequate so as to enable commencement of some, but not all, successor activities, then the original delivery activity must be broken down into multiple activities, so as to accurately reflect the logic of the Contractor's current plan.
4. The required review and approval time for any submittals must be incorporated.
5. Milestones or access restraints for completion of certain portions of the Work or access and availability to Work areas as referenced elsewhere in the Contract Documents.
6. Identification of interfaces and dependencies with preceding, concurrent, and follow-on Contractors and utilities, typically shown as milestone type of activities.
7. Planning for phased or total handover to the Engineer.
8. Identification of any resource restrictions including manpower (by trade), material, and equipment, as well as any activity requiring unusual shift work, such as multiple shifts, weekend work, specified overtime, or work at times other than regular days or hours.
9. Resource Loading: Resource allocation for each activity in the CPM Schedule identifying the man-hours by trade and costs by bid item. Cost items may be combined by category

as approved by the Engineer. Activities containing unit price items must equal the amount of the quantity specified in the Contract. The Engineer reserves the right to accept or reject any value and allocation of the man-hours and/or costs.

10. Activity Code Structures: Activities must be coded for the following categories:
    a. RESP - Responsibility – Identify Contractor Utility, Subcontractor, etc. responsible for the Work.
    b. PHAS – Phase – Breakdown of activities in Milestone, Construction Phases and Close out activities.
    c. AREA - Area – May be used as subdivision to include permits, engineering, design, procurement, submittals, submittal review and approval, fabrication, delivery, change order, training, testing & commissioning, payment item major areas of Work.
    d. LOCN – Location - Breakdown by street, interwsection or block, construction reaches or landmark locations.
    e. TRAD – Trade – Breakdown by work type. Examples: ramp, plaza, sidewalk, pedestrian bridge, roadway construction.
11. Calendars: Develop activity calendars commensurate with the Contractor's workweek plan. Calendars must include all non-working Days, such as: seasonal weather conditions, weekends, holidays, or other periods when the Contractor plans not to work. Calendar(s) must be reviewed and accepted by the Engineer as part of the Baseline Contract Schedule submittal and will be monitored using the most updated Contract Schedule.
    a. The planning unit for the Contract must be Days (CCD).
    b. Calendars must contain all applicable union holidays, as listed in any applicable labor agreements.
    c. Every activity must be assigned a working day calendar that considers when the activity is planned to occur and when it is contractually permitted to occur.
12. Activities representing work or participation by the Engineer staff must be assigned to a 5-day workweek calendar, unless otherwise specified by the Engineer or Engineer's Representative. Contractor's Schedule must not anticipate or require weekend or holiday work periods for the Engineer unless specifically approved by the Engineer.

B. Materials and Equipment Procurement: Include the following activity sequence for critical and long lead materials and equipment procurement:

    1. Submittal Preparation.
    2. Review and Approval.
    3. Fabricate and Deliver.

C. Logic and Durations: Logic and activity durations must be established by the Contractor consistent with the Contract requirements and must reflect coordination between trades, definitive resource planning and on-site work conditions. Logic must show how the start of a given activity is dependent on the completion of preceding activities, and its completion restricts the start of following activities. Except for non-construction activities such as procurement of material, delivery of equipment or fabrication, activities must not have a duration greater than twenty (20) working days unless specifically approved by the Engineer. Duration for non-construction activities such as procurement of material or delivery of equipment may not exceed twenty (20) working days without prior approval.

D. Restraints and Milestones: The start date of the CPM Schedule must be the Contract NTP date. The completion date of the CPM Schedule must be the Contract Substantial Completion date as specified in this Chapter. All intermediate restraints and milestones required in the Contract

must be shown in proper logical sequence and properly constrained.

E. Schedule Dates: Whenever the term "schedule" or "scheduled date" is used, it must mean the "early start" and "early finish" dates in the CPM Schedule. The "late" dates are for purposes of calculating float and do not represent the schedule dates.

F. Activity Descriptions: Activities must be described such that the Work is readily identifiable for assessment of start and completion, as well as intermediate status. Descriptions must utilize identifiers for physical locations such as reaches, bridge locations and elevations where possible to define the Work. The activity description must identify the scope of the activity. There must not be any two activities with the same activity description.

G. Working Days: While contract times are expressed in Days (CCD), the CPM Schedule must be calculated in working days.

H. Weather or Seasonal Allowances: Seasonal weather conditions must be considered in the planning and scheduling of all Work such that all Work will be completed within the allotted Contract time. Any weather or seasonal allowance must be stated in the Baseline narrative.

I. Submittal and Review Periods: The review period shown in the Schedule for submittals must conform to the Contract requirements set forth in Article 10 of the Standard Construction Contract and the related submittal section of the Technical Specifications.

J. Constraints: The Schedule must include all Work constraints indicated in the Contract Documents. Other activity Constraints must not be used unless approved by the Engineer.

K. Float: Float is defined as the calculated amount of time that the estimated start or finish of an Activity can be delayed without impacting the start or finish of other downstream activities logically connected in a progressive relationship. Float, in any schedule, must not be for the exclusive use or benefit of either the City or the Contractor, but must be available for use by both the City and the Contractor.

L. The CPM Schedule must contain sufficient activities and allotted time for all inspections, testing, commissioning and the Engineer's acceptance, as well as system testing, orientation, and demonstrations. The schedule must also include a System Testing and Acceptance fragnet or subnet within the project CPM Schedule as needed. This schedule will identify all equipment and systems that require testing, orientation and acceptance by the Engineer. The durations and sequences of the systems testing, orientation and acceptance must be as specified in the various sections of the Contract Specifications. Each system will contain, but will not be limited to, all of the following activities and constraints:

1. Interface between the construction activities and their respective system.
2. Contractor's pre-testing Work.
3. Submittal and approval of the Contractor's pre-testing data and checklist, as appropriate.
4. Sufficient notification time to the Engineer prior to system testing.
5. Submittal and approval of the preliminary and final as-built drawings.
6. Submittal and approval of the preliminary and final O&M Manuals.
7. Submittal and approval of testing procedures.
8. All other systems that are required to be tested and accepted prior to the specific system being tested.
9. System testing by the Engineer.
10. Other outside agencies, utilities, etc., that are required to test, witness and accept the system.

11. Submittal and approval of the orientation syllabus, orientation manual, and orientation video.
12. Performance of orientation.

M. Prior to Substantial Completion, the Contractor must submit a Punchlist Completion Schedule that shows the schedule of the punch-list items. All Work shown on this schedule must be performed as specified within Article 14.2.2 "Approval of Final Approved Punch List". The Engineer, in a written notification to the Contractor, must approve the Contractor anticipated completion dates. If the Engineer and the Contractor are unable to agree on the anticipated completion dates, the Engineer must establish dates for the completion of each item of work.

N. In the event that Contractor requires multiple submissions in order prepare a submittal that is acceptable to the Engineer and that can be approved, then the Contractor must adjust its CPM schedule to include adequate time for such multiple submittals at each stage of the approval process. Any additional time resulting from the Contractor's multiple submissions before an item can be approved by the Engineer must be mitigated by the Contractor.

3.3 BASELINE CPM SCHEDULE NARRATIVE

A. As a component of the Baseline CPM Schedule, submit a narrative to describe the procedures, general approach and the means and methods it will use to complete the Work under the conditions described and in accordance with Article 9 of the Standard Construction Contract.

B. Submit the narrative described herein along with the Baseline CPM Schedule. Any review, acceptance or approval of a Baseline narrative or Schedule submission cannot revise or amend any Contract provision and does not represent the Engineer's agreement to any conclusion, interpretation, indication, method or description contained therein.

C. A narrative report that must be signed by the Contractor's project manager and must describe and demonstrate that the Contractor's proposed means and methods meet the specified Contract requirements. The narrative must include but not limited to:

1. Description of the scope of Work and goals.
2. A discussion of the CPM Schedule development.
3. A listing of all intermediate contractual milestones with their respective float and schedule analysis.
4. Identification of the critical path(s).
5. Identification of the long lead items and their impact on the critical path(s).
6. Identification and description of the calendar(s) used in developing the Baseline CPM Schedule.
7. Identification of planned manpower and projections of Contractor's workforce and subcontractor's workforces; the manpower projections must also be submitted in a histogram and cumulative graph format.
8. Identification of planned equipment requirements.
9. Description of planned mobilization, including provisions for the Engineer's office and facilities.

3.4 SCHEDULE REVIEWS

A. Reviews of Contractor's Schedule submissions will be in accordance with Article 9 of the Standard Construction Contract and this Article, unless noted otherwise.

B. Preliminary CPM Schedule Review: Within 15 Days following receipt of the Preliminary CPM Schedule, the Engineer will review the Preliminary CPM Schedule and return it to the Contractor either with comments or conditionally accepted. During this time, the Contractor must participate

in the review and evaluation of the Preliminary CPM Schedule with the Engineer. Within 5 working days after comments are received, the Contractor must address the Engineer's comments and resubmit a corrected Preliminary CPM Package. The Contractor must repeat this process as many times as required at no additional cost to the City until the Engineer conditionally accepts the Preliminary CPM Schedule.

C. Baseline CPM Schedule Review: Within 20 working days from receipt of the Baseline CPM Schedule, the Engineer will review the Detailed CPM and return it to the Contractor either with comments or accepted. During this time, the Contractor must participate in the review and evaluation of the Detailed CPM Schedule by the Engineer. Within 5 working days after comments are received, the Contractor must address the Engineer's comments and resubmit for acceptance a corrected Detailed CPM package. The Contractor must repeat this process as many times as required until the Engineer accepts the Detailed CPM Schedule at no additional cost to the City.

D. Update Reviews: The Engineer will review and respond to the update scheduling submittals within 5 working days after submittal, unless a different review period is expressly identified elsewhere in the Specifications or other Contract Documents. After review, if changes or additional information are required, the Contractor must submit a revised CPM Schedule update within 3 working days after receiving the comments. Review, revision, and resubmission must continue until the Engineer's acceptance is achieved at no cost to the City as defined in Article 2 of the Standard Construction Contract.

E. Reviews and Re-submittals: The Contractor must repeat this process as many times as required at no additional cost to the City until the Engineer accepts the Preliminary Schedule, Baseline CPM Schedule, and the monthly CPM Schedule updates. Acceptance of the Preliminary Schedule is a prerequisite for the acceptance of the Baseline Schedule.

3.5 UPDATING THE PROJECT SCHEDULE

A. Updating: The Contract Schedule must be updated monthly, with Data Date as of the last day of the current month. The Engineer reserves the right to change the monthly cut-off dates in the future for its sole convenience. The Monthly Schedule Review/Update Meeting must be the prerequisite and the start of the monthly update cycle.

1. The CPM Schedule must be updated monthly, whether or not the Engineer has accepted the prior updated Schedule, to reflect actual progress. The update must include the historical record of actual start and finish dates for activities completed. For in-progress activities, the update must include percent complete based on a unit of measure and remaining duration based on the amount of work-days required to complete the activity. Enter for each applicable activity actual installed quantities.
2. Default (automatic) updating of the schedule is prohibited. Actual Start and Finish dates must not be automatically updated by default mechanisms that may be included in the CPM scheduling software systems. This Contract's primary source of actual starts and finishes and percentages complete are the quantity verification sheets (QVS), which must include the Start and Finish Dates, signed by both parties and included in each of the Contractor's payment requests.
3. The updated Current Project Schedule must be used for subsequent planning, scheduling, managing and updating the execution of Work to be accomplished. If an update evidences delay to the Baseline Schedule, one of the goals of the planning process must be mitigation of that delay, in accordance with and subject to the provisions of Articles 9 and 10 of the Standard Construction Contract.

B. Two (2) working days prior to the monthly schedule review/update meeting, the Contractor will

provide to the Engineer two (2) sets of the two weeks-look-ahead schedule or "Activity List" which will identify, at a minimum, the following information for all activities that have started, are in progress, or have been completed during the reporting period.

1. Assessment of each in-progress activity's remaining duration in P6.
2. The actual start and finish dates whenever appropriate in P6.
3. Actual quantities installed and the physical percent complete for all design and construction activities in P6.

C. Monthly Schedule Review/Update Meetings: A monthly schedule review/update meeting must be held within the last five (5) working days of the reporting month. This meeting must be attended by the Engineer, the Engineer's scheduler, the Contractor's project manager and the Contractor's Project Scheduler, and key subcontractors' representatives. The purpose of this meeting must be to obtain joint agreement on Work progress shown on the Activity List as well as to discuss schedule-related problem areas, proposed logic changes, revisions to previously established productivity rates and other schedule issues. At this meeting, all progress during the calendar month must be addressed and reviewed for incorporation into the CPM Schedule by the Contractor. These meetings must precede the formal submittal of the monthly updated CPM Schedule.

D. Subsequent to the monthly schedule review/update meeting, and pursuant to any agreements made regarding progress and the agreed-upon changes, the Contractor must update the CPM Schedule and provide all required reports showing current progress of the Work as well as a plan and schedule of the completion of the remaining Work. The CPM Schedule must be updated as of the last day of each calendar month and must be submitted no later than the fifth (5th) working days of the month following the report period, until Substantial Completion of the Project. The update must comply with the criteria and format set forth in this Specification. This progress information must be included in the computerized CPM Schedules.

E. The monthly update procedure must include a review of the submittal and delivery activities to ensure that the scope and logic of the activities are consistent with Contractor's current plan.

F. On every progress update, the Contractor must report the physical percent complete as of the status date, for all activities in progress. The physical percent complete for each activity must be established in the following manner: For activities that are quantifiable, the physical progress equals the quantity installed or erected divided by the total quantity allocated to the particular activity (including overruns and underruns). For those activities that cannot be quantified, physical percent complete must be estimated and backup calculations provided.

3.6 MONTHLY PROGRESS REPORTS

A. The Contractor must prepare definitions and designs for reports and/or layouts in Primavera Project Management, P6 V15 or newer in accordance with the requirements detailed herein. The Monthly Progress Report Package submitted to the Engineer must consist of three (3) collated copies of the following:

1. Activity Tabular Reports.
2. Resource Tabular Reports.
3. Resource/Cost Graphic Reports.
4. Bar Charts.
5. Narrative Progress Report clearly identifying progress status and restrictions encountered during the reporting period.

B. Activity Tabular Reports must be provided in the following sort orders:

1. Total float, then early start.
2. Grouped by responsibility, then by early start.
3. Grouped by major Work areas, then by early start.

The minimum activity information required in each of the above reports must include the following:

1. Activity ID.
2. Activity description.
3. Location code identification.
4. Work responsibility code identification.
5. Original activity duration (OD) and remaining duration (RD) in working days.
6. Early and late start and finish dates.
7. Total float.
8. Percent complete.
9. Calendar ID.

C. Updated Bar Chart: Include updated bar charts for:

1. Remaining activities.
2. Critical path(s) activities.
3. Six-week look ahead.
4. Summary bar charts.

The minimum activity information required in each of the above bar charts must include the following:

1. Activity Bar Content: The activity display must include the activities' description, activity ID, OD, RD, Calendar ID, percent complete, total float, early start and finish dates and Responsibility for each activity bar.
2. Grouping: The activities must be grouped as approved by the Engineer.
3. Critical Path Display: The critical path must be identified on the plot in such a manner that it will be clearly distinguishable from other activities.
4. Progress Display: Completion of activities must be indicated on the plot.
5. The summarized CPM Schedule must reflect the current schedule status of the project and be compared to the Baseline Schedule. The format and level of detail will be in accordance with the Contract's major areas of Work to be agreed upon with the Engineer.

D. Narrative Progress Report: The Narrative Progress Report submitted as part of the monthly update analysis must include, but not be limited to:

1. Description of the CPM Schedule status.
2. Discussion of current and anticipated delays including reason for the delay, the recovery scenario(s) and their estimated impact, including off-site activities such as submittal preparation, fabrication, and deliveries.
3. If the Work is behind schedule, include discussion of schedule slippage and/or progress along the critical path in terms of Days ahead or behind the allowable dates and discussion of progress along other paths with negative float to mitigate delays. This must also include a proposed recovery plan and action to be taken.
4. Logic changes and an explanation of the revisions. Revisions to activities not worked on during the period, including changes in duration; revisions to activity relationships; and

revisions to constraints on activities; are all to be considered logic revisions. Similarly, this must include description and explanation of reason(s) for any changes to calendars being used in Schedule as well as any changes to calendar assignments of activities.

5. Updated schedule modifications reports: A comparison report showing all changes made to the schedule since the last update as approved by the Engineer. This report must include the reasons for these changes.
6. Identification and justification of all activities performed out of sequence.
7. A summary of planned equipment utilization for the Project, identifying each type of operated equipment to be used on the Contract, the planned quantity of each type of operated equipment utilized each month, and all changes to the criteria for mobilizing and demobilizing each piece of equipment to and from the site.
8. A summary of planned labor utilization for the Contract, identifying the average and maximum number of workers on site each month. Identify actual and potential labor resource limitations. A summary of the actual labor utilization used over the past month.
9. List of identified additional out of scope items and their potential schedule impact, if any.
10. Identification of outstanding RFI's including discussion of their cost and/or schedule impact.

3.7 SCHEDULE DELAY CLAIM:

A. In addition to the requirements outline in with Article 11 "Notice of Conditions Causing delay and Documentation of damages Caused Delay" of the Standard Construction Contract and in instances where the Contractor is submitting a schedule delay claim, the claim request must include a schedule subnet, tabular reports and an explanation that clearly demonstrates the impact of the claim on the project's schedule. The schedule to be utilized as the basis for the claim must be the "Current Updated Schedule" which reflects the present status of the Project. The Contractor must provide to the Engineer, as a minimum, the following information:

1. Schedule subnets (logic diagrams) and tabular reports (prior to and after the Extra Work insertion) that clearly demonstrate the schedule impact on the entire Current Updated Schedule.
2. Schedule impact on engineering/design related activities and/or on activity man-hours.
3. Schedule impact on material and/or equipment procurement, fabrication and delivery schedules.
4. Schedule impact on material storage, temporary services (water, air, power, etc.), supervision, construction equipment, productivity, and manpower.
5. Narrative that clearly identifies, describes, and substantiates the schedule impact on both the affected and subsequent (unchanged Work) activities.
6. Corrective action that can be taken in order to avoid/minimize the schedule impact.
7. Computerized storage media containing all required schedules, cost, resource, and Narrative information.
8. Any other tabular/graphical reports required by the Engineer.

3.8 REVISION TO THE PROJECT SCHEDULE

A. In the event that the Engineer determines that there will be or has been a delay which might affect the critical path, the Engineer will instruct the Contractor to analyze the circumstances as to whether the critical path is or will be affected thereby and submit a proposed recovery plan to the Engineer.

B. In the event that it is necessary to revise the CPM's Schedule and/or phasing plan, a revised CPM Schedule and/or phasing plan must be submitted for acceptance at no additional cost to the City. Reasons for revision may include, but are not limited to, incorporation of approved

Extra Work (change orders), modification of activity man-hours, if the Engineer determines that Work is not progressing to meet the accepted CPM Schedule, when a delay is affecting the critical path(s), if the phasing plan has been changed, or if the Work is not performed as shown in the accepted CPM Schedule.

C. In all situations in which the CPM cost or CPM Schedule is revised, the Contractor must submit a narrative explaining the reasons for the changes. In addition, the Contractor must submit a listing of all proposed changes in network logic including, but not limited to changes in activity duration and logic, changes in activity man-hours and quantities, changes in activity sequence and any changes in completion dates. Revisions to the schedule document must only be made after authorization by the Engineer.

D. Upon the Engineer's direction, the proposed resource and/or schedule changes are to be added into the CPM Schedule and must be submitted to the Engineer for review and acceptance within five (5) working days.

E. After Extra Work (change orders) has been approved, the approved logic and its associated information such as activity man-hours, quantities, etc., must be incorporated into the Project Schedule. The sum of the cost and quantity of all the individual activities contained in the Extra Work must be equal to the total cost and quantity of the approved Extra Work. All activities associated with Extra Work must be coded with their specific Extra Work Number.

3.9 PROCEDURES FOR CPM UPDATES AND SCHEDULE CHANGES

A. All Monthly Progress CPM updates must be submitted using the last accepted CPM Schedule. No revisions must be made to the schedule unless they have been expressly authorized in writing by the Engineer as provided herein. Revisions that are not permitted without authorization include but are not limited to revisions in: activity duration; logic; activity man-hours, quantities, activity identification, and historical data from prior updates. Only actual dates and progress agreed upon at the progress meeting and/or progress walk through must be used in the update.

B. Any update that does not comply with these requirements will be rejected by the Engineer; and, in accordance with Paragraphs 3.1.B and 3.5.A.2, above, payment will not be processed until an update consistent with these requirements is received. The Contractor must not delay submission of an update pending authorization of review.

C. If the Contractor intends to propose revisions to the CPM Schedule, the Contractor must submit, separate from any monthly update, a list of the proposed revisions, a fragnet showing the proposed revisions in a form which clearly identifies where the fragnet is to be inserted in the schedule, and a narrative explaining the reason for these revisions. No revision to the CPM Schedule, including any update, must be made until the proposed revision is reviewed by the Engineer and written authorization from the Engineer is provided for that revision. The authorization of any revision to a previously accepted schedule is within the sole discretion of the Engineer.

The authorized revision must not be incorporated into the CPM Schedule Document until the CPM Schedule update following the date of authorization of that revision. Once incorporated, that revision must become part of the accepted schedule.

B2. SUBMITTAL PROCEDURES

The requirements of this article supplement the submittal requirements in the NYCDOT Standard Highway Specifications and the NYCDEP Standard Sewer and Water Specifications. If a conflict exists, the requirements of this article govern.

1.0 GENERAL

This article includes administrative and procedural requirements for submitting Shop Drawings, Catalogue Cuts, Material Samples, As-built or Record Drawings, and other submittals required by the Contract Documents.

Review of submittals does not relieve the Contractor of responsibility for any Contractor's errors or omissions in such submittals, nor from responsibility for complying with the requirements of the Contract.

2.0 DEFINITIONS

Program Management Information System (PMIS) – NYCDDC's System of Record for the Costal Resiliency Program.

Design Consultant - the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

Submittals - written and graphic information that requires responsive actions and includes without limitation all shop drawings, product data, letters of certification, tests and other information required for quality control and as required by the Contract Documents.

Shop Drawings – includes drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data, except for coordination drawings, specifically prepared for the project by the Contractor or any subcontractor, manufacturer, supplier or distributor, which illustrates how specific portions of the work must be fabricated and/or installed.

Product Data and Quality Assurance Submittals - includes manufacturer's standard catalogs, pamphlets and other printed materials including without limitation the following:

1. Catalogue and Product specifications
2. Installation instructions
3. Color charts
4. Catalog cuts
5. Rough-in diagrams and templates
6. Wiring diagrams
7. Performance curves
8. Operational range diagrams
9. Mill reports
10. Design data and calculations
11. Certification of compliance or conformance
12. Manufacturer's instructions and field reports

3.0 SUBMITTAL PROCEDURES

3.01 Document Control

The Contractor must submit for approval by the Department's engineering personnel and/or Supervising Consultant (herein after called "the Engineer") a Document Management Plan within 30 days of Notice

of Award. The Document Management Plan must define the Contractor's Electronic Document Management System (EDMS) including security protocols. The Document Management Plan must include the following:

1. Requirements for records storage and retention.
2. Procedures for the electronic data backup of all Project-related documents, on a minimum weekly basis, in a secure off-Site area in order to allow for recovery of unexpectedly lost data.
3. Procedures for data transmission, storage and sharing protocols.
4. Procedures for the maintenance, retention, retrieval, and disposal of records.
5. An auditable and tracking system of all Project correspondence and documents
6. Methods by which all documents issued and received by the Contractor will be uniquely coded and retrievable in a user-friendly format.
7. File control, and search and retrieval methods for all documents.
8. Methods to facilitate sharing of data, including procedures for accessing all documents.
9. Methods for controlling document updates.
10. Methods for identification of the originator/recipient for all documents.
11. Document approval tracking.
12. Methods for enabling a searchable database.
13. Methods to establish links among various documents.
14. Protocols for hard-copy and electronic filing.
15. Procedures for recording and tracking review comments and participation by the Engineer and the Contractors' internal review processes as well as any reviews by third-parties or stakeholders.

3.02 Project Management Information System

The Contractor must use the Project Management Information System (PMIS), provided by NYC DDC, throughout the Term of the Agreement for document management and transmittal, including workflows, file storage, communication, and correspondence. This must be in addition to the Contractor's obligation to provide the EDMS as referenced in Sub-Article 3.0.1. All submittals must be uploaded to the PMIS and adhere to the hard copy submittal requirements set forth in the General Conditions. Submittals will be deemed incomplete until the soft copy is uploaded to the Project Management Information System and the hard copies have been received by the NYC DDC. The PMIS will be accessible only through security rights and administration at the discretion of NYC DDC. NYC DDC reserves the right to make periodic changes and enhancements to this requirement with which the contractor must immediately comply.

The PMIS will not relieve the Contractor of its responsibility to independently provide redundancy and security of all Project records. Immediately upon provision by the NYC DDC of access to the PMIS and when instructed to do so by the NYC DDC, the Contractor must utilize the PMIS as the primary interface for all official communications, transmissions and records in connection with the Project between the Contractor and NYC DDC.

Additional PMIS requirements/guidelines for the Contractor:

1. The PMIS must be used to track and manage the Project and as an official record of all Project communication.
1. Designate a PMIS coordinator (an internal point of contact) and provide their name, phone, and e-mail to NYC DDC no later than seven days after NTP
2. Provide high-speed internet connectivity to access the PMIS.
3. Upload, submit, track, and review submittals and all Project related information via the PMIS. Where physical samples are required, review and track the submittal via the system, transmit the sample itself to the reviewer via traditional means and submit a scanned color copy or picture via the PMIS.
4. Enter all PMIS metadata as directed by NYC DDC
5. Use the file naming convention provided in Sub-Article 4.0 for all files uploaded to the PMIS

Refer to other General Requirements and technical specification sections for the specific submittal requirements stated in that section.

3.0.3 Submittal Coordination

The Contractor must coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activities.

3.0.4 Submittal Schedule

The Contractor must submit for approval by the Engineer, a Submittal Schedule within fifteen (15) days of Notice of Award. The Submittal Schedule must include and describe all project submittals. The Submittal Schedule must indicate the applicable specification section requirement, identify dates for submittal sequence, preparation and submission based on the approved project schedule and must be organized in a logical manner. The Submittals Schedule must take into consideration reasonable review times and any lead times required by fabricators or manufacturers.

In the interest of a progressive and orderly flow of work from the Contractor to the Engineer that avoids submission of an excessive number of submittals in the same period, the Submittal Schedule must not include more than two (2) submittal reviews per calendar week, unless the Engineer agrees in writing to a larger number on a case-by-case basis.

The Contractor must incorporate the following work flow and timeframes for submittal review in the Submittal Schedule:

1. Submittals received after 3PM will be deemed submitted the following working day.
2. Submittals received after 12PM on Friday will be deemed submitted on the following Monday.
3. Submittals will be deemed administratively incomplete until both the soft copy is uploaded to the PMIS and the hard copies have been received by NYC DDC

Review priorities and extension of review times must be coordinated with the times established in the approved Submittal Schedule.

3.0.5 Submittal Identification

The Contractor must place a permanent label or title block on each submittal for identification. Each submittal must include:

1. Name of firm or entity that prepared each submittal on the first page of the label or title block.
2. The following minimum information on label for processing and recording action taken:
   a. Project name, NYC DDC Project Number and Contract Number
   b. Revision date
   c. Name and address of Design Consultant
   d. Name and address of Contractor
   e. Name and address of subcontractor
   f. Name and address of supplier or manufacturer
3. Submittal number or other unique identifier, including revision identifier:
   a. Number and title of relevant Specification Section
   b. Drawing number and detail references, as appropriate
   c. Location(s) where product is to be installed, as appropriate
   d. Other necessary identification
4. A revision grid which lists all revisions of the submittal
   a. Date Submitted
   b. High-level description of change
   c. Revision number in XX format starting at 00

3.0.6 Transmittal

The Contractor must package each submittal individually and appropriately for transmittal and handling. The Contractor must transmit each submittal using a transmittal form. Transmittals received from sources other than the Contractor will be returned without review. Re-submission of the same drawings or product data must bear the original number of the prior submission, the original titles and next sequential revision number.

3.0.6.1 Transmittal Form

The Contractor must indicate the following information on the Transmittal Form:

1. Project name, NYC DDC Project number and Contract Number.
2. Date
3. Destination (To:).
4. Source (From:).
5. Unique identifier
6. Names of Contractor, subcontractor, manufacturer, and supplier.
7. Category and type of submittal.
8. Submittal purpose and description.
9. Specification Section number, unique identifier and revision number
10. Drawing number and detail references, as appropriate.
11. Transmittal number numbered consecutively.
12. Submittal and transmittal distribution record.
13. Remarks.
14. Signature of transmitter.

4.0 SUBMITTAL FORMAT

4.0.1 Shop Drawings, Product Data, and Quality Assurance Submittals

The Shop Drawings, unless otherwise directed, must be on sheets of the same size as the Contract Drawings, drawn accurately and of sufficient scale to be legible, with a one half (1/2) inch marginal space on each side and a two (2) inch marginal space for binding on the left side.

Shop Drawings and Product Data and Quality Assurance Submittals must be submitted to the PMIS as raster files in Adobe Acrobat ".pdf" format with a minimum resolution of 200 dpi. Each submittal must be readable and printable on the Department's systems with the following scanning parameters: 400 dpi resolution, autodeskewing and despeckling. Each submittal must contain a list of the submittals and the electronic format of their files. Native file versions of submittals may be requested at the discretion of NYC DDC

Responsibility of the Contractor: The approval of Shop Drawings will be general and must not relieve the Contractor of responsibility for the accuracy of such Shop Drawings, nor for the proper fitting and construction of the work, nor of the furnishing of materials or work required by the Contract and not indicated on the Shop Drawings. Approval of Shop Drawings must not be construed as approving departures from the Contract Drawings, Supplementary Drawings or Specifications.

Electronic copies of submittals uploaded to the PMIS must utilize the following standard file naming convention

Year		Four (4) digit year, i.e.: 2019
Month		Two (2) digit month, i.e.: June = 06
Day		Two (2) digit day, i.e. 28

DDC		NYC DDC
Project		Applicable project ESCR, BMCR, BPCR, RHCR
Sandy Ref.		SR = Superstorm Sandy Resilience
Specification		Applicable Specification section, i.e.: 03300
Submittal No.:		Sequential number within the specification section, i.e..: 0001
Rev		The 2-digit revision or version number i.e.: 03
Descr		Document title (short description, think Google key words, include sender/recipient acronyms if appropriate)

i.e.: 2019-06-28_DDC_ESCR_SR_03300-0001-03_Product_data_name

File naming guidelines:

Dates (Final Documents)

Dates should always be presented 'back to front', that is with the year first (always given as a four-digit number), followed by the month (always given as a two-digit number), and the day (always given as a two-digit number) such as "20190801" or 2019-08-01" for August 1st, 2019. Dates in file names are used to identify issued records and to differentiate between multiple "final" issuances of the same document.

Keep File Names Short but Meaningful

Some words add length to a file name but do not contribute towards the meaning, for example words like "the", "a", "to" and "and". Use industry-standard nomenclature or an abbreviation of same wherever possible.

No Spaces in File Names

Use an underscore "_" or a dash "- ", and words for ease in sorting. Use of caps to distinguish words for ease of reading is encouraged (e.g. DocumentManagementPlan or Document_Management_Plan). Spaces between words increase the software system naming characters and should be avoided.

Numbers in File Names

When file names include numbers, it is important to include the zero for numbers 0-9 to maintain the numeric order. This helps to retrieve the latest record number. i.e. 01, 02 ... 99, unless it is a year or another number with more than two digits.

Special Characters

The use of special characters can cause problems with uploading, viewing and downloading documents over the internet. Special characters, such as: (~ " # % & * : < > ? / \ { | } @ $ ^ , ?) should not be used in filenames. Even if one's operating system allows filenames with those characters there can be issues when trying to transport files to another system.

Correspondence Files

It is recommended that the file names of correspondence include the name of the correspondent, an indication of the subject, and the date of the correspondence, e.g.: 2019-11-07_DDC_ESCR_SRM1_HNTB-DDC_Sample_Report_R02

4.0.2 Requests for Information (RFIs)

RFIs and other queries of the Design Consultant must be submitted to the PMIS using the forms specifically prepared for this purpose by the Design Consultant.

4.0.3 As-Builts

CADD record drawing (as-built) files submitted by the Contractor must be vectorized, computer-generated drawing files in the latest version of native MicroStation ".dgn" format. Each submittal must include the resource files such as Cell Libraries, Font Libraries, DGNLIB and reference files used to generate the

CADD drawing files. Record drawings must also be submitted in PDF or other raster format. Each submittal must be provided on CD-ROM or DVD+R and transmitted on the Project Management Information System. Each submittal must have a complete drawing list (drawing number and CADD file name for each drawing).

5.0 SUBMISSION OF SHOP DRAWINGS

Initial Submission: The Contractor must upload the submittal to the PMIS and provide hard copies as indicated in General Conditions for the Design Consultant's review and acceptance. The Engineer will transmit Shop Drawings to appropriate Design Consultants for review and acceptance, including Commissioning Authority/Agent as applicable. A satisfactory Shop Drawing will be stamped "No Exceptions Taken", be dated and returned to the Contractor.

Should the Shop Drawing(s) be marked "Make Corrections Noted" by the Design Consultant, the Engineer will return the Shop Drawings to the Contractor to make the necessary corrections and changes as indicated thereon.

Should the Shop Drawing(s) be "Rejected" or noted "Revise and Resubmit" by the Design Consultant, the Design Consultant will return the Shop Drawings to the Contractor with the necessary corrections and changes to be made as indicated thereon.

The Contractor must make such corrections and again submit the shop drawing to the Design Consultant. The Contractor must revise and resubmit the Shop Drawing as required by the until the Shop Drawings are stamped "No Exceptions Taken" or "Make Corrections Noted".

Commencement of Work: No work or fabrication called for by the Shop Drawings must be performed until acceptance of the said drawings by the Design Consultant. In addition to the foregoing Shop Drawing transmissions, a copy of any Shop Drawing prepared by any of the Contractor's subcontractors which Shop Drawing indicated work related to, adjacent to, impinging upon, or affecting work to be done by other subcontractors must be transmitted to the subcontractors so affected.

Variations: If the Shop Drawings show variations from the Contract requirements because of standard shop practice or other reasons, the Contractor must make specific mention of such variations in its letter

of submittal. Acceptance of the Shop Drawings will constitute acceptance of the subject matter thereof only.

6.0 SUBMISSION OF PRODUCT DATA

Except as otherwise prescribed herein, the submission, review and acceptance of Product Data and Catalogue cuts must conform to the procedures specified above.

Submissions of Product Data must include the following information, as applicable:

1. Manufacturer's written recommendations.
2. Manufacturer's product specifications.
3. Manufacturer's installation instructions.
4. Standard color charts.
5. Manufacturer's catalog cuts.
6. Wiring diagrams showing factory-installed wiring.
7. Printed performance curves.
8. Operational range diagrams.
9. Mill reports.
10. Standard product operation and maintenance manuals.
11. Compliance with specified referenced standards.
12. Testing by recognized testing agency.
13. Application of testing agency labels and seals.
14. Notification of coordination requirements.

The Contractor must submit Product Data before or concurrent with Samples of Materials.

7.0 SUBMISSION OF SAMPLES OF MATERIALS

Samples must be submitted in triplicate, of sufficient size to show the quality, type, range of color, finish and texture of the material.

Each of the samples must be labeled as follows:

1. Name of the Project, NYC DDC Project Number and Contract Number.
2. Name and quality of the material.
3. Date.

8.0 SUBMISSION OF PHOTOS

All electronic photographs must be uniquely identified, include the project abbreviation, identify the location depicted in the photo, date photo was taken and submitted in Joint Photographic Experts Group (JPEG) (.jpg) file format, sized at a minimum resolution of 1024 by 768 pixels. Save grayscale or color photo images that are scanned in JPEG (.jpg) file format with medium to low quality compression at a resolution of 200 dpi.

B3. SPECIAL CONDITIONS FOR MARITIME, WATERFRONT, AND FLOATING PLANTS

1.0 FLOATING PLANTS – GENERAL

1.0.1 Definition

Floating plant/vessel: used to transport personnel, work boats, floating cranes and derricks, barges, patrol boats, etc.

1.0.2 References

1. United States Army Corps of Engineers EM-385
2. OSHA 29 CFR

2.0 REQUIREMENTS

2.0.1 Floating Plant Inspection and Certification

All floating plants (i.e. regulated by the United States Coast Guard (USGC)) shall have required USCG documentation that is current before being placed in service. A copy shall be posted in a public area on board the vessel. A copy of any USCG Form 835 issued to the vessel in the preceding year shall be available to the Engineer and a copy shall be on board the vessel.

All dredges and quarter boats not subject to USCG inspection and certification or not having a current ABS classification shall be inspected in the working mode annually by a marine surveyor accredited by the National Association of Marine Surveyors (NAMS) or the Society of Accredited Marine Surveyors (SAMS) and having at least 5 years of experience in commercial marine plant and equipment.

All other plants shall be inspected before being placed in use and at least annually by the Agency required, including but not limited to the USCG for a Certificate of Inspection (COI), a marine surveyor (in the case of barges and/or vessels, certified crane inspector), professional engineer or the competent person as designated by the Contractor in writing.

The inspection shall be documented, a copy of the most recent inspection report shall be posted in a public area on board the vessel, and a copy shall be furnished to the GDA upon request. A copy shall also be provided to the Engineer.

The inspection shall be appropriate for the intended use of the plant and shall, as a minimum, evaluate structural condition, compliance with safety requirements and compliance with NFPA 302.

Periodic inspections as defined in writing by the Contractor and tests shall assure that a safe operating condition is maintained.

Floating plants found in an unsafe condition shall be taken out of service and its use prohibited until unsafe conditions have been corrected.

2.0.2 Personnel Qualifications

Vessel Captains shall be in possession of a current, valid USCG license, which shall be posted in a public area on board the vessel, including any required and correctly endorsed documents as required by the USCG.

Crane Operators shall be licensed or certified in accordance with the requirements outlined by the NYC Department of Buildings, Cranes and Derricks

Operators of the floating plant shall be licensed and/or documented by the USCG when the plant is subject to one or more of the following criteria:

1. The vessel is inspected and certified by USCG in accordance with EP 1130-2-500, Appendix L;
2. The vessel is normally engaged in or near a channel or fairway in operations that restrict or affect navigation of other vessels and is required by law to be equipped with radio-telephones of the 156-162 band frequency; or
3. Floating plant is engaged in the transfer of oil or hazardous material in bulk.
4. A USCG Radar Observers endorsement on licenses is required for Operators of Uninspected Towing Vessels and Masters and Pilots on radar-equipped vessels 26 ft (7.9 m) or more in length. Endorsements must be issued from a USCG-approved training facility.

2.0.3 Record Keeping

All records for drills, inspections, maintenance and other legal requirements shall be maintained on site by the Contractor with copies provided on a weekly basis to the Engineer.

All records shall be reviewed and signed by the competent person, as designated in the Contractor's health and safety plan, and by the Contractor's Healt hand Safety Manager.

All legal inspections required by the USCG and other Agencies shall be conspicuously displayed on the floating equipment.

2.0.4 Severe Weather Precautions

Since floating plant, boats or other marine activities may be endangered by severe weather (including sudden and locally severe weather, storms, high winds, hurricanes, and floods), plans shall be made for removing or securing plant and evacuation of personnel in emergencies. > See Section 01.E. This plan shall be part of the Contractor's Health and safety plan and shall include at least the following:

1. A description of the types of severe weather hazards the plant may potentially be exposed to and the steps that will be taken to guard against the hazards;
2. The time frame for implementing the plan (using as a reference the number of hours remaining for the storm to reach the work site if it continues at the predicted speed and direction), including the estimated time to move the plant to safe harbor after movement is started;
3. The name and location of the safe location(s);
    a. The name of the vessel(s), type, capacity, speed, and availability that will be used to move any non-self-propelled plant;
    b. River/tide gage readings at which floating plant must be moved away from dams, river structures, etc., to safe areas;
    c. Method for securing equipment if not moved.
    d. Extended movement of floating plant and tows shall be preceded by an evaluation of weather reports and conditions by a responsible person to ascertain that safe movement of the plant and tow can be accomplished.
    e. Work or task orders shall be preceded by an evaluation of weather reports and conditions by the Contractor's Director of Safety on site to ascertain that safe working conditions exist and safe refuge of personnel is assured.
    f. USCG approved personal flotation devices (PFDs) - Types I, II, III, or V - shall be worn by all personnel on decks exposed to severe weather, regardless of other safety devices used. USCG-approved Type V automatic inflatable PFDs rated for commercial use may be worn by workers on USACE sites per Section 05.J.02.
    g. A sufficient number of vessels of adequate size and horsepower, each designed, outfitted, and equipped for towing service, shall be available at all times to move both

self- and non-self-propelled plant against tides, current, and winds during severe weather conditions.

h. Contractors working in an exposed marine location shall monitor the National Oceanic and Atmospheric Administration (NOAA) marine weather broadcasts and use other commercial weather forecasting services as may be available.
i. The floating plant shall be capable of withstanding whatever sea conditions may be experienced in the work area during the time period the work is being performed (i.e., seaworthiness, or good "sea keeping" qualities).

2.0.5 Emergency Planning

1. On any inspected vessel, all emergency planning is to be provided in accordance with USCG requirements.
2. Plans shall be prepared for response to marine emergencies such as fire, sinking, flooding, severe weather, man overboard, hazardous material incidents, etc.
3. A station bill, setting forth the special duties and the duty station of each crewmember for various emergencies, shall be prepared and posted in conspicuous locations throughout the vessel.
4. Each crewmember shall be given a written description of, and shall become familiar with, their emergency duties and shall become familiar with the vessel's emergency signals.
5. "Abandon ship/boat" and "person overboard" procedures shall include instructions for mustering personnel.
6. On all floating plant that have a regular crew or on which people are quartered, the following drills shall be held at least monthly during each shift (unless the vessel is required, under USCG regulations, to be drilled more frequently): abandon ship/boat drills, fire drills, and person overboard or rescue drills.
    a. The first set of drills shall be conducted within 24 hours of the vessel's occupancy or commencement of work.
    b. Where crews are employed or quartered at night, every fourth set of drills shall be at night; the first set of night drills shall be conducted within the first 2 weeks of the vessel's occupancy.
    c. Drills shall include, where appropriate, how to handle a pump shell or pipe rupture or failure within the hull (proper shutdown procedures, system containment, etc.) and how to handle leaks or failures of the hull or portions of it (what compartments to secure, how to handle power losses, pulling spuds to move to shallow water, etc.).
    d. Person overboard or rescue drills shall be held at least monthly at boat yards, locks, dams, and other locations where marine rescue equipment is required.
    e. Emergency lighting and power systems shall be operated and inspected at least monthly to ensure proper operation.
    f. Storage batteries for emergency lighting and power systems shall be tested at least once every 2 months.

2.0.6 Equipment Requirements

1. All equipment shall be maintained in accordance with manufacturers recommendations and requirements, as well as the requirements of any Agency providing certifications and inspections (such as the USCG COI or Crane Inspections) for equipment, the floating plant and/or vessels.
2. Fenders shall be provided to prevent damage and sparking and to provide safe areas for workers exposed to pinching situations caused by floating equipment.
3. Axes or other emergency cutting equipment shall be sharp and provided in accessible positions on all towing vessels for use such as freeing lines. On other floating plant (i.e., work barges, and floating cranes) emergency cutting equipment shall be provided in accessible positions.

4. Signal devices shall be provided on all vessels to give signals required by the navigation rules applicable to the waters on which the vessel is operated.
5. All controls requiring operation in cases of emergency (i.e., boiler stops, safety valves, power switches, fuel valves, alarms, and fire extinguishing systems) shall be located so that they are protected against accidental operation but are readily accessible in an emergency.
6. Electric lights used on or around gasoline and oil barges or other marine locations where a fire or explosion hazard exists shall be explosion-proof or approved as intrinsically safe.
7. General alarm systems shall be installed and maintained on all floating plant where it is possible for either a passenger or crewman to be out of sight or hearing from any other person.
8. Where general alarm systems are used they shall be operated from the primary electrical system with standby batteries on trickle charge that will automatically furnish the required energy during an electrical-system failure.
9. A sufficient number of signaling devices shall be placed on each deck so that they can be distinctly heard/seen above the normal background noise at any point on the deck.
10. All signaling devices shall be so interconnected that actuation can occur from at least one strategic point on each deck.
11. For floating plant with internal combustion engines, marine quality listed CO monitors shall be installed and maintained in all enclosed occupied spaces (crew quarters, pilot houses, etc.).
12. All doors shall be capable of being opened from either side and provided with positive means to secure them in both the open and closed position.
13. Escape hatches and emergency exits shall be marked on both sides with letters, at least 1 in (2.5 cm) high, stating "EMERGENCY EXIT - KEEP CLEAR."
14. Each prime mover (engine, turbine, motor) driving a deck winch shall be capable of being stopped by controls remote from the prime mover locations.
15. Shore power receptacles shall have a grounding conductor to prevent potential difference between the shore and the vessel.
16. All 120-, 208-, and 240-volt shall be grounded and fitted with Ground Fault Circuit Interrupter (GFCI) protection.
17. Cord connected equipment used in any of the above areas shall be connected to an outlet with GFCI protection.
18. Ground-fault protected receptacles shall be conspicuously marked "GFCI PROTECTED".
19. Where appropriate, vessels should have watertight compartments readily identified and properly maintained in a watertight condition (i.e., sealable doors in place and fully functional). Penetrations shall be maintained in a watertight condition.
20. All reciprocating, rotating and moving parts of winch gears and other equipment shall be properly guarded.

2.0.7 Fuel Systems and Fuel Transfers

1. The provisions of the Oil Pollution Act of 1990, as amended, shall apply to floating plant operations as applicable
2. Gauge glasses or try cocks shall not be installed on fuel tanks or lines unless they meet the requirements of 46 CFR 58.50-10.
3. A shutoff valve shall be installed at the fuel tank connection: arrangement shall be made for operating this valve from outside the compartment in which the tank is located and from outside the engine compartment and outside the house bulkheads at or above the weather deck of the vessel.
4. A shutoff valve shall be installed at the engine end of the fuel line unless the length of the supply pipe is 6 ft (1.8 m) or less.
5. All carburetors on gasoline engines shall be equipped with a backfire trap or flame arrestor.
6. All carburetors, except down-draft type, shall be provided with a drip pan, with flame screen, that is continuously emptied by suction from the intake manifold or by a waste tank.

7. Fuel and lubricant containers and tanks shall be diked, curbed or controlled by other means complying with USCG requirements to contain the tank contents in case of leakage in accordance with 46 CFR 98.30-15, and 33 CFR 155.320.
8. Fuel oil transfers for floating plant shall be in accordance with the provisions of USCG regulations, 33 CFR 155, and/or 33 CFR 156. For uninspected vessels, USCG regulations in 33 CFR 156.120 and 33 CFR 155.320 for fuel coupling devices and fuel oil discharge containment apply.
9. All decks, overheads, and bulkheads, serving as fuel oil tank boundaries shall indicate the tank boundary with contrasting paint and be labeled "FUEL OIL TANK - NO HOT WORK".

2.0.8 Safe Practices

1. The Contractor shall incorporate all safe practices into their Health and Safety plan to include training and inspection by the designated competent persons.
2. Obstructing cables/lines that cross waterways between floating plant or between plant and mooring shall be clearly marked.
3. Provisions shall be made to prevent accumulation of fuel and grease on floors and decks and in bilges.
4. Swimming and/or diving shall be prohibited for all personnel, except certified divers in the performance of their duties, unless necessary to prevent injury or loss of life.
5. Wading is permitted only when there are no severe underwater hazards such as sudden drop-offs, heavy surf above 3 ft (1 m), dangerous aquatic life, etc. Personnel wading shall wear an approved PFD and shall be monitored by personnel who are nearby and equipped to conduct a rescue if needed. Wading shall be discontinued when the person's feet cannot easily touch bottom, regardless of depth.
6. A person in the water shall be considered as a person overboard and appropriate action shall be taken.
7. When barriers or blanks are installed in piping systems as a lock-out procedure, positive means (such as protruding handles) shall be used to easily recognize their presence. Barriers shall be marked (including name of installer, name of inspector, and date of installation) and accounted for prior to installation and subsequent to removal.
8. Deck loading will be limited to safe capacity. Loads will be secured and holdbacks or rings will be provided to secure loose equipment during rough weather.
9. Safeguards such as barriers, curbs, or other structures shall be provided to prevent front-end loaders, bulldozers, trucks, backhoes, track hoes, and similar operating equipment on floating equipment from falling into the water. Whenever this equipment is operating on deck, deck surfaces of floating plant shall remain above water and the entire bottom area of a floating plant shall remain submerged.
10. Projection and tripping hazards shall be removed, identified with warning signs, or distinctly marked with safety yellow.
11. Deck cargo carried on fuel barges shall be placed on dunnage.
12. When two or more pieces of floating plant are being used as one unit, they shall be securely fastened together to prevent openings between them or the openings shall be covered or guarded.
13. When three or more floating plant are configured for stationary work, a competent person shall identify any openings between decks of stationary vessels or vessels and other structures that create fully enclosed water areas (duck ponds) into which personnel can fall. If such openings are detected, means shall be taken to protect personnel from the hazard.
14. When physical barriers are not practical, ladders and life rings shall be installed in each enclosed water area to allow personnel to self-rescue. Ladders may be a rigid type or Jacob's ladder, and must be securely anchored to the vessel or structure. Life rings shall have a sufficient length of rope to allow them to float on the water surface and the rope shall be

securely anchored to the vessel. The number and placement of ladders and life rings shall be sufficient so that the maximum swimming distance to them is no more than 25 ft (7.9 m). Ladders and life rings may be retracted during reconfiguration or movement of plant.

15. Anchor points shall be clearly identified and shall be inspected prior to applying a load or putting cables under tension. Anchor points not structurally sound shall be cut out, removed, and/or welded over to preclude usage. Visual checks and "all clear" warnings shall be made prior to tensioning cables.
16. Provisions shall be made to protect persons being transported by water from the elements
17. Plant fleeting areas will be designated in which all idle plant shall be moored. Such areas shall have warning buoys, signs, and lights in prominent locations.
18. The Contractor or, for Government-conducted operations, the GDA, shall provide information to the local USCG Office identifying the marine activity and hazards.
19. Open or pelican hooks may be used for lifting anchor buoys.
20. Mechanical means such as securing pins shall be used to hold spuds safely in place before transiting from one site to another
21. When there is a potential for marine activities to interfere with or damage utilities or other structures, including those underwater, a survey shall be conducted to identify the utilities or structures in the work area, analyze the potential for interference or damage, and recommend steps to be taken to prevent the interference or damage.

2.0.9 Ventilation

1. In all circumstances and configurations, all ventilation requirements on floating plants and vessels must meet all applicable codes and requirements.
2. Motor vessels or boats powered by internal combustion engines having electric spark ignition systems or having auxiliary engines of this type in cabins, compartments, or confined spaces shall be equipped with an exhaust fan(s) for ventilating engine space and bilges.
3. At least two ventilators fitted with fans capable of ventilating each machinery space and fuel tank compartment, including bilges, shall be provided to remove any flammable or explosive gases, except those vessels constructed with the greater portions of the bilges open or exposed to the natural atmosphere at all times. Note: this requirement does not apply to diesel engines.
4. Other compartment spaces within a vessel, not covered in this Section, may be naturally vented.
5. For launches and motorboats having diesel power plants not equipped with fans, ventilating shall be by natural draft through permanently open inlet and outlet ducts extending into the bilges. Inlet and exhaust ducts shall be equipped with cowls or exhaust heads.
6. For launches, motorboats (survey boats), and skiffs having deck-mounted internal combustion engines (such as generators, jigger pumps) and not equipped with fans, exhaust piping shall be located away from personnel spaces to minimize CO infiltration in the work space
7. Vent and ventilator requirements.
    a. Fans shall be rated for Class I hazardous locations and located as remotely from potential explosive areas as practical. > See Section 11.H.
    b. The vent intake shall extend to within 1 ft (0.3 m) of the bottom of the compartment
    c. Means shall be provided for stopping fans in ventilation systems serving machinery components and for closing doorways, ventilators, chases, and annular spaces around tunnels and other openings from outside these spaces in case of fire.
    d. Engines shall not be started until the engine space and bilges have been ventilated to remove fuel vapor.

2.0.10 Navigation

The most current, pertinent information published by the USCG regarding aids to navigation shall be maintained aboard self-propelled vessels 26 ft (7.9 m) or more in length.

2.0.11 Access

2.0.11.1 General

1. Means of access shall be properly secured, guarded, and maintained free of slipping and tripping hazards.
2. Non-slip surfaces shall be provided on working decks, stair treads, ship ladders, platforms, catwalks, and walkways, particularly on the weather side of doorways opening on deck.
3. Double rung or flat tread type Jacob's ladders shall be used only when no safer form of access is practical. When in use, they shall hang without slack and be properly secured.
4. Vertical ladders shall comply with ASTM F1166-95a.
5. Ladders shall not be climbed by more than one person at a time between the same set of rails.

2.0.11.2 Access To/From Vessels

Safe means for boarding or leaving a floating plant shall be provided and guarded to prevent persons from falling or slipping thereon. Walking on rip-rap should be avoided where practical.

A stairway, ladder, ramp, gangway, personnel hoist or other safe means of access shall be provided at personnel points of access with breaks of 19 in (48.2 cm) or more in elevation.

Ramps for access of equipment and vehicles to or between vessels shall be of adequate strength, be provided with sideboards, and be well maintained.

Gangways and ramps shall be:

1. Secured at one end by at least one point on each side with lines or chains to prevent overturning;
2. Supported at the other end in such a manner to carry them and their normal load during use in the event they slide off their supports;
3. Placed at an angle no greater than that recommended by the manufacturer; and
4. Provided with a standard guardrail (toe boards are optional depending on their usefulness and the hazard involved).

2.0.11.3 Access on Vessels.

Vertical access shall be provided between various decks by means of stairs, ramps, or vertical ladders installed in accordance with ASTM F1166.

Employees shall not be permitted to pass fore and aft, over, or around deck loads unless there is a safe passage.

If cargo or materials are stored on deck of barges, scows, floats, etc., the outboard edge shall not be used as a passageway unless at least 2 ft (0.6 m) of clearance is maintained.

Vessel loads shall be limited so that access and passageways in use will remain above the waterline. Decks and passageways shall not be used for access if submerged or subject to constant breaking waves, except in an emergency.

2.0.11.4 Emergency Access

Vessels, except those easily boarded from the water, shall be equipped with:

1. At least one portable or permanent ladder of sufficient length to allow a person to self-rescue by boarding the ladder from the water, and
2. Other methods or means designed to assist in the rescue of an incapacitated person overboard.
3. Two means of escape shall be provided for normal work, assembly, sleeping, and messing areas on floating plants.

4. Means of access shall be maintained as safe and functional.

2.0.12 Marine Fall Protection Systems

On decks or work surfaces 6 ft (1.8 m) or more above the main deck or 6 ft or more above adjacent vessel decks, docks, or other hard surfaces, Railing Type A or Type B, as described in Section 19.E., or bulwarks, coamings, or other structures meeting the height and strength requirements of these railing systems shall be provided except as excluded in Sections 19.C.03 and 19.C.04.

Deck edge toe boards not less than 3.5 in (8.8 cm) high for Type A and 2 in (5 cm) high for Type B railings shall be provided when the railings are used for fall protection. Toe boards shall meet the strength requirements in Section 21.F.01.f. Scuppers and/ or drainage holes may be installed as needed as long as the top edge of the toeboard is intact and the strength requirements are retained.

Personal fall protection systems meeting the requirements of Section 21.I may be used when railing systems are not installed.

Railing systems and personal fall protection systems are not considered feasible on the main deck of vessels that perform duty cycle material loading and unloading operations from barges, scows or other vessels alongside.

2.0.13 Main Deck Perimeter Protection

Main deck perimeter protection systems are intended to provide protection against falling overboard. Main deck perimeter protection is required on all manned vessels, except where excluded in Section 19.D.05. Unmanned vessels do not require perimeter protection, however, fall protection shall be provided where the vessel configuration and operation exposes personnel to falls onto a hard surface from vertical distances greater than 6 ft (1.8 m). The design parameters for the different types of main deck railing systems listed in this Section are in Section 19.E unless otherwise noted.

Manned vessels are vessels that operate with crews, or quartered personnel, or that have work areas that are occupied by assigned personnel during normal work activities.

Unmanned vessels are typically those that carry cargo such as materials, supplies, equipment, or liquids, and do not have personnel on board except during loading and unloading and during short term operations such as tie-down, inspections, etc.

Manned vessels over 26 ft (7.9 m) in length operating in unprotected or partially protected waters (as defined in 46 CFR) shall have Type B Railings provided around the deck edge, except where excluded in Section 19.D.05.

Manned vessels over 26 ft (7.9 m) in length operating in rivers or protected waters shall have Type B or Type C Railings provided around the deck edge, except where excluded in Section 19.D.05.

Type D Grab rails shall be provided on all manned vessels in the following instances:

1. On deckhouses or other similar permanent structures more than 48 in (1.2 m) from deck edge rail systems
2. On deck houses or similar permanent structures that are within 8 ft (2.5 m) of the deck edge in areas where the deck edge rail has been omitted or may be temporarily removed in accordance with Section 19.D.05.

The following are main deck areas where perimeter protection may be omitted or temporarily removed:

1. Deck perimeter rails may be omitted from deck work areas specifically intended for line handling, working over the side of the vessel, load handling operations and designated boarding areas. Railings in these areas may obstruct work or access and present additional hazards such as pinch points against railings. Such deck edge areas may include those for line handling,

fleeting scows, mooring vessels, towing, pile driving activities, and handling or placing of construction materials and equipment pipelines, and anchors.
2. Deck Perimeter rails may be omitted from main deck areas where the overall walkway width is less than 2 ft (0.6 m) between deck structures/permanent equipment and the deck edge.
3. Removable perimeter rail sections may be installed in areas where activities such as working over the side of the vessel or loading operations are not normally performed. These rails shall be maintained in place when vessel operations do not include activity in these areas or during periods of tie-up or inactivity.

When deck-edge perimeter protection is not present, standard operating procedures in the Health and Safety Plan in accordance with USCG and OSHA requirements or other documents shall be developed to address the hazards involved. These documents shall be reviewed by all crew during initial orientation and at regular intervals afterward. The following operational procedures shall be followed:

1. PFD's must be worn by personnel in areas where deck perimeter protection is not present. Such areas may be used by crew to transit or access areas of the boat, but when doing so, all other requirements of this Section must be met. Areas where railings are removed shall be blocked off from access by a suitable barrier, or shall be clearly marked as PFD- required areas by signage, deck markings, or other means;
2. Continuous sight and verbal/radio contact shall be maintained between personnel in the non-protected deck perimeter areas and the vessel operator or a designated crew member who is in sight and verbal/radio contact with the operator, and who will monitor the workers in the area;
3. A safety skiff or equivalent rescue vessel shall be readily available throughout the duration of these activities in accordance with Section 05.K.

Boats with length 26 ft (7.9 m) or less shall be provided with integrated combinations of two or more of the below listed items to provide continuous perimeter protection around the vessel: Cockpits; Coamings; Handholds; Toe Rails; Life Rails; Deck Rails; Stern Rails and Bow Rails. The installations shall be in accordance with either ABYC Standards or ISO Standard 15085, as demonstrated by a manufacturer's certificate, label or other documentation.

Marine Railing Types.

Allowable types of railings on vessels (A, B, C, & D) are identified below. Specific requirements for the vessel types and areas where each may be used are delineated in Sections 19.G and 19.H. > See Appendix F.

Railing Type A: Two-Tier Rigid Fall Protection Rail. This railing is comprised of rigid vertical stanchions and two rigid horizontal tiers in accordance with Section 21.F.01. Minimum top rail height is 42 in +/- 3 in (106.6 cm +/- 7.6 cm) and the lower horizontal tier is at half height.

Railing Type B: Three-Tier Marine Rigid or Tensioned Railing. This railing is comprised of rigid vertical stanchions and three rigid or tensioned horizontal tiers. The following parameters apply:

1. Clear spacing between tiers shall be no greater than 9 in (22.8 cm), 15 in (38 cm) and 15-in respectively. The 9-in space is closest to the deck surface. Minimum height from deck to the top tier may not be less than 39 in (99 cm).
2. The 9-in, 15-in and 15-in tier spacing above may not be exceeded.
3. The bottom tier may be omitted in way of deck fittings or in order to facilitate line handling. The space resulting from the removed lower tier may not extend more than 2 ft (0.6 m) beyond either side of the deck fitting.
4. Vertical stanchions may be pipe or structural sections. Horizontal tiers may be constructed from rigid (pipe or structural sections) or non-rigid (wire rope or chain) components, or from

combinations of these components. Non-rigid tiers must be tensioned with turnbuckles or similar components.

5. Railings may be either fixed or removable in sections. All vertical stanchions must be adequate to withstand a 200 lbs (60.9 kg) load applied horizontally at the top of the stanchion. Stanchion spacing may not exceed 8 ft (2.4 m).
6. Pipe or structural section rail components shall be sized appropriately to meet NYCDOB Code.
7. Chain or wire rope together with all connecting fittings shall have minimum breaking strength of 4,000 lbs (1814.3 kg).

Chain or wire rope horizontal tiers shall be tensioned so that:

1. There is no slack;
2. Sag does not exceed 1/4 in (.62 cm) at any point between stanchions, and
3. The lowest point from deck to the top of the upper rail may not be less than 39 in (1 at any point between the stanchions. Tensioned railing tiers shall not deflect more than 1 in (2.5 cm) under a load of 200 lbs (60.9 kg).

Solid bulwarks or coamings providing equal perimeter protection to a height of 39 in (1 m) may also be provided. Bulwarks may be constructed of structural plate and shapes. Bulwarks must meet all strength/deflection/open spacing requirements presented above for railings.

Railing Type C: Non-Tensioned Railings and Flexible or Swing-Away Railings shall consist of rigid vertical stanchions with horizontal non-tensioned chain, wire rope or rigid tiers that clip to the verticals.

Non-Tensioned Railings shall consist of horizontal tiers constructed from chain, wire rope, pipe or structural sections or combinations of these components. Vertical stanchions shall be pipe or structural sections. Vertical support spacing shall not exceed 8 ft (2.4 m).

Flexible or Swing-Away Rails shall consist of chain or wire rope tensioned vertical support lines with non-tensioned chain, wire rope or clip-on rigid horizontal tiers. Vertical support line spacing shall not exceed 6 ft (1.8 m).

Pipe or structural section rail components shall be sized appropriately to meet the performance criteria of NY Chain or wire rope together with all connecting fittings shall have minimum breaking strength of 4,000 lbs (1800 kg).

For Non-Tensioned Railings and Flexible or Swing-Away Railings, sag of horizontal tiers shall not exceed 3 in (10 cm) between vertical supports.

Non-Tensioned Railings and Flexible or Swing-Away Railings shall be configured with four or more horizontal tiers. The number of horizontal tiers shall be sufficient to meet the following requirements:

1. Effective clear spacing between the deck and bottom tier shall be no greater than 9 in (22.8 cm).
2. Effective clear spacing between all tiers above the bottom tier shall be no greater than 15 in (38.1 cm).
3. Effective minimum height from deck to the top tier may not be less than 39 in (1 m).
4. The effective tier spacing identified above includes the effect of the increased spacing associated with sag in the tiers, applied either up or down. Clear spacing measurements shall be made with the railing tiers spread to form the largest opening.
5. Railing height is reduced by the amount of sag in the tiers. Railing minimum height shall be measured at the lowest point in the rail.
6. The bottom tier may be omitted in way of deck fittings or in order to facilitate line handling. The space caused by the removed lower tier may not extend more than 2 ft (0.6 beyond either side of the deck fitting.

7. The top tier may not deflect to a height less than 39 in (1 m) above the deck under a force of 200 lbs (60.9 kg), applied vertically. In addition, the top tier may not deflect more than 12 in (30.4 cm) horizontally under a force of 200 lbs applied horizontally.

Tensioning springs in the vertical support lines, if provided, must be of the compression with drawbar type.

2.0.14 Launches, Motorboats and Skiffs

Crew requirements

In the following circumstances a qualified employee shall be assigned to assist with deck duties:

1. When extended trips including overnight trips are made from the work site;
2. When conditions of navigation make it hazardous for an operator to leave the wheel while underway;
3. When operations being performed, other than tying-in, require the handling of lines;
4. When operating at night or during inclement weather;
5. When towing; or
6. While a vessel is transporting crew or passengers.

A qualified employee is any individual who has established, to the satisfaction of the operator of the vessel that he/she is physically and mentally capable of adequately performing the deck duties to which he/she may be assigned.

Personnel and cargo requirements

1. The maximum number of personnel and weight that can safely be transported shall be posted on all launches, motorboats, and skiffs. The number of personnel (including crew) shall not exceed the number of PFDs aboard.
2. Each boat shall have sufficient room, freeboard, and stability to safely carry the cargo and number of persons allowed with consideration given to the weather and water conditions in which it will be operated.
3. Launches, motorboats and skiffs less than 20 ft (6 m) in length shall meet 33 CFR 183 requiring level floatation after flooding or swamping.
4. All open cabin launches or motorboats shall be equipped with "kill (dead man) switches".

Float Plans

Float plans shall be prepared by the operator of a launch or motorboat when engaged in surveying, patrolling, or inspection activities that are remote and are expected to take longer than 4 hours or when the operator is traveling alone. The plan shall be filed with the boat operator's supervisor and shall contain the following, as a minimum:

1. Vessel information (make/model or local identifier);
2. Personnel on-board;
3. Activity to be performed;
4. Expected time of departure, route, and time of return;
5. Means of communication (adequate means of communication shall be provided).

All motorboat operators shall complete and document the following training:

1. A boating safety course meeting the criteria of the USCG Auxiliary, National Association of Safe Boating Law Administrators (NASBLA), or equivalent;
2. Motorboat handling training, based on the type of boats they will operate, provided by qualified instructors (in-house or other). Operators must pass a written and operational test;
3. Current USCG licensed personnel are exempt from the boating safety training, but they shall complete the written exam and operational test;

2.0.15 Scows and Barges

Scows dumping in open ocean waters should be equipped with remote opening devices to preclude the transfer of personnel between the vessels.

A safe means for transferring personnel between the towing vessels and scow shall be provided in accordance with Section 19.B.02.

The Contractor shall identify general and site-specific adverse weather and sea conditions (e.g., currents) under which the towing of scows or cargo barges is prohibited.

All barges and scows that are used as deck cargo barges shall comply with 46 CFR 174.010 through 174.020 for intact stability of deck cargo barges.

Personal fall protection devices or other fall protection as listed hereinC shall be used on all scows and open barges to prevent personnel transiting between the stern and bow of the vessel from falling into the hopper or falling off the side of the vessel to structures (e.g. dock, vessels) located 6 ft (1.8 m) or more below.

2.0.15 Personal Flotation Devices

Inherently buoyant Type III, Type V work vests, or better USCG-approved personal flotation devices (PFDs) shall be provided and properly worn in closed fashion (zipped, tied, latched, etc.) by all persons in the following circumstances:

1. On floating pipelines, pontoons, rafts, or stages;
2. On structures or equipment extending over or next to water except where guardrails, personal fall protection system, or safety nets are provided for employees;
3. Working at night, where there are drowning hazards i.e. working over or within 5 ft of the water, regardless of other safeguards provided;
4. In skiffs, small boats, or launches, unless in an enclosed cabin or cockpit; or
5. Whenever there is a drowning hazard.

Automatic-Inflatable PFDs Type V or better, USCG-approved for Commercial Use, may be worn by workers in lieu of inherently buoyant PFDs (see conditions 05.J.01.a-eabove), provided the following criteria is met:

1. PFDs are worn only by workers over 16 years of age and those who weigh 90 lb(40.8 kg) or more;
2. An AHA shall be developed for the intended activity and shall be used to select the most appropriate PFD for the activity;
3. PFDs used in heavy construction or maintenance activities or where hot work (welding, brazing, cutting, soldering, etc.) is to be performed must be designed, tested and certified by the manufacturers for this type of work;
4. PFDs shall provide a 30-pound minimum buoyancy, post-deployment, and shall have status indicator window;
5. Personnel shall be trained in the use, maintenance, restrictions, care, storage, inspection and post-deployment procedures per manufacturer's instructions
6. The USCG-approval for auto-inflatable PFD's is contingent upon the PFD being worn, not stowed. All auto-inflatable PFDs must be worn at all times a drowning hazard exists
7. In-water testing is required for all first time users so that wearers become familiar with the feel and performance of the PFD.
8. All wearable PFDs shall be of an international orange (or orange/red) or ANSI 107yellow-green color.

9. Each inherently buoyant PFD shall have at least 31 in2 (200 cm of retroreflective material attached to its front side and at least 31 in2 (200 cm2on its back side, per USCG b. Each auto-inflatable PFD shall have at least 31 in2 (200 cm2
10. Each PFD shall be equipped with a USCG-approved automatically activated light. Lights are not required for PFDs on projects performed exclusively during daylight hours.
11. Before and after each use, the PFD shall be inspected for defects that would alter its strength or buoyancy.

Throwable devices (Type IV PFD).

1. On USCG-inspected vessels, ring buoys are required to have automatic floating electric water lights (46 CFR 160).
2. On all other floating plant and shore installations, lights on life rings are required only in locations where adequate general lighting (e.g., floodlights, light stanchions) is not provided. For these plant and installations, at least one life ring, and every third one thereafter, shall have an automatic floating electric water light attached.
    a. All PFDs shall be equipped with retroreflective tape in accordance with USCG requirements.
    b. Life rings (rope attachment not required) and ring buoys (rope attachment required)shall be USCG-approved; shall have at least 90 ft (27.4 m) of 3/8 in (0.9 cm) of attached solid braid polypropylene, or equivalent. Throw bags may be used in addition to life rings or ring buoys. These throwable devices and lifelines shall be inspected at a minimum, every 6 months and shall be stored in such a manner as to allow immediate deployment and will be protected from degradation from weather and sunlight. Life rings or ring buoys shall be readily available and shall be provided at the following places:
3. (1) At least one not less than 20 in (51 cm) on each safety skiff up to 26 ft (7.9 m) in length (46 CFR 117.70);
4. (2) At least one (1) 24 in (61 cm) in diameter on all motor boats longer than 26 ft (7.9m) in length up to 65 ft (19.8 m) in length and for motor boats 65 ft (19.8 m) in length or longer, a minimum 3 life buoys of not less than 24 in (61 cm) and one additional for each increase in length of 100 ft (30.4 m) or fraction thereof; and
5. (3) At least one (1) at intervals of not more than 200 ft (60.9 m) on pipelines, walkways, wharves, piers, bulkheads, lock walls, scaffolds, platforms, and similar structures extending over or immediately next to water, unless the fall distance to the water is more than 45 ft (13.7 m), in which case a life ring shall be used. (The length of line for life rings at these locations shall be evaluated, but the length may not be less than 90 ft (27.4 m).

2.0.16 Lifesaving and Safety Skiffs

During construction activities, at least one skiff shall be immediately available at locations where employees work over or immediately next to water. Note: This requirement is applicable to any Operations and Maintenance activities that cause an employee to work outside the designed, permanently installed safety controls(i.e., guardrails).

Personnel trained in launching and operating the skiff shall be readily available during working hours. Lifesaving personnel shall perform a lifesaving drill, including the launching and recovery of the skiff, before the initiation of work at the site and monthly thereafter. All records of drills shall be maintained on site and a copy provided to the Engineer.

Skiffs shall be kept afloat or ready for instant launching.

Required equipment must be onboard and meet or exceed USCG requirements. Skiffs shall be equipped as follows:

1. Four (4) oars (two (2) if the skiff is motor powered);

2. Oarlocks attached to gunwales or the oars;
3. One (1) ball-pointed boat hook;
4. One (1) ring buoy with 90 ft (21.3 m) of 3/8 in (0.9 cm) solid braid polypropylene, or equivalent, line attached; and
5. PFDs in number equaling the skiff rating for the maximum number of personnel allowed on board.
6. Fire Extinguisher.
7. In locations where waters are rough or swift, or where manually operated boats are not practical, a power boat suitable for the waters shall be provided and equipped for lifesaving.

Skiffs and power boats shall have buoyant material capable of floating the boat, its equipment, and the crew.

On vessels (such as skiffs) without permanently mounted navigation lights, portable battery-operated navigation lights will be available and used for night operations.

3.0 VESSEL GENERAL PERMIT FOR DISCHARGES INCIDENTAL TO THE NORMAL OPERATION OF VESSELS (VGP) AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPEDES)

3.01 Reference

https://www3.epa.gov/npdes/pubs/vessel_vgp_permit.pdf

3.02 VGP Authorization

Contractor is required to obtain the VGP Authorization under the NPEDES program with the EPA for all vessels on the project as follows:

1. To obtain authorization under this permit, you must meet the Part 1.2 eligibility requirements. If your vessel meets the requirements under Part 1.5.1.1, you must submit a Notice of Intent (NOI) to receive permit coverage.
2. Prior to NOI submission, owner/operators of these vessels are authorized to discharge under this permit. This automatic authorization extends until owner/operators of vessels that meet the requirements under Part 1.5.1.1 submit NOIs, but shall not extend beyond 9 months after permit issuance.
3. Owner/operators of vessels that meet the requirements under Part 1.5.1.2 are automatically authorized to discharge under this permit and are not required to submit NOIs.

3.03 General Scope of the VGP

This permit is applicable to discharges incidental to the normal operation of a vessel identified in Part 1.2.2 into waters subject to this permit. These waters are "waters of the United States" as defined in 40 CFR 122.2 (extending to the outer reach of the 3 mile territorial sea as defined in section 502(8) of the CWA.) This includes all navigable waters of the Great Lakes subject to the jurisdiction of the United States. Recreational vessels as defined in section 502(25) of the Clean Water Act are not subject to this permit. Such vessels are not subject to NPDES permitting under Section 402 of the Clean Water Act, and are instead subject to regulation under Section 312(o) of the Clean Water Act. In addition, with the exception of ballast water discharges, non-recreational vessels less than 79 feet (24.08 meters) in length, and all commercial fishing vessels, regardless of length, are not subject to this permit. See P.L. 110-299. Commercial fishing vessels and other non-recreational vessels less than 79 feet are eligible for permit coverage under this permit for their ballast water discharges. If auxiliary vessels or craft, such as lifeboats, rescue boats, or barges onboard large vessels require permit coverage (i.e. they are greater than 79 feet in length), they are eligible for coverage under this permit and are covered by

submission of the Notice of Intent for the larger vessels. Nothing in this permit shall be interpreted to apply to a vessel of the Armed Forces as defined in § 312(a)(14) of the Clean Water Act.

Vessel Discharges Eligible for Coverage Unless otherwise made ineligible under Part 1.2.3, the following discharge types are eligible for coverage under this permit:

1. Deck Runoff and Above Water Line Hull Cleaning
2. Bilgewater/Oily Water Separator Effluent
3. Ballast Water
4. Anti-fouling Leachate from Anti-Fouling Hull Coatings/Hull Coating Leachate,
5. Aqueous Film Forming Foam (AFFF)
6. Cathodic Protection
7. Chain Locker Effluent
8. Controllable Pitch Propeller and Thruster Hydraulic Fluid and other Oil Sea Interfaces including Lubrication discharges from Paddle Wheel Propulsion, Stern Tubes, Thruster Bearings, Stabilizers, Rudder Bearings, Azimuth Thrusters, and Propulsion Pod Lubrication
9. Graywater
10. Motor Gasoline and Compensating Discharge
11. Non-Oily Machinery Wastewater
12. Refrigeration and Air Condensate Discharge
13. Seawater Cooling Overboard Discharge (Including Non-Contact Engine Cooling Water; Hydraulic System Cooling Water, Refrigeration Cooling Water)
14. Boat Engine Wet Exhaust
15. Underwater Ship Husbandry

4.0 REFERENCE A

Reference A: OSHA Standards (29 CFR) for Waterfront Construction and Working Near Water

4.01 1926.605 Marine Operations and Equipment

Operations fitting the definition of "material handling" shall be performed in conformance with applicable requirements of Part 1918, "Safety and Health Regulations for Longshoring" of this chapter. The term "longshoring operations" means the loading, unloading, moving, or handling of construction materials, equipment and supplies, etc. into, in, on, or out of any vessel from a fixed structure or shore-to-vessel, vessel-to-shore or fixed structure or vessel-to-vessel.

4.02 1926.605(b) Access to Barges

Ramps for access of vehicles to or between barges shall be of adequate strength, provided with side boards, well maintained, and properly secured.

Unless employees can step safely to or from the wharf, float, barge, or river towboat, either a ramp, meeting the requirements of paragraph (b)(1) of this section, or a safe walkway, shall be provided.

Jacob's ladders shall be of the double rung or flat tread type. They shall be well maintained and properly secured.

A Jacob's ladder shall either hang without slack from its lashings or be pulled up entirely.

When the upper end of the means of access rests on or is flush with the top of the bulwark, substantial steps properly secured and equipped with at least one substantial hand rail approximately 33 inches in height, shall be provided between the top of the bulwark and the deck.

Obstructions shall not be laid on or across the gangway.

The means of access shall be adequately illuminated for its full length.

Unless the structure makes it impossible, the means of access shall be so located that the load will not pass over employees.

4.0.3 1926.605(c) Working Surfaces of Barges

Employees shall not be permitted to walk along the sides of covered lighters or barges with coamings more than 5 feet high, unless there is a 3-foot clear walkway, or a grab rail, or a taut handline is provided.

Decks and other working surfaces shall be maintained in a safe condition.

Employees shall not be permitted to pass fore and aft, over, or around deck loads, unless there is a safe passage.

Employees shall not be permitted to walk over deck loads from rail to coaming unless there is a safe passage. If it is necessary to stand at the outboard or inboard edge of the deck load where less than 24 inches of bulwark, rail, coaming, or other protection exists, all employees shall be provided with a suitable means of protection against falling from the deckload.

4.0.4 1926.605(d) First-Aid and Lifesaving Equipment

Provisions for rendering first aid and medical assistance shall be in accordance with Subpart D of this part.

The employer shall ensure that there is in the vicinity of each barge in use at least one U.S. Coast Guard-approved 30-inch lifering with not less than 90 feet of line attached, and at least one portable or permanent ladder which will reach the top of the apron to the surface of the water. If the above equipment is not available at the pier, the employer shall furnish it during the time that he is working the barge.

Employees walking or working on the unguarded decks of barges shall be protected with U.S. Coast Guard-approved work vests or buoyant vests.

4.0.5 1926.605(e) Commercial Diving Operations

Commercial diving operations shall be subject to Subpart T of Part 1910, 1910.401-1910.441, of this chapter.

4.0.6 1926.106 Working Over or Near Water

Employees working over or near water, where the danger of drowning exists, shall be provided with U.S. Coast Guard-approved life jacket or buoyant work vests.

Prior to and after each use, the buoyant work vests or life preservers shall be inspected for defects which would alter their strength or buoyancy. Defective units shall not be used.

Ring buoys with at least 90 feet of line shall be provided and readily available for emergency rescue operations. Distance between ring buoys shall not exceed 200 feet.

For all work which will be performed over or near water as defined in 29 CFR 1926.106(d) the Contractor shall have a skiff in the water at all times as required by regulation. The skiff must meet US Coast Guard requirements and be manned by a person holding a Masters license for the craft and be trained in water rescue.

B4. U.S. COAST GUARD REQUIREMENTS

1.0 GENERAL

1.0.1 Scope

Requirements set forth herein are in addition to and shall be considered as complementary to the balance of the Contract requirements.

For all operations to be performed in, on, or over the Lower New York Bay, East River, Harlem River, Broad Channel, Rockaway Inlet, or other adjacent waterways, as applicable to the Contract, the Contractor shall comply with all applicable government requirements and regulations pertaining to the Work. The securing of permits necessary for the performance of this Work shall be routed through the Engineer.

Notification and Request for Approval Requirements

At no time during the Work will the following activities be permitted without prior notification and specific approval of the USCG Sector New York Waterways Management Division for location and duration:

- Closing the waterways.
- Removing or restricting existing navigation lights and/or markings.
- Reducing or altering vertical or horizontal clearances.

All requests shall be routed through the Engineer a minimum of 30 days before the action will be required If, in the case of waterway closures, the scheduled Work cannot be completed within the approved closure period, notify the U.S. Coast Guard (USCG) immediately upon learning of the delay. With the approval of the USCG, the work shall continue on a 24-hour basis until the waterway is restored to normal operation. The USCG and the Engineer shall be immediately notified when normal operation is restored.

1.0.1.1 Port of New York / New Jersey Security Provisions

Security Zone / Exclusionary Area

- A twenty-five (25) yard (23 m) Security Zone / Exclusionary Area, has been established by the U.S. Coast Guard around all bridge piers in the New York / New Jersey area.

Advance Written Approval Requirements

- No construction workers, work barges or vessels of any type may enter these Security Zones without advance written approval from the U.S. Coast Guard Captain of the Port, NY District, through the Waterways Management Division, and the Vessel Traffic Service Activities New York (VTS).
- All requests made by the Contractor through the Engineer to enter into these Security Zones must be made in writing, not less than 30 days prior to the commencement of any work, to USCG Sector New York Waterways Management Division, in accordance with the forms attached to this specification, with a copy to the Engineer. Contractor shall comply with all Security Zone requirements of the U.S. Coast Guard, even if different than those set forth here, at no additional cost to the Department.

Initial Submittal and Information Requirements

- Submit a complete list of all construction personnel or persons that will enter into the Security Zones, including name, Social Security Number, Date of Birth, Contractor's Business Name, Business Address, Point of Contact / Responsible Person in- Charge of Work Activities

(Construction Superintendent) and Telephone Numbers (Main Office, Field Office Numbers and Cell Phones).

- Submit Project and Work Description and include descriptions of work activities and work site in the Security Zone, together with work location(s), dates, times and Project Duration, Barge/Vessel/Boat Name(s) / Type(s) & Size(s).
- Submit a Bridge Branch Construction Approval Letter.
- Submit above items to the U.S. Coast Guard Waterways Oversight Branch (USCG/WOB), and call (718) 354-4193 or 4355 to make the required arrangements, not less than 30 days in advance of any work, with a copy to the Engineer.

Changes Subsequent to Approval by the USCG/WOB

- If any changes are made to the information provided and approved including, but not limited to, additional personnel hired or any other changes in the existing personnel roster, a revised written submission is required.
- Submit all information for approval, including all revisions to the required information, as identified above, to the U.S. Coast Guard Waterways Oversight Branch not less than ninety-six (96) hours / four (4) days in advance of the expected change, with a copy to the Engineer.

Daily Notification Requirements

- After the initial written approval for entry into the Security Zone has been received from the U.S. Coast Guard, (USCG) the Contractor is to first notify the U.S. Coast Guard / Vessel Traffic Service at (718) 354-4088 on a daily basis, while working within the Zone; and upon contacting the USCG, immediately report to the Engineer the context and outcome of all communications with the USCG.
- Daily notification shall include, but not limited to, the following times when entering or leaving the Security Zone during any part of a day:
  1. Prior to entering the Work Site at the start of each workday.
  2. Prior to leaving the Work Site at any time during the workday.
  3. Prior to returning to the Work Site at any time during the workday.

Upon securing the work site at the end of the workday.

- The Contractor shall notify the Engineer 24 hours in advance of any change in the location of the Contractor's operations within a Security Zone.

2.0 REFERENCES

Part 26, Title 33, Code of Federal Regulations (33 CFR26) Vessel Bridge-to-Bridge, Radio Telegraphic Regulations.

Navigation Rules International – Inland, U.S. Government Printing Office Stock # 050-012-00376-9.

3.0 EXECUTION

3.0.1 Protection of Marine Traffic and Waterways

Conduct the Work in conformity with the orders of the Commander (OBR), First U.S. Coast Guard District. Battery Park Building, New York, NY 10004-5073 and/or the District Construction Manager, U.S. Army Corps of Construction Managers in charge of the locality so as not to obstruct or endanger navigation.

3.0.2 Plan Reviews

Four copies of the Contractor's plans, schedule and sequences of operations, and method of preventing any material from being discharged or falling from the construction area, approved by the Engineer, shall be transmitted to the U.S. Coast Guard by the Engineer. The Engineer will submit plans, schedules, methods and sequences of operations to the First U.S. Coast Guard District, Bridge Branch Commander (OBR) First U.S. Coast Guard District, Battery Park Building, New York, N.Y. 10004-5073, (212) 514-4338, for U.S. Coast Guard approval 30 days prior to any proposed work over the waterway. In addition, a sketch of the work area shall be submitted showing:

- The waterway.
- The bridge.
- The location of any restriction that will be placed in the waterway such as barges, anchors and anchor lines.
- The location, height above mean high water and a detailed description of any scaffolding or netting to be used.

The schedule should also include the daily hours of operation and indicate whether waterborne equipment will remain in the waterway at night. Daytime and twenty-four (24) hour emergency telephone numbers with personnel responsible for this work shall be forwarded to the USCG via the Engineer before commencement of Waterway-related construction. This information shall be updated immediately if any changes occur.

3.0.3 Modification to USCG Approved Plan

One copy of the plan and schedule of operation, and letter of approval by the U.S. Coast Guard, shall be retained by the Engineer. No deviation from the approved plan and schedule of operation may be made unless the modification has previously been submitted to and approved by the U.S. Coast Guard and the Engineer.

3.0.4 Hot Work

Positive means shall be taken to prevent sparks, molten metal and/or any hot work, debris, discharge of waste materials or construction material from entering the waterway or onto passing vessels. This includes sandblasting material, paint, wastewater, and any concrete or steelwork by-products. A safety section in the overall plan must be included that will achieve this purpose by utilizing fire resistive devices made of plywood and canvas suitably connected.

Where welding or burning is to take place, suitable flame-proof material shall be the uppermost protective containment material to arrest the fall of sparks or molten materials. All welding, burning, and slag removal shall cease upon approach of a vessel and not start again until the vessel has passed.

The Contractor's Supervisor shall be equipped with a complete communication system before commencement of any hot work, in accordance with information provided throughout this Section.

Hot work shall not commence unless communication has been established with the U.S. Coast Guard. An observer or observers shall be stationed so as to have unimpeded views of both upstream and downstream accesses to the waterway area thereby assuring that all workers can be alerted of a vessel's approach by appropriate means, such as an air horn.

3.0.5 Work Platforms

For work requiring outboard floats and/or for work on or under marine structures in the navigable waterway, deck, a fireproof canvas dodger shall be installed to prevent the fall of objects and debris into the water.

During night work, all around white lights or red lights to indicate safe passage around structures in the navigable waterway shall be mounted to indicate to mariners the locations of the work. All

structures lighting and day marks shall be submitted through the Engineer to the USCG for approval prior to commencement of work.

During daylight, warning signs for a 3-mile (4.8 km) range shall mark the locations of the work platforms. The signs shall face upstream and downstream so as to draw mariner's attention to the fact that critical work, affecting moving traffic, is occurring. A canvas dodger or netting shall be attached to the scaffold guardrail to prevent objects that bounce on the deck from ricocheting off the deck and into the waterway.

If permanent bridge or fender navigational lighting cannot be maintained operable or will be blocked, identical, temporary battery or electrically-operated lights shall be installed at the same locations. These temporary lights shall be visible for a distance of 2,000 yards (1.829 kilometers) on 90% of the nights of the year. Generally, a lamp of 100 candles will meet these requirements. The temporary lights shall be in place until the repairs have been completed or permanent navigational lighting has been reinstalled and determined to be operating satisfactorily. Locate and detail temporary lighting. If temporary lights are not installed in the same locations as the permanent lights, specific information regarding proposed locations compared to the permanent positions shall be provided to the Engineer for submission to and approval by the USCG.

3.0.6 Obstructions in Navigable Channel

During the progress of Work, should any materials, machinery, or equipment be lost, dumped, thrown overboard, or sunk, so as to obstruct, interfere with, or create a hazard to navigation, immediate notice shall be given to the U.S. Coast Guard and the object removed immediately. Until removal can be effected, the obstruction shall be properly marked in order to protect navigation.

Notice to the U.S. Coast Guard shall include a description and location of any such object and the action taken, or being taken, to protect navigation, and of action to remove the obstruction. Notice shall be given to the Captain of the Port– New York and New Jersey, at (718) 354-4119/4120 and U.S. Coast Guard Bridge Administration at (212) 668-7021/7165.

If, in the opinion of the Engineer, all obstructions in the channel resulting from the operations (through negligence, accident or otherwise) have not been removed, an inspection of the waterway bottom must be performed and remaining obstructions shall be removed, at no extra cost to the NYDDC.

After the completion of the work on or under the deck, the Contractor shall certify in writing to the Engineer that all equipment is accounted for and that all unused construction materials have been legally disposed.

3.0.7 Spills

Spillage of oil and/or hazardous substances is specifically prohibited by Section 311 of the Clean Water Pollution Control Act of 1971, as amended.

During the work, preventative measures to be taken include:

- Proper maintenance of construction equipment.
- Arrangement of fuel/hazardous substances handling areas so as to ensure that any spills are contained before reaching navigable waterways or their adjoining shoreline. In addition, the Engineer must be notified immediately.
- Instructions to personnel to legally dispose of oil and/or hazardous substances and not into drains, navigable waterways, or onto adjoining shorelines.

The USCG Captain of the Port and the Engineer shall be notified immediately at Commander, U.S. Coast Guard Activities New York, 212 U.S. Coast Guard Drive, Staten Island, NY 10305, (800-424-8802) or (718) 354-4119/4120 in the event of any spill.

A supply of an absorbent material shall be maintained at the work area(s) so that it may be rapidly deployed to soak up any possible spillage, pending U.S. Coast Guard arrival on the scene. The use of chemical dispersing agents and emulsifiers is not permitted without prior, specific USCG approval.

3.0.8 Floating Work Platforms

Floating work platforms equipment shall not interfere with operations in any federally maintained navigable channel. Floating equipment shall have a radiotelephone capable of operation from its main control in accordance with Part 26 Title 33, Code of Federal Regulations and shall be monitored during all periods the floating equipment is in operation.

Placement of construction equipment in the navigable channel shall be done so as not to reduce minimum horizontal clearance. Floating work equipment (barges, etc) must be moved out of the navigable channel during darkness, or after work hours. Work equipment remaining in the channel (if approved by USCG) during periods of darkness or reduced visibility must be lighted in accordance with Navigation Rules International – Inland.

Work barges remaining in the channel (if approved by the USCG) shall meet the following requirements:

- Must be lighted in accordance with Navigation Rules International-Inland.
- Shall be manned 24 hours a day 7 days per week.
- Shall have sanitary facilities and USCG approved safety equipment.
- Shall have a USCG approved motorized emergency tender boat with safety equipment.

The USCG must be notified, via the Engineer, at least three weeks in advance of the placement of equipment in the channel.

3.0.9 Dumping

Should any person throw construction materials into the waterway, they will be subject to prosecution under Federal and State laws.

3.0.10 Fleet Week

During "Fleet Week", no reduction in vertical or horizontal clearances will be authorized; this includes work platforms, travelers, barges, tarps, etc.

3.0.11 Communication System

The Contractor's Supervisor and all other applicable personnel involved shall be provided and equipped with a two-way communication system consisting of VHF-FM marine radio(s) capable of monitoring channels 13 and 16 during hours of operation, for the duration of the Work.

The Supervisor shall contact U.S. Coast Guard ActNy-VTS via marine radio, establish and maintain radio communications at all times, which shall include obtaining approval before commencement of any hot work, or any other work which may be considered hazardous to (or interfere with) marine traffic.

In the event of a radio failure, the Contractor shall provide a cellular phone(s) as a backup communication system, which shall be kept readily on hand, at all times, for use by the Contractor's Supervisor and all other applicable personnel involved. The cellular phone(s) shall be capable of contacting the U.S. Coast Guard ActNy- VTS at (718) 354-4088.

The Contractor shall deliver to the Engineer a complete remote base station type VHF-FM marine radio system capable of monitoring, receiving, transmitting and amplifying all communications between and with the Contractor and/or the U.S. Coast Guard, as well as, other marine transmissions in the area, unless hand held units and related systems are deemed to be sufficient by the Engineer.

Test all communication systems at least 30 days prior to the need. Weekly test and regularly maintain all communication system equipment.

Provide sufficient spare equipment and parts to prevent any disruption in communications.

Provide additional communication system equipment as necessary to amplify the signal, as well as assist in maintaining clear and audible communications at all times.

U.S. Department of Homeland Security

United States Coast Guard

Commander
United States Coast Guard
Sector New York

212 Coast Guard Drive
Staten Island, NY 10305
Staff Symbol: (wwm)
Phone: (718) 354-4195
Fax: (718) 354-4190

Coast Guard Sector New York Request for Marine Activity Approval

Instructions: Type or print clearly and email to Jeff.M.Yunker@uscg.mil or fax to (718) 354-4190. **USCG notification, review and approval will generally take a MINIMUM of 5 business days. Authorization to proceed will not be given until five (5) days after Coast Guard approval is granted. This timeline also applies to any revisions to an approved project. Applicants must plan accordingly. Authorization is granted under the Ports and Waterways Safety Act (33 USC 1225(a)(2)(C). Violations of required safety measures may subject you to civil penalty proceedings in accordance with 33 CFR 1.07.**

Approval is required for all Activities: 1. Within any charted or Federal Channel, 2. Outside of the Pierhead Line on the East and Hudson Rivers, Upper New York Bay, and The Narrows, 3. Within the highlighted waters of the western Long Island Sound approach to NY Harbor (see attachment). Requests for Notice to Mariners outside of these work areas must be faxed to 617.223.8073 or emailed to LNM@uscg.mil by Tuesday for Thursday publication.

Pre-approval not required for: Diving Operations (outside of channel) or Side-scan, towed sonar, or other surveys, conducted as per the Inland Navigation Rules, within the VTS AOR. Just check in with VTS 15 minutes before beginning and upon completion each day at 718.354.4088. Surveys outside the VTS AOR do not need Coast Guard approval.

BRIDGE PROJECTS, INSPECTIONS, SURVEYS, ETC MUST BE APPROVED BY THE CG BRIDGE PROGRAM, CONTACT 212.668.7021 FOR GUIDANCE.

UNMANNED VESSELS WILL NOT BE AUTHORIZED OVERNIGHT IN FEDERAL CHANNELS.

Failure to properly notify the Coast Guard WILL result in project delay.

Company and Administrative Point of Contact:			
Address:			
Phone:		Fax:	
Project Location:			
Project Description:			
Start Date:	Finish Date:	Work Days: 7 Days	Work Hours:
Position of Equipment (detailed physical description):			
Vessels on Scene (Include Vessel name, description, length, beam, State Registration number):			
24-hr On-Scene Contact:			

B5

(No Text)

B6

(No Text)

B7. GREENHOUSE GAS EMISSIONS

The Contractor is encouraged to take steps to reduce the greenhouse gas emissions resulting from this Contract. To this end, the Contractor is strongly encouraged to take the following steps:

1. Use B20 biodiesel (ASTM D7467) in all non-road and marine equipment.
2. Maximize the use of recycled steel and aluminum in the permanent materials.
3. Divert recyclable materials from the construction and demolition waste stream. The target is a minimum of 75% diversion.

The Contractor is required to monitor the Contractor's performance on these steps and provide reports with supporting documentation showing the actual performance achieved.

B8. EMPLOYMENT OPPORTUNITIES

1. The Contractor's attention is drawn to the following contract requirements for providing employment opportunities:
    a. HireNYC. Requirements are in the Standard Construction Contract found in Volume 2.
    b. Section 3. Requirements are in the HUD-Pages found in Volume 3.
2. Additionally, the following requirements apply:
    a. Apprentices: The Contractor must request the maximum allowable ratio of apprentices.
    b. Sandy Recovery Hiring Plan: The Contractor is required to develop and implement a Sandy Recovery Hiring Plan for low-income and very low-income persons, Sandy-impacted residents, minorities, and women in accordance with the provisions set forth below.
    c. The following requirements are part of this Contract and will be passed on to all applicable Subcontractors:
        i. Contractor and Subcontractors are encouraged to employ 20 percent Sandy-impacted residents.
        ii. Contractor and all Subcontractors agree to register all non-trade job opportunities arising from the Work under this Contract with Sandy Recovery Workforce1, managed by the NYC Department of Small Business Services and comply with the provisions set forth below.
        iii. This section does not limit Contractor's or its Subcontractors' ability to assess the qualifications of prospective workers, and to make final hiring and retention decisions. No provision of this section shall be interpreted so as to require a Contractor or Subcontractor to employ a worker not qualified for the position in question, or to employ any particular worker.
3. Strategies and Methods
    a. The Sandy Recovery Hiring Plan shall demonstrate the Contractor's capability and plan for ensuring compliance with the hiring requirements.
    b. In an effort to provide pathways for hiring of persons impacted by Sandy, the Contractor is encouraged to work with local community-based organizations, pre-apprenticeship and apprenticeship programs, and voluntary groups engaged in rebuilding efforts.
    c. The Contractor will work with Workforce1 and the City on specific outreach events including Resource Fairs and Hire on the Spot events, connecting Sandy-impacted residents with job opportunities.
    d. The Sandy Recovery Hiring Plan should show plans to work with organizations to create a pathway and opportunities on these projects and a plan to show compliance with the hiring requirements.
4. Management and Compliance
    a. The Contractor must develop a Sandy Recovery Hiring Plan for approval by the Engineer.
    b. The Contractor must provide at least one part-time staff dedicated to tracking hiring daily at the job site and ensuring implementation of the requirements of the Plan. The Contractor must comply with monthly reporting requirements set forth by the City, which include, but are not limited to, data that the City is required to report under Local Law 140 of the City of New York and Section 3 of the Housing and Urban Development Act of 1968, as well as data collection related to Executive Order 11246.

5. Specific Requirements
   a. Job Posting Requirements: The Contractor and all subcontractors agree to inform Sandy Recovery Workforce1, managed by NYC Department of Small Business Services, of all job opportunities arising from this Contract. The Contractor must inform Sandy Recovery Workforce1 of any hiring need, and the requirements of the jobs to be filled, no less than three weeks prior to the intended first day of employment for each new position, unless otherwise approved by the City. Sandy Recovery Workforce1 will work with Contractor to develop a recruitment plan which will outline clear instructions as to when, where, and how interviews will take place. Sandy Recovery Workforce1 will screen applicants based on employer requirements and refer applicants whom it believes are qualified to the Contractor for interviews. The Contractor must interview referred applicants whom it believes are qualified, and must provide feedback on all interviewed candidates within two business days and report new hires to Sandy Recovery Workforce1 once confirmed.
   b. Sandy-impacted residents will be given first priority to register for opportunities with the rebuilding effort on-line and at Workforce1.
6. Workforce Recordkeeping Requirements: The Contractor must comply with monthly reporting requirements set forth by the City, which include, but are not limited to, data that the City is required to report under Local Law 140 of the City of New York and Section 3 of the Housing and Urban Development Act of 1968, as well as data collection related to Executive Order 11246. The Contractor must provide the Engineer with a Monthly Report of such data by the fifteenth of every month for the prior month using the paper and/ or electronic reporting format provided by the Engineer and must complete all applicable fields. If reporting particular information is impossible for the Contractor, the Contractor may apply for an exemption. Any application for an exemption must be made before the expiration of thirty (30) days after the commencement date of this Agreement and shall be in the form specified by the Engineer. Exemption may be granted upon a showing that the operation of this Section will constitute a hardship, within the sole discretion of the Commissioner. The content of this Monthly Report may change at any time as the City's reporting needs change.
7. Furthermore, the Contractor must complete weekly Certified Payroll reports using the WH-347 form, available from the U.S. Department of Labor, Wage and Hour Division, which may be submitted each month concurrent with the aforementioned Monthly Report.

B9. WORK RESTRICTIONS

The Contractor's attention is drawn to the following work restrictions:

1. Asser Levy Outdoor Playground Pool: No work on floodwall will be allowed near pool from May 15 through September 15. This covers floodwall stations 220+28 through 222+15.
2. NYC Ferry: Public access to the Stuyvesant Cove NYC Ferry Terminal must be maintained at all times.

The Contractor is notified of the following official activities that will affect roadway work within the project limits:

1. DOT Weekend Walks – LUNGS Spring Awakening
2. Macy's 4th of July Annual Fireworks Celebration
3. New York Road Runners (NYRR) - NYC Half Marathon

The Contractor will be required to accommodate these activities at no additional cost, per the requirements of Standard Highway Specifications Section 6.70.11.(I).

B10. VALUE ENGINEERING CHANGE PROPOSAL (VECP)

A. Purpose and scope. The purpose of a Value Engineering Change Proposal (VECP) is to encourage the use of the Contractor's ingenuity and experience in arriving at alternative construction designs, methods, and procedures that result in a lower direct cost to accomplish a contract requirement. It is the intent of this provision to share with the Contractor any substantial direct cost savings which may be generated as a result of a VECP offered by the Contractor and approved by the Engineer. A VECP is a Contractor-initiated change request. If approved, the changes and payments will be authorized through the change order process. Before a VECP can be implemented, it must pass through three approval processes: conceptual approval, formal approval, and change order approval. To expedite the review process, the Contractor has the option of jointly submitting the conceptual VECP and the formal VECP for simultaneous review. If the VECP receives formal approval, as part of the change order process the Contractor may request that the Engineer consider granting advanced authorization of extra work.

The VECP should produce direct cost savings to the City and the public without, in the sole judgment of the Engineer, impairing essential functions and characteristics of the facility including but not limited to service life, economy of operation, ease of maintenance, desired appearance, and safety. The Contractor, when developing a VECP, shall address the designer's objectives, environmental permit requirements and regulations, commitments made to the public to mitigate the impact of construction, and other such concerns.

The "direct cost savings" is the difference of the "construction savings" generated by implementing the VECP minus reasonable "design costs" associated with the VECP. The "construction savings" is the difference between what it would cost to complete all the contract work without implementing the VECP and the cost to complete all the contract work if the VECP is implemented. This includes any changes to quantities or unit prices across the entire contract if affected by the VECP. If the estimated cost to complete all the contract work without implementing the VECP differs from the contract bid amount for the work, supporting documentation to explain the variance shall be provided. Reimbursable "design costs" are specific to engineering changes (examples: design changes, plan sheet revisions, and quantity estimating). Expenditures toward proposal preparation (examples: scheduling, documentation, cost analysis, material research, etc.) are not reimbursable.

Indirect cost savings (time, user delay, railroad force account costs, inspection costs, etc.), although considered when reviewing the merits of the VECP, are not reimbursed. A VECP may alter the progress schedule and milestone dates, which in turn could affect time-related contract provisions.

Proposals that reduce the time to complete the contract, and only result in indirect cost savings, may be accepted based on the mutual benefit derived. These proposals will be evaluated in accordance with sub-provision F. Time Savings, below.

B. Submittal of Conceptual VECP. A conceptual proposal is required for all VECP. It should outline the general technical concepts associated with the VECP and the estimated direct cost savings which may result. Upon review by the Engineer, one of the following actions will be taken:

- Conceptual approval and a request for the Contractor to submit a formal VECP.
- Request for additional information.
- Rejection of the VECP.

The Contractor shall submit an original and three copies of the conceptual VECP to the Engineer along with any additional information requested by the Engineer. The conceptual VECP should contain sufficient information for concept review and evaluation, including the following as a minimum:

1. Conceptual VECP Summary. A summary of the VECP identified as "Conceptual VECP" which includes:

a. Short title (description) of the VECP (10 or less words).

b. Contract information (Contract ID number, contract description, contractor).

c. Original total contract bid price.

d. Estimated contract cost. This may be different from the original total contract bid price due to addition or alteration of work (i.e., the estimated cost to complete the work if the VECP is not implemented). The Engineer must concur with the estimated contract cost.

e. Estimated contract cost if the VECP is implemented (excludes VECP design cost and any VECP construction savings reimbursement).

f. Estimated VECP construction savings (Item d. minus Item e.).

g. Estimated VECP design cost (Not all VECP will have design cost).

h. Estimated direct cost savings due to the VECP (Item f. minus Item g.).

i. Fifty percent of the estimated direct cost savings (This should equal the overall savings to the City).

j. Estimated total adjusted contract cost if VECP is implemented (includes VECP savings and design cost reimbursements).

k. The type of VECP (either "Cost Savings" or "Time Savings Only").

l. Date by which the authorization of extra work (change order) must be granted.

m. Identification of any new or existing contract pay items requiring agreed prices.

n. Identification of any materials with long lead times (to order, fabricate, deliver, etc.) that may require purchase authorization from the Engineer prior to formal approval/disapproval of the VECP, or may delay the implementation of the VECP. Identify any date by which authorization to order these materials must be received without affecting the progress schedule.

o. A basic description of the VECP and associated benefits and impacts (progress schedule, environmental, maintenance & protection of traffic, quality, etc.).

2. Conceptual Plans. Conceptual plan drawings.

3. Design Criteria. If the VECP proposes design changes, supporting technical design criteria shall be provided.

4. Schedules.

    a. The most recently approved baseline progress schedule.

    b. The most recently approved construction progress schedule update.

    c. A draft, proposed, revised progress schedule illustrating the impacts of the VECP. The schedule shall identify: (1) the time required to develop a formal VECP; (2) the time required to order, fabricate, and deliver materials with long lead times; (3) the time required to obtain any environmental permits or other required approvals; (4) any anticipated progress schedule changes (contract completion date, milestone dates, task durations, etc.); (5) the latest date by which authorization of the VECP extra work must be granted without affecting the schedule.

    The draft progress schedule should provide a sufficient level of detail upon which the reasonableness of the VECP can be determined.

Should the Engineer find that insufficient time is available for review and processing, it may reject the VECP solely on such basis. If the Engineer fails to respond to the VECP by the date specified, the Contractor will consider the VECP rejected and will have no basis for a dispute against the City as a result thereof. The Engineer may accept a VECP that requires a contract time extension if sufficient cost savings are anticipated.

5. Estimate of costs. The conceptual VECP estimate of costs should include sufficient information to determine the reasonableness of the VECP. If the proposal requires the ordering of materials, the Contractor needs to provide documentation from the suppliers to justify the cost of the materials.
6. Previous Use or Testing. A description of any previous use or testing of the VECP on another City contract or elsewhere, the conditions and results therewith. The Contractor shall submit the technical aspects of the VECP in sufficient detail so the Engineer can determine the suitability of the VECP from an engineering perspective. If the technology is new, test information shall be provided to the Engineer's satisfaction. If a similar VECP was previously submitted on another City contract, indicate the date, contract number, and the action taken by the City.

C. Submittal of Formal VECP. Upon notification by the Engineer that the conceptual VECP is approved and a formal VECP is necessary, the Contractor will submit to the Engineer an original and three copies of the following materials and information for each formal VECP along with any additional information requested by the Engineer:

1. Formal VECP Summary. A summary of the VECP, identified as "Formal VECP", which follows the conceptual VECP summary format and information requirements (Information and estimates may have changed since the conceptual VECP).
2. Complete Plans and Specifications. Complete plans and specifications, which meet City standards, showing the proposed changes relative to the original contract features and requirements. The City requires a Professional Engineer's stamp and signature on any significant engineering changes.
3. Field Change Sheets. Field change sheets and/or shop drawings. If the VECP results in a field change, and those items affected require the submission of shop drawings, the shop drawings will not be accepted unless accompanied by corresponding field change sheets.
    1. Documents shall be developed in compliance with City requirements. The City requires a Professional Engineer's stamp and signature on any significant engineering changes.
4. Schedules. The same information requirements as for the conceptual VECP apply, except that a formal, proposed, revised progress schedule is required.
5. Cost Analysis. A complete cost analysis indicating quantity changes, unit price changes, and new contract pay items. As a minimum it shall include:
    a. An itemized comparison of estimated costs to complete all the contract work with implementing the VECP and without implementing the VECP.
    b. Proposed unit prices for any new contract pay items introduced by the VECP and appropriate documentation for review under the Agreed Price process.
    c. Proposed unit prices for any existing contract pay items for which agreed prices are sought due to a significant change in character of work (quantity or complexity). Appropriate documentation for review under the Agreed Price process is required.
    d. The cost of any items with long lead times (e.g., materials ordered) required after conceptual approval and before final approval shall be identified.

7. Differences. Full descriptions of the difference between the existing contract requirements and the proposed changes, and the comparative advantages and disadvantages of each, including considerations of service life, economy of operation, ease of maintenance, traffic flow, safety, desired appearance, progress schedule, and any increase/reduction of environmental impacts.
8. Technical Presentation. The Contractor may be required to conduct a technical presentation as part of the review process.
9. Cost Documentation. All formal VECP costs submitted shall be supported by documentation as required by Article 26 of the Standard Construction Contract.

The Engineer will not formally approve any VECP until all required VECP documentation has been submitted and is acceptable to the Engineer.

A formal VECP may be submitted concurrently with the conceptual VECP, however, the Contractor assumes any costs associated with the formal VECP at its own risk. Reimbursable costs will be considered only if the conceptual VECP is approved. Clearly identify whether a VECP is being submitted for conceptual approval, formal approval, or both.

Once a formal VECP has been approved, the VECP will then be submitted as a change order and processed accordingly. The Contractor is responsible for submitting all appropriate information to the Engineer in a timely manner.

D. Conditions. The Contractor shall not base any bid prices on the anticipated approval of a VECP and should recognize that any VECP may be rejected. The following terms and conditions apply to VECP:

1. A VECP will only be considered after the contract is awarded.
2. A VECP applies only to the contract for which it was submitted. One VECP shall not be submitted for multiple contracts. Approval or disapproval of a VECP on one contract does not guarantee approval or disapproval on another contract.
3. The VECP becomes the property of the City and will contain no restrictions imposed by the Contractor on its use or disclosure. The City will have the right to use, duplicate, and disclose in whole or in part any data necessary for the utilization of the VECP. The City retains the right to utilize any accepted or rejected VECP or part thereof on any other project without any obligation to the Contractor.
4. Approval of the conceptual VECP in no way obligates the Engineer to approve the formal VECP. The Contractor will have no claim against the City as a result of the rejection of any such conceptual or formal VECP except as otherwise provided in Sub-Provision E.4, below.
5. When the Engineer is in the process of making design and specification revisions and a Contractor submits a VECP with similar revisions, the Engineer will reject the VECP and proceed without any obligation to the Contractor.
6. A VECP will be considered only if reasonable, cost-effective options are not provided in the contract documents.
7. The Engineer will be the sole judge as to whether a VECP qualifies for consideration and evaluation. It may reject any VECP that requires excessive time or costs for design review, evaluation, and/or investigations. The Engineer will be the sole judge in determining if the proposed VECP will result in a sufficient amount of direct or indirect cost savings to offset the City's effort to review the VECP.

8. A VECP shall be consistent with DDC's design policies and basic design criteria, provide the same service life or more, facilitate economy of operations, ease of maintenance, and achieve the desired appearance and safety.
9. A VECP will not be allowed that changes the type and/or thickness of the pavement structure and material, or solely substitutes one material for another. Examples of materials that may fall into this inappropriate substitution situation are drainage pipes, coatings, pavement markings, etc. The simple elimination of work does not necessarily constitute a VECP, however, a VECP which introduces a simple material substitution, or elimination of work, may be considered if it is accompanied by a design change or change in the construction method. A simple material substitution which introduces a new material to the DDC may be also considered.
10. The VECP will not be experimental in nature, but will have been proven to the Engineer's satisfaction under similar or acceptable conditions on another City contract or at another location acceptable to the Engineer.
11. If the Engineer requires any additional information to evaluate the VECP, this information shall be provided in a timely manner. Unless otherwise mutually agreed upon, failure to do so will result in the rejection of the VECP. An incomplete or a poor quality VECP which hinders the Engineer's review may also result in the rejection of the VECP.
12. The Contractor shall encourage submissions of VECP from an approved subcontractor, provided that reimbursement is made by the City to the Contractor and that the terms of payment to the Subcontractor are satisfactorily negotiated and accepted before the VECP is submitted to the Engineer. Subcontractors may not submit a VECP except through the Contractor.
13. A VECP approved by the Engineer is considered to be a revision to the contract documents and progress schedule. Consequently, if unsatisfactory results are being achieved or adjustments are necessary during implementation of a VECP, the rejection of work, removal of work, addition of work, or revision of work shall be evaluated in accordance with the Contract requirements.
14. All contract pay items and quantities referenced in the VECP construction savings analysis shall be Engineer-approved contract provisions. Any extra work, inclusion of an omission of work, or other field changes shall be authorized prior to use in VECP savings calculations.
15. No work related to a VECP will be performed under allowance items. Agreed prices must be reached for any contract pay items related to the VECP before the VECP is approved. If the Contractor is deemed to have taken reasonable diligence in determining the work involved but if during the construction of VECP work a significant change in the character of work occurs, the Engineer may consider new agreed prices.
16. The Contractor will receive written notification from the Engineer when the VECP is approved. Material orders placed prior to VECP approval shall be submitted at the Contractor's risk.
17. Once a VECP has been approved, the VECP will then be submitted as a change order and processed accordingly. The Contractor is responsible for submitting all appropriate information to the Engineer in a timely manner.

E. Payment. If the VECP is accepted by the Engineer, the changes and payments will be authorized through a change order. Reimbursement to the Contractor will be made as follows:

1. A VECP introduces two individual payments, one for VECP construction savings, and one for VECP design cost. The contract pay item changes along with the VECP construction savings and design cost reimbursements to the Contractor should be submitted in one change order.

2. The City will pay to the Contractor 50% of the VECP construction savings. The VECP construction savings is the difference between the actual contract costs with the VECP implemented and a detailed estimate of what it would have cost to complete the contract work without implementing the VECP, based on final construction. If final construction savings differs from the amount estimated in the formal VECP, an adjustment may be made and included in another change order. The VECP construction savings reimbursement to the Contractor will not be paid until the VECP work has been completed (progress payments on the completed VECP work are allowed). The Engineer may withhold all or a portion of the payment for the Contractor's share of the VECP construction savings until the final contract accounting. In the event that at final contract accountings the implementation of VECP actually results in no construction savings, then the Contractor will receive no VECP construction savings payment.

   The Engineer is the sole judge in deciding the construction savings due to the implementation of the VECP. The Engineer will withhold VECP construction savings reimbursement until the Contractor supplies all required VECP documents.

3. If a design cost is submitted for a VECP, the City will pay to the Contractor a 50% share of the Contractor's reasonable cost for design incurred after conceptual VECP approval. If the design cost submitted for the Engineer's approval is deemed unreasonable, only 50% of the design cost deemed to be reasonable will be reimbursed. Not every VECP will have a design cost associated with it. The Engineer is the sole judge in determining the reasonableness of the design cost. Reimbursable design costs are for engineering changes. Preparation and submission of the proposal (e.g., savings analysis, progress scheduling, etc.) are not considered design costs and are not reimbursable. Reimbursable VECP design may be performed by a consultant or directly by the Contractor. The Contractor shall not be charged for, nor can the Contractor claim, any VECP design performed by the City.

   The design cost shall be submitted as a lump sum item with supporting documentation. The supporting documentation shall include itemized direct salary costs (rates & hours), overhead (only for consultant design), and direct non-salary costs. Payment for direct salary costs and overhead will be limited to the current City reimbursement policies for Consultant Engineering agreements.

   For consultant design, reasonable overhead on the direct technical salaries will be reimbursed. For Contractor design, overhead is not reimbursable for direct salary costs.

   Overhead shall not be charged for direct non-salary costs whether incurred by the Contractor or by a consultant. Payment for direct non-salary costs will be made at actual cost paid. Although for certain direct non-salary costs (lodging, meals, mileage) the rates must meet the requirements of Comptroller's Directive 6.

   The subtotal of direct salary costs, overhead, and direct non-salary costs shall be considered a "professional service fee" and reimbursed in accordance with §109-05B.3. Service Charges. A maximum 5% for the Contractor's contract supervision and overhead is allowed, in addition to any overhead submitted for consultant direct salary costs. All design costs are subject to audit.

   Additional supporting documentation (receipts, time sheets, etc.) shall be supplied in a timely manner if requested by the Engineer.

   In the case of a formal VECP being jointly submitted with the conceptual VECP, the City will pay to the Contractor a 50% share of the Contractor's reasonable cost for design specific to the development of the formal VECP (nothing toward the conceptual VECP) if the conceptual VECP is approved.

4. In the event of the Engineer's conceptual approval of a direct cost savings VECP, and the Contractor is directed to proceed with the VECP implementation steps and final approval is not reached, regardless of whether due to the actions of the City or the Contractor, 50% of the total reasonable design costs will still be reimbursed to the Contractor. If "advance" written approval was given to proceed with the work, procure materials, and begin fabrication; and rejection occurs, the work and fabrication costs will be reimbursed in accordance with the Standard Construction Contract. Only those materials not incorporated and unique to the contract (i.e., not restockable) will be evaluated for payment.
5. There will be no reimbursement for any costs incurred for the conceptual VECP or prior preparations.
6. If more than one VECP is approved for a contract, construction savings and design costs shall be tracked separately for each VECP.
7. When multiple submittals of information for a VECP are required to satisfy the information needs of the conceptual or formal VECP procedure, and contract timing will be negatively impacted before review and subsequent approval can be given by the Engineer, then the VECP may be rejected. In such cases, there will be no claim by the Contractor for design costs or loss of anticipated savings and/or profits.
8. VECP payments only involve direct savings or costs. Indirect savings or costs (time, user delay, contract delay, etc.) are not included in VECP payment calculations. The calculations of VECP payments are independent from the payments or penalties for contract time related issues.

   If a VECP revises the progress schedule, the contract milestones upon which time related provisions are based may be affected. Time savings resulting from a VECP may be realized in a time related contract provision. Conversely, if a VECP negatively affects a progress schedule, time related contract provisions may be negatively affected.

F. Time Savings. The Engineer will consider proposals that result in time savings and at the same time may increase the cost of the contract. The Engineer will be the sole judge as to whether the benefits of completing the contract or a phase before the scheduled completion date or milestone offsets any increase in cost. These submittals, while not constituting a Value Engineering Change Proposal, will be reviewed using the VECP approval process. In addition to information required in Sub-Provision B, "Submittal of Conceptual VECP" above and Sub-Provision C, "Submittal of Formal VECP" above, the Contractor shall provide the Engineer the anticipated amount of time to be saved and sufficient information to enable the Engineer to calculate and evaluate the cost benefit of the savings in user delay. Time savings generated by the VECP may be claimed under an existing time related contract provision. If the time savings VECP increases the cost of the contract, the additional cost shall not be subtracted from any time related contract provision payments.

G. Significant Changes. Once a VECP is approved, any future significant change is no longer based on the original contract bid conditions (quantity, nature or kind of a material involved), but rather on the conditions as adjusted by the VECP (adjusted quantities, anticipated site conditions and materials, etc.).

All significant changes shall be agreed upon prior to formal VECP approval. If after formal VECP approval, an unforeseen change in the VECP work causes a significant change in the character of work, quantities and prices may be adjusted and the VECP savings shall be adjusted accordingly.

B11. Reference Documents

The following reference documents are attached to the Contract:

(1) East Side Coastal Resiliency: Mitigation Work Plan for MGP-Related NAPL Contamination, prepared by AKRF under the Hazen and Sawyer / AKRF JV.
(2) East Side Coastal Resiliency: Remedial Action Plan (and associated CHASP), prepared by AKRF under the Hazen and Sawyer / AKRF JV.
(3) East Side Coastal Resiliency: Supplemental Subsurface Investigation Report - Borough of Manhattan, New York, prepared by AKRF under the Hazen and Sawyer / AKRF JV.
(4) East Side Coastal Resiliency: Environmental Subsurface Investigation Report for Parallel Conveyance & Isolation Gates - Borough of Manhattan, New York, AKRF-KSE JV.
(5) East Side Coastal Resiliency: Mitigation Work Plan for MGP-Related NAPL Contamination, prepared by AKRF under the Hazen and Sawyer / AKRF JV.
(6) East Side Coastal Resiliency: Supplemental Subsurface Investigation Report - Borough of Manhattan, New York, prepared by AKRF under the Hazen and Sawyer / AKRF JV.
(7) East Side Coastal Resiliency Project Area One: Subsurface Exploration Report - Borough of Manhattan, New York, prepared by AKRF under the Hazen and Sawyer / AKRF JV.
(8) East Side Coastal Resiliency Project Area Two: Subsurface Exploration Report - Borough of Manhattan, New York, prepared by AKRF under the Hazen and Sawyer / AKRF JV.
(9) Remedial Investigation Report, Operable Unit 2 (OU2) – Former East 21st Street Works – Site # V00536, New York, New York, AECOM.
(10) Remedial Investigation Report, Stuyvesant Town Former Manufactured Gas Plant Sites, VCA Index D2—0003-02-08, AECOM.(11) Remedial Investigation Report for Operable Unit 2 – East 11th Street Works Site – NYSDEC Site No. V00534, New York, New York, ARCADIS.
(11) Storm Water Pollution Prevention Plan (SWPPP).

The referenced documents are available from the NYCDDC BDO website.

B12. Envision

The DDC is committed to the principles of sustainable development and will submit this project for evaluation as per the Institute for Sustainable Infrastructure's ENVISION Sustainable Infrastructure Framework. As such, the Contractor is required to provide support and assistance to DDC in the required documentation for applicable contractor related activities for the ENVISION verification process. The ENVISION: Sustainable Infrastructure Framework Guidance Manual is available at: https://sustainableinfrastructure.org.

B13. Payment for Maintenance and Protection of Traffic

This contract has itemized payments for Maintenance and Protection of Traffic work as described in Standard Highway Specifications Section 6.70.13.

For all of the itemized MPT devices, the following clarification is provided regarding minor or incidental movement of the devices. Minor movements of MPT devices will not be considered as movement to a new location and are not eligible for additional payment. Minor movement includes:

- Movement from one side of the roadway to the other side;
- Movement to adjust the roadway or work zone width;
- Movement required to access the work zone or to secure the work zone;
- Linear movement of less than one block within an established work zone; or
- Rearrangement within a work area.
- Daily replacement to approximately the same location.

B14. Special Inspection and Department of Buildings.

Portions of work under this contract are subject to the provisions of the New York City Construction Codes, as noted on the Contract Drawings.

Work subject to the provisions of the New York City Construction Codes shall meet the requirements of the New York City Construction Codes and the following:

1. Inspection of selected materials, equipment, installation, fabrication, erection or placement of components and connections made during the progress of the Work to ensure compliance with the Contract Documents and provisions of the New York City Construction Codes, shall be made by a Special Inspector. The City of New York will retain the services of the Special Inspector and bear the costs for the performance of Special Inspections in compliance with NYC Construction Codes requirements or as additionally may be called for in the project specifications. The Special Inspector shall be an entity compliant with the requirements of the New York City Construction Codes.

2. The contractor shall be responsible for, and bear all costs associated with the filing and securing of approvals, if any, as required in the specifications.

   This work may include but is not limited to:

   a. Engaging the services of a New York City licensed Concrete Testing Lab for the review and approval of concrete design mix, testing, signatures and professional seals, etc., compliant with NYC Department of Buildings requirements, for each concrete design mix.

   b. Engaging a professional engineer or registered architect to act as the applicant, and prepare or supervise the preparation of all construction documents and specifications submitted under the required applications.

   Where a Form TR3 is required, concrete mix design approval by the QA & Construction Safety Bureau per Section 3.05.4 of the NYCDOT Standard Highway Specifications is not required.

3. The Contractor shall notify the relevant Special Inspector in writing at least 72 hours before the commencement of any work requiring Special Inspection. The contractor shall be responsible for, and bear related costs to assure that all construction or work shall remain accessible and exposed for inspection purposes until the required inspection is completed.

4. Inspections and tests performed under "Special Inspection" shall not relieve the Contractor of the responsibility to comply with the Contract Documents, and that there is no warranty given to the Contractor by the City of New York in connection with such inspection and tests or certifications made under "Special Inspections".

5. The contractor must coordinate with the Engineer to provide access and schedule the work for inspection by the Special Inspector.

B15. Coordination with Other Contractors

The East Side Costal Resiliency Project is being executed by multiple simultaneous construction contracts, including this contract. Accordingly, the Contractor is required to coordinate with the Other Contractors as specified in Article 12 of the Standard Construction Contract.

B16. Revisions: Specifications and Contract Drawings

The Specifications and the Contract Drawings for the Project are revised in accordance with the provisions set forth below.

(1) Owner: Wherever the term "Owner" is used in the Specifications and/or the Contract Drawings, such term shall mean the City of New York.

(2) Other Entities: In the event any entity other than the City of New York is referred to or named as the "Owner" in the Specifications and/or the Contract Drawings, the name of such other entity is deemed deleted and replaced with the "City of New York".

(3) Architect: Wherever the words "Department's Authorized Representative", "Construction Manager", "Landscape Architect", "Project Manager", "Architect", "Architect / Engineer", "Architect and/or Engineer", or similar are used in the Specifications and/or the Contract Drawings, such words are deemed deleted and replaced with the word "Engineer".

(4) Products / Manufacturers: Wherever the Specifications and/or the Contract Drawings require the contractor to provide a particular product (i.e., material and/or equipment) from a designated manufacturer and/or vendor, the term "or approved equal" is deemed inserted, even if only one product and/or manufacturer is specified, except as otherwise provided below.

(5) Special Experience Requirements: Special Experience Requirements for the Project, if any, are set forth in the Bid Booklet. Special Experience Requirements may apply to contractors, subcontractors, installers, manufacturers and/or suppliers. If the Specifications and/or the Contract Drawings contain any Special Experience Requirement that is not set forth in the Bid Booklet, such Special Experience Requirement is deemed deleted, except as otherwise provided below.

(a) Any Special Experience Requirement that provides that the entity performing the work or supplying the material must have more than three (3) years of experience, is revised to provide that the entity performing the work or supplying the material must have three (3) years of experience, except as described in paragraph (b) below.

(b) Any Special Experience Requirement that pertains to the abatement of hazardous materials shall not be subject to the deletion and/or revision set forth above. Such Special Experience Requirement shall remain in full force and effect.

(c) Any Special Experience Requirement that provides that the entity performing the work must be licensed, authorized, certified, approved by or acceptable to the manufacturer, is deemed deleted and replaced with the requirement that such entity must be properly trained for the specified work.

(d) Any Special Experience Requirement that provides that the individual workers performing the work must be licensed, authorized, certified, approved by or acceptable to the manufacturer, is deemed deleted and replaced with the requirement that such individual workers must be properly trained for the specified work.

(6) Contractor Retained Engineer: If the Specifications and/or the Contract Drawings require the Contractor to retain an Engineer to provide engineering services for the Project, the following sentence is deemed inserted: "Such Engineer must be a Professional Engineer, licensed in the State of New York."

(7) Sustainability Provisions: If the Specifications and/or the Contract Drawings require the Contractor to purchase FSC certified wood, rapidly renewable materials, materials within 500 miles, metal materials, products, anchors, framing and accessories with recycled content, such provisions are deemed deleted and replaced with the requirement that if the contractor has

purchased FSC certified wood, rapidly renewable materials, materials within 500 miles, metal materials, products, anchors, framing and accessories with recycled content, the contractor shall submit such forms or documentation as may be required by the City in order for the USGBC to certify that the Project qualifies for the related LEED credit(s).

(8) Exculpatory Provisions: In the event the Specifications and/or the Contract Drawings contain any provision whereby the consultant and/or any of its officers, employees or agents, including subconsultants, is absolved of responsibility for any act or omission, such provision is deemed deleted.

(9) Insurance: Provisions regarding insurance coverage the Contractor is required to provide are set forth in Article 22 of the City of New York Standard Construction Contract and Schedule A, which is included in the Addendum to the General Conditions. In the event the Specifications and/or the Contract Drawings contain any provision regarding insurance requirements, such provision is deemed deleted.

(10) Indemnification: Provisions regarding indemnification are set forth in Articles 7, 12, 22 and 57 of the City of New York Standard Construction Contract. In the event the Specifications and/or the Contract Drawings contain any provision regarding indemnification, such provision is deemed deleted.

(11) Dispute Resolution: Provisions regarding dispute resolution are set forth in Article 27 of the City of New York Standard Construction Contract. In the event the Specifications and/or the Contract Drawings contain any provision regarding dispute resolution, such provision is deemed deleted.

(12) Standard Construction Contract: In the event of any conflict or inconsistency between (1) the Specifications and/or the Contract Drawings and (2) the City of New York Standard Construction Contract, the City of New York Standard Construction Contract shall prevail.

(13) Prices to Cover: All contract unit prices will include the costs of all labor, material, equipment, insurance, supervision, and insurance, whether or not specifically mentioned in the specifications.

(14) Work to be Managed solely by the NYC Department of Design and Construction (NYCDDC): In the event a provision stipulates that approval or direction will be provided by a City Agency other than the NYCDDC, that provision will be interpreted that the approval or direction will be provided by the Engineer, in consultation with the referenced Agency. This stipulation does not apply to approvals or direction that are required by Rules, Codes or other regulations; e.g. the NYC Department of Buildings will continue to enforce the NYC Building Codes and approve building permit applications.

(15) Guarantee Periods: If a Guarantee period is specified that exceeds the guarantee period listed in Schedule A, the guarantee period in Schedule A governs.

(16) Compliance with laws and regulations: all references to compliance with laws and regulations are deemed to include compliance with all local, state, and federal regulations.

(17) References:

(a) References to the General Conditions in the specifications will refer to the NYCDOT Standard Highway Specifications, Division 1 (Section 1.06), the NYCDEP Standard Sewer and Water Specifications Division 1 (Sections 10.01 through 12.07), and the Standard Construction Contract, as supplemented by the specifications in this Volume 3.

(b) References to the Materials and Methods of Construction will refer to the appropriate requirements of the NYCDOT Standard Highway Specifications, Division 2 (Sections 2.01 through 20.40) and the NYCDEP Standard Sewer and Water Specifications Division 2 (Sections 20.01 through 26.02) as supplemented by the specifications in this Volume 3.

B17. U.S. Army Corps of Engineers Requirements

The City has applied for a U.S. Army Corps of Engineers (USACE) Permit. The following USACE special conditions must be followed:

(A) This authorization is conditional on the applicant's receipt of the required Section 401 Water Quality Certification or waiver from the New York State Department of Environmental Quality (NYSDEC). No work may be accomplished until the required approval from NYSDEC has been obtained. Once obtained, the permittee, and their agents, shall be responsible for complying with any special conditions and/or stipulations incorporated into the appropriate Section 401 Water Quality Certification, and all amendments thereto.

(B) This authorization is conditional on the applicant's receipt of the required coastal zone management concurrence or waiver from the New York State Department of State (NYSDOS). No work may be accomplished until the required approval from NYSDOS has been obtained. Once obtained, the permittee, and their agents, shall be responsible for complying with any special conditions and/or stipulations incorporated into the appropriate Section 307(c) of the Coastal Management Act of 1972 Authorization from the NYSDOS, and all amendments thereto.

(C) The permittee, and their agents, shall avoid installing cofferdams within winter flounder early life stage Essential Fish Habitat between January 15 and May 31 of any year to minimize impacts to winter flounder eggs and larvae.

(D) The permittee, and their agents, shall ensure when pile driving activities occur during a time of year when ESA-listed species may be present, a vibratory hammer shall be used to the extent practicable. If an impact hammer is used, 20-minute "soft starts" shall be performed, and a wooden block shall be used to buffer the noise and vibrations during hammering.

(E) The permittee, and their agents, shall ensure cofferdams, turbidity curtains, or other methods to control turbidity are utilized when operationally feasible and ESA-listed species may be present.

(F) The permittee, and their agents, shall ensure the Section 106 Programmatic Agreement dated December 5, 2019, is adhered to.

(G) The permittee shall provide this office with a copy of all documents and correspondence required to carry out the Section 106 Programmatic Agreement dated December 5, 2019, also including the Phase 1B Archeological Report, once completed.

(H) The permittee, and their agents, shall ensure any vessels used in conjunction with this project comply with the Port of New York anchorage ground regulations codified at 33 CFR 110.155, including paragraph (1)(11) regarding vessels that impede or obstruct vessel movements.

(I) The Permittee, and their agents shall, a minimum of 14-days prior to starting operations, submit the following information to the First Coast Guard District for publication in the Local Notice to Mariners by email at LNM@uscg.mil, or faxed to (617) 223-8291):

Date of submission; Name, phone number, and email address of project point of contact; Company Name; Type of Work; Waterway and location where work will be done; Latitude & Longitude of work area (Degrees, Minutes, Thousandths of seconds); Work Start & Stop dates and Hours of Operation; Equipment on scene; Passing Arrangements / Time to move vessels to not impede navigation; VHF Radio Channel monitored; Disposal Site (if used); NOAA Chart Number for the area.

(J) The Permittee, and their agents, shall check in with Coast Guard Sector New York Vessel Traffic Service (VTSNY) on VHF CH 12 or at (718) 354-4195 each day, fifteen minutes before starting, and upon completion, of diving operations.

(K) The permittee, and their agents, shall email Jeffrey.M.Yunker@uscg.mil each request to moor two or more barges abreast or moor any single barge perpendicular to the federal channel at any time during the project for review with VTSNY. Construction barges may be required to move with advance notice depending on the location and combined beam of the moored vessels.

(L) The permittee, and their agents, shall email Jeffrey.M.Yunker@uscg.mil the as-built coordinates for the center of each of the ten relocated sewer outfalls.

(M) The permittee, and their agents, shall notify the National Oceanic and Atmospheric Administration of the project completion and specifications so they may initiate the appropriate chart and Coast Pilot corrections. This notification must be submitted online at https://nauticalcharts.noaa.gov/charts/docs/charts-updates/Permit-Public-Notice.pdf and include a copy of the USACE permit.

(N) The permittee, and their agents, shall ensure any current, or future, outdoor lighting is located or shielded so that it is not confused with any aids to navigation and does not interfere with navigation on the adjacent waterway. If installed, the lights must be white and non-flashing.

(O) The permittee shall ensure all soil and sediment management during in-water construction adheres to a Mitigation Work Plan (MWP) approved by the New York Stated Department of Environmental Conservation (NYSDEC), and/or shall complete any sediment testing requirements, as required by the NYSDEC, prior to the start of any in-water work within the project area. A copy of any changes to the MWP, and any reports resulting from additional soil testing, shall be provided to the U.S. Army Corps of Engineers, Regulatory Branch.

(P) The permittee, and their agents, shall conduct all in-water work within the confines of a turbidity curtain and oil booms to contain soil and suspended sediments. Additionally, the permittee shall use other Best Management Practices to ensure turbidity is minimized in the water.

(Q) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

(R) The permittee shall utilize best management practices to minimize turbidity during all in-water work activities as well as prevent construction materials, including debris, from entering any waterway to become drift or pollution hazards.

NEW YORK CITY DOT

Department of Transportation

POLLY TROTTENBERG, Commissioner

OCMC TRAFFIC STIPULATIONS

January 8, 2020

OCMC FILE NO: MEC-19-181
CONTRACT NO:
PROJECT: EAST SIDE COASTAL RESILIENCY PROJECT (PROJECT AREA TWO (2)

LOCATION(S): VARIOUS LOCATIONS

PERMISSION IS HEREBY GRANTED TO THE DEPARTMENT OF DESIGN AND CONSTRUCTION ITS DULY AUTHORIZED AGENT, TO ENTER UPON AND RESTRICT THE FLOW OF TRAFFIC AT THE ABOVE LOCATION(S) FOR THE PURPOSE OF CARRYING OUT THE ABOVE NOTED PROJECT, SUBJECT TO THE STIPULATIONS, AS NOTED BELOW:

I. SPECIAL STIPULATIONS

A. **EMBARGOES** – A CONSTRUCTION EMBARGO WILL APPLY TO THOSE LOCATIONS BELOW WHICH FALL WITHIN THE **HOLIDAY EMBARGO** OR ANY OTHER SPECIAL EVENT EMBARGOES SUCH AS PUBLISHED BY THE BUREAU OF PERMIT MANAGEMENT AND CONSTRUCTION CONTROL.

1. **BIKE LANES** FOR ANY WORK IN OR AFFECTING A BIKE LANE , THE PERMITTEE MUST COMPLY WITH THE **"NEW GUILDELINES FOR THE MANITENANCE & PROTECTION OF TRAFFIC PLAN FOR CYCLING"**, AND ALSO POST A SIGN AT THE WORK ZONE STATING **"CONSTRUCTION IN BIKE LANE PROCEED WITH CAUTION"**. WHICH ARE AVAILABLE AT:

   HTTPS://WWW1.NYC.GOV/HTML/DOT/DOWNLOADS/PDF/BIKE-MPT-GUIDELINES.PDF

B. **BIKE SHARE STATIONS:** THE PERMITTEE SHALL NOT REMOVE, RELOCATE, DAMAGE OR DISRUPT THE OPERATION OF EXISTING BIKE SHARE STATIONS WITHOUT FIRST CONTACTING NYC BIKE SHARE AT 855-245-3311 FOR THEIR REQUIREMENTS PRIOR TO COMMENCING WORK.

C. **CITYBENCH:** THE PERMITTEE SHALL NOT REMOVE, RELOCATE, DAMAGE OR DISRUPT AN EXISTING CITYBENCH WITHOUT FIRST CONTACTING NYC DOT AT 212-839-6569, OR VIA EMAIL AT CITYBENCH@DOT.NYC.GOV PRIOR TO COMMENCING WORK.

D. **PROTECTION OF NYC DEP GREEN INFRASTRUCTURE:** THE PERMITTEE SHALL TAKE PRECAUTION OF NYC DEP GREEN INFRASTRUCTURE IN THE RIGHT-OF-WAY. THE PERMITTEE MUST PROTECT NYC DEP GREEN INFRASTRUCTURE DOWNSTREAM OF THE WORK OR WITHIN FIVE (5) FEET OF THE WORK AREA. THE PERMITTEE MUST EMAIL NYC DEP AT SUSTAINABILITY@DEP.NYC.GOV FOR PROTECTION REQUIREMENTS PRIOR TO COMMENCING WORK. THE PERMITTEE IS RESPONSIBLE FOR RESTORATION OF DAMAGED NYC DEP INFRASTRUCTURE AS DIRECTED BY NYC DEP.

E. **BUS STOPS** – THE PERMITTEE SHALL PROVIDE WRITTEN NOTICE TO NYC DOT OCMC AND NEW YORK CITY TRANSIT (NYCT) A MINIMUM OF FIVE (5) WEEKS IN ADVANCE FOR LANE/STREET CLOSURES THAT AFFECT BUS ROUTES/BUS STOPS.

F. **STREET LIGHTS / TRAFFIC SIGNALS:** THE PERMITTEE SHALL NOT REMOVE OR RELOCATE EXISTING STREET LIGHTS OR TRAFFIC SIGNALS WITHOUT FIRST OBTAINING APPROVAL FROM NYCDOT STREET LIGHTING / TRAFFIC SIGNALS UNIT.

G. **TRAFFIC CAMERAS, DETECTION/COMMUNICATION EQUIPMENT:** IF AT ANY TIME DURING THE APPROVED WORK, THE PERMITTEE ENCOUNTERS TRAFFIC SURVEILLANCE CAMERAS, DETECTION EQUIPMENT OR ANY TYPE OF COMMUNICATION EQUIPMENT (WIRELESS OR HARD-WIRED) ON ANY NYC DOT FACILITY, THAT IS NOT INCLUDED ON THE DESIGN/BUILD DRAWINGS, THE PERMITTEE SHALL IMMEDIATELY NOTIFY NYC DOT TRAFFIC MANAGEMENT BY PHONE AT 718-433-3390 OR 718-433-3340 AND VIA EMAIL AT TMC@DOT.NYC.GOV AND AWAIT DIRECTION PRIOR TO CONTINUING WORK.

H. **METERS** – THE PERMITTEE SHALL NOT REMOVE OR RELOCATE PARKING METERS WITHOUT FIRST OBTAINING APPROVAL FROM NYCDOT PARKING METER DIVISION AT 718-894-8651.

I. **TEST PITS** – THE BELOW TRAFFIC STIPULATIONS DO NOT APPLY TO TEST PIT WORK RELATED TO THIS CONTRACT. WORK HOURS AND OTHER REQUIREMENTS FOR TEST PIT OPERATIONS MAY DIFFER FROM THE STIPULATIONS IDENTIFIED BELOW. THE PERMITTEE SHALL BE REQUIRED TO OBTAIN SEPARATE PERMITS RELATED TO TEST PITS.

J. **TEMPORARY PARKING REGULATIONS/PAVEMENT MARKINGS** – THE PERMITTEE IS REQUIRED TO INSTALL, MAINTAIN AND REMOVE ALL NECESSARY TEMPORARY PARKING AND REGULATORY SIGNS AND PAVEMENT MARKINGS, AND RESTORE THEIR ORIGINAL CONDITION PER NYC DOT STANDARDS, PRIOR TO EXPIRATION OF THEIR PERMITS. THE PERMITTEE OR AGENCY PERFORMING PUBLIC OUTREACH SHALL POST AND MAINTAIN ADVISORY SIGNS A MINIMUM OF 48 HOURS PRIOR TO CHANGING EXISTING PARKING REGULATION SIGNS TO APPROVED TEMPORARY CONSTRUCTION PARKING REGULATION SIGNS. THE ADVISORY SIGNS SHOULD BE POSTED ON ALL POLES AND DRIVE RAILS ON THE SEGMENT AFFECTED, INDICATING THE DATE OF THE CHANGE, THE NEW REGULATIONS AND A TELEPHONE NUMBER TO OBTAIN MORE INFORMATION.

K. **ACCESS TO ABUTTING PROPERTIES** – THE PERMITTEE SHALL COORDINATE ALL ACTIVITIES WITH ABUTTING PROPERTY OWNERS TO ENSURE ACCESS IS PROVIDED TO/FROM ENTRANCES/DRIVEWAYS AT ALL TIMES.

L. **AUTHORIZED PARKING** – PRIOR TO PERFORMING WORK WHICH IMPACTS AUTHORIZED PARKING, THE PERMITTEE SHALL SUBMIT IN WRITING, AND COPY OCMC-STREETS, A REQUEST TO OCCUPY SPACE CURRENTLY USED BY AUTHORIZED VEHICLES. APPROVAL MUST BE RECEIVED FROM AUTHORIZED PARKING PRIOR TO OCCUPYING THESE AREAS.

NYC Department of Transportation
Bureau of Permit Management and Construction Control
55 Water Street - 7th Floor, New York, NY 10041
T: 212.839.9621 F: 212.839.8970
www.nyc.gov/dot

M. **NOTIFICATION** – THE PERMITTEE MUST AT LEAST TWO (2) WORKING DAYS BEFORE THE START OF CONSTRUCTION NOTIFY THE NYC FIRE DEPARTMENT, NYC POLICE DEPARTMENT, NYCEMS, LOCAL COMMUNITY BOARD, BOROUGH PRESIDENT'S OFFICE-CHIEF ENGINEER, NYCDOT OCMC OFFICE, AND ALL ABUTTING PROPERTY OWNERS.

N. **CONSTRUCTION INFORMATIONAL SIGNS** – THIS PROJECT REQUIRES A CONSTRUCTION PROJECT INFORMATIONAL SIGN (CPIS) IN ACCORDANCE WITH NYCDOT HIGHWAY RULE SECTION 2-02 (4) AND (5). CRITERIA AND A PROTOTYPE FOR THIS SIGN MAY BE FOUND ON THE NYCDOT WEBSITE AT:

HTTP://WWW.NYC.GOV/HTML/DOT/DOWNLOADS/PDF/DOT_CPIS_DIRECTIONS.PDF

O. **ENHANCED MITIGATIONS**

- **VARIABLE MESSAGE SIGNS (VMS)** SHALL BE PROVIDED FOR THIS PROJECT. **A TOTAL OF 8 VMS SHALL BE PLACED FOR THIS CONTRACT.** THE LOCATIONS AND MESSAGES SHALL BE RECOMMENDED BY NYCDDC AND THEIR CONTRACTOR A MINIMUM OF TWO (2) WEEKS PRIOR TO WORK COMMENCING, FOR OCMC REVIEW AND APPROVAL.
- **"NO STANDING ANYTIME-TEMPORARY CONSTRUCTION" SIGNS** AND TEMPORARY PAVEMENT MARKINGS SHALL BE INSTALLED AND MAINTAINED AS WARRANTED BY THE MAINTENANCE AND PROTECTION OF TRAFFIC (MPT) REQUIRED TO FACILITATE TRAFFIC MOVEMENTS THROUGH THE WORK ZONE. ALL TEMPORARY SIGNS AND PAVEMENT MARKINGS SHALL BE REMOVED UPON COMPLETION OF THE PROJECT.
- **COMMUNITY OUTREACH** SHALL BE PROVIDED FOR THE DURATION OF THE PROJECT.

II. MAINTENANCE AND PROTECTION OF TRAFFIC

A. WHEN WORKING IN THE INTERSECTION OF AVENUE C AND EAST 18TH STREET

1. Work hours shall be as follows: 9am-3pm Monday thru Friday and Saturday 8am-4pm
2. **Maintain two moving lanes and one turning lane on Avenue C and one lane on East 18th Street .**

B. WHEN WORKING ON AVENUE C BETWEEN EAST 18TH STREET AND EAST 20TH STREET (SIDEWALK WORK ONLY)

1. Work hours shall be as follows: 7am-6pm Monday thru Friday and Saturday 8am-4pm.
2. **Maintain minimum five (5) foot clear sidewalk at all time.**

C. WHEN WORKING ON AVENUE C BETWEEN EAST 20TH STREET AND EAST 23RD STREET.

1. Work hours shall be as follows: 8AM-6PM Monday thru Friday and Saturday 8am-4pm
2. **Maintain two lanes in each direction at all time and one service by the gas station.**
3. **Maintain minimum five (5) foot clear sidewalk at all time.**

D. WHEN WORKING ON EAST 23RD STREET BETWEEN AVENUE C AND 1ST AVENUE

1. Work hours shall be as follows: 8am-6pm Monday thru Friday and Saturday 8am-4pm.
2. **Maintain four lanes on the main roadway and fully closed the service roadway during working hours.**

E. WHEN WORKING ON AVENUE C BETWEEN EAST 23RD STREET AND EAST 25TH STREET

1. Work hours shall be as follows: 12am-5am nightly
2. Full roadway closed
3. **Full sidewalk closed**
4. **This work is only during the winter time and must coordinate with NYC Parks Department before mobilizing.**

II. NEW YORK CITY TRAFFIC AGENTS LOCATIONS

A. WHEN WORKING IN THE INTERSECTION OF AVENUE C AND EAST 18TH STREET

1. **Need one (1) Traffic Agent**
2. Work hours shall be as follows: 7am-7pm Monday thru Saturday

B. WHEN WORKING ON AVENUE C BETWEEN EAST 18TH STREET AND EAST 20TH STREET (SIDEWALK WORK ONLY)

1. Need two (2) Traffic Agents, one at each end on the block segment
2. Work hours shall be as follows: 7am-7pm Monday thru Saturday

C. WHEN WORKING ON AVENUE C BETWEEN EAST 20TH STREET AND EAST 23RD STREET.

1. Need two (2) Traffic Agents, one at each end on the block segment
2. Work hours shall be as follows: 7am-7pm Monday thru Saturday

D. WHEN WORKING ON EAST 23RD STREET BETWEEN AVENUE C AND 1ST AVENUE

1. Need four (4) Traffic Agents, , one at each end on the block segment and two in the middle of the block.
2. Work hours shall be as follows: 7am-7pm Monday thru Saturday

E. WHEN WORKING ON AVENUE C BETWEEN EAST 23RD STREET AND EAST 25TH STREET

1. Need four (4) Traffic Agents for detour
2. Work hours shall be as follows: 12am-5am nightly

II. GENERAL NOTES

A. **THIS IS NOT A PERMIT.** THIS STIPULATION SHEET MUST BE SUBMITTED WITH ALL REQUESTS FOR PERMITS PERTAINING TO THE ABOVE CONTRACT AND PRESENT AT THE WORK SITE ALONG WITH ALL ACTIVE CONSTRUCTION PERMITS WHEN THE APPROVED WORK IS BEING PERFORMED.

B. THE PERMITTEE MUST COMPLY WITH ALL CONSTRUCTION EMBARGOS ISSUED BY THE NYCDOT INCLUDING THE HOLIDAY EMBARGO.

C. THE PERMITTEE SHALL COMPLY WITH ALL REQUIREMENTS OF THE NYCDOT SPECIAL EVENTS UNIT AS IDENTIFIED BELOW:

1. STREET FAIRS / FESTIVALS

- ALL EXCAVATIONS MUST BE PLATED WITH SKID RESISTANT PLATES.
- PLATES MUST BE RECESSED AND FLUSH WITH PAVEMENT.
- ALL PAVEMENT DEFECTS MUST BE CORRECTED WITHIN OR ADJACENT TO THE WORK ZONE.
- THE CONTRACTOR IS RESPONSIBLE FOR ANY DEFECTS WITHIN THE IMMEDIATE VICINITY IF NYCDOT STREET & ARTERIAL MAINTENANCE CANNOT MAKE REPAIRS DUE TO PROJECT INTERFERENCE (AS DETERMINED BY NYCDOT).
- ALL EQUIPMENT, TRAILERS AND MATERIAL STORAGE MUST BE REMOVED.

2. RUNNING / WALKING / BIKING EVENTS

- ALL EXCAVATIONS MUST BE BACKFILLED AND PAVED OR PLATES MUST BE RECESSED AND PAVED OVER FLUSH WITH PAVEMENT.
- ALL PAVEMENT DEFECTS MUST BE CORRECTED WITHIN OR ADJACENT TO THE WORK ZONE.
- THE CONTRACTOR IS RESPONSIBLE FOR ANY DEFECTS WITHIN THE IMMEDIATE VICINITY IF NYCDOT STREET & ARTERIAL MAINTENANCE CANNOT MAKE REPAIRS DUE TO PROJECT INTERFERENCE (AS DETERMINED BY NYCDOT).
- ALL EQUIPMENT, TRAILERS AND MATERIAL STORAGE MUST BE REMOVED.

3. PARADES

- ALL EXCAVATIONS MUST BE BACKFILLED AND PAVED OR PLATES MUST BE RECESSED AND PAVED OVER FLUSH WITH PAVEMENT.
- FORMATION AND DISPERSAL AREA PLATES MUST BE RECESSED AND FLUSH WITH PAVEMENT (PLATES MUST BE SKID RESISTANT).
- ALL PAVEMENT DEFECTS MUST BE CORRECTED WITHIN OR ADJACENT TO THE WORK ZONE.
- THE CONTRACTOR IS RESPONSIBLE FOR ANY DEFECTS WITHIN THE IMMEDIATE VICINITY IF NYCDOT STREET & ARTERIAL MAINTENANCE CANNOT MAKE REPAIRS DUE TO PROJECT INTERFERENCE (AS DETERMINED BY NYCDOT).
- ALL EQUIPMENT, TRAILERS AND MATERIAL STORAGE MUST BE REMOVED.

4. MAYORAL EVENTS

- ALL EXCAVATIONS MUST BE BACKFILLED AND PAVED OR PLATES MUST BE RECESSED AND PAVED OVER FLUSH WITH PAVEMENT.
- ALL PAVEMENT DEFECTS MUST BE CORRECTED WITHIN OR ADJACENT TO THE WORK ZONE.
- THE CONTRACTOR IS RESPONSIBLE FOR ANY DEFECTS WITHIN THE IMMEDIATE VICINITY IF NYCDOT STREET & ARTERIAL MAINTENANCE CANNOT MAKE REPAIRS DUE TO PROJECT INTERFERENCE (AS DETERMINED BY NYCDOT).
- ALL EQUIPMENT, TRAILERS AND MATERIAL STORAGE MUST BE REMOVED.

D. ALL RELOCATION WORK BY THE UTILITIES SUCH AS; CON EDISON, TELEPHONE, GAS AND CABLE COMPANIES SHALL PRECEDE THE CONTRACTORS' START OF WORK ON ALL AFFECTED ROADWAYS IN THE IMPACTED CONTRACT AREA.

E. THE CONTRACTOR IS ADVISED THAT OTHER CONTRACTORS MAY BE WORKING IN THE GENERAL AREA DURING THE TERM OF THIS STIPULATION. IN WHICH EVENT, THE CONTRACTOR MAY REQUIRE MODIFICATIONS BY THE OCMC-STREETS.

F. THE PERMITTEE IS NOT AUTHORIZED TO ENTER, OCCUPY OR USE ANY PUBLICLY-OWNED OR PRIVATELY OWNED, NON-PAVED, LANDSCAPE OR NON-LANDSCAPED LOCATION WITHOUT SPECIFIC WRITTEN PERMISSION. WHEN THE LOCATION IS WITHIN THE RIGHT-OF-WAY OF A

LIMITED-ACCESS ARTERIAL HIGHWAY, **WRITTEN** APPROVAL FROM THE NYCDOT OCMC-HIGHWAYS IS REQUIRED. WHEN THE LOCATION IS WITHIN THE RIGHT-OF-WAY OF A PUBLIC STREET OR PUBLIC PARK, **WRITTEN** APPROVAL FROM THE NEW YORK CITY DEPARTMENT OF TRANSPORTATION OR NEW YORK CITY DEPARTMENT OF PARKS AND RECREATION IS REQUIRED. WHEN THE LOCATION IS WITHIN THE RIGHT-OF-WAY OF ANY OTHER JURISDICTION SUCH AS PRIVATE PROPERTY, STATE, FEDERAL ETC., IT IS THE PERMITTEE'S RESPONSIBILITY TO DETERMINE THE PROPERTY OWNER AND OBTAIN THE WRITTEN APPROVAL.

G. THE PERMITTEE SHALL ADHERE TO THE NYCDOT BUREAU OF BRIDGES' SPECIAL PROVISIONS FOR LANDSCAPE PROTECTION, MAINTENANCE AND RESTORATION, ITEMS 1.18.15 THROUGH 1.18.19, WHENEVER AND WHEREVER ANY OF THE PERMITTEE'S ACTIVITIES OCCUR WITHIN A LIMITED ACCESS ARTERIAL HIGHWAY RIGHT - OF - WAY.

H. NO DEVIATION OR DEPARTURE FROM THESE STIPULATIONS WILL BE PERMITTED WITHOUT THE PRIOR WRITTEN APPROVAL FROM THE OCMC-STREETS. REQUEST FOR SUCH MODIFICATIONS SHALL BE SUBMITTED TO THE OFFICE OF THE OCMC-STREETS, NEW YORK CITY DEPARTMENT OF TRANSPORTATION, A MINIMUM OF TWENTY (20) DAYS IN ADVANCE FOR CONSIDERATION.

I. FOR ANY CONSTRUCTION ACTIVITY RESULTING IN THE FULL CLOSURE OF A ROADWAY FOR MORE THAN 180 CONSECUTIVE CALENDAR DAYS, THE CONTRACTOR MUST PRODUCE AND SUBMIT A COMMUNITY REASSESSMENT, IMPACT AND AMELIORATION (CRIA) STATEMENT TO NYCDOT PLANNING AND OBTAIN THEIR APPROVAL BEFORE APPLYING FOR PERMITS, IN COMPLIANCE WITH THE PROVISIONS OF **LOCAL LAW 24 STREET CLOSURE LAW.**

J. FOR THIS PROJECT THE CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN ALL NECESSARY ADVANCE WARNING AND DETOUR SIGNS, TEMPORARY CONTROL DEVICES, BARRICADES, LIGHTS AND FLASHING ARROW BOARDS IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES," THE TYPICAL SCHEMES INCLUDED IN THIS SPECIFICATION; AND AS ORDERED BY THE ENGINEER-IN-CHARGE AND THE OCMC-STREETS.

K. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING HIS CONSTRUCTION SIGNAGE. THE IDENTIFICATION SHALL INCLUDE THE CONTRACTOR'S NAME, SPONSORING AGENCY NAME AND THE CONTRACT NUMBER. THE IDENTIFICATION SHALL BE PLACED ON THE BACK OF THE SIGN. THE LETTERING SHALL BE THREE (3) INCHES HIGH.

L. THE OCMC-STREETS RESERVES THE RIGHT TO VOID OR MODIFY THESE STIPULATIONS SHOULD CONSTRUCTION FAIL TO COMMENCE WITHIN TWO (2) YEARS OF THE SIGNED DATE OF THESE STIPULATIONS.

NICOLAS DAGHER, P.E.
EXECUTIVE DIRECTOR
OCMC

GARY SMALLS
DIRECTOR
OCMC-STREETS

NEW YORK CITY DOT

Department of Transportation

POLLY TROTTENBERG, Commissioner

NYC Department of Design and Construction
30-30 Thomson Avenue, Long Island City, NY 11101

HCP- xxxxx
January 14, 2020

Re: East Side Coastal Resiliency, PROJECT AREA 2
East 14th Street to on and off ramps at Avenue C/ East 18th Street

WORK PERMIT

Stipulations are hereby given to the New York City Department of Design and Construction and its duly authorized representatives, xxxxxxxxxx, to enter upon and restrict the flow of traffic according to the times and schedules as stipulated herein on the FDR Drive between East 14th Street and on and off ramps at Avenue C/ East 18th Street for the purpose of installation of East Side Coastal Resiliency, together with all work incidental thereto, subject to the following stipulations:

1. This permission shall be in effect as of xxxxx

2. The Permittee may close one (1) lane on the FDR Drive northbound and/or southbound between East 14th Street and on and off ramps at Avenue C/ East 18th Street, in according to the MPT plane, from 10:00PM to 5:00AM, Monday night to Sunday morning

3. The Permittee may close shoulder on the FDR Drive northbound and/or southbound between East 14th Street and on and off ramps at Avenue C/ East 18th Street, in according to the MPT plane, from 10:00PM to 5:00AM, Monday night to Sunday morning

4. The Permittee may close FDR, southbound sidewalk adjacent to Con Edison property b/w East 15th Street to Avenue C from 10:00PM to 5:00AM, Monday night to Sunday morning for the Floodwall, Swing Gate Foundations, Concrete Barrier, and Con Edison Internal Drainage Work; coordination with Con Edison is required prior any such closures.

5. The Permittee may partially close East 18th Street FDR southbound On-Ramp; maintain 14 ft wide On-Ramp during peak periods On-Ramp closure during off peak and detour traffic via Avenue c and 2nd Avenue; for installation of Swing Gate, Utility work, street reconstruction and Overhead Sign Structure #15; coordination with MTA& NYC Sanitation Department are required prior any such closures; the Permittee must detour traffic in according to OCMC requirements.

6. The Permittee may partially close East 18th Street FDR FDR NB Off Ramp; maintain 16 ft wide Off-Ramp for installation of Ramp Roller Gate Foundation; sewer reconstruction; coordination with MTA, OCME, NYCDOT Bike group, and NYC Sanitation Department are required prior any such closures; the Permittee must mitigate traffic in according to OCMC requirements.

7. The Permittee may close two (2) lanes & on ramp from Avenue C southbound on the FDR Drive; the Permittee must mitigate traffic in according to OCMC requirements; weekdays and weekends as follows:
12:01AM to 5:00AM, Tuesday morning to Friday morning
1:00AM to 7:00AM, Saturday & Sunday morning

8. Significant lane closures of Arterial Highways where at any time fifty percent or more of the roadway lanes are closed, notification shall be given to the public via the placement of Variable Message Signs (VMS) seven (7) days prior to the actual closure.

NYC Department of Transportation
Bureau of Permit Management and Construction Control
55 Water Street, 7th Floor, New York, NY 10041
T: 212- 839-9645 F: 212-839-8970
www.nyc.gov/dot

9. The lane closures shall conform to the New York State Dept. of Transportation, Design Guide and Standard for Maintenance, and Protection of Traffic, the Manual of Uniform Traffic Devices (MUTCD), and OCMC approved plans.

10. The Permittee is required to submit a weekly schedule of work. This schedule is to be sent to OCMC (xxxxxxx@dot.nyc.gov) on the Wednesday preceding the next weeks work. The schedule will include the following information:

The name of the roadway/bridge on which lanes will be closed
The number of lanes to be closed
The direction in which the lanes will be closed
The hours and days of the lane closing

11. To reserve a lane or roadway closures on primary, secondary and local streets; the Permittee must obtain a separate permit from OCMC – Street.

12. In the event that any non-emergency construction work results in the closing of

(i) more than (2/3) of the moving lanes per direction on any street for more than 15 minutes per hour between the hours of 1 AM and 5 AM or

(ii) half (50%) or more of the moving lanes on any street or limited access roadway, for a duration of more than four minutes or two traffic light cycles of the nearest traffic signal, whichever is less, during all other hours,

the Permittee shall post at the site of the closing a public notification seven(7) calendar days prior to such closing in a manner directed by OCMC.

13. If a full highway closure is deemed necessary, the Permittee must submit a closure request and a temporary detour plan for approval from OCMC at least thirty (30) working days prior to any proposed closure (case by case basis). The Permittee must arrange to provide Traffic enforcement agents (TEA) at designated intersections as OCMC requirement.

14. All lane closures must be coordinated with the Engineering in Charge (EIC) for the other adjacent projects & OCMC.

15. The Permittee MUST obtain a permit from the Overweight/Overdimension Unit of the NYCDOT Bureau of Bridges for overweight/overdimension vehicles on the Parkway/Drive.

16. This permit must be present on site when the approved work is being performed.

17. This permit is not valid unless it is signed by both the New York City Department of Transportation representative and the authorized representative of the Permittee.

18. In the event of a strike against the NYC Transit, no lane or ramp closures will be permitted from 5:00 AM to 12:00AM (midnight).

19. Section 24 - 224, Administrative Code Variance, is hereby granted for hours and days stipulated above.

20. During the time a lane closure is permitted, the Permittee may intermittently stop traffic on the adjacent lane(s) of the same roadway for periods not to exceed five (5) minutes in duration for the purpose of transporting or securing equipment that my extend beyond the closed lane(s). A minimum of

one (1) hour, or until the traffic queue is relieved, whichever period is shorter, is required between two such closures.

21. No staging and/or storage sites are authorized or will be permitted unless approved in writing (where owned by New York City) by the New York City Department of Transportation's Division of Roadway Repair and Maintenance (RRM) and/or the New York City Department of Parks and Recreation (if park land is involved) or (where State owned) by New York State Department of Transportation with New York City concurrence where applicable. Except for State owned sites where City concurrence is not necessary changes in the site or limits can only be made by an amendment to this permit as applicable. A detailed drawing must be submitted and will become an attachment to the amendment. A DPR Permit shall constitute written approval from the Parks Dept.

22. The Permittee agrees to assume all responsibility for injury or damages to private and/or City property caused through the operations of the permit and to save and hold harmless the City of New York and the New York City Department of Transportation from all claims and suits which may arise therefrom.

23. The Permittee shall notify in writing, the New York City Department of Transportation, OCMC ten (10) working days prior to any proposed lane change, shift or ramp closures prior to commencing work operations. Four (4) weeks' notice is required when it is anticipated that temporary traffic signals and/or signal timing adjustments will be needed.

24. The Permittee shall be responsible to provide notification to the local Community Board and Borough President's Office prior to the commencement of work. Additionally notification shall be made to the local Councilman's office. Proof of notification must be filed with the OCMC prior to the commencement of work.

25. The Permittee shall notify the New York City Dept. of Transportation's Situation Room at (718-433-3340), the NYPD Traffic Management Center at (718 706-6756), the Chief of Emergency Medical Services at (718-999-2770) and the local fire house prior to his/her proposed traffic lane reductions or street closings for any purpose. The Permittee shall also immediately notify the Situation Room upon reopening and in the event of an emergency condition.

26. In the event, a full highway closure for period greater than fifteen (15) minutes is permitted, the Permittee must notify all those parties listed in the prior three stipulations at least two weeks in advance. Additionally the Permittee must prepare a press release for the TV, Radio and Newspaper Media at least one week prior to the closure.

27. The Permittee shall adhere to all pertinent rules and regulations of the New York City Department of Transportation relative to the use and occupancy of street space, the provisions of his agreement and the performance of his work.

28. The Permittee shall adhere to the NYCDOT Bureau of Bridges' Special Provisions for Landscape Protection, Maintenance and Restoration, items 1.18.15 through 1.18.19, whenever and wherever any of the Permittee's activities occur within a limited access arterial highway right - of - way. Copies of these provisions may be obtained from the New York City Department of Transportation's Director of Arterial Maintenance at 212 – 487-6837.

29. This Permit is limited to activity performed in conformance with this agreement with the New York City Department of Transportation and does not permit any other activities, which could be a hazard or distraction to the roadway user.

30. No deviation or departure from these stipulations will be permitted without the prior written approval of the New York City Department of Transportation. Requests for such modifications shall be submitted to the OCMC a minimum of ten (10) days in advance for consideration.

31. To ensure a traffic flow at all times storage of materials and equipment shall not be permitted within the traveled way of the highway. Storage areas shall be separated from the traveled way by a clear space of 30 feet minimum width, unless such storage is placed behind concrete barrier or permanently installed bridge railing.

32. Any excavations shall be adequately fenced and/or decked over by the Permittee to preclude entry by errant vehicles, pedestrians or animals.

33. The Permittee shall insure that construction materials and/or excavated soil and rocks temporarily stored on slopes are secured by straw bales or other effective means to prevent their movement into the travel way and clear zone (recovery zone) area.

34. When work is performed in or adjacent to sidewalk areas, a safe pedestrian walkway having a minimum width of five (5) feet shall be provided at all times by the Permittee.

35. Concurrent with construction work of this contract, if other projects on this and/or adjacent highways are under construction then the Permittee is to become familiar with the scheduling of those projects and schedule his activities accordingly. To facilitate the flow of traffic, the permissible work hours may be modified as deemed necessary by the New York City Department of Transportation.

36. In order to provide an adequate transition for the safe flow of traffic, when the Permittee's (or another Permittee's) work sites are in two (2) different lanes in the same direction, those work sites shall be separated by a distance of at least two (2) miles.

37. Warning signs and traffic safety devices shall be provided, installed, maintained and removed by the Permittee in accordance with the New York State Department of Transportation's "Manual of Uniform Traffic Control Devices". The Permittee shall provide the appropriate channelization for traffic approaching and leaving his/her worksite. The Permittee shall provide flagpersons, cones, barricades, etc. as required for public safety. The Permittee is responsible for the adequacy of the safety devices. The Permittee shall coordinate his/her lane closures with the lane closures of any other Permittee working within 2 miles of his/her work area.

38. Operation of a crane, derrick, shovel or other similar equipment for any and all work within the streets shall be carried out by the Permittee in accordance with the Rules, Regulations and Requirements of the New York City Department of Transportation and the New York City Department of Buildings and shall comply with all provisions of the New York City Noise Control Code. In addition, if this equipment is to be placed so that any part of the load will be superimposed on the sidewalk or roadway, the Permittee must file, with the New York City Department of Transportation, Office of Construction Mitigation and Coordination, a statement by a Professional Engineer, licensed by the State of New York, certifying the following:

I. That the sidewalk or roadway area and the supporting subgrade can safely bear the crane load. Should the condition of the sidewalk or roadway area require that the crane load be distributed over a larger area than afforded by the elements of the crane, the engineer shall furnish the full dimensioned details of the load distribution.

II. That the Engineer has taken all necessary measures to ascertain that there is no vault or subway tunnel underneath the sidewalk area or that if a vault or subway tunnel does exist its roof is sufficiently strong to support the load to be superimposed thereof.

III. That the sheeting or retaining walls supporting any excavations adjoining the sidewalk or roadway area required to carry a load have been examined by the Engineer and have been found to be sufficiently strong to support the area carrying the crane load. Should the crane be employed making any excavation adjacent to the crane, the Engineer shall specify the sheeting or retaining wall reinforcement required to support the crane.

39. A Holiday Embargo is in effect for the Holidays (as determined by the New York City Office of Payroll Administration) with the following provisions:

I. When a Holiday falls or is observed by the City of New York on a Monday or Friday no lane or ramp closures are permitted from noon on the previous business day to 6:01 AM on the following business day. For example if the holiday falls or is observed on Friday then no lane closure would be permitted from 12:01 PM on Thursday to 6:01 AM on Monday. If the Holiday falls or is observed on Monday then no lane closure is permitted from 12:01 PM on Friday to 6:01 AM on Tuesday. In addition when a Holiday falls or is observed midweek (Tuesday, Wednesday or Thursday) no Lane closures shall be permitted from noon on the previous business day to 6:01 AM on the following business day.

II. The Holiday Embargo as detailed above is in effect for the following Holidays: New Years Day, Mothers Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day. ***Note: for Thanksgiving Day the Embargo begins on Wednesday at 12 noon and extends to Monday 6 AM, at which time the original stipulations shall be in effect.***

III. A "Holiday Construction Embargo" will be in effect on Gridlock Alert Days from mid - November (the exact dates will be published each year in the New York City Department of Transportation's OCMC yearly Holiday Embargo release, there are approximately ten (10)) to January 2nd. During this period, no lane or ramp closings will be permitted from 6:00 AM to Midnight except by written permission from the OCMC. This stipulation supersedes all others in this permit.

IV. A special embargo is in effect for the following holidays: Eve of Jewish New Year, Eve of Yom Kippur, Eve of Passover. No lane or ramp closures permitted from 1:00 PM to sundown.

40. A "Holiday Construction Embargo" will be in effect on Gridlock Alert Days from mid - November (the exact dates will be published each year in the New York City Department of Transportation's OCMC yearly Holiday Embargo release, there are approximately ten (10) days to January 2nd. During this period, no lane or ramp closings will be permitted from 6:00 AM to Midnight except by written permission from the OCMC. This stipulation supersedes all others in this permit.

41. When events occur at FOR YANKEE STADIUM, no lane or ramp closures will be permitted as noted below:

a. From two hours before the event begins until one hour after the event begins, no lane or ramp closures permitted on: FDR Drive - northbound

b. From one hour after the event begins until two hours after the event concludes, no lane or ramp closures permitted on: FDR Drive - southbound

42. Work cannot be performed during the New York City 5 Boroughs Bike Tour and the New York City Marathon, unless granted special permission by the New York City Department of Transportation, Office of Construction Mitigation and Coordination.

43. The Department of Parks and Recreation's conditions, terms and special conditions as presented in their Permit, is an integral part of this Permit.

44. Boring holes shall be back-filled with sand and compacted. In sidewalks, the last six (6) inches of the holes shall be restored with concrete. In paved areas the last six (6) inches shall be restored with concrete and/or asphalt to match the existing. On structural decks, holes shall be restored in kind.

45. The Permittee shall comply with the Industrial Code of the State of New York Part (Rule No.53) relating to Construction, Excavation and Demolition Operations at or near underground facilities. Additionally, the Permittee shall similarly notify the owners of overhead cables or other electrical or street lighting equipment in the area covered by the Permit.

46. The Permittee is reminded that the appropriate Rules and Regulations that apply to the cleaning and painting of structural steel must be rigidly followed, as specified by NYSDOT Specifications.

47. When a contractor performs work at night, the work site shall be illuminated to the satisfaction of the Engineer-In-Charge (EIC). The EIC shall be the sole judge of when illumination is required.

48. The contractor shall be responsible for identifying his/her construction signage. The identification shall include the contracting agency, the contractors name and the contract number. This identification shall be placed on the back of all signs.

49. The Permittee shall, at its own expense, be under absolute obligation to determine the location of and provide protection from damage or loss for all subsurface facilities and overhead structures in the permit area. In the event of any damage or loss to such subsurface facilities and overhead structures, the Permittee shall promptly replace or repair such facilities and structures, as directed by the New York City Department of Transportation or other City agency having jurisdiction thereof or by the owner thereof.

50. The City makes no representation as to the character of the fill in the streets, and voids therein, or the condition of the sidewalks. The Permittee accepts full responsibility and liability for any disturbance or damage, which may be caused to adjoining pavements, sidewalks or structures by or in connection with the permit activity. All damaged sidewalk or roadway pavements shall be restored (to the nearest full flag for sidewalks) in conformance with the Standard Specifications of the New York (City/State) Department of Transportation.

51. The Permittee shall furnish and install tarpaulins enclosing the immediate site of his cleaning and painting operations to insure complete protection of the general public and property, both on and below the roadway against possible damage from scraping, paint drippings, windblown paint, dust, concrete, etc. This permit does not constitute approval of either painting or paint removal methodology. All signs and signals shall be protected daily with clean and transparent coverings.

52. The washing of concrete truck drums within the Arterial Highway or city street right - of - way is strictly prohibited unless the contractor utilizes the New York State approved method.

53. When water is being used at the work site for any purpose (i.e. concrete curing, saw cutting, etc.), the Permittee is required to insure, through any and all appropriate measures, that the water does not freeze on the roadway or sidewalks. The Permittee will be responsible to maintain a clear and safe travel path.

54. The Permittee's vehicles shall not exceed the posted weight and/or height restrictions for any street, highway, bridge or viaduct section that he/she must travel upon.

55. During the snow season, the contractor shall be required to post "LIFT PLOW" signs at all locations (in both directions if necessary) where they have installed steel plates.

56. Roads used for the hauling of materials shall be kept free from debris and maintained by the Permittee and left in a condition satisfactory to the engineer-in- charge (EIC).

57. On roadways/streets where rush-hour parking and/or standing regulations are posted, the Permittee shall modify his schedule to conform to those (rush hour) restrictions.

58. The Permittee shall not park his equipment or store material overnight where it is deemed to be a safety hazard to the traveling public.

59. The Permittee shall not obstruct fire hydrants, crosswalks, pedestrian ramps, fire alarm boxes, bus stops or any public utility while performing his/her work. The Permittee may not move or remove "Bus Stop" signs without prior written approval from both the New York City Department of Transportation and the New York City Transit.

60. This is not a Parking Permit. The Permittee shall obey all traffic laws and regulations.

61. This Permit may be amended to cover new or unforeseen conditions at the discretion of the New York City Department of Transportation, after consultation with the Permittee. The New York City Department of Transportation reserves the right to cancel this permit at any time for any valid reason.

62. This Permit, unless terminated at the discretion of the New York City Department of Transportation, will expire on xxxxx.

APPROVED: _____

for Jay Jaber, P.E.
Assistant Commissioner
Permit Management and Construction Control

_____
DULY AUTHORIZED
REPRESENTATIVE OF PERMITTEE

SE: sedward@dot.nyc.gov

CC: Campbell, Dagher, Maniscalco, Edward, Situation Room, Police Dept.(Traffic Division), Fire Department, Litigation Support, HIQA – Highway Unit 55 Water Street 7th Fl. CC file, Project file.

PARKS - PAGES

SPECIAL PARKS SPECIFICATIONS

SANDRESM2

The specifications in the PARKS-Pages cover the construction of park amenities at Murphy Brothers Playground, Stuyvesant Cove Park, and Asser Levy Playground, including lighting, plumbing, paving, furnishings, plantings, and associated works as well as sewer works.

The PARKS-Pages supplement the specifications shown on the Specifications and Standards of New York City sheet at the beginning of this Volume 3, which apply to the work except as modified in these Contract Documents.

TABLE OF CONTENTS

SECTION ESCR-6.01 – CLEARING AND GRUBBING

6.01.1. INTENT. This section describes Clearing and Grubbing.

6.01.2. DESCRIPTION. Clearing and Grubbing shall include the removal and legal disposal of the following site elements as shown on the Contract Drawings, from within areas shown on the Contract Drawings and where directed by the Engineer:

- Asphalt, concrete, pre-cast concrete, cobbles and stone pavements (excluding pavement base courses to remain)
- Play area pavement and resilient surfacing
- Running track pavement and resilient surfacing
- Curbs and walls
- Piles and concrete pile caps for sports field lighting and amphitheater area structures
- Synthetic turf carpet, padding and associated subsurface drainage piping
- Concrete foundations for benches, light poles, play and exercise equipment, and other site furnishings
- Fences including fence curbing and foundations
- Park area surface drainage utilities including trench drains, slot drains, running track drains, drain inlets, catch basins, manholes, drainage piping (excluding the deep storm sewer and regulator system)
- Park area water service piping and associated structures
- Park area electrical service including light poles, manholes, pull boxes, conduits and wiring
- Park area gas services
- Project area communications services
- Trees and stumps less than six (6") inches in diameter, branches, down timber, snags, brush and other vegetation.
- Debris including, tires, batteries, automobile parts, kitchen appliances, rubbish, stumps, roots and root systems, miscellaneous minor structures, and all other objectionable materials as noted on the Contract Drawings and where directed by the Engineer.

The Contractor must comply with all Federal, State, and City laws pursuant to the handling and disposal of woody organic material that is host material for the Asian Longhorned Beetle. All wood that is host material for the Asian Longhorned Beetle must be chipped, ground, or shredded inside the quarantine zone to a size of less than one (1") inch in at least two dimensions before it is permitted to leave the quarantine zone. Please refer to the publication entitled Part 139 of the New York State Department of Agriculture and Markets law and contact State personnel for further details. Also see Section 1.06.23.(R), PLANT PEST CONTROL REQUIREMENTS, of the NYCDOT Standard Highway Specifications for additional requirements.

6.01.3. DISPOSAL OF SALVAGEABLE MATERIAL. Salvageable fence, including all appurtenances, or other salvageable materials shall be carefully dismantled, removed, cleaned and stored on the site for re-use in the work; delivered, after cleaning, to a designated City-owned Yard, within the five boroughs or disposed of away from the site of the work, whichever the Engineer shall direct.

6.01.4. DISPOSAL OF NON-SALVAGEABLE MATERIAL. Non-salvageable materials shall be legally disposed of away from the site of the work. The disposal of materials resulting from Clearing and Grubbing operations by burning in open fires will not be permitted.

6.01.5. METHODS. Coordinate with the Owner and Engineer prior to the start of work to mark-out and confirm utilities to be demolished and utilities to remain and be protected within the project area. Confirm that utilities to be remove have been decommissioned and de-powered prior to the start of removal work.

Coordinate existing utility removals with the installation of temporary utilities required at existing buildings to remain. Obtain Engineer approval prior to the disconnection and removal of utility services to buildings to remain.

Carefully cut and protect existing utility service connections to remain including buried conduits and piping at existing buildings to allow for future reconnections. Maintain existing utility service connections extending five (5') feet beyond the foundations of existing buildings to remain.

When removing trees and stumps less than six (6") inches in diameter, trees and all stumps, roots and root systems shall be removed to a depth of three (3') feet below the existing ground surface. Roots and root systems beyond the stumps need not be removed, except as the Engineer shall deem necessary.

In areas where pavements are removed, aggregate subbase materials need not be removed except as the Engineer shall deem necessary. On-site processing of pavement materials for re-use is permissible as approved by the Engineer.

When removing pile supported foundations, remove concrete pile caps in their entirety and cut and remove piles three (3') feet below the bottom of pile foundations unless otherwise indicated on the Drawings or as directed by the Engineer. On-site processing of concrete pile cap structures is permissible as approved by the Engineer.

In areas where curbs, walls, piles and pile caps, drainage, electrical, water or gas utility elements are removed, the contractor shall backfill and compact holes trenches and other excavations to the level of the existing grade with clean fill or existing on-site fill materials from on-site as permitted by the Engineer.

(A) PRUNING

Branches of trees overhanging roadways, or other branches designated by the Engineer, shall be pruned to provide a clearance of fourteen (14') feet above the proposed final surface. Wound treatment shall not be used to cover wounds or pruning cuts, except when necessary for disease, insect, mistletoe, or sprout control, or for cosmetic reasons. Wound treatments that are damaging to tree tissue shall not be used. All trees within the City Right of Way (canopy, roots, and/or trunk) require a pruning permit from the Department of Parks and Recreation and must be performed according to ANSI A300 Standards.

(B) ENGINEER'S APPROVAL

The Engineer, in consultation with NYCDPR, must approve all methods for felling, cutting or pruning trees for all trees which are under NYCDPR's jurisdiction.

(C) PROTECTION

Clearing and Grubbing operations shall be progressed in a manner and with equipment which will not damage trees, structures and adjoining grounds or vegetation which are to remain nor create any pedestrian or vehicular traffic hazards. In addition, all clearing and grubbing operations under the drip line of existing trees shall be performed by hand methods only. Tree protection fences shall not be moved or removed without the written permission of the Engineer.

(D) FENCING

Approved protective fencing or barricades shall be furnished and erected around or adjacent to individual trees, groups of trees and structures which are to remain, and at other required locations, when and as directed by the Engineer.

(E) CLEAN UP

All materials resulting from Clearing and Grubbing operations shall be disposed of, as specified, and the site shall be left in a condition satisfactory to the Engineer.

(F) REMOVAL OF FENCING

Protective fencing and barricades shall be removed and disposed of away from the site when directed by the Engineer.

6.01.6. MEASUREMENT.

(A) PER ACRE

Payment for Clearing and Grubbing will be made at the unit price bid per acre computed to the nearest tenth acre, for work satisfactorily completed.

6.01.7. PRICES TO COVER. The contract prices for Clearing and Grubbing shall include the cost of all labor, materials, equipment, insurance, and incidentals required to complete the work, together with all other work in connection therewith and incidental thereto, in full compliance with the Contract Drawings, the specifications and the directions of the Engineer. When there is no scheduled item provided therefor, the cost of the work required for Clearing and Grubbing shall be deemed included in the prices bid for all the scheduled contract items. The removal of trees and stumps over six (6") inches shall be paid for under separate items. The removal of existing buildings and building foundations shall be paid for under separate items. Temporary power to existing buildings to remain shall be paid for under separate items.

Unless otherwise provided for under other scheduled contract bid items, no separate payment will be made for tree pruning required herein to provide a clearance of fourteen (14') feet above the proposed final surface.

Payment will be made under:

Item	No. Item	Pay Unit
ESCR-6.01 AB	**CLEARING AND GRUBBING**	**ACRE**

END OF SECTION

SECTION PK-10 – BROKEN STONE – LOOSE MEASURE

PK-10.1. **INTENT:** This section describes Broken Stone – Loose Measure

PK-10.2. **DESCRIPTION:** Broken Stone – Loose Measure shall include the furnishing and placement of Broken Stone in the locations where shown on the plans or as directed by the Engineer. This stone will be used for drainage applications and other miscellaneous work, as shown on the details located in Appendix A of the contract drawings(sheet #4 "Parks leaf manhole and catch basin covers", and as directed by the Engineer.

PK-10.3. **MATERIALS:**

(A) BROKEN STONE — Shall consist solely of crushed ledge rock. Stone shall be No. 3 size and shall be of approved size and quality as specified in the NYCDOT Standard Highway Specifications or as directed by the Engineer.

IMPORTANT: Material substitutions will not be approved under any circumstances. All recycled materials will be rejected.

PK-10.4. **MEASUREMENT AND PAYMENT:**

The quantity of **BROKEN STONE – LOOSE MEASURE** to be paid for under this item shall be the number of **CUBIC YARDS**, measured in trucks as delivered to the site, furnished and place in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price per **CUBIC YARD** and shall include the cost of all labor, materials, equipment and incidental expenses necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer.

Item No.	Item	Pay Unit
PK-10	BROKEN STONE – LOOSE MEASURE	CY

END OF SECTION

SECTION PK-227B ADA – GRANITE BLOCK ON SAND – ACCESSIBLE

PK 227B.1. INTENT

This section describes the furnishing and installation of granite cobble over sand in accordance with the plans, specifications and directions of the Engineer.

PK 227B.2. DESCRIPTION

Under this section, the Contractor shall furnish and install granite cobble pavers in accordance with the details indicated on the Contract Drawings, specified, or directed by the Engineer.

PK 227B.3. MATERIALS

(A) GRANITE BLOCK— Blocks shall be of fine or medium grained granite showing an even distribution of constituent minerals. They shall be of uniform quality and texture throughout, and free from seams or disintegrated materials., except that no block shall be less than six (6") inches long, four (4") inches wide and five (5") deep. Granite block may be rejected by the engineer for reuse in relaid wearing courses because of excessive roundness of other objectionable characteristics. All installed pavers shall have a flamed finish.

(B) SAND—Sand for sand setting bed and joint filler shall consist of clean, hard, durable uncoated particles free from lumps of clay and all deleterious substances and shall be so graded that when dry, one hundred percent shall pass a ¼" square opening sieve; not more than thirty-five percent (35%) by weight shall pass a No. 50 sieve. Cushion sand may be rejected if it contains more than ten percent (10%) by weight of loam and/or silt.

(C) MORTAR—The mortar shall be composed of one (1) part of Portland Cement and a maximum of two (2) parts sand, with not more than (5) percent of the cement content of hydrated lime or lime putty.

PK 227B.4. METHODS

Preparation of Subgrade: The Contractor shall trim and roll the subgrade to smooth, uniform lines to the satisfaction of the Engineer, prior to placing the pavement. The Contractor shall place geotextile over the prepared subgrade of structural soil, overlapping edges a minimum of six inches (6") to ensure complete coverage prior to placing the sand base.

Sand Cushion: The blocks shall be laid on a sand cushion of a maximum thickness of one inch (1"). The sand cushion shall be compacted by being rolled with a roller weighing one hundred fifty pounds (150 lbs.) per foot of width or by tamping, as directed by the Engineer.

Setting Blocks: The blocks shall be carefully laid on a sand cushion according to the patterns shown on the plans or as directed by the Engineer. Joints between blocks shall be a maximum of one inch (1") and a minimum of three-quarters inch (3/4") in width. All blocks shall be clean when placed in the pavement. Blocks which, in the opinion of the Engineer, are not satisfactorily clean shall be well washed before being placed. Cutting of blocks to meet pattern requirements will be permitted, subject to the approval of the Engineer.

After a sufficient area of block pavement has been laid, the surface shall be tested with a ten foot straight edge laid parallel with the center line and any depression exceeding one-quarter inch (1/4") shall be corrected and brought to the proper grade. All stones disturbed in making replacements or correcting depressions shall be settled into place by carefully ramming or

tamping to grade by the use of a hand tamper applied upon a two inch (2") board. Each section of pavement must be acceptable to the Engineer before the joints in that section are filled.

Filling Joints: Where sand joints are called for, the joints shall be filled with cushion sand. The sand shall be firmly packed in the joints between the blocks. Immediately after the joints are filled, the pavement shall be swept clean.

Where mortar joints are called for, the joints shall be completely filled with a cement grout mixture. The grout shall be firmly packed in the joints between blocks. Immediately after the joints are filled, the pavement shall be swept clean. The finished surface shall be free of all cement stain and excess grout and shall be acceptable to the Engineer.

Protection: All fresh mortar work shall be carefully protected from freezing and from drying effect of the sun and wind, and if required, it shall be sprinkled with water at such intervals and for such time as may be directed. Stonework shall be protected from injuries of all sorts, and all portions which may become damaged or may be found defective shall be repaired, or if directed, removed and rebuilt. No mortar work shall be laid or relaid when the temperature is below 40 degrees Fahrenheit.

PK 227B.5. MEASUREMENT

The quantity of granite blocks to be measured for payment shall be the number of square feet of granite blocks installed, in place, to the satisfaction of the Engineer.

PK 227B.6. PRICES TO COVER

The unit price bid per square foot of granite block over structural soils shall cover the cost of all labor, materials, plant, equipment, insurance, and necessary incidentals as required to furnish and install dimensioned granite pavers in accordance with the Contract Drawings, the specifications, and the directions of the Engineer.

Payment will be made under:

ITEM NO.	ITEM	PAY UNIT
PK-227B ADA	GRANITE BLOCK ON SAND- ACCESSIBLE	SF

END OF SECTION

SECTION PK-667 – TEMPORARY SHEETING

PK-667.1. WORK: Under the Item TEMPORARY SHEETING, the Contractor shall provide temporary sheeting and bracing in all trenches or excavations for structures, where necessary for the proper protection of persons or property. Where the depth of excavation exceeds five feet (5'), sheeting and necessary bracing must be installed for the entire depth below the existing ground surface and will be paid for under this item.

All shoring work shall meet or exceed the requirements of the New York State Department of Labor, Industrial Code Rule 2 and Title 29 Code of Federal Regulations Part 1926, Safety and Health Regulations for Construction (OSHA).

The type of sheeting and bracing shall be satisfactory to the Engineer and subject to Engineer's approval, but the approval by the Engineer of a method to be used does not relieve the Contractor of the Contractor's responsibility for protection and safety.

When sheeting is used in trenches or excavations for structures of less than five (5) feet in depth, the cost of such sheeting and bracing, unless ordered left in place, shall be included in the price bid for Unclassified Excavation, and payment will be made for such excavation to the maximum payment lines shown on the Plans.

PK-667.2. MEASUREMENT AND PAYMENT: The quantity of Temporary Sheeting to be paid for under this item shall be the number of **SQUARE FEET** of sheeting, measured on exposed surfaces after installation in accordance with the plans, specifications and the directions of the Engineer.

The price bid shall be a price per **SQUARE FOOT** and shall include the cost of all labor, material, equipment, and incidental expenses necessary including complete removal prior to backfilling, as necessary, to complete work in accordance with plans and specifications to the satisfaction of the Engineer.

Item No.	Item	Pay Unit
PK-667	TEMPORARY SHEETING	SF

END OF SECTION

SECTION PK-669 – PARKS LEAF CATCH BASIN COVER & FRAME

PK-669.1. **WORK:** Under this item, the Contractor shall furnish and install Catch Basin Covers along with frames, including locking bolts and keys, as directed by the Engineer.

PK-669.2. **MATERIALS:** Catch Basin Covers shall be ductile iron ASTM A-536, latest revision, Grade 65-48-12 or better. Covers shall be manufactured by Campbell Foundry Co., Harrison, NJ, EJ USA, INC., East Jordan, MI or approved equal. All covers shall be suitable for highway traffic, meeting the requirements for heavy duty H-20 loading, per AASHTO M306-10.

Bolt & Key: Each cover shall be furnished with two (2) locking bolts, similar to the *Intimidator Man-Lock*, as manufactured by McGard, Inc., Orchard Park, N.Y., or approved equal. Two (2) keys shall be furnished per site. For security reasons, keys shall be sent directly from the manufacturer to a location directed by the Engineer.

PK-669.3. **INSTALLATION:** The Covers shall be installed on frames as shown on the Standard Detail Sheet. Immediately prior to the final inspection the Contractor shall clean cover surfaces that show evidence of loose mill scale, non-adherent rust, peeling paint and other deleterious matter in accordance with SP-2, Hand Tool Cleaning, a method generally confined to wire brushing, sandpaper, hand scrapers or hand impact tools. Unless otherwise directed by the Engineer, covers shall be painted with two coats of black silicone alkyd paint, such as Steel Master 9500 manufactured by Sherwin Williams, Woodside, NY or approved equal.

PK-669.4. **CLEANING:** Except otherwise ordered by the Engineer, immediately prior to the final inspection the Contractor shall clean unimbedded surfaces that show evidence of loose mill scale, non-adherent rust, peeling paint and other deleterious matter in accordance with SSPC SP2, Hand Tool Cleaning, a method generally confined to wirebrushing, sandpaper, hand scrapers or hand impact tools.

PK-669.5. **SUBMITTALS:** All submittals shall conform to the requirements in the S-Pages. Foundry Certificates for each type of material certifying ductile iron grade for catch basin covers and H-20 loading test shall be submitted. Submittal shall be on the pattern holder's letterhead.

PK-669.6. **MEASUREMENT AND PAYMENT:**

The quantity of Parks Leaf Catch Basin Covers to be paid for under this item shall be the number of **EACH** type furnished and installed in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price for **EACH** Parks Leaf Catch Basin Cover, furnished and installed, and shall include the cost for all labor, material, equipment, and incidental expenses necessary to complete the work, including frame, locking bolts, painting, and keys, all in accordance with the plans and specifications, to the satisfaction of the Engineer.

Item No.	Item	Pay Unit
PK-669	PARKS LEAF CATCH BASIN COVER & FRAME	EA

END OF SECTION

SECTION PK-685 – DUCTILE IRON SEWER PIPE – 12" DIA.

PK-685.1. WORK: Under this item, the Contractor shall furnish and lay **DUCTILE IRON SEWER PIPE** of the inside diameter sizes called for and shown on the plans or as directed by the Engineer.

PK-685.2. MATERIALS: Ductile Iron Sewer Pipe shall consist of bell and spigot type Ductile Iron Pipe sections with Field Lock Gasket Joints, smaller or equal to that manufactured by the U.S. Pipe & Foundry Co. of Birmingham, Alabama and shall conform to the American National Standards Institute C151 and American Water Works Association A21.51, Thickness Class 56. Pipe shall be laid true to line and grade when bells upstream.

PK-685.3. LAYING: If the Engineer determines the foundation is good, firm earth the earth shall be pared or molded to give a full support to the lower third of each pipe. If the foundation is unstable, or other conditions prevent a proper bearing for the pipe, a bedding of broken stone shall be installed as shown on the details located in Appendix A of the contract drawings "Standard Detail Sheet 'Drainage Details-No. 2". If the excavation has been made deeper than necessary, a bedding of broken stone shall be installed at the Contractor's expense.

When the pipe is to be installed under a roadway a concrete cradle shall be laid to provide a full, firm and even bearing as directed by the Engineer.

Trenches shall be promptly backfilled after the installation of pipe or completion of structures but no backfilling shall be done until the work has been inspected and approved by the Engineer.

Trenches shall be backfilled with clean fill, hand placed and tamped with six (6) inch layers to completely fill all spaces adjacent to the pipe.

PK-685.4. CONNECTIONS: The Contractor shall do all the work necessary to join the Ductile Iron Sewer Pipe to the existing sewer as shown on the plans. The cost for doing this shall be included in the unit price bid for this item.

PK-685.5. MEASUREMENT AND PAYMENT: The quantity of **DUCTILE IRON SEWER PIPE** to be paid for under this item shall be the number of **LINEAR FEET** (laying length) of each size pipe, including fittings, furnished, placed and measured in its final position, in accordance with the plans and specifications and the directions of the Engineer.

The price bid shall be a unit price per **LINEAR FOOT** of laying length of Ductile Iron Sewer Pipe of each size shown and shall include the cost of all labor, materials and equipment necessary to complete the work, including delivering, handling and laying of pipe, connection and fittings, backfilling with clean fill, all in accordance with the plans and specifications to the satisfaction of the Engineer.

Excavation, Concrete and Broken Stone shall be paid separate for under their respective items.

Item No.	Item	Pay Unit
PK-685	DUCTILE IRON SEWER PIPE – 12" DIA.	L.F.

END OF SECTION

SECTION PK-ESCR 0-05 – TREE REMOVAL

WORK: The Contractor shall cut and remove within the contract limits, all trees over six (6") inches DBH, including the root to a depth of three (3') feet below the surface, where shown on the plans or as directed by the Engineer. The Contractor shall cut and remove within the contract limits, all trees over six (6") inches DBH, but the stump shall remain, where shown on the plans or as directed by the Engineer.

Note: DBH is defined as Diameter at Breast Height, which is 4'-6" above grade.

SPECIAL REQUIREMENTS FOR LONGHORNED BEETLE QUARANTINE ZONE: For tree work to be performed within the quarantine zone, the Contractor shall utilize the service of a Sub/Contractor certified by the New York State Department of Agriculture and Markets. Due to current Federal, State and NYC DPR policy, any wood waste that is generated must be completely chipped within the Quarantine Zone, by said certified Sub/Contractor. Log splitting equipment, where necessary, shall be utilized at no extra cost to the City. For additional information regarding procedures, contact the Engineer. Also, see requirements listed under heading "Submittals".

METHOD: The Contractor shall carefully protect against damage all existing trees, plants and other features to remain. The Contractor shall be liable for any damage to such trees, plants, park features and other property caused by Tree Removal operations and all damaged property shall be replaced or restored to its original condition, to the satisfaction of the Engineer.

The Contractor shall cut and remove all trees designated for removal within the limits of the contract or as directed by the Engineer. The stumps and roots of these trees shall be removed to a depth of three (3') feet below the ground surface. All voids and excavations left after removal of the tree and roots shall be backfilled to grade with clean fill. The fill shall be placed and compacted by acceptable methods to the satisfaction of the Engineer and shall meet the requirements of the NYCDOT Standard Highway Specifications. Chips generated by root removal operations shall be removed prior to backfilling.

For trees designated for removal with stump to remain, the stumps of these trees shall be cut flush to the ground surface.

Cutting of trees shall be done by competent workers only and in a professional manner. All trees shall be "topped" and "limbed" previous to felling unless otherwise directed by the Engineer. All branches, limbs, trunks, stumps, roots and other debris shall be removed from the site or otherwise disposed of to the satisfaction of the Engineer.

No trees are to be removed except as ordered by the Engineer.

SUBMITTALS: All submittals shall be as specified in the S-Pages. The Sub/Contractor shall submit the following for review and approval prior to performing work.

Qualifications In Quarantine Zone: State Certification- For all contracts within the Quarantine Zone, the Sub/Contractor must submit a copy of a valid Compliance Agreement issued by the State of New York Department of Agriculture and Markets, Division of Plant Industry.

MEASUREMENT AND PAYMENT: The quantity of **TREE REMOVAL** to be paid for under this Item shall be the number of tree units calculated in accordance with the payment schedule above, completely removed in accordance with the plans and specifications and directions of the Engineer.

The price bid shall be a unit price for **EACH** tree of the over 6" to 12" DBH size group, and shall include the cost of all labor, materials and equipment necessary for removing and disposing trees, including removal of root to 3' depth where required, borrowed fill, and all other incidental

expenses necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer. The cost of State Certification and chipping wood waste shall be included in the bid price for all Contracts located within the Quarantine zone.

Item No.	Item	Pay Unit	
PK-ESCR 0712		TREE REMOVAL (6"-12" DBH)	EA
PK-ESCR 1318		TREE REMOVAL (12"-18" DBH)	EA
PK-ESCR 1924		TREE REMOVAL (18"-24" DBH)	EA
PK-ESCR 2530		TREE REMOVAL (24"-30" DBH)	EA
PK-ESCR 3136		TREE REMOVAL (30"-36" DBH)	EA
PK-ESCR 3742		TREE REMOVAL (36"-42" DBH)	EA

END OF SECTION

SECTION PK-ESCR 025 – PLAY EQUIPMENT – MURPHY BROTHERS

WORK: Under this item, the Contractor shall furnish and install all STEEL PLAY EQUIPMENT in accordance with the plans, specifications and directions of the Engineer. In addition, the Contractor shall furnish incidental materials to the Engineer, as specified under the heading INCIDENTAL MATERIALS.

NOTE: Final installation of the steel play equipment (concrete footings) shall not proceed until the Contractor has demonstrated to the satisfaction of the Engineer that the use zones comply with ASTM 1487-Latest Rev., and CPSC guidelines. The safety surfacing shall be installed as soon as possible after the play equipment installation is complete. The Contractor shall be responsible for temporarily barricading the Play Equipment prior to completion of the safety surfacing installation.

GENERAL: Play Equipment shall be as shown on the drawings. All play equipment shall be Powerscape® and Xscape®, as manufactured by Gametime, Fort Payne, AL; or PlayBooster® and Evos® as manufactured by Landscape Structures Inc., Delano, MN, or Metro Collection and Unity® Connect as manufactured by Playworld Systems, Lewisburg, PA, City Park Series® (Urban Playgrounds), as manufactured by Miracle Recreation Equipment, Monett, MO, or approved equal.

STANDARDS: All play equipment design and construction shall meet or exceed the requirements as published in the Handbook for Public Playground Safety issued by the U.S. Consumer Product Safety Commission, the Consumer Product Safety Improvement Act (CPSIA) of 2008, and ASTM Designation F1487-Latest Rev., "Standard Consumer Safety Performance Specification for Playground Equipment for Public Use." Play equipment design and construction shall also comply with "Guide to ADA Accessibility Guidelines for Play Areas", Final Ruling (ADA).

MATERIALS: Unless otherwise specified herein, all materials shall conform to applicable portions of General Conditions, "Materials and Methods of Construction".

Footings: Concrete for footings shall be 3,200 psi Class B-32 Concrete per the NYCDOT Standard Highway Specifications, *Section ESCR-4.06*.

Steel Members:

Posts: Posts and vertical members shall be Schedule 40 pipe or Structural Steel tubing as specified below. Tubing for posts shall have a minimum thickness of 0.120" (11 gauge).

Railings and Fixtures: Railings and fixtures shall be schedule 40 pipe or structural tubing of such thickness that the railings shall not sag or bend during use. Any tubing that bends, sags or does not meet ASTM F1487-Latest Rev., Section 12.5 shall be replaced and upgraded by the manufacturer at no additional cost to the City.

Tubular Steel: Tubular steel shall be structural tubing of the sizes and shapes shown in the approved shop drawings. Steel shall meet the specifications for ASTM A500, Grade B which has a minimum tensile strength of 58,000 psi (for round and shaped) and a minimum yield point of 42,000 psi for round structural tubing and a minimum yield point of 46,000 psi for shaped structural tubing. Material shall be load-tested under ASTM 1487-Latest Rev., after fabrication.

Pipe: Pipe for climbers, ladders, shall be Schedule 40 or structural tubing steel pipe conforming to the requirements of ASTM A53 and shall be of the same sizes, indicated on the plans. Steel pipe shall be load tested under ASTM F1487-Latest Rev., requirements after fabrication. The outside diameter of all hand gripping components including rungs on

horizontal ladders, climbing bars, handrails, etc. shall comply with the anthropometric dimensions as listed in the ASTM 1487-Latest Rev. standards.

Pipe Caps: All exposed ends of steel members shall be plugged with metal caps riveted in place with self-sealing rivets or spot welded.

Fittings and Clamps: All fittings and clamps shall be as indicated on the approved shop drawings and as may be required to complete the installation. All fittings shall be of the best quality malleable iron, drop-forged steel or steel plate as indicated. Clamp fittings shall be cast aluminum or 12 gauge drawn quality or better steel and finished to match vertical components and shall be smoothly constructed with no projections or sharp edges. All clamps shall have tamper resistant fasteners. Clamps used on component subjected to vertical loads shall be pinned to prevent slipping and twisting.

Fasteners: All fasteners including, but not limited to, bolts, lag screws, tie rods, threaded rods, nuts, and washers, shall be of the sizes indicated on the approved shop drawings. Fasteners shall be either stainless steel per ASTM F879 or carbon steel treated with a corrosion resistant coating per applicable ASTM plating specifications. All threaded fasteners shall include a locking patch-type material that will meet the minimum torque requirements of Industrial Fastener's Institute (IFI)-125 "Test Procedure for the Locking Ability Performance of Chemical Coated Lock Screws". The play equipment Manufacturer shall provide special tools for pinned tamperproof fasteners. All protruding bolts, screws and other threaded connectors shall be cut off to within two threads of nut, washer, etc., then satisfactorily peened to prevent removal by unscrewing, and filed completely smooth to remove all sharp edges.

Chain: Chain for climber shall be stainless steel, minimum size 7/32", 4/0 welded link chain.

Plastic Lumber: Plastic lumber shall be made from UV stabilized recycled high density polyethylene. Recycled lumber shall be protected during transportation. Unless otherwise specified, color shall be "Natural". Recycled plastic lumber may not be used on spans greater than two (2') feet unless additional structural support is provided. An engineering analysis of structural integrity based on ASTM F1487 shall be submitted upon request. Plastic Lumber shall be smooth on all sides and ends. Plastic Lumber shall be free from all but minor marks, blemishes, discolorations, warp, wane, twist, quirk or other imperfections. The intersection of all planes of faces, edges and ends shall be eased to one-eighth (1/8") inch radius.

Rotationally Molded Polyethylene: Parts shall be rotationally molded from color-compounded, first quality, linear low-density polyethylene with a tensile strength of 2,500 psi per ASTM D638 and with color and UV-stabilizing additives. Dry-blended or molded-in resins are not acceptable. Polyethylene shall be ultraviolet stabilized to UV-8 and have anti-static additives. Wall thickness shall vary by component and as shown on the approved shop drawings.

Sheet Plastic Parts: Sheet plastic parts shall be manufactured from three-quarter (3/4") inch high density polyethylene that has been specially formulated for optimum UV stability and color retention. Products shall have a minimum density of 0.933 G/cc in accordance with ASTM D1505 and a minimum tensile strength of 2,400 psi in accordance with ASTM D638. All edges shall be free of burrs, sharp edges, and points.

STEEL FABRICATION: All steel components to be welded shall be welded in complete accordance with the standards of the American Welding Society. All welds shall be continuous around the entire perimeter. All welds shall be ground smooth. NO TACK WELDING AND NO FIELD WELDING SHALL BE PERMITTED.

Corrosion Resistant Treatment: All fabrication and welding shall be completed prior to application of the corrosion resistant coating, metal pieces shall be cleaned of all weld spatter, mill scale,

varnish, rust, grease, and the like and the surface mechanically and chemically prepared to receive the coating. This corrosion resistant coating shall a thermal spray zinc coating or electrostatic applied primer with a minimum thickness of 3 mils. All metal pieces, including welds, shall receive the coating.

Polyester Powder Coating: A surface coat shall be applied to the thermal zinc coated metal pieces in such a manner that the coating will not peel off. The manufacturer shall perform all processes required to achieve a smooth material bond. An epoxy or acrylic polymer primer shall be applied prior to application of powdercoating. The surface coat shall be an electrostatically sprayed, lead-free, superdurable TGIC (triglycidyl isocynanurate) polyester powder coating applied to a minimum of five(5) mil thickness which shall be oven cured. The TGIC polyester powder coating shall comply with the ASTM standards below:

PHYSICAL PROPERTIES	TEST METHODS	ACCEPTANCE CRITERIA
Adhesion cross hatching	D3359B	5B (0% area removed)
Flexibility conical mandrel	D522	Pass 3/8" mandrel
Pencil hardness	D3363	Pencil hardness 2H minimum
Impact resistance	D2794	80 inch pounds minimum
Overbake resistance- Adhesion	D2454	5B
Overbake resistance- Hardness	D2454	Pencil hardness 2H minimum
Overbake resistance- Direct Impact	D2454	80 inch pounds minimum
Humidity resistance-250 hours	D4585	No visible change to surface
Weatherability	D822	No visible change to surface
Salt Spray Resistance	B117	1000 Hours
Corrosion Resistance	D1654	Rating 6 or greater
UV Exposure	G154, 340 bulb	2,000 hours, rating delta E of 2 90 percent gloss retention

Colors shall be as shown on the drawings. (Submittals required). Material manufacturer's directions for storage and use shall be adhered to. Material surfaces shall be protected during shipment so as to arrive mar and scratch free in the field.

SPECIFIED COMPONENTS AND ATTACHMENTS: All components and attachments used for the steel play equipment shall be validated by the IPEMA Third Party Process, or an approved equal third party validation process, to demonstrate compliance with ASTM F1487.

Steel Decks/Steps: Steel decks and steps shall consist of a single piece of low carbon, 12 gauge (0.105") minimum thick sheet steel conforming to ASTM A1011. The steel sheet shall be perforated with a return flange formed on the perimeter to provide necessary reinforcement to ensure structural integrity. Steel decks and steps shall be reinforced and cross-braced as necessary to prevent any noticeable deflection. Perforation shall be small enough to eliminate

potential finger entrapment. Decks shall be flush with the outside edge of the supporting posts. There shall be no unsupported area larger than four (4 sf) square feet.

Decks and steps shall be coated with a hot dipped polyvinyl chloride (PVC) system or thermoplastic polyethylene coating with a gritty non-slip surface. Deck/Step surface must be slip resistant in both wet and dry conditions. The PVC coating shall have a hardness of Shore A 83 +/-5 normal durometer range. The material shall be classed as "Self Extinguishing", meets or exceeds DOT MVSS 302 or UL 94HB, and contains ultraviolet inhibitors to help prolong the life of the coating. The PVC coating shall meet all applicable phthalate levels as specified under CPSIA.

Plastic Lumber Decks. Plastic lumber decking shall be sized as shown on the drawings and shall be affixed to supporting members in a tamper resistant method with spacers as necessary to prevent potential pinching.

Safety Railings: Safety rails shall provide enclosure and shall have no gaps greater than 3.5" and less than 9". Tubing and pipe used for safety rails shall not exceed 1.54" in outer diameter and shall have corrosive protection and powder coating as specified above. All welds shall be complete and ground smooth. These requirements shall conform to ASTM F1487-Latest Rev. standards.

Tire Swing: Tire swing shall consist of an overhead beam, reinforcing insert, connector plates, automotive type universal joint assembly with protective rubber bellows or an universal joint assembly with bearings, swing chain, 'tire' type swing seat and all required hardware for assembly. 'Tire' type swing seat shall be designed and manufactured especially for playground use. Standard fiberglass and/or steel belted automobile tires are not acceptable. The 'tire' type swing seat shall have a twenty eight (28") inch minimum outer diameter and a fourteen (14") inch minimum inner diameter and shall be fitted with a reinforcing ring. Chain attachment area shall minimize the likelihood of fingers becoming caught. Drainage holes shall be provided in the underside of the tire.

Slides: Spiral and straight slides shall be constructed of either stainless steel or rotationally molded polyethylene as shown on the approved shop drawing. Rotationally molded polyethylene shall meet the specifications above. Stainless steel slides shall be constructed of 16 gauge or better stainless steel with a 2B finish. The underside of the stainless steel slide shall be constructed such that there are no projections or sharp or rough edges. Slide bed and enclosure shall conform to CPSC guidelines for spiral slides. The slide bed and sides shall be shaped and dimensioned such that the rider will not tip or slide over outside edge of the slide. Gaps between the slide and main support post are not acceptable. Gaps shall be closed through either mechanical fasteners, welding, or methods approved by the Engineer. Spiral slide chutes shall either installed by manufacturers factory trained certified installers, or completely assembled at the factory and shipped to site ready for field erection.

Flex Bridges: Flex Bridges shall be constructed with metal straps or steel reinforced rope/cable. Flex Bridges constructed with chains are not acceptable components under this specification.

Climbing Cable (Rope): Cable shall comprise of six-stranded and tempered steel reinforced rope. The galvanized steel wire cores of the six strands shall be inductively fused to the polyamide or polyester outer coating. The coating shall be abrasion-resistant and colorfast to ultraviolet degradation. The breaking strength of the cable shall exceed the applicable load applied to the

net climber. The climbing cable net shall be completely factory assembled in a configuration that is ready for attachment to the frame on site.

Age Appropriate Signage: In accordance with CPSC Handbook for Public Playground Safety, Sections 2.2.5 and 2.2.6 and ASTM F1487, play equipment units shall have age appropriate signage in a clearly conspicuous place near or on the equipment platform at the entry point. This signage shall state one of the following: 1) "This play equipment is designed for Preschool Children Ages 2 to 5 years. Adult supervision is recommended"; or 2) "This play equipment is designed for School Age Children ages 5 to 12 years. Adult supervision is recommended". Unless otherwise shown on the Drawings, the sign shall be routed two color sheet plastic, or approved equal.

Manufacturer Identification Sticker: The play equipment shall have an identification sticker placed in an inconspicuous place on the equipment for M & O reference. (For example, under a slide bed at the lowest point). The sticker shall identify the manufacturer's address and a toll free phone number.

QUALIFICATIONS: The Contractor or the Subcontractor to perform the installation work must have a minimum of three (3) years of experience working on installation of play equipment similar to the work specified in scope and complexity in accordance with ASTM F1487-Latest Rev. and CPSC guidelines.

INSTALLATION: All play equipment shall be installed by a qualified installer, experienced in erecting steel play equipment and meeting the qualifications specified above. Final installation of the steel play equipment (concrete footings) shall not proceed until the Contractor has demonstrated to the satisfaction of Engineer that the use zones comply with ASTM F1487-Latest Rev. and CPSC guidelines.

Asphalt pavement shall be neatly saw-cut prior to excavation for footings. All tubular steel posts shall be set square and plumb in concrete footings as shown on the approved shop drawing to grade required assuring level installation of platform angle frames and rails. Footings shall have the top surface finished so as to provide sheet drainage away from steel uprights, level and free of surface fluctuations that could contribute to an uneven surface in overlying safety surfacing.

Equipment shall be assembled to configuration as shown on the approved shop drawings. All fastenings shall be made as shown on the drawings and shall be securely tightened with an impact and/or torque wrench (as per manufacturer's specification). The Contractor shall take precautions while trimming bolt projections, if necessary, to prevent metallic contamination (rust bloom) of the corrosion resistant bolts to the satisfaction of the Engineer. These precautions include the use of previously unused grinding wheels, and applying zinc rich paint on trimmed galvanized bolts. All work shall be done so that no hazardous projections or rust bloom shall be left in the finished work.

FIELD INSPECTION: An authorized manufacturer's representative, who is not the qualified installer, shall inspect and approve the installation of the play equipment prior to final acceptance by the engineer. The play equipment representative shall certify that the play equipment was correctly installed in accordance with the manufacturer's written instructions, all fastenings are securely installed meeting the manufacturers' maximum torque value, and meeting all requirements set forth in ASTM F1487- Latest Rev. A Document of Acceptance shall be provided by the manufacturer's representative stating that a field inspection was conducted and the installation is accepted by the manufacturer's representative (See Submittals).

THIRD PARTY RESOLUTION: If a disagreement arises between the Engineer and the play equipment manufacturer regarding the safety of a particular play component, the Contractor shall be directed to hire an independent Certified Playground Safety Inspector (CPSI), as part of the

bid price of this item, to assess if the play equipment component complies with the safety standards referenced above. The Contractor shall submit the qualifications of the CPSI for approval by the Engineer prior to hiring. The independent CPSI shall inspect the play equipment on site and submit a final report detailing the determination of their inspection. If the play component is deemed to be unsafe by the independent CPSI, the Contractor shall make all necessary corrections at no additional cost to the City based on the CPSI's recommendation. If the Engineer wish to modify a play component after the independent CPSI deemed it to be meeting all safety standards, all materials and methods necessary to perform the requested modification shall be eligible for a change order extra.

INCIDENTAL MATERIALS: The Contractor shall furnish and deliver, to the Engineer, additional new materials obtained from the approved play equipment manufacturer. Contractor shall also furnish to the Engineer any catalogs, invoices, statements, etc. for verification that a complete set of all maintenance and operations manuals, tools, extra paint, materials, etc. have been furnished. All furnished material shall be properly identified with the name of park and contract number. Incidental new materials shall include the following:

192 oz. - Graffiti Remover, for polyester powdercoated steel surfaces - One hundred ninety two (192) ounces in spray bottles: six (6) thirty two (32) ounce spray bottles; or twelve (12) sixteen (16) ounce spray bottles. Graffiti Remover shall be Go-Away graffiti remover, as manufactured by Nexgen, North Hollywood, CA; Erase Graffiti Cleaner as manufactured by Landscape Structures, Delano, MN; or Gametime Graffiti Remover as manufactured by Gametime, Fort Payne, AL, or approved equal. Each container shall be clearly labeled, using a minimum of 1/4-inch high lettering: "For Play Equipment".

90 oz. - Touch-Up Paint, complete for all color surfaces, as provided by manufacturer. Twenty (20) cans of custom spray paint 4.5 oz. each can or a minimum of 90 ounces of paint (total all colors) shall be provided.

1 (One) - Tools And Hardware Maintenance Repair Kit, complete with tool box, special tools for tamper proof fasteners, fastener wrench and hardware (nuts, bolts screws etc.), to be provided by manufacturer. The repair kit shall be clearly marked with the Contract Number and the Playground name. Marking shall be done with permanent magic marker or other method approved by the Engineer.

SUBMITTALS: All submittals shall be submitted and approved prior to manufacture and in accordance with the requirements of the S-Pages.

Shop Drawings: The Contractor shall submit shop drawings no later than three (3) months prior to the scheduled completion of the project. The shop drawings shall indicate as a minimum: the play equipment layout, the required minimum limits of the use zone, elevations, footings layout, and compliance with ADA requirements including access details and the ratio of elevated versus ground level events. The shop drawings shall show the distance in linear feet from outside edge of the safety surfacing to a minimum of three (3) closest adjacent fixed outside structures such as curbs, fences, benches or trees. The Contractor shall submit the following information if required by the Engineer: materials, finishes, supports, hardware, fastener torque schedule, fittings and accessories.

Qualifications: The Contractor shall submit play equipment installer qualifications as specified above for approval prior to installation of play equipment.

Deviations From Layout: Any deviations from the contract drawings must be submitted for review and approval by the Engineer.

Color Samples: Color samples shall be submitted for approval by the Engineer before any powder coating is done.

Document of Acceptance: An authorized representative of the play equipment manufacturer must inspect and approve the completed installation. The play equipment will not be accepted by the play equipment manufacturer or the Engineer until they are satisfied with the installation. No additional compensation will be given for any necessary corrective work. A Document of Acceptance signed by the authorized Manufacturers' representative must be submitted to the Engineer before the final 20% payment is made to the Contractor for this item.

Third Party Resolution: If arbitration is required, the Contractor shall submit qualifications for the independent CPSI for approval prior to hiring. The Contractor shall also submit a final report prepared by the independent CPSI detailing the result of the inspection.

Insurance Certificate: The Contractor shall furnish the Manufacturer's Certificate of Product Liability Insurance for one (1) million dollars.

Warranty: The manufacturer shall warranty replacement of any items or components found to be defective during the manufacturers' warranty period. The Engineer shall submit the original warranty certificate to the Engineer at the completion of the project. The Contractor shall furnish the original and 4 (four) copies of the manufacturers' warranty.

Manual: One (1) copy of the Installation and Maintenance (or Owner Information) manual complete, as provided by manufacturer.

MEASUREMENT AND PAYMENT: For furnishing and installing all **PLAY EQUIPMENT** in accordance with the plans, approved shop drawings, specifications and directions of the Engineer, the Contractor shall receive the **LUMP SUM** price bid.

The price bid shall be a **LUMP SUM** for all steel play equipment and shall include the cost of all labor, materials, equipment and incidentals necessary to complete the work, including unclassified excavation, concrete footings, the cost of hiring of an independent CPSI, if required, and all submittals, in accordance with the plans, approved shop drawings and specifications, to the satisfaction of the Engineer.

Upon submission and approval of the required shop drawings the Contractor shall receive three (3%) percent of the total bid price. Partial payment for stored materials may be granted in accordance with NYCDOT Standard Highway Specifications, **Section 1.06.35**. Twenty (20%) percent of the total bid price for this Item shall be withheld until the insurance certificate and Document Of Acceptance have been submitted.

In addition, the Contractor shall deliver INCIDENTAL MATERIALS as outlined above to the Engineer No additional payment shall be made for incidental materials. Contractor shall include cost in the bid price.

Item No.	Item	Pay Unit
PK-ESCR 025	PLAY EQUIPMENT – MURPHY BROTHERS	L.S.

END OF SECTION

SECTION PK-ESCR 028 – EXPOSED AGGREGATE CONCRETE PAVEMENT

PK-ESCR 028.1. INTENT.

This section describes construction of Concrete Sidewalk with Special Scoring and Exposed Aggregate Surface Treatment (Saw Cut Type Joints).

PK-ESCR 028.2. DESCRIPTION.

The work shall consist of the construction of Concrete Sidewalk with Special Scoring and Exposed Aggregate Surface Treatment (Saw Cut Type Joints).

(A) Concrete Sidewalk shall be of the width specified and shall be laid on a foundation as indicated on the drawings.

(B) Where specified on the Contract Drawings or directed by the Engineer, concrete sidewalk shall be reinforced with wire mesh

PK-ESCR 028.3. MATERIALS.

The material requirements of NYCDOT Standard Highway Specifications Section 4.05 , as currently amended, shall apply to all concrete sidewalk with special scoring and exposed aggregate surface treatment, along with the following modifications and additions:

(A) Exposed Aggregate for Surface Seeding and Pavement Finishing shall be as follows:

a. Material: Select, hard, and durable; washed; free of material that reacts with the cementitious material or causes staining; from a single source, with fine aggregate and gap graded coarse aggregate as follows:

b. Coarse Aggregate (for seeding): Provide angular stone 1/4" to 3/16" maximum in size. Aggregate shall be supplied by

i. Geo Schofield 831 Main Street Bridgewater NJ ph: 732.356.0858 f; 732.356.1197
ii. Pasvalco Company 108 Bogart Street Closter NJ ph:888.727.8252 f:201.768.5927
iii. KAFKA GRANITE, LLC | Mosinee, WI ph: 800.852.7415; kafkagranite.com
iv. Or Approved Equal

c. Size, color, and percent of aggregate seeding mixture to be indicated on drawings:

d. Exposed Aggregate Grading: Fine aggregate shall be 25 to 35 percent of total exposed aggregate material as recommended by the Portland Cement Association.

(B) Expansion Joint Sealant: Joint sealant shall be a two (2) component, polyurethane based; self- leveling, chemically cured elastomeric sealant such as Sikaflex 429 primer with Sikaflex - 2C SL sealant as manufactured by Sika Corporation, Lyndhurst, NJ, or DynaTrol® II - SG, as manufactured by Pecora Corporation, Harleysville, PA, or approved equal. The color of the sealant shall match the color of adjacent pavements.

(C) Expansion Joint: The expansion joint material shall be one of the following:

a. A pre-molded bituminous fiber joint filler, as specified in General Requirements (requires a bond breaker and sealant) or,
b. A pre-molded closed cell expanded polyethylene foam joint filler, such as MasterSeal 920 by BASF Inc., (requires only sealant) or,
c. An approved equal of any of the above.

(D) Bond Breaker: If bituminous fiber material is used, a bond breaker such as one-half inch (1/2") width polyurethane tape or five-eighth inch (5/8") diameter expanded polyethylene foam backer rod shall be installed as recommended by the manufacturer. A bond breaker will not be required for a pre-molded foam joint or a shredded recycled rubber aggregate joint filler, but sealant is always required.

(E) Subbase Course Material: The material requirements of PK-ESCR 748, as currently amended, shall apply to all subbase course material for exposed aggregate concrete pavement

PK-ESCR 028.4. METHODS.

All work required to install new concrete sidewalk with special scoring, saw cut type joints, and exposed aggregate surface treatment shall be done in accordance with the requirements of Subsection 4.05 Specifications, as currently amended, for installing new concrete sidewalk with saw cut type joints, except with the following modifications and additions:

A. SAMPLES.

Prior to the start of construction the Contractor shall submit the following to the Engineer for approval prior to ordering of materials and sample panels:

1. Sample of aggregates.
2. Sample of Sikaflex Textured Sealant.
3. Intended design mix by percentages.
4. Sample of foundation material.
5. Mock ups:
    a. The Contractor shall prepare sample test panels at least 4 foot x 4 foot x 4 inch in size of the proposed typical concrete sidewalk with exposed aggregate and saw cut type joints for the approval of the Engineer. These test panels or other approved markups shall be used to assess techniques, surface finish, distribution of aggregates, and consistency of finish.
    b. As many test panels shall be constructed as are necessary to achieve a sample panel that meets the satisfaction of the Engineer. Once an approved sample panel has been achieved, all previous disapproved sample panels shall be immediately destroyed. The approved sample panel shall be clearly marked with the words "approved sample". All new sidewalk work shall conform in appearance to the approved sample panel to the satisfaction of the Engineer. The approved sample panel shall remain on site until all sidewalk work is complete, after which the Contractor shall dispose of the sample panel unless the sample panel is a part of the finished work.

B. EXPOSED AGGREGATE SURFACE FINISH.

The minimum temperature required for pouring concrete sidewalk with exposed aggregate shall be 50 degrees F., unless otherwise directed by the Engineer.

The surface of the concrete sidewalk shall have an exposed aggregate finish. The exposed aggregate shall be seeded onto and then embedded into the surface of the concrete. Casting

aggregate over the surface of the concrete and embedding them in the surface of the concrete is referred to as "seeding".

The Contractor is responsible for ordering sufficient concrete mix to fully complete each sidewalk slab section (expansion joint to expansion joint). Cold joints and/or interrupted pours will not be accepted.

Concrete shall be placed and screeded to the finished level, although depending on the size and quantity of aggregate to be added the initial surface level may need to be slightly lower than the finished level. Selected aggregate shall be hand-cast or seeded onto the surface immediately after screeding and then bullfloated into the surface prior to bleedwater appearing, or apply to the surface once all the bleedwater has evaporated and fully embedded by tamping and repeatedly working the surface with wood floats. The top surface of sidewalk shall be finished to a true smooth plane.

Surface retardant shall be applied in the amount and in a manner in accordance with the manufacturer's instructions.

Each rectangular slab shall have all edges neatly rounded with proper tools. Concrete shrinkage control joints shall be evenly and crispy scored or saw cut at designate locations, but not tooled, at locations shown on the Contract Drawings. Unless otherwise shown on the Contract Drawings, the shrinkage control joints in the concrete surface shall be one-eight (1/8") inch wide and three-quarter (3/4") inch deep and if saw cut shall be done immediately after the concrete has reached its initial set which is typically anywhere from 4 to 8 hours after the concrete has been poured, depending upon the weather, but in no case shall it be later than 12 hours after pouring. All saw cuts are to be straight, clean and of consistent width.

C. PROTECTION AND CURING.

The Contractor shall carefully protect the concrete from the drying effects of the sun and wind, pedestrian and/or other traffic, or other caused, by means of suitable guards and coverings.

After aggregate has been exposed the concrete shall be cured by covering it with new and unwrinkled, non-staining, high-quality curing paper conforming to ASTM C171, Sheet Material for Curing Concrete.

To seal and protect the exposed aggregate surface after curing, the clear sealer shall be applied as per the manufacturer's instructions.

All exposed aggregate surfaces shall be thoroughly inspected to verify and approve installation and safety, including wet and dry slip resistance, before opening the sealed surface to traffic.

D. EXPANSION JOINTS

Unless otherwise directed by the Engineer and excluding sign and parking meter posts, expansion joints shall be installed at all joints between the sidewalk slabs and curb, street hardware, wood poles, street light and traffic pole foundations, bollard foundations, hydrant foundation slabs, buildings, bridges, etc. Refer to contract drawings for location of expansion joints.

The top one (1") inch shall be sealed with Sikaflex Textured Sealant poured on an approved backer rod in accordance with the manufacturer's instructions.

PK-ESCR 028.5. MEASUREMENT.

The area of concrete sidewalk with special scoring and exposed aggregate surface treatment in **SQUARE FEET**.

In determining the area of Concrete Sidewalk to be paid for, the areas occupied by the tree wells, bases of columns, manhole heads, gate boxes and similar structures will be deducted from the

measured area of concrete sidewalk when they measure more than one (1) square foot and will not be deducted when they measure one (1) square foot or less.

PK-ESCR 028.6. PRICES TO COVER.

The contract price per **SQUARE FOOT** and depth as indicated for **CONCRETE SIDEWALK WITH SPECIAL SCORING AND EXPOSED AGGREGATE SURFACE TREATMENT** shall cover the cost of all labor, materials, equipment, insurance, and incidentals required to construct concrete sidewalk of the thickness specified, exposed aggregate surface treatment, with saw cut joints and sealant, complete in place with subbase course material, in accordance with Subsection 4.13.4.(B) of the NYCDOT's Standard Highway Specifications, including, but not limited to, curing, excavation (other than rock excavation) and backfilling, all in accordance with the plans and specifications to the satisfaction of the Engineer.

Where Concrete Sidewalk with Exposed Aggregate is designated to be reinforced, the cost of furnishing and installing the welded wire fabric shall be paid for separately under its own contract Item No. 4.14 Steel Reinforcement.

Payment will be made under:

Item No.	Item	Pay Unit
PK-ESCR 028 A	**5" CONCRETE SIDEWALK WITH SPECIAL SCORING AND EXPOSED AGGREGATE SURFACE TREATMENT (SAW CUT TYPE JOINTS)**	**S.F.**
PK-ESCR 028 B	**6" CONCRETE SIDEWALK WITH SPECIAL SCORING AND EXPOSED AGGREGATE SURFACE TREATMENT (SAW CUT TYPE JOINTS)**	**S.F.**

END OF SECTION

SECTION PK-ESCR 031 – GALVANIZED ESPLANADE SEA RAIL

PK-ESCR 031.1. INTENT

This section describes the furnishing and installation of esplanade sea railing in accordance with the plans, specifications and directions of the Engineer.

PK-ESCR 031.2. DESCRIPTION

This Section includes the following:

1. Galvanized Esplanade Sea Rail

PK-ESCR 031.3. MATERIALS

1.1 METALS

A. General: Provide metal free from pitting, seam marks, roller marks, stains, discolorations, and other imperfections where exposed to view on finished units.

B. Round Steel Pipe and posts: Standard weight, Schedule 40, hot dipped galvanized seamless steel pipe complying with ASTM F1083. Comply with ASTM F1043, material Design Group 1A, external and internal Coating Type A consisting of not less than 1.8 oz/sq. ft. zinc.

C. Steel Plates, Shapes and Bars: ASTM A 36/A 36M.

D. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as railings and gates, unless otherwise indicated.

E. Steel Post Caps: Cast metal of same type of material and finish as railings and gates.

F. Rectangular Tube Steel: Cast metal of same type of material and finish as railings and gates

G. Miscellaneous Hardware: All miscellaneous hardware including, but not limited to allen set screws, bosses, tamper-proof screws, socket-head screws, flathead screws and clips shall be stainless steel, AISI Type 316.

H. Cast-in-Place Anchors in Concrete: Anchors of type indicated below, fabricated from corrosion-resistant materials capable of sustaining, without failure, the load imposed within a safety factor of 4, as determined by testing per ASTM E 488, conducted by a qualified independent testing agency.

   a. Threaded or wedge type; galvanized ferrous castings, either ASTM A 47 (ASTM A 47M) malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, hot-dip galvanized per ASTM A 153/A 153M.

I. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

1.2 WELDING MATERIALS, FASTENERS, AND ANCHORS

A. Welding Electrodes and Filler Metal: Provide type and alloy of filler metal and electrodes as recommended by producer of metal to be welded and as required for color match, strength, and compatibility in fabricated items.

B. Fasteners for Anchoring Railings, Panels and Gates to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring components to other types of construction indicated and capable of withstanding design loads.

C. Cast-in-Place and Post installed Anchors: Anchors of type indicated below, fabricated from corrosion-resistant materials with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and equal to four times the load imposed when installed in concrete, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.

   a. Cast-in-place anchors.

   b. Expansion anchors.

1.3 GROUT AND ANCHORING CEMENT

A. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for exterior applications.

B. Erosion-Resistant Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, Patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended by manufacturer for exterior use.

1.4 CHEMICAL EXPANSION ANCHORS

A. Chemical Anchoring Adhesive shall be a two-component 100% solids epoxy based system supplied in manufacturer's standard side-by-side cartridge and dispensed through a static-mixing nozzle supplied by the manufacturer. Epoxy shall meet the minimum requirements of ASTM C-881 specification for Type I, II, IV, and V, Grade 3, Class B and C and must develop a minimum 12,650 psi compressive yield strength after 7 day cure. Epoxy must have a heat deflection temperature of a minimum 136°F (58°C).

1.5 GROUNDING MATERIALS

A. Grounding Conductors: Bare, solid wire for No. 6 AWG and smaller; stranded wire for No. 4 AWG and larger.

B. Grounding Connectors and Ground Rods: Comply with UL 467.

PK-ESCR 031.3.1. REFERENCES

C. Except as modified by governing codes and by the Contract Documents, comply with the applicable provisions and recommendations of the following:

   a. American Welding Society D1.1 "Structural Welding Code – Steel".

   b. National Association of Architectural Metal Manufacturers "Metal Finishes Manual".

   c. Industrial Fasteners Institute "Fastener Standards Book".

   d. American Society for Testing and Materials (ASTM) – ASTM E 935-92: Test Method for Performance of Permanent Metal Railing Systems, ASTM E 985-87: Specifications for Permanent Metal Railing Systems, ASTM A53-96: Specification for Hot-Dipped Galvanized Seamless Pipe, ASTM A 123 Specification for Zinc (Hot-Dipped Galvanized); ASTM A 500-93 Specification for Cold Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; ASTM E437 and Appendix X4.2 for wire mesh.

   e. American Society of Civil Engineers (ASCE) – ASCE 8-90: Specification for Design of Cold – Formed Stainless Steel Structural Members.

PK-ESCR 031.3.2. SUBMITTALS

A. Product Data: For manufacturer's product lines assembled from standard components.

   a. Include Product Data for grout and anchoring cement.

   b. Include all metal types.

   c. Include all finish types

B. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade.

C. Field Measurements: Verify handrail, railings and gate dimensions by field measurements before fabrication and indicate measurements on Shop Drawings. Field verify waterfront structures to accept all railing work and mountings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

   a. Established Dimensions: Where field measurements cannot be made without delaying the Work, advise Engineer in writing and establish dimensions and proceed with fabricating railings and gates without field measurements. Coordinate construction to ensure that actual dimensions correspond to established dimensions.

D. Shop Drawings: Show fabrication and installation of esplanade railing. Include plans, elevations, for entire length of each railing type for all field conditions and typicals for sections, details, attachments, connectors, anchoring and connecting hardware and lightening protection. Indicate field and shop welds. Detail custom corner conditions at non-90° angles and end panels.

E. Verification Calculations

   a. Shop drawings to include the following calculations. Calculations need to be reviewed and approved by the Engineer.

      i. Provide handrails capable of withstanding the following structural loads without exceeding allowable design working stresses of materials for handrails, anchors, and connections:

      ii. Top Rail: Capable of withstanding the following loads applied as indicated:

         1. Concentrated load of 200 lb/ft applied at any point and in any direction.

         2. Uniform load of 50 lbf/ft. applied horizontally and concurrently with uniform load of 100 lbf/ft. applied vertically downward.

      iii. Concentrated and uniform loads above need not be assumed to act concurrently.

      iv. Rails Not Serving As Top Rails: Capable of withstanding the following loads applied as indicated:

         1. Uniform load of 50 lbf/ft. applied in any direction.

         2. Concentrated and uniform loads above need not be assumed to act concurrently.

      v. Infill Area of Rail: Capable of withstanding a horizontal concentrated load of 200 lb/ft applied to 1 sq. ft. at any point in system, including panels, intermediate rails, or other elements composing infill area.

vi. Load above need not be assumed to act concurrently with loads on top rails in determining stress on guard.

vii. Concentrated load of 200 lbf applied at any point and in any direction.

F. Samples for Initial Selection: Short sections of structural, tubular, angle and plate samples showing available mechanical finishes. Two (2) 12"x12" samples of all mesh types.

G. Mock-up: Assembled samples of each of the railing systems, made from full-size finished components, including mesh and all connecting hardware. Show method of finishing members at intersections. Each sample shall be full height, four feet long (minimum) and may be used in final installation if workmanship and finishes are accepted to Engineer. Mockup shall include the following locations: corners, and a left and right end panel.

H. Qualification Data: For firms and persons to demonstrate their capabilities and experience. Include qualification data below.

a. Railing Manufacturer's Qualifications: The railing manufacturer must have successfully completed ten (10) years' experience in the manufacture of railings similar in scope to the required work in a timely manner. This experience must include railings with castings. Submit lists of completed projects with project names and addresses, names of addresses of architects and owners, and other information specified.

b. Qualification of Finishers: Firm experienced in successfully finishing steel fabrications similar to that indicated for this Project, with sufficient production capacity to produce required units without causing delay in the Work.

I. Product Test Reports: From a qualified testing agency indicating products comply with requirements, based on comprehensive testing of current products.

J. Product Test Reports: From a qualified testing agency indicating handrail, railing and gate components comply with ASTM E 985, based on comprehensive testing of current products.

PK-ESCR 031.3.3. QUALITY CONTROL

A. Thermal Movements: Detail handrails to allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

a. Temperature Range: 120 deg F, ambient; 180 deg F, material surfaces.

B. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

C. Qualify welding processes and welding operators in accordance with AWS D1.1 "Structural Welding Code – Steel," D1.3 "Structural Welding Code – Sheet Steel", and D1.2 "Structural Welding Code – Aluminum".

a. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone re-certification.

PK-ESCR 031.3.4. DELIVERY, STORAGE, AND HANDLING

A. Schedule installation of handrail, railings and gate to coordinate with varying setting, anchoring and lightening protection requirements. Do not support temporarily by any

means that do not satisfy structural performance requirements.

B. Schedule installation of railings to coordinate with varying setting, anchoring and lightening protection requirements. Do not support temporarily by any means that do not satisfy structural performance requirements.

PK-ESCR 031.3.5. MANUFACTURER

Fabricator and powder coater to be submitted for approval by the Engineer.

PK-ESCR 031.3.6. FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Galvanizing: All components of the esplanade rail including the posts, and rails shall be hot dipped galvanized in accordance with the provisions of the NYS DOT Standard Specifications. All galvanized surfaces will be given thermo-setting polyester powder finish for extra protection and added aesthetic appeal. The coating shall be lead free and without solvents. The final color shall be black matte as approved by the Engineer, unless otherwise shown on the Contract Drawings.

C. The Powder coating process shall consist of the following steps unless directed otherwise by the Engineer:

1. The material shall be alkaline cleaned and then rinsed.
2. The material shall be pickled in a bath with inhibited phosphoric acid and then rinsed.
3. An active anti-corrosive layer of zinc phosphate shall be applied and rinsed.
4. The layer of zinc phosphate shall be sealed with a hexavalent chromating agent of very low weight and then the material shall be rinsed.
5. The material shall be rinsed with de-ionized water to remove any remaining salts which can cause osmosis.
6. The material shall be dried in the drying oven.
7. The powder shall be charged to 80,000 volts and then sprayed onto the grounded steel.
8. The material shall be heated to a temperature between 340-390 degrees F, in accordance with the powder manufacturer's specifications, to melt the resin cores and to

D. Fill vent and drain holes that will be exposed in finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth.

E. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

F. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PK-ESCR 031.4. FABRICATION

A. General: Fabricate handrails, railings and gates to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage.

B. Assemble railings and gates in the shop to greatest extent possible to minimize field splicing, welding and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.

C. Welded Connections: Where shown on details and approved shop drawings, fabricate railings and gates for connecting members by welding. Cope components at perpendicular and skew connections to provide close fit, or use fittings designed for this purpose. Weld connections continuously to comply with the following.

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove flux immediately.
4. At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and welded surface matches contours of adjoining surfaces.

D. Nonwelded Connections: Where shown on details and approved shop drawings, fabricate railings and gates by connecting members with concealed mechanical fasteners and fittings, unless otherwise indicated. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.

E. Allow for thermal movement resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening up of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

F. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect handrail, railing and gate members to other work, unless otherwise indicated.

G. Provide inserts and other anchorage devices for connecting railings and gates to concrete. Fabricate anchorage devices capable of withstanding loads imposed by movement at gates and due to other factors. Coordinate anchorage devices with supporting structure and lightening protection.

H. Shear and punch metals cleanly and accurately. Remove burrs from exposed cut edges.

I. Ease exposed edges to a radius of approximately 1/32 inch (1 mm), unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing the Work.

J. Cut, reinforce, drill, and tap components, as indicated, to receive finish hardware, screws, and similar items.

K. Provide weep holes or another means to drain entrapped water in hollow sections of railings and gates that are exposed to exterior or to moisture from condensation or other sources.

L. Fabricate joints that will be exposed to weather in a watertight manner.

M. Close exposed ends of railings and gates with prefabricated end fittings.

1.1 INSTALLATION, GENERAL

A. Fit exposed connections together to form tight, hairline joints.

B. Perform cutting, drilling, and fitting required to install railings and gates. Set railings and gates accurately in location, alignment, and elevation; measured from established lines and levels and free from rack.

1. Do not weld, cut, or abrade surfaces of handrail, railings and gates components that have been finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.

2. Set posts plumb within a tolerance of 1/16 inch in 3 feet (2 mm in 1 m).

3. Align railings and gates so variations from level for horizontal members and from parallel with rake of steps and ramps for sloping members do not exceed ¼ inch in 12 feet (5 mm in 3 m).

C. Adjust railings and gates before anchoring to ensure matching alignment at abutting joints. Space posts at interval indicated, but not less than that required by structural loads.

D. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing railings and gates and for properly transferring loads to in-place construction.

1.2 RAILING CONNECTIONS

A. Nonwelded Connections: Use mechanical joints for permanently connecting railing components. Use wood blocks and padding to prevent damage to railing members and fittings. Seal recessed holes of exposed locking screws using plastic cement filler colored to match finish of railings and gates.

B. Welded Connections: Use fully welded joints for permanently connecting components. Comply with requirements for welded connections in "Fabrication" subsection whether welding is performed in the shop or in the field.

C. Tack-weld all exposed non-tamperproof nuts.

D. Expansion Joints: Install expansion joints not farther apart than required to accommodate thermal movement. Provide slip-joint internal sleeve extending 2 inches (50 mm) beyond joint on either side, fasten internal sleeve securely to one side, and locate joint within 6 inches (150 mm) of post.

1.3 ANCHORING POSTS

A. Grounded Posts

1. All posts shall have provided a grounded connection to reinforcing bars at intervals not to exceed 150 feet.

B. Non-Grounded Posts

1. Fasten posts or anchor posts to surfaces as shown on drawings.

C. Posts and Railing Ends.

1. Form or core-drill holes ¾ inch (20 mm) larger than OD of post for installing posts in concrete. Clean holes of loose material, insert posts, and fill annular space

between post and concrete with the following anchoring material, missed and placed to comply with anchoring material manufacturer's written instructions:

a. Nonshrink, nonmetallic grout.

2. Cover anchorage joint with flange of same metal as post, attached to post as follows:

a. Welded to post after placing anchoring material.

PK-ESCR 031.5. MEASUREMENT

A. GALVANIZED ESPLANADE SEA RAIL: The quantity of Galvanized Esplanade Sea Rail to be paid for shall be the number of linear feet of each type rail furnished and erected complete, to the satisfaction of the Engineer. Measurement shall be made in place along the centerline of the top rail, from center to center of end posts.

B. GALVANIZED ESPLANADE SEA RAIL GATE: The quantity of Galvanized Esplanade Sea Rail Gate to be paid for each type gate furnished and erected complete, to the satisfaction of the Engineer.

PK-ESCR 031.6. PRICES TO COVER

A. GALVANIZED ESPLANADE SEA RAIL: The price bid shall be a unit price per linear foot of Galvanized Esplanade Sea Rail and shall include the cost of all labor, material, equipment, and incidentals required to furnish and erect rail of the type specified including, but not limited to, shop drawings, gates, excavation, concrete post footings, backfill, and painting as required, all in accordance with the Contract Drawings, the specifications and the directions of the Engineer.

B. GALVANIZED ESPLANADE SEA RAIL GATE: The price bid shall be a unit price for each Galvanized Esplanade Sea Rail Gate and shall include the cost of all labor, material, equipment, and incidentals required to furnish and erect rail of the type specified including, but not limited to, shop drawings, gates, excavation, concrete post footings, backfill, and painting as required, all in accordance with the Contract Drawings, the specifications and the directions of the Engineer.

Payment will be made under:

Item No.	Item	Pay Unit
PK-ESCR 031 A	**Galvanized Esplanade Sea Rail**	**L.F.**

END OF SECTION

PK-ESCR 031.6. PRICES TO COVER

A. GALVANIZED ESPLANADE SEA RAIL: The price bid shall be a unit price per linear foot of Galvanized Esplanade Sea Rail and shall include the cost of all labor, material, equipment, and incidentals required to furnish and erect rail of the type specified including, but not limited to, shop drawings, gates, excavation, concrete post footings, backfill, and painting as required, all in accordance with the Contract Drawings, the specifications and the directions of the Engineer.

B. GALVANIZED ESPLANADE SEA RAIL GATE: The price bid shall be a unit price for each Galvanized Esplanade Sea Rail Gate and shall include the cost of all labor, material, equipment, and incidentals required to furnish and erect rail of the type specified including, but not limited to, shop drawings, gates, excavation, concrete post footings, backfill, and painting as required, all in accordance with the Contract Drawings, the specifications and the directions of the Engineer.

Payment will be made under:

Item No.	Item	Pay Unit
PK-ESCR 031 A	**Galvanized Esplanade Sea Rail - Straight**	**L.F.**
PK-ESCR 031 B	**Galvanized Esplanade Sea Rail - Straight, End Panel**	**L.F.**
PK-ESCR 031 C	**Galvanized Esplanade Sea Rail - Straight Sloped**	**L.F.**
PK-ESCR 031 D	**Galvanized Esplanade Sea Rail - Straight-Sloped Transition**	**L.F.**
PK-ESCR 031 E	**Galvanized Esplanade Sea Rail - Radius**	**L.F.**
PK-ESCR 031 F	**Galvanized Esplanade Sea Rail - Radius, End Panel**	**L.F.**
PK-ESCR 031 G	**Galvanized Esplanade Sea Rail - Radius Sloped**	**L.F.**
PK-ESCR 031 H	**Galvanized Esplanade Sea Rail - Radius-Sloped Transition**	**L.F.**
PK-ESCR 031 I	**Galvanized Esplanade Sea Rail - Gate - 4' Width**	**EA**

END OF SECTION

SECTION PK-ESCR 036 – PRE-CAST CONCRETE

PK-ESCR 036.1. INTENT

This section describes the furnishing and installation of precast concrete assemblies in accordance with the plans, specifications and directions of the Engineer.

PK-ESCR 036.2. DESCRIPTION

A. Under this item, the Contractor shall fabricate, furnish and install Pre-Cast Concrete Units as shown on plans and in accordance with the specifications and directions of the Engineer. The footing is described in item Concrete for Structures 4.06.

PK-ESCR 036.3. MATERIALS

1.1 MOLD MATERIALS

a) Molds: Provide molds and, where required, form-facing materials of metal, plastic, wood, or another material that is nonreactive with concrete and dimensionally stable to produce continuous and true precast concrete surfaces within fabrication tolerances and suitable for required finishes.

1.2 REINFORCING MATERIALS

a) Epoxy Coated Rebar:

i. Conforming to ASTM A934 & A775/A775M, Grade 60, Marine Grade Purple Epoxy-coated, clean and free of rust, dirt, grease or oils.

ii. Supports: Manufacturer's bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place according to CRSI's "Manual of Standard Practice," PCI MNL 117.

1.3 CONCRETE MATERIALS

a) Portland Cement: ASTM C 150, Type I (white) or Type III (gray), of same type, brand and source.

b) Custom precast units:

i. General: Comply with PCI MNL-120, PCI MNL-122, PCI MNL-123, PCI MNL-135, and ACI 318.

c) Concrete:

i. Comply with pertinent quality standards in accordance with ASTM C94/C94M.

ii. Portland Cement: ASTM C 150/C150M Type 1 (white) or Type 3 (gray). Provide same type, brand and source for all components of each precast fabrication.

iii. Mix Design for concrete to attain a minimum compressive strength, of 5000 psi (35MPa) when cured and tested at 28 Days in accordance ASTM C39/C39M and total air content between 4 percent and 6 percent.

iv. Aggregates: Clean, washed aggregates as required to produce selected color, pattern and texture. Course and fine aggregates to be from single source throughout the duration of the project.

d) Admixtures:

i. Chemical admixtures conforming to ASTM C494/C494M Type A and G.

ii. Color Admixture: ASTM 979, synthetic mineral-oxide pigments or colored water reducing admixtures, temperature stable, nonfading and alkali resistant.

a. Synthetic mineral oxide pigments conforming to ASTM C979/C979M.

b. Provide specific manufactured color pigments as indicated on the drawings.

c. Proportions of color admixtures in concrete are to be determined by the manufacturer to provide proper color or to match owner's samples.

d. Mix and consolidate color admixtures per manufacturer's recommendations.

e. Owner approved color manufactures:

1) Chromix by Sika Scofield; www.scofield.com; (800) 800-9900

2) Davis Integral Color by Davis Colors; www.daviscolors.com; (800) 356-4848

e) Grout:

i. For exposed, finished joints; factor blended and packaged mortar containing hydraulic cement, fine aggregates and integral color pigments. Colors to be selected by Engineer. If a specific manufacturer has not been specified on drawings use one of the following approved products:

a. Polyblend by Custom Building Products; www.custombuildingproducts.com; (800) 272-8786

b. 1500 Series, sanded grout by Laticrete North America; https://.laticrete.com

c. Keracolor by Mapei, www.mapei.com; (800) 992-6273

f) Normal-Weight Aggregates: Except as modified by PCI MNL 117, ASTM C 33, with coarse aggregates complying with Class 5S.Revise subparagraph below to add descriptions of selected coarse- and fine-face aggregate colors and sources if required.

i. Coarse Aggregates: Selected, hard, and durable; free of material that reacts with cement or causes staining.

1. Gradation: Gap Graded.

ii. Fine Aggregates: Selected, natural or manufactured sand of the same material as coarse aggregate, unless otherwise approved by Engineer.

g) Water: Potable; free from deleterious material that may affect color stability, setting, or strength of concrete and complying with chemical limits of PCI MNL 117.

h) Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.

i) Water-Reducing Admixture: ASTM C 494, Type A.

j) High-Range, Water-Reducing Admixture: ASTM C 494, Type F.

k) Hycrete Waterproofing Admixture

1.4 GROUT MATERIALS

a) Sand-Cement Grout: Portland cement, ASTM C 150, Type I, and clean, natural sand, ASTM C 144. Mix at ratio of 1 part cement to 2-1/2 parts sand, by volume, with minimum water required for placement and hydration.

1.5 CONCRETE MIXES

a) Prepare design mixes for each type of concrete required.

i. Limit use of fly ash and silica fume to not exceed, in aggregate, 25 percent of portland cement by weight.

b) Design mixes may be prepared by a qualified independent testing agency or by qualified precast plant personnel at precast architectural concrete fabricator's option.

c) Limit water-soluble chloride ions to the maximum percentage by weight of cement permitted by ACI 318 (ACI 318M).

d) Normal-Weight Concrete Mixes: Proportion mixes by either laboratory trial batch or field test data methods according to ACI 211.1, with materials to be used on project, to provide normal-weight concrete with the following properties:

i. Compressive Strength (28 Days): 6000 psi (34.5 MPa).

ii. Maximum Water-Cementitious Materials Ratio: 0.45.

e) Water Absorption: 3 to 5 percent by volume, tested according to PCI MNL 117. Manufacturer to have 10 years of experience of producing concrete with a sub 5% water absorption rate. Manufacturer to provide 3 project examples with references for project they have performed with this criterion.

f) Lightweight backup mixes must be compatible with normal-weight face mixes to minimize bowing or warping. Retain lightweight concrete backup mixes if required or as an option if satisfactory durability and in-service performance are verified by fabricator.

g) Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content complying with PCI MNL 117.

h) When included in design mixes, add other admixtures to concrete mixes according to manufacturer's written instructions.

PK-ESCR 036.3.1. FABRICATION

i) General:

a. Fabricate the work of this section to the sizes and shapes indicated on the drawings as indicated on the approved shop drawings.
b. Provide color and finishes as indicated on the drawings and to match owner samples.
c. Make exposed edges and chamfers sharp, straight and consistent. Provide flat surfaces to true planes.
d. Place and secure in the forms all anchors, clips, inserts, bolts lifting devices, shear ties and other embedded devices required for handling and installing the precast units for attachment of subsequent items as indicated or specified. Provide air

bleed holes for embedded items as necessary to ensure voids or honeycombs do not form.

e. Provide all openings, recesses or block-outs required.
f. Provide temperature and shrinkage of reinforcement in accordance with ACI 318
g. Minor patching in plant is acceptable, provide structural integrity and appearance is not impaired.

i) Curing:

a. Form-cure the work for a minimum of 24 hours.
b. Wet cure for not less than 6 days after being removed from forms
c. Following curing period, allow units to air-dry for not less than an additional 7 days before being loaded for delivery.

j) Casting Tolerances:

a. Maintain casting and dimension tolerances within the following units:
   i. Length and width of precast units 10ft. or less shall not vary more than 1/8 in.
   ii. Thickness of units to vary not more than 1/8in.
b. Units 'out of square' more than 6 linear ft. 1/8 in. per ¼ in. total are not acceptable.
c. Location of cast-in place inserts, sleeves, conduits and electric junction boxes to not vary more than ¼ in. in any direction.
d. Bowing or warping: length/360; arrange so that the offset between units does not exceed offset tolerance.
e. Exposed joint dimension: ½ inch, plus or minus 1/8 inch.

1.6 MOLD FABRICATION

A. Molds: Accurately construct molds, mortar tight, of sufficient strength to withstand pressures due to concrete-placement operations and temperature changes.

B. Maintain molds to provide completed precast architectural concrete units of shapes, lines, and dimensions indicated, within fabrication tolerances specified.

i. Edge and Corner Treatment: Uniformly radiused.

1.7 FABRICATION

A. Cast-in Anchors, Inserts, Plates, Angles, and Other Anchorage Hardware: Fabricate anchorage hardware with sufficient anchorage and embedment to comply with design requirements. Accurately position for attachment of loose hardware, and secure in place during precasting operations. Locate anchorage hardware where it does not affect position of main reinforcement or concrete placement.

B. Furnish loose steel plates, clip angles, seat angles, anchors, dowels, cramps, hangers, and other hardware shapes for securing precast architectural concrete units for support and adjacent construction.

C. Cast-in reglets, slots, holes, and other accessories in precast architectural concrete units to receive windows, cramps, dowels, reglets, waterstops, flashings, and other similar work as indicated.

D. All cast-in anchors, plates or inserts to be made from non-corrosive steel per PCI-ML117.

E. Reinforcement: Comply with recommendations in CRSI's "Manual of Standard Practice" and PCI MNL 117 for fabricating, placing, and supporting reinforcement.

   a. Clean reinforcement of loose rust and mill scale, earth, and other materials that reduce or destroy the bond with concrete.

   b. Accurately position, support, and secure reinforcement against displacement during concrete-placement and consolidation operations. Completely conceal support devices to prevent exposure on finished surfaces.

   c. Place reinforcement to maintain at least 3/4-inch (19-mm) minimum coverage. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position while placing concrete. Direct wire tie ends away from finished, exposed concrete surfaces.

   d. Install welded wire fabric in practicable lengths. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

F. Reinforce precast architectural concrete units to resist handling, transportation, and erection stresses.

G. Mix concrete according to PCI MNL 117 and requirements in this Section. After concrete batching, no additional water may be added.

H. Place concrete in a continuous operation to prevent seams or planes of weakness from forming in precast concrete units. Comply with requirements in PCI MNL 117 for measuring, mixing, transporting, and placing concrete.

I. Thoroughly consolidate placed concrete by internal and external vibration without dislocating or damaging reinforcement and built-in items. Use equipment and procedures complying with PCI MNL 117.

J. Comply with ACI 306.1 procedures for cold-weather concrete placement.

K. Comply with ACI 305R recommendations for hot-weather concrete placement.

L. Identify pickup points of precast architectural concrete units and orientation in structure with permanent markings, complying with markings indicated on Shop Drawings. Imprint or permanently mark casting date on each precast architectural concrete unit on a surface that will not show in finished structure.

M. Cure concrete, according to requirements in PCI MNL 117, by moisture retention without heat or by accelerated heat curing using low-pressure live steam or radiant heat and moisture.

N. Discard precast architectural concrete units that are warped, cracked, broken, spalled, stained, or otherwise defective unless repairs are approved by Engineer.

1.8 FABRICATION TOLERANCES

A. Fabricate precast architectural concrete units straight and true to size and shape with exposed edges and corners precise and true so each finished panel complies with PCI MNL 117 product tolerances as well as position tolerances for cast-in items.

B. Fabricate precast architectural concrete units straight and true to size and shape with exposed edges and corners precise and true so each finished panel complies with the following product tolerances:

   a. Overall height and width of units, measured at the face exposed to view: As follows:

      i. 10 feet (3 m) or under, plus or minus 1/8 inch (3 mm).

   b. Overall height and width of units, measured at the face not exposed to view: As follows:

      i. 10 feet (3 m) or under, plus or minus 1/4 inch (6 mm).

C. Position tolerances: For cast-in items measured from datum line location, as indicated on Shop Drawings.

   a. Weld Plates: Plus or minus 1 inch (25 mm).

   b. Inserts: Plus or minus 1/2 inch (13 mm).

   c. Handling Devices: Plus or minus 3 inches (75 mm).

   d. Reinforcing Steel and Welded Wire Fabric: Plus or minus 1/4 inch (6 mm) where position has structural implications or affects concrete cover; otherwise, plus or minus 1/2 inch (13 mm).

PK-ESCR 036.3.2. SUBMITTALS

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

   a. Project reference to substantiate qualifications of manufacturer and installer.

   b. Materials listed of items to be provided under this section, including manufacturer's specifications and other data for all manufactured materials and products.

E. Engineering calculations for all casting types

F. Design Mixes: For each concrete mix.

G. Utilize project team's established digital 3D modeling approach to coordinate with design team and other trades.

H. Shop Drawings: Detail fabrication and installation of precast architectural concrete units. Indicate member locations, plans, elevations, dimensions, shapes, cross sections, limits of each finish, and types of reinforcement, including special reinforcement.

   a. Indicate welded connections by AWS standard symbols. Detail loose and cast-in hardware, inserts, connections, and joints, including accessories.

   b. Indicate locations and details of anchorage devices to be embedded in other construction.

   c. Indicate locations and details of joint treatment.

   d. Indicate locations and details of stone facings, anchors, and treatment of joints.

A. Samples: Before fabricating precast architectural concrete units, produce samples to establish the approved range of selections made under sample submittals. Produce a

minimum of 3 sets of full-scale samples pieces as chosen by the Engineer, to demonstrate the expected range of finish, color, and texture variations.

a. In presence of Engineer, damage part of an exposed-face surface for each finish, color, and texture, and demonstrate materials and techniques proposed for repair of surface blemishes to match adjacent undamaged surfaces.

b. Maintain sample pieces during construction in an undisturbed condition as a standard for judging the completed Work.

c. Grout Samples for Initial Selection: Color charts consisting of actual sections of grout showing the manufacturer's full range of colors.

B. Welding Certificates: Copies of certificates for welding procedures and personnel.

C. Fabricator's Qualification Statement: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of Engineers and owners, and other information specified.

D. Material Certificates: Signed by manufacturers certifying that each of the following items complies with requirements:

i. Concrete materials

ii. Reinforcing materials

iii. Admixtures

iv. Water-absorption test reports

PK-ESCR 036.3.3. QUALITY CONTROL

E. Fabricator Qualifications: A firm with a minimum of 25 years documented experience in the production of decorative architectural precast concrete units similar to those indicated for this project and with a record of successful in-service performance.

a. Has a quality control program that is APA or PCI certified by a professional engineer. Must submit program with bid.

b. Assumes responsibility for engineering precast architectural concrete units to comply with performance requirements. This responsibility includes preparation of shop drawings and comprehensive engineering analysis by a qualified professional engineer, under the state the project is located and experienced in design of precast units similar to the work of this section.

c. Fabricator to have minimum 7 years experience with Rhino computer modeling, 3D CNC modeling and machining.

d. Plant shall be designated as PCI Certified for Group A, or as APA certified for production of architectural precast concrete products.

e. Operation with an established quality assurance program that complies with the procedures of Manual PCI MNL-116 of the Precast Concrete Institute.

f. Sufficient production capacity to produce and deliver required units without causing delay in the work.

g. Provide technical field services, trained personnel and required materials to make minor repairs.

h. Must have a qualified salesperson or technical representative able to make next-day in-person meetings atthe project site to resolve issues.

F. Installer Qualifications: Installer to have no less than 5 years of documented experiences who has completed precast architectural concrete work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

G. Acceptance Criteria of Precast Unit:

a. Castings that are not in compliance with specified tolerances shall be rejected.

b. Connections not complying with drawings and specification requirements shall cause for rejection if repairs cannot be made to maintain the connections function and integrity.

c. Any repair work performed to bring damaged or defective castings with compliance of the drawings and specifications shall be performed to the final satisfaction of the owner or replaced at Owner's discretion.

d. The following shall be considered defects and grounds for rejection:

i. Castings not matching approved sample for color or finish
ii. Non-uniformity of color or finish – including precast concrete units out of color range
iii. Ragged or irregular edges or reveals
iv. Excessive air voids or rock pockets on exposed surface
v. Casting marks, visible form joints or reinforcement shadow lines.
vi. Irregular surfaces planes
vii. Visible cracks
viii. Rust stains, blocking stains or acid stains on finished surface.
ix. Foreign material embedded and exposed on finished surface.
x. Poorly executed and visible repairs
xi. Any damage to panel(s) – including the above – done during shipping, handling and placing/installing

H. Testing Agency Qualifications: An independent testing agency acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 to conduct the testing indicated, as documented according to ASTM E 548.

I. Design Standards: Comply with ACI 318 (ACI 318M) and the design recommendations of PCI MNL 120, "PCI Design Handbook--Precast and Prestressed Concrete."

J. Quality-Control Standard: For manufacturing procedures and testing requirements, quality-control recommendations, and dimensional tolerances for types of units required, comply with PCI MNL 117, "Manual for Quality Control for Plants and Production of Architectural Precast Concrete Products."

K. Product Options: Drawings indicate size, profiles, and dimensional requirements of precast concrete units and are based on the specific types of units indicated. Other fabricators' precast concrete units complying with requirements may be considered. Refer to Division 1 Section "Substitutions."

L. Welding: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code--Steel"; and AWS D1.4, "Structural Welding Code--Reinforcing Steel."

M. Quality-Control Testing: Test and inspect precast concrete according to PCI MNL 117 requirements.

N. Strength of precast concrete units will be considered deficient if units fail to comply with ACI 318 (ACI 318M) requirements.

O. Testing: If there is evidence that the strength of precast concrete units may be deficient or may not comply with ACI 318 (ACI 318M) requirements, owner will employ an independent testing agency to obtain, prepare, and test cores drilled from hardened concrete to determine compressive strength according to ASTM C 42.

   a. A minimum of three representative cores will be taken from units of suspect strength, from locations directed by Engineer.

   b. Cores will be tested in an air-dry condition.

   c. Strength of concrete for each series of 3 cores will be considered satisfactory if the average compressive strength is equal to at least 85 percent of the 28-day design compressive strength and no single core is less than 75 percent of the 28-day design compressive strength.

   d. Test results will be made in writing on the same day that tests are performed, with copies to Engineer, Contractor, and precast concrete fabricator. Test reports will include the following:

      i. Project identification name and number.
      ii. Date when tests were performed.
      iii. Name of precast concrete fabricator.
      iv. Name of concrete testing agency.
      v. Identification letter, name, and type of precast concrete unit or units represented by core tests; design compressive strength; type of break; compressive strength at breaks, corrected for length-diameter ratio; and direction of applied load to core in relation to horizontal plane of concrete as placed.

P. Patching: If core test results are satisfactory and precast concrete units comply with requirements, clean and dampen core holes and solidly fill with precast concrete mix that has no coarse aggregate, and finish to match adjacent precast concrete surfaces.

Q. Defective Work: Precast architectural concrete units that do not comply with requirements, including strength, manufacturing tolerances, and finishes, are unacceptable. Replace with precast concrete units that comply with requirements.

PK-ESCR 036.3.4. DELIVERY, STORAGE, AND HANDLING

A. Deliver precast architectural concrete units to project site in such quantities and at such times to ensure continuity of installation. Store units at project site to prevent cracking, distorting, warping, staining, or other physical damage, and so markings are visible.

   a. Lift and support units only at designated lifting and supporting points as shown on shop drawings.

   b. Lifting or handling equipment: capable of maintaining complete control of units during manufacture, storage, transportation and installation.

   c. Blocking and lateral support during transport and storage: clean, non-staining, without causing harm to exposed surfaces. Provide support to prevent bowing, warping or cracking.

   d. Protect units to prevent staining, scarring, chipping or spalling.

B. Furnish anchorage items to be embedded in or attached to other construction without delaying the work. Provide setting diagrams, templates, instructions, and directions, as required, for installation.

PK-ESCR 036.3.5. WARRANTY

A. Fabricator to provide a one-year warranty against manufacture's defect

B. Fabricator to provide a seven-year warranty against the effects of freeze-thaw

PK-ESCR 036.3.6. MANUFACTURER

A. Fabricators: Subject to compliance with requirements, fabricators offering products that may be incorporated into the Work include, but are not limited to, the following:

   a. QCP, Norco, CA. www.qcp-corp.com. Contact: Matthew Houser - (347)931-3142 houser@qcp-corp.com

   b. Southside Precast Products, NY - (716) 825-9300

   c. David Kucera, Inc., Gardiner, NY - (845) 255-1044

   d. Jersey Precast, NJ - (609) 587-6068

   e. Blakeslee Prestress Inc. Branford, CT - 203-481-5306

B. Fabricator must submit a sample piece representative of at least one of the types of precast products on the project for approval to be pre-approved. Approval is at the sole discretion of the owner and the Engineer

PK-ESCR 036.3.7. FINISHES

A. Finish exposed-face surfaces of precast architectural concrete units to match approved design reference sample and as follows:

   i. Textured-Surface Finish: Impart by form liners or inserts to provide surfaces free of pockets, streaks, and honeycombs, with uniform color and texture. Any air-pocket in the surface of the precast must be sacked or filled to match.

   ii. Finish unexposed surfaces of precast architectural concrete units by float finish.

PK-ESCR 036.4. METHODS

A. EXAMINATION

   1. Examine substrates and conditions for compliance with requirements for installation tolerances, true and level bearing surfaces, and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

   2. Do not install precast concrete units until supporting concrete has attained minimum design compressive strength.

B. INSTALLATION

   1. Anchor precast architectural concrete units in position by bolting, welding, grouting, or as otherwise indicated. Remove temporary shims, wedges, and spacers as soon as possible after anchoring and grouting are completed.

   2. At bolted connections, use lock washers or other acceptable means to prevent loosening of nuts.

3. Grouting Connections: Grout connections where required or indicated. Retain grout in place until hard enough to support itself. Pack spaces with stiff grout material, tamping until voids are filled. Place grout to finish smooth, level, and plumb with adjacent concrete surfaces. Keep grouted joints damp for a minimum of 24 hours after initial set. Promptly remove grout material from exposed surfaces before it affects finishes or hardens.

    i. Camber, as Erected, between Adjacent Members of Same Design: 1/4 inch (6 mm).

C. REPAIRS

1. Repair exposed exterior surfaces of precast architectural concrete units to match color, texture, and uniformity of surrounding precast architectural concrete if permitted by Engineer.
2. Remove and replace damaged precast architectural concrete units if repairs do not comply with requirements.

D. CLEANING

1. Clean exposed surfaces of precast concrete units after erection to remove weld marks, other markings, dirt, and stains.

    i. Wash and rinse according to precast concrete fabricator's written recommendations. Protect other work from staining or damage due to cleaning operations.

2. Do not use cleaning materials or processes that could change the appearance of exposed concrete finishes.

PK-ESCR 036.5. MEASUREMENT Precast concrete units, seatwalls, and skate deterrents shall be measured for payment by each unit installed or by the linear foot, as noted below, to the satisfaction of the Engineer.

PK-ESCR 036.6. PRICES TO COVER

The price bid for Pre Cast Concrete Units shall be a unit price for each precast concrete assembly and shall include the cost of all labor, materials, equipment and expenses necessary to furnished, erected in accordance with the plans, specifications and directions of the Engineer. For Foundation Material for Concrete and Reinforcement see ESCR-4.06.

Payment will be made under:

Item No.	Item	Pay Unit
PK-ESCR 037	SKATE DETERRENT	LF
PK-ESCR 923 A	STUYVESANT COVE PRE-CAST SEATWALL MODULE A	EA
PK-ESCR 923 B	STUYVESANT COVE PRE-CAST SEATWALL MODULE B	EA
PK-ESCR 923 C	STUYVESANT COVE PRE-CAST SEATWALL MODULE C	EA
PK-ESCR 923 D	STUYVESANT COVE PRE-CAST SEATWALL MODULE D	EA
PK-ESCR 923 E	STUYVESANT COVE PRE-CAST SEATWALL MODULE E	EA
PK-ESCR 923 F	STUYVESANT COVE PRE-CAST SEATWALL MODULE F	EA
PK-ESCR 923 G	STUYVESANT COVE PRE-CAST SEATWALL MODULE G	EA

END OF SECTION

SECTION PK-ESCR 039 – BENCH, 1939 WF RPL SLATS

WORK: Under these Items, the Contractor shall furnish and install various types of **BENCH, 1939 WORLD'S FAIR W/RPL SLATS** in accordance with the plans, specifications, and directions of the Engineer.

MATERIALS: Unless otherwise herein specified, all materials and methods of construction shall conform to the requirements of General Conditions, Materials and Methods of Construction.

Benches shall be model No. 6737, 6737-E (armless) or 6736 (backless), as manufactured by Kenneth Lynch & Sons, Oxford, CT, "Liberty Bench" as manufactured by Kevin G. Lindelow Quality Site Furnishings, Frenchtown, NJ, or "World's Fair Bench" as manufactured by All City Play Equipment, Inc., Brooklyn, NY, or approved equal. There are minor variations from the standard detail dimensions among manufacturers.

STANDARDS: Bench standards shall be of cast ductile iron. The tensile strength shall meet a minimum of 65,000 psi, in accordance with ASTM A536, Grade 65-45-12. Standards shall be either painted or powdercoated, as per this specification.

Steel Back Supports, Seat Supports and Cross Bars: Shall be steel bar and channel of sizes as indicated on the drawings, formed to the curve of the back and seat and secured to the recycled plastic slats with vandal-resistant stainless steel screws.

Finishes: The Contractor shall supply either powdercoated or painted metal surfaces, including cast ductile iron bench standards, brace rods, steel back supports, seat supports, and cross bars. Color shall be Black. Both types of finishes are outlined below:

Powdercoating: All metal surfaces shall be powder coated with a polyester thermosetting powdercoating such as manufactured by Tiger Drylac U.S.A., Reading, PA, or approved equal. Standards, brace rods, steel back supports, seat supports, and cross bars shall be Gloss Black.

Powdercoating shall be applied to the metal in such a manner that the coating will not peel off. Ensure surfaces to be coated are clean and dry and free of grease, dust, rust, etc. All surfaces shall first receive phosphating and chromatizing treatments to improve the adhesion of the surface coating.

Powdercoating shall be applied to a film thickness of 3 to 4 mils by electrostatic spray process and bake finished per manufacturer's directions. It shall be applied without voids, tears, or cuts that reveal the substrate and shall thoroughly adhere to the metal without peeling when scratched with a pick device or knife blade point. All visible nuts, washers, and ends of all bolts shall be painted with touchup paint as described below.

Touchup and Repair: For minor damage caused by installation or transportation, touch-up finish in conformance with manufacturer's recommendations. Provide touch-up such that repair is not visible from a distance of six feet (6').

Laboratory Test For TGIC-Polyester Powder Coat: At the discretion of the Engineer, a sample TGIC-Polyester powder coated bench standard may be laboratory tested for bonding of the powdercoating to the metal. The test shall be the Cross Hatch test per ASTM D3359, Method B. Failure to satisfactorily pass this test shall be a basis for rejection.

Painting: All metal surfaces shall receive three (3) coats of shop applied paint. Immediately prior to painting, all surfaces shall be thoroughly clean. All surfaces that are rust free shall be cleaned in accordance with SP-1, Solvent Cleaning. Cleaning shall be performed with a solvent such as mineral spirits, xylol, or turpentine to remove all dirt, grease, and foreign matter. Surfaces that show evidence of scale and rust shall be cleaned in accordance with SP-2, Hand Tool Cleaning,

a method generally confined to wirebrushing, sandpaper, hand scrapers, or hand impact tools, or SP3, Power Tool Cleaning, a method generally confined to power wirebrushes, impact tools, power sanders, and grinders in order to achieve a sound substrate. After the standards have been cleaned and prepared, they shall be painted as follows:

First Coat: Universal Metal Primer, M07, White, as manufactured by Benjamin Moore & Co. or approved equal. The Primer is a phenolic alkyd flat finish coating having a dry film thickness of 2 mils. Paint requires one (1) to two (2) hours drying time before recoating.

Second and Third Coats: D.T.M.(Direct to Metal) Alkyd semi-gloss, Safety Black, as manufactured by Benjamin Moore & Co., or approved equal. The coating is a modified alkyd having a dry film thickness of 2 mils for each coat. Paint requires eight (8) hours drying time before recoating.

All three (3) coats shall be shop painted. All paints shall be applied when the ambient air temperature is forty five (45) degrees F. and rising and when surfaces to be painted are moisture free. No painting will be allowed below the minimum ambient air temperature. In addition, no painting will be allowed below the temperature at which moisture will condense on surfaces; the ambient temperature must be 5 degrees above the dew point.

BENCH SLATS – RECYCLED PLASTIC LUMBER: Recycled plastic lumber slats shall be fabricated from a minimum ninety percent (90%) post-consumer recycled high density polyethylene (HDPE). HDPE resins shall meet the requirements of ASTM D1248 for Type II or IV (high density), Grade G7. Materials shall contain no toxic substances. Recycled plastic lumber shall contain UV inhibited pigment and shall not absorb moisture, corrode, rot, warp, splinter, or crack and shall not contain fiberglass or any material that will be irritating in contact with skin. Color to be Cedar, Brown or Weathered Wood unless otherwise indicated on the plans.

Recycled plastic lumber slats shall be internally reinforced or externally supported with additional steel bar and channel supports. The Contractor shall submit shop drawings showing all external supports if non-reinforced plastic lumber is used. Both types of plastic lumber shall meet the requirements specified below.

Recycled plastic lumber slats (without reinforcement) shall comply with or be tested in accordance with provisions of the following:

ASTM D6108	Standard Test Method for Compressive Products of Plastic and Shapes
ASTM D6109	Standard Test Method for Flexural Properties of Unreinforced and Reinforced Plastic Lumber
ASTM D6111	Standard Test Method for Bulk Density and Specific Gravity of Plastic Lumber and Shapes by Displacement
ASTM D6112	Standard Test Methods for Compressive and Flexural Creep and Creep Rupture of Plastic Lumber and Shapes
ASTM D6117	Standard Test Methods for Mechanical Fasteners in Plastic Lumber and Shapes
ASTM D1248	Standard Specifications for Polyethylene Plastics

Composition and mechanical properties shall be as follows:

Minimum Recycled Content	90%
Minimum High Density Polyethylene	70%
Maximum Percentage of Materials other than Polyolefins	5%
Minimum Specific Gravity (ASTM D6111)	0.02 lbs-in3
Minimum Flexural Modulus (ASTM D6109)	85,000 psi
Minimum Nail Pull-out Strength (ASTM D6117)	700 lbs

Flame Spread, Class C or better, tested in accordance with ASTM E84.

Coefficient of Thermal Expansion (ASTM D6341), in the range of -10C to 30C, shall not exceed 70 x 10-6/°F.

The City reserves the right to independently test samples of slats from the job site. Random samples must be supplied to the Engineer for identification, at the request of the Engineer. Should the slats provided on the job site not be as previously approved, the Contractor shall replace all the incorrect slat lumber at no extra cost to the City.

Reinforced Plastic Lumber: Reinforced plastic slats shall be precision machined to receive the internal steel support bars and allow expansion and contraction of the slats, such as Second Site Systems slats, Patent No. 5,660,907, as manufactured by Victor Stanley, Inc., Dunkirk, MD, or approved equal. The slats, with supports on minimum forty six inch (46") centers and a one and one-half inch by one-quarter inch (1-1/2" x 1/4") steel support strap midway between the legs, shall be capable of bearing a five hundred pound (500 lb.) load for a minimum twenty four hours (24 hrs.) with a maximum deflection of one-quarter inch (1/4") with the weight in place and one-sixteenth inch (1/16") with the weight removed. As-equal submittals will require test data confirming this tolerance.

The different coefficients of expansion require sufficient play in the slot and spacing of fasteners to prevent cracking and splitting. Internal steel reinforcement bars shall be made of A36 electric furnace mild steel from recycled steel scrap. Steel dimension shall be one quarter inch by one inch (1/4" x 1"), secured with stainless steel set screws, countersunk, with the resulting cavity filled with recycled plastic plugs.

The steel bars shall be hot dipped galvanized and powdercoated to match the color of the recycled plastic lumber slats.

Fabrication Tolerances: Ends shall be smooth with clean cuts, cross-sections shall not have voids greater than 1/2" dia. Voids of 1/2" dia. or less shall be filled with a matching color of silicone caulk, as per manufacturer's specifications. All edges shall be eased. Maximum variation from flat surface across section shall be 1/8".

Delivery and Storage: Keep materials protected at all times against exposure to extreme heat or impact. All material shall be bundled and fully supported during shipping and storage to prevent creep. Any lumber that is damaged or excessively scratched will be rejected and replaced with new. All slat material must be straight and true when bolted to the standards.

Hardware: Bolts, locknuts, and washers used to secure slats to standards shall be stainless steel. Bolt or wood screw used for mid section steel support strap (RPL only) shall be a vandal resistant type, either stainless steel or hot-dipped galvanized. Type and dimensions of all bolts, nuts, and washers shall be as indicated on the plans. Anchor bolts used to secure the benches to pavements may be either stainless steel or hot-dipped galvanized steel. Bolts for securing slats shall be provided with nylon lock nuts so as to render the connection vandal resistant. Steel support straps shall be secured with (3/8") hot dipped galvanized or stainless steel screws with vandal resistant heads.

Concrete: Concrete for slabs or footings shall be class B-32 concrete per the NYCDOT Standard Highway Specifications, *Section ESCR-4.06* and shall be of the dimensions indicated on the plans.

ASSEMBLY AND INSTALLATION: Benches shall be pre-assembled before being installed in their final location and properly secured in place by anchor bolts drilled into concrete footings or slab, as indicated on the plans.

SUBMITTALS: All submittal shall be as per the S-Pages.

Shop Drawings: The Contractor shall submit shop drawings showing all additional steel supports if unreinforced plastic lumber slats are proposed.

Foundry Certificates: Certifying Ductile Iron used in bench standards shall be submitted. The certificate shall be on foundry letterhead, dated and signed by the manufacturer with the Contract No., Contractor name, and Class of Ductile Iron provided.

Sample: The Contractor shall submit a twelve inch (12") sample of the recycled plastic lumber slat for surface and color approval. Required test results shall be submitted for unreinforced recycled plastic lumber slats.

Paint Substitution: A written request for any paint substitution must be submitted to the Engineer. The Contractor shall submit manufacturer's Data Sheets and installation instructions for approval of any proposed as-equal product no less than two (2) weeks prior to application.

MEASUREMENT AND PAYMENT: The quantity of **BENCH, 1939 WORLD'S FAIR W/RPL SLATS** to be paid for under this Item shall be the number of **LINEAR FEET** of each type, measured in place along the top slat, installed in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price per **LINEAR FOOT** of each type bench furnished and installed and shall include the cost of all labor, materials, equipment, and incidentals necessary to complete the work, including recycled plastic lumber (R.P.L.) slats, steel supports, hardware, submittals, and all finishes, in accordance with the plans and specifications, to the satisfaction of the Engineer.

Excavation and Concrete for footings or concrete slab shall be paid for under their respective contract items.

Item No.	Item	Pay Unit
PK-ESCR 039	Bench, 1939 WF RPL Slats, 4' LENGTH	L.F.

END OF SECTION

SECTION PK-ESCR 045 – PA2 SITE FURNISHINGS

PK-ESCR 045.1. INTENT.

This section describes the products and installation of Site Furnishings in accordance with the plans, specifications and directions of the Engineer.

PK-ESCR 045.2. DESCRIPTION.

A. Under this Section, the Contractor shall furnish and install the followings Site Furnishings, in accordance with the Contract Drawings, specifications and directions of the Engineer:

1. Circular Tables and Chairs

PK-ESCR 045.3. MATERIALS. (NO TEXT)

PK-ESCR 045.3.1. REFERENCES.

A. ASTM Testing Standards:

1. ASTM B 117 – Standard Practice for Operating Salt Spray (Fog) Apparatus.
2. ASTM D 522 – Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings.
3. ASTM D 523 – Standard Test Method for Specular Gloss.
4. ASTM D 2247 – Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.
5. ASTM D 2794 – Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
6. ASTM D 3359 – Standard Test Methods for Measuring Adhesion by Tape Test.
7. ASTM D 3363 – Standard Test Method for Film Hardness by Pencil Test.
8. ASTM G 155 – Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials.

B. ISO Testing Standards:

1. ISO 1520 – Paints and Varnishes – Cupping Test.
2. ISO 2815 – Paints and Varnishes – Buchholz Indentation Test.

C. ANSI/BIFMA Testing Standards:

1. ANSI/BIFMA X5.4-2005 – Standard Test for Lounge Seating.

PK-ESCR 045.3.2. SUBMITTALS.

A. Product Data: Submit manufacturer's product data, storage and handling requirements and recommendations, installation methods and available colors, styles, patterns and textures.

B. Shop Drawings: Submit manufacturer's shop drawings, including plans and elevations, indicating overall dimensions for approval by the Engineer.

C. Samples: Submit manufacturer's samples of materials, finishes, and colors, including three (3) samples of specified color as applied to an 8 inch by 8 inch square of specified metal for approval by the Engineer.

PK-ESCR 045.3.3. DELIVERY, STORAGE, AND HANDLING.

A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. Storage: Store materials in clean, dry area in accordance with manufacturer's instructions. Keep materials in manufacturer's original, unopened containers and packaging until installation.

C. Handling: Protect materials and finish during handling and installation to prevent damage.

PK-ESCR 045.3.4. WARRANTY.

A. Warranty Information:

1. Products will be free from defects in material and/or workmanship for a period of three years from the date of substantial completion.
2. Products shall be repaired or replaced to the satisfaction of the Engineer any items found defective upon inspection by an authorized manufacturer service representative and Engineer.

PK-ESCR 045.3.5. MANUFACTURER.

A. Manufacturer:

Landscape Forms, Inc., 431 Lawndale Avenue, Kalamazoo, Michigan 49048. Toll Free (800) 521-2546. Phone (269) 381-0396. Fax (269) 381-3455. Website: www.landscapeforms.com; E-mail: specify@landscapeforms.com

Or as Approved by the Engineer.

PK-ESCR 045.3.6. PRODUCTS.

A. CIRCULAR TABLE AND CHAIRS TYPE 1: Carousel Table, Dining Hoop, 4 seat unit, Metal grid seats, Catena Tabletop.

B. CIRCULAR TABLE AND CHAIRS TYPE 1: ACCESSIBLE: Carousel Table, Dining Hoop, 3 seat unit, Metal grid seats, Catena Tabletop.

PK-ESCR 045.3.7. FINISHES.

A. Circular table and chairs shall be catena Stainless Steel.

PK-ESCR 045.4. METHODS.

The following methods of installation shall be used.

A. Examination:

1. Examine areas to receive the Site Furnishings.
2. Notify Engineer of conditions that would adversely affect installation or subsequent use.
3. Do not begin installation until unacceptable conditions are corrected and acceptance verified in writing by Engineer.

B. Installation:

1. Install Site Furnishings in accordance with manufacturer's instructions at locations indicated on the Drawings.
2. Locate Site Furnishings as directed by Engineer.
3. Install Site Furnishings plumb and level.

C. Adjusting:

1. Finish Damage: Repair minor damages to finish in accordance with manufacturer's instructions and as approved by Engineer.
2. Component Damage: Remove and replace damaged components that cannot be successfully repaired as determined by Engineer.

D. Cleaning: Clean Site Furnishings promptly after installation in accordance with manufacturer's instructions. Do not use harsh cleaning materials or methods that could damage finish.

E. Protection: Protect installed Site Furnishings to ensure they will be without damage or deterioration at time of Substantial Completion.

PK-ESCR 042.5. MEASUREMENT.

The quantities of Site Furnishings to be measured for payment shall be the quantity of each type Site Furnishing installed at the site to the satisfaction of the Engineer.

PK-ESCR 042.6. PRICES TO COVER.

The prices bid shall be the unit price per EACH type site furnishing Item covered under this Section and shall include the cost of furnishing all labor, materials, equipment, insurance, and incidentals necessary to furnish, assemble and install the Site Furnishings including, but not limited to, chair arm rests and glides, and hardware, all in accordance with the Contract Drawings, the specifications and the directions of the Engineer.

Payment will be made under:

Item No.	***Item***	***Pay Unit***
PK-ESCR 045 A	**CIRCULAR TABLE AND CHAIRS TYPE 1**	**EA**
PK-ESCR 045 B EA	**CIRCULAR TABLE AND CHAIRS TYPE 1, ACCESSIBLE**	**EA**

END OF SECTION

SECTION PK-ESCR 044 – PNEUMATIC EXCAVATION AROUND TREES

PK-ESCR 44.1. INTENT

Work covered under this section shall be performed at the locations indicated on the Plans, in accordance with the contract documents, and as directed by the Engineer.

PK-ESCR 44.2. DESCRIPTION

A. The intent of this section is to perform pneumatic excavation and backfilling work at locations where trees exist within the work area and are required to remain, requires the protection of tree roots during excavation and backfilling, and implements, as needed, a temporary excavation support system.

PK-ESCR 44.3. MATERIALS

A. Materials shall meet the following requirements, as modified by any supplemental landscape specifications or special notes included in the contract documents. Where indicated, refer to the latest revision/edition of Standard Specifications of the New York State Department of Transportation (NYSDOTSS):

1. PNEUMATIC EXCAVATING TOOL. Excavation shall be performed through the use of a pneumatic excavation tool with the following requirements:

   a) The high air velocity excavation tool shall be specifically designed to fracture, pulverize, and displace porous and semi-porous soils without harming or causing damage to tree roots, existing subsurface utilities or other non-porous objects.

   b) The Contractor shall submit catalog cuts from the manufacturer verifying that the Pneumatic excavation tool meets the following criteria:

      Rated Operating Pressure: 6.2 – 7.0 bar
      Air Stream Velocity at Cutting Head: 2,200 – 2,500 km/hr
      Air Displacement: 4,000 – 5,000 L/min

2. AIR COMPRESSOR. The air compressor may be either a portable or truck mounted unit and shall be adequately sized as required to power the pneumatic excavation tool in accordance with the manufacturer's recommendations for the pneumatic excavating tool.

3. VACUUM TRUCK. A vacuum truck should be used to collect excavated spoil directly from the trench or pit.

4. CONTAINMENT STRUCTURE. To prevent the spread of excavated soil onto adjacent roadways and areas beyond the designated work zone limits, the Contractor shall provide a mobile structure or barrier to contain the material dislodged by the pneumatic excavation tool from the trench or pit. Timber or corrugated metal shields, tents supported on tubular frames or other structures as approved by the engineer may be used.

5. ROOT PROTECTION. The following are required for root protection:

Item	NYSDOTSS Section
Quilted Covers	711-02
Burlap	711-06

6. BACKFILL. The following are required for backfill material:

Item	NYSDOTSS Section
Topsoil	713-01
Limestone	713-02
Fertilizer	713-03
Mycorrhizal Funghi	713-09
Compost	713-15

PK-ESCR 44.3.1. SUBMITTALS

A. The Contractor shall supply the ISA Certified Arborist with information as needed for the Arborist to prepare periodic reports to the Engineer summarizing the number, type, and condition of trees adjacent to each area of pneumatic excavation; indicating the duration of open excavation; and identifying any root damage and actions taken.

PK-ESCR 44.4. EXCAVATION PROCEDURES AND METHODS

The Contractor shall meet all requirements of this section, including transmitting any required submittals.

(A) DUST CONTROL

The work area shall be watered thoroughly at least twenty-four (24) hours in advance of, but no more than forty-eight (48) hours prior to the start of any pneumatic excavation to reduce the incidence of airborne dust resulting from the pneumatic excavation operation.

(B) EXCAVATION – GENERAL

All excavation using the pneumatic excavation tool shall be performed in accordance with the manufacturer's recommendations to remove soil without damage to the roots of trees, buried structures, and/or utilities either in or adjacent to the excavation. The Contractor shall excavate within limits designated for pneumatic excavation shown on the Contract Plans, or as directed by the Engineer, using the pneumatic excavating tool. When working near utilities, the Contractor shall be responsible to locate underground facilities as required under 16 NYCRR Part 753.

(C) EXCAVATION – TEMPORARY EXCAVATION SUPPORT SYSTEM

Approved sheeting and bracing shall be used where necessary to support the sides of the excavation, in order to: prevent damage to subsurface structures and adjacent buildings; safeguard persons and property; minimize inconvenience to traffic and the public; protect the structure to be installed; support the adjacent tree(s); and provide suitable and safe working conditions. Except as otherwise provided, deviations from the above will be permitted only where, in the judgment of the Engineer, such exception will not result in any of the hazards described above.

In cases where sheeting and bracing will not adequately protect adjacent structures from damage and settlement, the Contractor will be required to use such measures as are necessary to safely support and maintain adjacent and abutting property and structures, support the tree without causing damage to the tree, and to maintain the work safe to life, limb, and property.

All sheeting and bracing systems that the Contractor elects to use or that are ordered to use by the Engineer of the Department shall comply with the requirements of the NYCDEP Standard Sewer and Water Specifications, and must receive the approvals stated therein.

Unless otherwise specified in the Contract Drawings or these Specifications or specifically permitted in writing by the Engineer, the Contractor shall be required to withdraw and remove all sheeting and bracing simultaneously with the backfilling of trenches and excavations.

(D) ROOT PROTECTION

The Contractor shall place wet burlap or cotton mats upon both the fibrous and structural roots immediately after they have been exposed by the pneumatic excavating tool. The burlap or cotton covering may be removed to perform inspection or utility installation operations, but the Contractor shall be required to keep the burlap or cotton towels wet and the roots moist until backfilling is complete.

The Engineer shall be immediately informed of any damaged tree roots. No tree roots may be pruned except as specifically authorized by the Arborist. In the case that the concentration of roots obstructs the placement of utilities, footings, or other structures, limited pruning may be necessary as directed by the Arborist. Tree roots in excess of one (1) inch in diameter, measured at the edge of the excavation, shall be cut cleanly at the edge of excavation using a sharp cutting tool. All root pruning shall be performed under the direction of the ISA Certified Arborist.

(E) UTILITY INSTALLATION

Utilities shall be installed as shown on the drawings, including bedding materials. In order to facilitate backfilling on an expedited basis, the Contractor shall install the materials for utilities in a continuous operation along with the pneumatic excavation operations to allow for backfilling of the trench within the same work shift.

Exposed root systems may impede utility installation within an open trench. Therefore, workers shall pass each individual item of utility construction carefully through the root system for placement and assembly within the excavated trench.

(F) BACKFILLING OPERATIONS

Excavations containing exposed tree roots shall be backfilled immediately after the Engineer inspects and approves the required construction work. The Contractor shall provide adequate work crews to backfill the excavated area within twenty-four (24) hours of excavation. Upon completion of inspection of installation work, the Contractor shall remove the burlap or cotton matting and commence backfilling operations.

Suitable excavated material may be used as backfill up to a depth of twelve (12) inches below finished grade. The existing soil shall be amended with humus, peat, peat moss, or source-separated compost in the ratio of one part organic to seven parts excavated soil. If required, provide additional clean backfill material. The Contractor shall properly dispose of excess and unsuitable excavated materials.

Backfilling shall be performed with care not to damage the exposed roots. The Contractor shall compact the backfill material under the direction of the ISA Certified Arborist. The Contractor shall compact the backfill material to be commensurate with the density of the undisturbed adjacent soils unless otherwise directed by the ISA Certified Arborist. Surface restoration including backfilling the twelve (12) inches of the excavation with approved topsoil, shall be performed separately under the appropriate items.

PK-ESCR 44.5. MEASUREMENT

The contract price for "PNEUMATIC EXCAVATION AROUND TREES" shall be the unit price bid to perform the work described herein, at the locations and to the limits indicated on the Plans.

PK-ESCR 44.6. PRICES TO COVER

The unit price shall include the cost of all labor, materials, plant, equipment, professional engineering design services, and insurance needed to perform the work, including all other work incidental thereto all in accordance with the specifications and as directed by the Engineer.

No separate payment will be made for replacement trees required by the Engineer that the Contractor shall acquire and plant as a result of damage to trees caused by the Contractor's excavation and/or backfilling methods.

Payment will be made under:

Item No.	Item	Pay Unit
PK-ESCR 044	PNEUMATIC EXCAVATION AROUND TREES	C.Y.

END OF SECTION

SECTION PK-ESCR 077 – PIPE RAIL FENCE

WORK: Under these Items, the Contractor shall furnish and erect powder coated pipe rail fences of the various types and sizes where shown on the plans or directed by the Engineer, in accordance with the plans and specifications.

MATERIAL: All posts, rails and dowels shall be galvanized steel pipe in accordance with A.S.T.M. Specification F-1083 and ASTM A-53 schedule 40. All material as delivered shall be in condition for erection without field fitting or cutting.

Castings shall be fabricated from ductile iron grade 65-45-12. Finials for PIPE RAIL FENCE (TYPE A), and posts for PIPE RAIL FENCE (TYPE C) (foundry certificate must be supplied) shall be cast ductile iron ASTM A-536-84 as manufactured by Wemco Castings, Bohemia, NY, or approved equal.

WELDING: Welding shall be done by competent mechanics as specified under General Conditions, "Materials and Methods of Construction" and all welds shall be ground smooth. All welds shall be spot primed immediately after welding in the shop with a protective zinc-rich metal primer.

SURFACE COATINGS: After welding, all posts, rails and castings shall be powdercoated with either polyvinyl chloride (PVC) or TGIC-Polyester, (PVC coating shall be 10 to 15 mils thick, TGIC-Polyester shall be 3 to 6 mils thick).

Galvanizing of all components shall provide an acceptable substrate for applied powdercoatings. No lacquer, urethane or other coatings which would prevent proper adhesion of powdercoating shall be applied to the pipe.

The powdercoating shall be applied to the galvanized surfaces in such a manner that the coating will not peel off. Insure surfaces to be coated are clean and dry and free of grease, dust, rust, etc. All coated parts shall first receive phosphating and chromatizing treatments to improve the adhesion of the surface coating.

Color to be black unless otherwise indicated on the plans. The entire fence installation shall be coated with one of the two following types of powder coating. All fence components shall be coated on all surfaces.

TYPE I - Polyvinyl Powdercoating: PVC Powdercoating shall be applied to the galvanized steel or iron by the fluid bed method to a preheated base which has been cleaned and primed prior to submersion in vinyl, resulting in a firm bond between the PVC and the metal. PVC shall be applied to a film thickness of 10 to 15 mils without voids, tears or cuts that reveal the substrate and shall thoroughly adhere to the metal without peeling when scratched with a pick device or knife blade point.

TYPE II - TGIC-Polyester Powdercoating: TGIC-Polyester Powdercoating shall be applied to the galvanized steel or iron in such a manner that the coating will not peel off. The TGIC-Polyester shall be applied at a film thickness of 3 to 6 mils by electrostatic spray process and bake finished per manufacturer's directions. The TGIC-Polyester shall be applied without voids, tears or cuts that reveal the substrate and shall thoroughly adhere to the metal without peeling when scratched with a pick device or knife blade point.

TESTS:

Field Test For PVC Powdercoating: As per ASTM F668, three sample sections of the PVC powdercoated fence shall be tested for bonding of the powder coat to the metal. Each test will consist of making two cuts parallel to the axis of the pipe or casting through the coating, approx.

1/16 inch (1.6mm) apart, at least 1/2 inch (12.7mm) long. With a knife, peel back a section of the coating between 1/8 inch (3.2 mm) and 1/4 inch (6.4 mm) long to produce a tab. Attempt to remove the 1/16 inch (1.6 mm) strip of coating by pulling tab. The fence shall be deemed acceptable if the coating breaks rather than separates from the metal on all three samples.

Laboratory Test For TGIC-Polyester Powdercoating: At the discretion of the Engineer, a sample of the TGIC-Polyester powdercoated fence shall be laboratory tested for bonding of the powdercoating to the metal. Test shall be the Cross Hatch test per ASTM D3359, Method B. Failure to satisfactorily pass this test shall be a basis for rejection.

Touch-up & Repair: For minor damage caused by installation or transportation and field welded metal powder coated surfaces, clean welds, bolted connections, and abraded areas;

1. On damaged galvanized surfaces, apply organic zinc repair paint complying with ASTM A780. Galvanizing repair paint shall have 65 percent zinc by weight. Thickness of repair paint shall be not less than that required by ASTM A123.
2. On damaged powder coated surfaces, touch-up finish in conformance with manufacturer's recommendations. Provide touch-up such that repair is not visible from a distance of six feet (6').

ERECTION: The posts shall be set in holes which shall have been formed in the concrete curbs or footings, as shown on the plans or directed by the Engineer. After the posts have been set in place and properly supported to hold them to line and grade, the remaining space shall be neatly filled with a grout consisting of one (1) part of cement and two (2) parts sand. All dowels shall be pinned as shown on the drawings.

SUBMITTALS: All submittals shall be submitted in accordance with the requirements of the S-Pages.

Shop Drawings: Contractor shall submit shop drawings including complete details of fence construction, height, post spacing layout, dimensions, and concrete footing detail prior to manufacture.

Foundry Certificate: Where type 'A' or type 'C' is specified, a foundry certificate verifying authenticity of ductile iron supplied in this Item shall be submitted. Certificate shall be on foundry letterhead, dated and signed by Foundry President with Contract No., Contract Name, specific part(s) purchased, Contractor Name, and Class of Ductile Iron provided.

Certificate: Contractor to submit certification that material used complies with this specification.

Samples: Submit one twelve-inch (12") section of galvanized, powder coated pipe for approval.

MEASUREMENT AND PAYMENT: The quantity of pipe rail fence of each type to be paid for under this Item shall be the number of LINEAR FEET of fence, furnished and erected complete in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price per LINEAR FOOT of pipe rail fence of each type and shall include the cost of furnishing all labor, materials and equipment necessary to erect fence complete, including powder coating and powder coating touch-up and all incidental expenses necessary to complete the work in accordance with the plans and specifications to the satisfaction of the Engineer, except excavation and concrete which will be paid for separately under their respective Items.

Item No.	Item	Pay Unit
PK-ESCR 077	PIPE RAIL FENCE TYPE B 2 RAIL	L.F.
PK-ESCR 714	PIPE RAIL FENCE TYPE B 3 RAIL	L.F.

END OF SECTION

SECTION PK-ESCR 099 – PLAY EQUIPMENT – ASSER LEVY

WORK: Under this item, the Contractor shall furnish and install all STEEL PLAY EQUIPMENT in accordance with the plans, specifications and directions of the Engineer. In addition, the Contractor shall furnish incidental materials to the Engineer, as specified under the heading INCIDENTAL MATERIALS.

NOTE: Final installation of the steel play equipment (concrete footings) shall not proceed until the Contractor has demonstrated to the satisfaction of the Engineer that the use zones comply with ASTM 1487-Latest Rev., and CPSC guidelines. The safety surfacing shall be installed as soon as possible after the play equipment installation is complete. The Contractor shall be responsible for temporarily barricading the Play Equipment prior to completion of the safety surfacing installation.

GENERAL: Play Equipment shall be as shown on the drawings. All play equipment shall be Powerscape® and Xscape®, as manufactured by Gametime, Fort Payne, AL; or PlayBooster® and Evos® as manufactured by Landscape Structures Inc., Delano, MN, or Metro Collection and Unity® Connect as manufactured by Playworld Systems, Lewisburg, PA, City Park Series® (Urban Playgrounds), as manufactured by Miracle Recreation Equipment, Monett, MO, or approved equal.

STANDARDS: All play equipment design and construction shall meet or exceed the requirements as published in the Handbook for Public Playground Safety issued by the U.S. Consumer Product Safety Commission, the Consumer Product Safety Improvement Act (CPSIA) of 2008, and ASTM Designation F1487-Latest Rev., "Standard Consumer Safety Performance Specification for Playground Equipment for Public Use." Play equipment design and construction shall also comply with "Guide to ADA Accessibility Guidelines for Play Areas", Final Ruling (ADA).

MATERIALS: Unless otherwise specified herein, all materials shall conform to applicable portions of General Conditions, "Materials and Methods of Construction".

Footings: Concrete for footings shall be 3,200 psi class B-32 per the NYCDOT Standard Highway Specifications *Section ESCR-4.06* .

Steel Members:

Posts: Posts and vertical members shall be Schedule 40 pipe or Structural Steel tubing as specified below. Tubing for posts shall have a minimum thickness of 0.120" (11 gauge).

Railings and Fixtures: Railings and fixtures shall be schedule 40 pipe or structural tubing of such thickness that the railings shall not sag or bend during use. Any tubing that bends, sags or does not meet ASTM F1487-Latest Rev., Section 12.5 shall be replaced and upgraded by the manufacturer at no additional cost to the City.

Tubular Steel: Tubular steel shall be structural tubing of the sizes and shapes shown in the approved shop drawings. Steel shall meet the specifications for ASTM A500, Grade B which has a minimum tensile strength of 58,000 psi (for round and shaped) and a minimum yield point of 42,000 psi for round structural tubing and a minimum yield point of 46,000 psi for shaped structural tubing. Material shall be load-tested under ASTM 1487-Latest Rev., after fabrication.

Pipe: Pipe for climbers, ladders, shall be Schedule 40 or structural tubing steel pipe conforming to the requirements of ASTM A53 and shall be of the same sizes, indicated on the plans. Steel pipe shall be load tested under ASTM F1487-Latest Rev., requirements

after fabrication. The outside diameter of all hand gripping components including rungs on horizontal ladders, climbing bars, handrails, etc. shall comply with the anthropometric dimensions as listed in the ASTM 1487-Latest Rev. standards.

Pipe Caps: All exposed ends of steel members shall be plugged with metal caps riveted in place with self-sealing rivets or spot welded.

Fittings and Clamps: All fittings and clamps shall be as indicated on the approved shop drawings and as may be required to complete the installation. All fittings shall be of the best quality malleable iron, drop-forged steel or steel plate as indicated. Clamp fittings shall be cast aluminum or 12 gauge drawn quality or better steel and finished to match vertical components and shall be smoothly constructed with no projections or sharp edges. All clamps shall have tamper resistant fasteners. Clamps used on component subjected to vertical loads shall be pinned to prevent slipping and twisting.

Fasteners: All fasteners including, but not limited to, bolts, lag screws, tie rods, threaded rods, nuts, and washers, shall be of the sizes indicated on the approved shop drawings. Fasteners shall be either stainless steel per ASTM F879 or carbon steel treated with a corrosion resistant coating per applicable ASTM plating specifications. All threaded fasteners shall include a locking patch-type material that will meet the minimum torque requirements of Industrial Fastener's Institute (IFI)-125 "Test Procedure for the Locking Ability Performance of Chemical Coated Lock Screws". The play equipment Manufacturer shall provide special tools for pinned tamperproof fasteners. All protruding bolts, screws and other threaded connectors shall be cut off to within two threads of nut, washer, etc., then satisfactorily peened to prevent removal by unscrewing, and filed completely smooth to remove all sharp edges.

Chain: Chain for climber shall be stainless steel, minimum size 7/32", 4/0 welded link chain.

Plastic Lumber: Plastic lumber shall be made from UV stabilized recycled high density polyethylene. Recycled lumber shall be protected during transportation. Unless otherwise specified, color shall be "Natural". Recycled plastic lumber may not be used on spans greater than two (2') feet unless additional structural support is provided. An engineering analysis of structural integrity based on ASTM F1487 shall be submitted upon request. Plastic Lumber shall be smooth on all sides and ends. Plastic Lumber shall be free from all but minor marks, blemishes, discolorations, warp, wane, twist, quirk or other imperfections. The intersection of all planes of faces, edges and ends shall be eased to one-eighth (1/8") inch radius.

Rotationally Molded Polyethylene: Parts shall be rotationally molded from color-compounded, first quality, linear low-density polyethylene with a tensile strength of 2,500 psi per ASTM D638 and with color and UV-stabilizing additives. Dry-blended or molded-in resins are not acceptable. Polyethylene shall be ultraviolet stabilized to UV-8 and have anti-static additives. Wall thickness shall vary by component and as shown on the approved shop drawings.

Sheet Plastic Parts: Sheet plastic parts shall be manufactured from three-quarter (3/4") inch high density polyethylene that has been specially formulated for optimum UV stability and color retention. Products shall have a minimum density of 0.933 G/cc in accordance with ASTM D1505 and a minimum tensile strength of 2,400 psi in accordance with ASTM D638. All edges shall be free of burrs, sharp edges, and points.

STEEL FABRICATION: All steel components to be welded shall be welded in complete accordance with the standards of the American Welding Society. All welds shall be continuous

around the entire perimeter. All welds shall be ground smooth. NO TACK WELDING AND NO FIELD WELDING SHALL BE PERMITTED.

Corrosion Resistant Treatment: All fabrication and welding shall be completed prior to application of the corrosion resistant coating, metal pieces shall be cleaned of all weld spatter, mill scale, varnish, rust, grease, and the like and the surface mechanically and chemically prepared to receive the coating. This corrosion resistant coating shall a thermal spray zinc coating or electrostatic applied primer with a minimum thickness of 3 mils. All metal pieces, including welds, shall receive the coating.

Polyester Powder Coating: A surface coat shall be applied to the thermal zinc coated metal pieces in such a manner that the coating will not peel off. The manufacturer shall perform all processes required to achieve a smooth material bond. An epoxy or acrylic polymer primer shall be applied prior to application of powdercoating. The surface coat shall be an electrostatically sprayed, lead-free, superdurable TGIC (triglycidyl isocynanurate) polyester powder coating applied to a minimum of five(5) mil thickness which shall be oven cured. The TGIC polyester powder coating shall comply with the ASTM standards below:

PHYSICAL PROPERTIES	TEST METHODS	ACCEPTANCE CRITERIA
Adhesion cross hatching	D3359B	5B (0% area removed)
Flexibility conical mandrel	D522	Pass 3/8" mandrel
Pencil hardness	D3363	Pencil hardness 2H minimum
Impact resistance	D2794	80 inch pounds minimum
Overbake resistance- Adhesion	D2454	5B
Overbake resistance- Hardness	D2454	Pencil hardness 2H minimum
Overbake resistance- Direct Impact	D2454	80 inch pounds minimum
Humidity resistance-250 hours	D4585	No visible change to surface
Weatherability	D822	No visible change to surface
Salt Spray Resistance	B117	1000 Hours
Corrosion Resistance	D1654	Rating 6 or greater
UV Exposure	G154, 340 bulb	2,000 hours, rating delta E of 2 90 percent gloss retention

Colors shall be as shown on the drawings. (Submittals required). Material manufacturer's directions for storage and use shall be adhered to. Material surfaces shall be protected during shipment so as to arrive mar and scratch free in the field.

SPECIFIED COMPONENTS AND ATTACHMENTS: All components and attachments used for the steel play equipment shall be validated by the IPEMA Third Party Process, or an approved equal third party validation process, to demonstrate compliance with ASTM F1487.

Steel Decks/Steps: Steel decks and steps shall consist of a single piece of low carbon, 12 gauge (0.105") minimum thick sheet steel conforming to ASTM A1011. The steel sheet shall be perforated with a return flange formed on the perimeter to provide necessary reinforcement to ensure structural integrity. Steel decks and steps shall be reinforced and cross-braced as necessary to prevent any noticeable deflection. Perforation shall be small enough to eliminate potential finger entrapment. Decks shall be flush with the outside edge of the supporting posts. There shall be no unsupported area larger than four (4 sf) square feet.

Decks and steps shall be coated with a hot dipped polyvinyl chloride (PVC) system or thermoplastic polyethylene coating with a gritty non-slip surface. Deck/Step surface must be slip resistant in both wet and dry conditions. The PVC coating shall have a hardness of Shore A 83 +/-5 normal durometer range. The material shall be classed as "Self Extinguishing", meets or

exceeds DOT MVSS 302 or UL 94HB, and contains ultraviolet inhibitors to help prolong the life of the coating. The PVC coating shall meet all applicable phthalate levels as specified under CPSIA.

Plastic Lumber Decks. Plastic lumber decking shall be sized as shown on the drawings and shall be affixed to supporting members in a tamper resistant method with spacers as necessary to prevent potential pinching.

Safety Railings: Safety rails shall provide enclosure and shall have no gaps greater than 3.5" and less than 9". Tubing and pipe used for safety rails shall not exceed 1.54" in outer diameter and shall have corrosive protection and powder coating as specified above. All welds shall be complete and ground smooth. These requirements shall conform to ASTM F1487-Latest Rev. standards.

Tire Swing: Tire swing shall consist of an overhead beam, reinforcing insert, connector plates, automotive type universal joint assembly with protective rubber bellows or an universal joint assembly with bearings, swing chain, 'tire' type swing seat and all required hardware for assembly. 'Tire' type swing seat shall be designed and manufactured especially for playground use. Standard fiberglass and/or steel belted automobile tires are not acceptable. The 'tire' type swing seat shall have a twenty eight (28") inch minimum outer diameter and a fourteen (14") inch minimum inner diameter and shall be fitted with a reinforcing ring. Chain attachment area shall minimize the likelihood of fingers becoming caught. Drainage holes shall be provided in the underside of the tire.

Slides: Spiral and straight slides shall be constructed of either stainless steel or rotationally molded polyethylene as shown on the approved shop drawing. Rotationally molded polyethylene shall meet the specifications above. Stainless steel slides shall be constructed of 16 gauge or better stainless steel with a 2B finish. The underside of the stainless steel slide shall be constructed such that there are no projections or sharp or rough edges. Slide bed and enclosure shall conform to CPSC guidelines for spiral slides. The slide bed and sides shall be shaped and dimensioned such that the rider will not tip or slide over outside edge of the slide. Gaps between the slide and main support post are not acceptable. Gaps shall be closed through either mechanical fasteners, welding, or methods approved by the Engineer. Spiral slide chutes shall either installed by manufacturers factory trained certified installers, or completely assembled at the factory and shipped to site ready for field erection.

Flex Bridges: Flex Bridges shall be constructed with metal straps or steel reinforced rope/cable. Flex Bridges constructed with chains are not acceptable components under this specification.

Climbing Cable (Rope): Cable shall comprise of six-stranded and tempered steel reinforced rope. The galvanized steel wire cores of the six strands shall be inductively fused to the polyamide or polyester outer coating. The coating shall be abrasion-resistant and colorfast to ultraviolet degradation. The breaking strength of the cable shall exceed the applicable load applied to the net climber. The climbing cable net shall be completely factory assembled in a configuration that is ready for attachment to the frame on site.

Age Appropriate Signage: In accordance with CPSC Handbook for Public Playground Safety, Sections 2.2.5 and 2.2.6 and ASTM F1487, play equipment units shall have age appropriate signage in a clearly conspicuous place near or on the equipment platform at the entry point. This signage shall state one of the following: 1) "This play equipment is designed for Preschool Children Ages 2 to 5 years. Adult supervision is recommended"; or 2) "This play equipment is designed for School Age Children ages 5 to 12 years. Adult supervision is recommended".

Unless otherwise shown on the Drawings, the sign shall be routed two color sheet plastic, or approved equal.

Manufacturer Identification Sticker: The play equipment shall have an identification sticker placed in an inconspicuous place on the equipment for M & O reference. (For example, under a slide bed at the lowest point). The sticker shall identify the manufacturer's address and a toll free phone number.

QUALIFICATIONS: The Contractor or the Subcontractor to perform the installation work must have a minimum of three (3) years of experience working on installation of play equipment similar to the work specified in scope and complexity in accordance with ASTM F1487-Latest Rev. and CPSC guidelines.

INSTALLATION: All play equipment shall be installed by a qualified installer, experienced in erecting steel play equipment and meeting the qualifications specified above. Final installation of the steel play equipment (concrete footings) shall not proceed until the Contractor has demonstrated to the satisfaction of Engineer that the use zones comply with ASTM F1487-Latest Rev. and CPSC guidelines.

Asphalt pavement shall be neatly saw-cut prior to excavation for footings. All tubular steel posts shall be set square and plumb in concrete footings as shown on the approved shop drawing to grade required assuring level installation of platform angle frames and rails. Footings shall have the top surface finished so as to provide sheet drainage away from steel uprights, level and free of surface fluctuations that could contribute to an uneven surface in overlying safety surfacing.

Equipment shall be assembled to configuration as shown on the approved shop drawings. All fastenings shall be made as shown on the drawings and shall be securely tightened with an impact and/or torque wrench (as per manufacturer's specification). The Contractor shall take precautions while trimming bolt projections, if necessary, to prevent metallic contamination (rust bloom) of the corrosion resistant bolts to the satisfaction of the Engineer. These precautions include the use of previously unused grinding wheels, and applying zinc rich paint on trimmed galvanized bolts. All work shall be done so that no hazardous projections or rust bloom shall be left in the finished work.

FIELD INSPECTION: An authorized manufacturer's representative, who is not the qualified installer, shall inspect and approve the installation of the play equipment prior to final acceptance by the engineer. The play equipment representative shall certify that the play equipment was correctly installed in accordance with the manufacturer's written instructions, all fastenings are securely installed meeting the manufacturers' maximum torque value, and meeting all requirements set forth in ASTM F1487- Latest Rev. A Document of Acceptance shall be provided by the manufacturer's representative stating that a field inspection was conducted and the installation is accepted by the manufacturer's representative (See Submittals).

THIRD PARTY RESOLUTION: If a disagreement arises between the Engineer and the play equipment manufacturer regarding the safety of a particular play component, the Contractor shall be directed to hire an independent Certified Playground Safety Inspector (CPSI), as part of the bid price of this item, to assess if the play equipment component complies with the safety standards referenced above. The Contractor shall submit the qualifications of the CPSI for approval by the Engineer prior to hiring. The independent CPSI shall inspect the play equipment on site and submit a final report detailing the determination of their inspection. If the play component is deemed to be unsafe by the independent CPSI, the Contractor shall make all necessary corrections at no additional cost to the City based on the CPSI's recommendation. If the Engineer wishes to modify a play component after the independent CPSI deemed it to be

meeting all safety standards, all materials and methods necessary to perform the requested modification shall be eligible for a change order extra.

INCIDENTAL MATERIALS: The Contractor shall furnish and deliver, to the Engineer, additional new materials obtained from the approved play equipment manufacturer. Contractor shall also furnish to the Engineer any catalogs, invoices, statements, etc. for verification that a complete set of all maintenance and operations manuals, tools, extra paint, materials, etc. have been furnished. All furnished material shall be properly identified with the name of park and contract number. Incidental new materials shall include the following:

192 oz. - Graffiti Remover, for polyester powdercoated steel surfaces - One hundred ninety two (192) ounces in spray bottles: six (6) thirty two (32) ounce spray bottles; or twelve (12) sixteen (16) ounce spray bottles. Graffiti Remover shall be Go-Away graffiti remover, as manufactured by Nexgen, North Hollywood, CA; Erase Graffiti Cleaner as manufactured by Landscape Structures, Delano, MN; or Gametime Graffiti Remover as manufactured by Gametime, Fort Payne, AL, or approved equal. Each container shall be clearly labeled, using a minimum of 1/4-inch high lettering: "For Play Equipment".

90 oz. - Touch-Up Paint, complete for all color surfaces, as provided by manufacturer. Twenty (20) cans of custom spray paint 4.5 oz. each can or a minimum of 90 ounces of paint (total all colors) shall be provided.

1 (One) - Tools And Hardware Maintenance Repair Kit, complete with tool box, special tools for tamper proof fasteners, fastener wrench and hardware (nuts, bolts screws etc.), to be provided by manufacturer. The repair kit shall be clearly marked with the Contract Number and the Playground name. Marking shall be done with permanent magic marker or other method approved by the Engineer.

SUBMITTALS: All submittals shall be submitted and approved prior to manufacture and in accordance with the requirements of the S-Pages.

Shop Drawings: The Contractor shall submit shop drawings no later than three (3) months prior to the scheduled completion of the project. The shop drawings shall indicate as a minimum: the play equipment layout, the required minimum limits of the use zone, elevations, footings layout, and compliance with ADA requirements including access details and the ratio of elevated versus ground level events. The shop drawings shall show the distance in linear feet from outside edge of the safety surfacing to a minimum of three (3) closest adjacent fixed outside structures such as curbs, fences, benches or trees. The Contractor shall submit the following information if required by the Engineer: materials, finishes, supports, hardware, fastener torque schedule, fittings and accessories.

Qualifications: The Contractor shall submit play equipment installer qualifications as specified above for approval prior to installation of play equipment.

Deviations From Layout: Any deviations from the contract drawings must be submitted for review and approval by the Engineer.

Color Samples: Color samples shall be submitted for approval by the Engineer before any powder coating is done.

Document of Acceptance: An authorized representative of the play equipment manufacturer must inspect and approve the completed installation. The play equipment will not be accepted by the play equipment manufacturer or the Engineer until they are satisfied with the installation. No additional compensation will be given for any necessary corrective work.

A Document of Acceptance signed by the authorized Manufacturers' representative must be submitted to the Engineer before the final 20% payment is made to the Contractor for this item.

Third Party Resolution: If arbitration is required, the Contractor shall submit qualifications for the independent CPSI for approval prior to hiring. The Contractor shall also submit a final report prepared by the independent CPSI detailing the result of the inspection.

Insurance Certificate: The Contractor shall furnish the Manufacturer's Certificate of Product Liability Insurance for one (1) million dollars.

Warranty: The manufacturer must replaceme of any items or components found to be defective during the manufacturers' warranty period. The Engineer shall submit the original warranty certificate to the Engineer at the completion of the project. The Contractor shall furnish the original and 4 (four) copies of the manufacturers' warranty.

Manual: One (1) copy of the Installation and Maintenance (or Owner Information) manual complete, as provided by manufacturer.

MEASUREMENT AND PAYMENT: For furnishing and installing all **STEEL PLAY EQUIPMENT** in accordance with the plans, approved shop drawings, specifications and directions of the Engineer, the Contractor shall receive the **LUMP SUM** price bid.

The price bid shall be a **LUMP SUM** for all steel play equipment and shall include the cost of all labor, materials, equipment and incidentals necessary to complete the work, including unclassified excavation, concrete footings, the cost of hiring of an independent CPSI, if required, and all submittals, in accordance with the plans, approved shop drawings and specifications, to the satisfaction of the Engineer.

Upon submission and approval of the required shop drawings the Contractor shall receive three (3%) percent of the total bid price. Partial payment for stored materials may be granted in accordance with the NYCDOT Standard Highway Specifications, **Section 1.06.35**. Twenty (20%) percent of the total bid price for this Item shall be withheld until the insurance certificate and Document Of Acceptance have been submitted.

In addition, the Contractor shall deliver INCIDENTAL MATERIALS as outlined above to the Engineer. No additional payment shall be made for incidental materials. Contractor shall include cost in the bid price.

Item No.	Item	Pay Unit
PK-ESCR 099	PLAY EQUIPMENT – ASSER LEVY	L.S.

END OF SECTION

SECTION PK-ESCR 105 – THERMOPLASTIC EXTRUDED LINES

WORK: Under this item, the Contractor shall furnish and apply hot extruded reflectorized **THERMOPLASTIC EXTRUDED LINE 4" WIDTH** to define lanes and center lines all in accordance with the plans, specifications, directions, and approval of the Engineer, MUTCD and NYCDOT.

INTENT: It is the intent of this item to pay for thermoplastic extruded white or yellow lines four (4") inches width in any quantity.

MATERIAL: The markings shall be a thermoplastic compound which is hot extruded directly onto the pavement, and shall contain a minimum of 20% glass beads as part of the aggregate in the material to act as the basic reflective material. Color of lines to be as indicated on the plans.

The markings shall be as manufactured by Ennis-Flint, Thomasville, NC, Crown Technology, LLC, Woodbury, GA, or approved equal. The thermoplastic material shall be 100% virgin stock, using no reprocessed materials. Pigments, beads and filler shall be uniformly dispersed in the resin. The material shall be free of all skins, dirt and foreign materials.

Immediate reflectance shall be supplied by dropping additional glass beads upon the line during application at a rate of 6 lbs. per 100 sq. ft.

The manufacturer has the option of formulating the thermoplastic material according to their own specifications. However, the manufacturer shall meet the minimum requirements specified herein, including but not limited to; composition, physical characteristics, etc. The physical and chemical properties contained in this specification shall apply regardless of the type of formulation used.

The Contractor shall furnish a laboratory report of the material, consisting of the following tests:

1. Color Retention	ASTM D620-57
2. Indentation	ASTM D2240-68
3. Flexibility	ASTM D747
4. Binder Content	ASTM D4797
5. Titanium Dioxide Content X-Ray Fluorescence	ASTM D476 - Type 2
6. Glass Beads	ASTM D1155

The following physical specifications shall be strictly adhered to:

(a) Color

(1) White: Initially white: as demonstrated by a standard color difference meter such as the Gardner Color Difference Meter. The material shall show a deviation from a Magnesium Oxide standard not greater than the following: Reflectance (RD) 70min.

(2) Yellow: Yellow color shall reasonably match color chip numbers 13538 of Federal Standard number 595 and be lead free.

Color Characteristics: The thermoplastic material without glass beads shall meet the following:

White: Daylight reflectance at 45 degree / 0 degree of 80% minimum.

Yellow: Daylight reflectance at 45 degree / 0 degree of 45% minimum.

b) Color Retention:

The retention of the initial color shall be determined as follows:

Specimens shall be prepared and tested from samples submitted in accordance with ASTM designation D620-57T, "Tentative method of test for color fastness of plastic; Ultra Violet Light and Condensate Exposure, ASTM G53, 300 hours total, alternate 4 hours condensate exposure at 40 deg.C, 4 hours UV exposure at 60 deg. C.

(c) Indentation Resistance

The reading of the shore durometer, Type A2, as described in ASTM designation D2240-68, after fifteen seconds shall not be less than 95 when the material is tested after heating for four hours at 400 deg. F, and cooled at 75 deg. F.

(d) Cracking Resistance

At low temperatures after heating the thermoplastic material for 4 hours at 218 deg.C (425 deg.F), applied and cooled to -9.4 +/-1.7 deg.C (15 +/-3 deg.F) the thermoplastic material shall show no sign of cracking or chipping.

(e) Glass beads

The glass spheres shall be colorless, clean, transparent, free from milkiness or excessive air bubbles and essentially clean from surface scarring or scratching. They shall be spherical in shape and at least 70% of the glass beads shall be true spheres when tested in accordance with ASTM D1155.

The refractive index of the spheres shall be a minimum of 1.50 as determined by the liquid immersion method at 25 deg.C.

(f) General Characteristics

The thermoplastic material shall be readily applicable at temperatures between 400 & 450 deg.F from the approved equipment to produce lines and symbols of the required thickness as described in the contract document.

The thermoplastic material shall not deteriorate or discolor when held at the application temperature for periods of time up to 4 hours or upon repeated reheating (a minimum of 4 times). The color, viscosity, and chemical properties versus temperature characteristics of the thermoplastic material shall remain constant for up 4 hours at the application temperature and shall be the same from batch to batch.

The compound shall not deteriorate by contact with sodium chloride, calcium chloride, or other chemicals used against formation of ice on roadways or streets, or because of the oil content of pavement materials, or from oil droppings from traffic. Deposits of dirt, tar, road material, tires, or other foreign material shall not adhere to the installed line. The line shall not blacken or discolor after vehicles pass over the line.

(g) Other Requirements

Thermoplastic material shall not emit fumes that are toxic or injurious to persons or property when it is heated to application temperature. The material shall not emit excessive smoke during heating or application.

STRIPING MACHINE: The required lines shall be installed with a striping machine, (also known as a hand liner) of a type approved by the Engineer. The line shall be installed by making one pass over the designated length, and producing a continuous, well-defined line 4" or 8" in width, not less than 3/32 inches in thickness, and uniform in cross-section. The end of the line shall be

a straight edge. The machine shall be capable of installing an acceptable line over existing thermoplastic lines, and on roadway surfaces existing in the City of New York.

INSTALLATION

The Contractor will be required to spot and install the lines in accordance with the NYCDOT Bureau of Traffic Operations standard details and any other details or information to be provided by the Engineer.

Plastic material is not to be applied below +50 deg. F, or on wet pavements, or during periods of high humidity, except with special permission of the Engineer. Before proceeding to mark any line, the Contractor shall clean the area of the surface to be marked, and make certain that the pavement is free of dirt, foreign material, oil, etc.

On pre-existing pavements, the installer shall pre-warm the pavement prior to placing markings, per the manufacturer's instructions.

The work included herein shall be done in a neat, professional manner, pleasing to the eye, and shall be kept straight so far as total alignment is concerned. To assure alignment, the Contractor shall snap guidelines. Spotting, spilling, or other marking of the roadway with marking material will not be tolerated, especially if due to carelessness or lack of skill on the part of the Contractor, and must be removed by the Contractor. The line or portion thereof shall be protected from both vehicular and pedestrian traffic by use of adequate warning devices as mentioned hereinbefore, until thoroughly past the point of tracking or smearing.

When raised reflective pavement markers exist, special care shall be taken to prevent the reflector from being covered by the thermoplastic material. Any reflectors so damaged shall be replaced by the Contractor at no cost to the City.

The Engineer's decision as to the acceptability of any installed line shall be final and binding on all parties to the contract. The Engineer may, at the Engineer's discretion, require the Contractor to remove all extraneous marks on the pavement made by the agents or employees of the Contractor, or made by others due to improper control or protection of the line by the Contractor, the Contractor's agents or employees. Any lines, or group of lines which, in the opinion of the Engineer, are not acceptable, whether by reason of poor workmanship, poor appearance, poor performance, poor materials, improper width or improper alignment shall be reworked by the Contractor at no cost to the City to the satisfaction of the Engineer, within fifteen (15) days after written notification of the rejection of such completed work is received by the Contractor.

DESCRIPTION:

Lane and Center Lines: Shall be four (4") inch wide. Cross walk lines shall be as required by NYCDOT or to match existing lines.

SUBMITTALS:

All submittals shall be in accordance with the requirements of the S-Pages and be submitted prior to manufacture.

Samples: The Contractor shall submit two eight inch (8") by twelve inch (12") extruded samples of material to be used in this contract. One sample shall contain surface beads, the other without surface beads.

MEASUREMENT AND PAYMENT: The quantity of **THERMOPLASTIC EXTRUDED LINE 4" WIDTH** to be paid for under this item shall be the number of **LINEAR FEET** of lines, painted in accordance with the plans, specifications and directions of the Engineer. Payment for lines other

than 4" wide will be based upon the equivalent of four inch lines, (for example, an eight inch line would be paid at two linear feet for each one foot of line).

The price bid shall be a unit price per **LINEAR FOOT** and shall include the cost of all labor, materials and equipment, and incidentals necessary to complete the work in accordance with the plans and specifications to the satisfaction of the Engineer.

Item No.	Item	Pay Unit
PK-ESCR 105	THERMOPLASTIC EXTRUDED LINE 4" WIDTH	L.F.

END OF SECTION

SECTION PK-ESCR 106 – THERMOPLASTIC HFPRM LINES, SYMBOLS

WORK: Under the items the Contractor shall furnish and install various Thermoplastic Heat Fused Preformed Reflective Markings, (hereafter known as Thermoplastic HFPRM) of various types in accordance with the plans, specifications and directions of the Engineer. The markings include symbols and word messages.

DESCRIPTION: Typical symbols and word messages are shown on the plans. Markings shall include, but not be limited to the following word messages and symbols:

Word Messages: Shall be white and include, but not be limited to: PED ONLY, SLOW, CAUTION.

New York City DOT Designations: The following codes are the applicable NYC DOT codes for the respective symbols:

Bicycle Lane Arrow:	MG-550
Designated Bicycle Lane Symbol-Class II:	MG-532
Bicycle Trail Symbol-Class I:	MG-533
In-Line Skater Symbol:	MG-551
Pedestrian Symbol:	MG-549

MATERIAL: The Preformed Markings shall be capable of adhering to asphaltic concrete and cement concrete pavements by means of heat fusion. Adhesives, primers or sealers shall not be used prior to the preformed markings application on pavements. They shall be very durable, oil and grease impervious and provide immediate and continuing retroreflectivity. Hot tape products are not acceptable. Preformed markings shall be similar to PreMark with ViziGrip as manufactured by Ennis-Flint, Thomasville, NC, Crown Technology, LLC, Woodbury, GA or approved equal.

The Preformed Marking material shall consist of a resilient white, green and yellow polymer thermoplastic with uniformly distributed glass beads throughout its entire cross section, and shall conform to the current edition of the Manual of Uniform Traffic Control Devices for Streets and Highways as issued by the U.S.A. Federal Highway Administration.

The preformed markings shall conform to pavement contours, breaks and faults through the action of traffic at normal pavement temperatures. The markings shall have resealing characteristics and be capable of fusing to itself and previously applied worn hydrocarbon and/or alkyd thermoplastic pavement markings.

The Preformed Markings shall be capable of application on new, dense and open graded asphalt concrete wearing courses during the paving operation in accordance with the manufacturer's instructions. After application, the markings shall be immediately ready for traffic. The preformed markings shall be suitable for use for one (1) year after the date of receipt when stored in accordance with the manufacturer's recommendations.

The Preformed Markings shall not be brittle and must be sufficiently cohesive and flexible at temperatures exceeding 50 degrees °F for one person to carry without the danger of fracturing the material prior to application. They shall be highly durable retroreflective pliant polymer thermoplastic materials designed for transverse, longitudinal, legend and symbol markings subjected to high urban traffic volumes and particularly severe wear conditions such as repeated shear action from crossover or encroachment on typical configurations such as crosswalks, edge lines and lane lines.

Composition: The markings shall consist of a homogeneous mixture of high quality polymeric thermoplastic binders, pigments, fillers and glass beads. The thermoplastic material must conform

to AASHTO designation M249-79(86) with the exception of the relevant differences due to the material being preformed. They shall contain a minimum of 30% glass spheres which shall conform to AASHTO M247-81 Type 1, except that glass spheres shall have a minimum of 70% true spheres on each sieve and 80% trues spheres overall. The glass beads must be homogeneously blended throughout the material with a securely bonded protruding exposed layer of beads that provide immediate and continuous retroreflectivity; no additional glass beads shall be dropped on the material during application. Curved arrows must be available without protruding glass beads if reversibility is needed.

Retroreflectivity: The preformed markings shall, upon application, exhibit uniform adequate nighttime retroreflectivity. At 86 degree 30' incidence angle and 1degree 30' divergence angle, the markings shall have average minimum intensities of 350 millicandelas for white and 175 millicandelas for yellow as measured with a Mirolux retroreflectometer.

Color Characteristics: The thermoplastic material without glass beads shall meet the following:

White: Daylight reflectance at 45 degree/ 0 degree of 80% minimum.

Yellow: Daylight reflectance at 45 degree/ 0 degree of 45% minimum.

The daylight reflectance shall not change significantly when the preformed thermoplastic is properly applied to the roadway surface. Yellow material shall not degrade when exposed to heat placed by appliance torch.

For highway use, the white markings shall contain a minimum of 8% by weight of Titanium Dioxide pigment. Yellow color shall reasonably match color chip number 13538 of Federal Standard number 595 and be lead free.

Green shall be American Reflective Products- (Magna code #912-1), or approved equal.

Skid Resistance: The surface of the preformed thermoplastic markings shall provide a minimum skid resistance value of 55BPN when tested according to ASTM E303-74.

Thickness: The width of the supplied material shall have a minimum average thickness of .090 inch (2.3mm), (Expressed as 90 mils), except for lanes markings and symbols for Park paths which shall be 60 mils.

Tensile Strength and Elongation: The preformed thermoplastic film shall have a minimum tensile strength of 150 lbs. per square inch of cross section, at 90 mil (2.3mm) thickness, when tested according to ASTM-D-638-76 except that a sample 6" by 1" shall be tested at a temperature between 70 degrees °F and 80 degrees °F using a jaw speed of 10" to 12" per minute. The sample shall have a maximum elongation of 20% at break when tested by this method.

Environmental Resistance: The applied markings shall be resistant to deterioration due to exposure to sunlight, water, oil, diesel fuels, gasoline, pavement oil content, salt and adverse weather conditions.

Effective Performance Life: When properly applied, in accordance with manufacturer's instructions, the pavement markings shall be neat and durable. The markings shall remain retroreflective and show no fading, lifting, shrinkage, tearing, roll back or other signs of poor adhesion and shall not dissolve or smear after rubbing a small amount of motor oil on a small piece of preformed thermoplastic for two (2) minutes.

INSTALLATION: The markings shall be applied in strict accordance with the manufacturer's recommendations on clean and dry surfaces. New concrete surfaces must be sandblasted to

entirely remove curing compound. No additional payment will be made for said sandblasting, the cost therefore shall be considered part of the price bid for this item.

Marking configuration shall be in accordance with the "Manual on Uniform Traffic Control Devices".

The work included under this item shall be done in a neat, workmanlike manner, pleasing to the eye, and shall be kept straight so far as total alignment is concerned. To insure alignment, the Contractor shall snap guidelines. Spotting, spilling, or other marking of the roadway with marking material will not be tolerated, especially if due to carelessness or lack of skill on the part of the Contractor, and must be removed by the Contractor.

SUBMITTALS: All submittals shall be in accordance with the requirements of the S-Pages.

Samples: The Contractor shall submit the following for approval:

One four inch (4") by four inch (4") sample of the HFPRM material along with manufacturers specification clearly illustrating that product meets the minimum skid resistance requirements.

One drawing, at a reasonable scale, of each symbol to be used in this contract.

One drawing of a typical letter to be used in this contract.

MEASUREMENT AND PAYMENT: The quantity of **THERMOPLASTIC HFPRM LINES, SYMBOLS** to be paid for under this item shall be the number of **EACH** type furnished and installed complete in accordance with plans and specifications and directions of the Engineer.

For furnishing and installing word messages, the Contractor shall be paid for **EACH** letter of word message furnished and installed in accordance with the plans, specifications and directions of the Engineer.

The prices bid shall be a unit price for **EACH** Arrow or Symbol and **EACH** letter included in each word message and shall include the cost of all labor, material and equipment necessary, including preparing pavements for application, and all incidental expenses necessary to complete the work in accordance with the plans, specifications and directions of the Engineer.

Lane and Center lines (where shown on the drawings) shall be paid under the item "Thermoplastic Extruded line-4" Width"..

Item No.	Item	Pay Unit
PK-ESCR 106	THERMOPLASTIC HFPRM LINES, SYMBOLS	EA

END OF SECTION

SECTION PK-ESCR 110 – INSTALL PLANT MATERIAL

WORK: Under this Item, the Contractor shall excavate all plant pits and install, plant, maintain, and replace all **PLANT MATERIAL** specified in the following plant schedule, in accordance with the plans and specifications, or as directed by the Engineer.

The Contractor shall be liable for any damages to property caused by planting operations, and all areas and construction disturbed shall be restored to their original conditions, to the satisfaction of the Engineer.

NAMES: Plant names, size, and grading standards shall conform to those prepared by the American Standard for Nursery Stock (ANSI Z60.1- 2014) unless otherwise specified. Genus, species and cultivar are listed in accordance with the International Code of Nomenclature (ICN). No substitutions will be permitted except upon written permission of the Engineer as an approved equal.

ASIAN LONGHORNED BEETLE QUARANTINE ZONE REGULATIONS: Due to current Federal, State and NYC DPR policy, the following host species may not be planted in the quarantine zone. Host species are as follows: Acer-Maple, Aesculus-Horsechestnut/Buckeye, Salix-Willow, Betula-Birch, Populus-Poplar, Ulmus-Elm, Albiza-Mimosa/Silk Tree, CeltisHackberry, Fraxinus-Ash, Platanus-London Planetree, Sycamore, Sorbus-Mountain Ash.

In addition, Nurseries located within the quarantine zone shall comply with State and Federal Law and all Contractors and/or Subcontractors shall be Certified by the New York State Department of Agriculture and Markets to perform work within the Quarantine Zone (see Submittals section below).

QUALITY: All plants shall be typical of their species or variety. They shall have normal, well developed branches and vigorous fibrous root systems. They shall be sound, healthy, vigorous plants free from defects, disfiguring knots, sun scald injuries, dead or broken branches, abrasions of the bark, plant diseases, insect eggs, borers, and all forms of infestation. All plant material shall be tagged by the Engineer who shall reject all plant materials not meeting the above specifications, and trees having damaged or missing leaders, multiple leaders, Y-crotches, or indications of topping or heading back.

All plants shall be nursery-grown, unless otherwise stated. All trees and shrubs shall have been growing under similar climatic conditions as the project site two (2) years prior to the date of the contract. Plants held in storage will be rejected if they show signs of growth during storage. Collected plants shall be taken from a soil favorable to good root development. All collected material shall be clean sound stock, free from decaying stumps.

Herbaceous plants, vines, and groundcover shall be vigorous healthy plants, a minimum two (2) years old, from cuttings, seed, or division, with well-developed root systems and crowns, as specified in the Plant Schedule. Bulbs, corms, tubers and rhizomes shall be firm, non-desiccated, and certified free of disease and viral infection, of the sizes, grades, and varieties indicated in the Plant Schedule.

PLANT SOURCES FOR NATIVE PLANTS ONLY, WHERE APPLICABLE: Native plant material must be derived from the local genotypes of the native Plants specified. For purposes of this native plant material paragraph, "local" shall mean within 150 miles from the planting site. However, a reasonable effort shall be made to obtain sources of plant material as close to the planting site as possible. All plants must have been grown in a hardiness zone no warmer than Zone 7 or colder than Zone 6 as determined by the USDA Agricultural Research Service, Plant Hardiness Zone Map. Plant quality shall be typical of their species. Plant material should exhibit the range of variation typical of local genotypes of the species as determined by the Engineer.

They shall have normal branching and vigorous fibrous root systems. They shall be sound, healthy plants, free from sunscald injuries, or other mechanical injury, plant diseases, insect eggs, borers and all forms of infestations. All plants shall be nursery grown unless otherwise stated. Collected material will not be accepted. Except as may otherwise be specified in this native plant material paragraph, all other sections of this Plant Material specification shall also apply to the Native Plants. The native plant material, subject to availability and adherence to the requirements of this paragraph, may be purchased from the following nurseries or approved equal nurseries as determined by the Engineer in consultation with NYCDPR.

1. Greenbelt Native Plant Center, Staten Island, NY
2. Pinelands Nursery, Columbus, NJ
3. Sylva Native, Glen Rock, PA

ORDERING PLANT MATERIALS: The Contractor shall notify the Engineer of the unavailability of any tree, shrub, herbaceous plant, or bulb species designated in the contract, as well as provide confirmation to the Engineer of all orders from all sources of supply. Any request for species substitution due to unavailability must be submitted in writing Engineer, within thirty (30) days of the Order to Work date. The Contractor must include the names and addresses of at least ten (10) nurseries they have contacted in an effort to locate these species, and the list shall be submitted to the Engineer. All nurseries supplying material shall be required to have a certificate from the Department of Agriculture and Markets, Division of Plant Industry, New York, or any other state where plant material is obtained, certifying that plant material is apparently free of injurious insects and diseases.

DIMENSIONS: A plant shall be dimensioned as it stands in its natural position. Trees up to and including four-inch (4") caliper size shall be measured six inches (6") above ground level. Trees over four inches (4") in caliper size shall be measured twelve inches (12") above ground level. Stock furnished shall be a fair average of the minimum and maximum sizes specified. Larger plants cut back to sizes specified will not be accepted.

Container grown herbaceous plants, groundcover, and vines shall be well rooted in the container size indicated on the Plant Schedule, grown in the container at least one year prior to planting. Bulbs, corms, tubers and rhizomes shall be Top Size, or as indicated on the Plant Schedule. Annual flowering plants shall be vigorous, well rooted, with no indications of disease or stress.

PREPARATION OF PLANTS: All precautions customary in good trade practice shall be taken in preparing plants for moving. Workmanship that fails to meet the highest standards will be rejected. All plants shall be dug immediately before moving unless otherwise specified. All plants shall be dug to retain as many fibrous roots as possible. Balled and burlapped and balled and platformed plants shall have a solid ball of earth of minimum specified size, securely held in place by burlap and stout rope or twine. Oversized or exceptionally heavy plants are acceptable if the size of the ball or spread of roots is proportionately increased, to the satisfaction of the Engineer. Loose, broken, or manufactured balls will be rejected. Bare root plants shall be puddled immediately after digging by immersing the roots in a hydrogel slurry, so as to completely coat the roots.

DELIVERY: Plants shall be packed, transported, and handled with utmost care to insure adequate protection against injury. When transported in closed vehicles, plants shall receive adequate ventilation to prevent sweating. When transported in open vehicles, plants shall be protected by tarpaulins or other suitable cover material. All bare root plants shall be adequately protected from drying out by covering the roots with a plastic bag and planting within 2 weeks of

being dug. Balled and burlapped plants shall be set on the ground and the ball covered with soil. Until planted, all material shall be properly maintained and kept adequately moist, to the satisfaction of the Engineer.

INSPECTION: Inspection may be made before digging if the Engineer directs, but no plant material shall be planted by the Contractor until inspected by the Engineer at the site of the work. Plant material will be rejected if delivered with broken or damaged root balls, or if damaged on site by rough handling. All rejected material shall be immediately removed from the site and replaced with acceptable material at no additional cost. Final inspection shall be made upon completion of the contract.

PLANT SCHEDULE

ABBREVIATIONS

Cal.	Indicates the caliper of the trunk of the tree.
B & B	Indicates tree or shrub to be "balled and burlapped".
Cont.	Indicates tree, shrub or perennial to be delivered "container".
B.R.	Indicates a tree or shrub to be delivered "bare root".
O.C.	Indicates "on center" or spacing between plants in all direction.
Ht.	Indicates overall height of tree.
*	Indicates plant as being native to the mid-Atlantic region.
(GI)	Recommended for Green Infrastructure / Rain Gardens
(OGI)	Recommended for Green Infrastructure / R.O.W. Bio-swales
Item No.	Indicates specific species of plant material, including a description. Example below: ITEM NO. Genus species, Plant Description

PLANT DESCRIPTION

TREES: All trees shall be B&B, major trees branched 6-7' from the ground, minor trees as specified. Caliper size shall be as indicated. Root ball size and height shall correspond to American Standard for Nursery Stock (ANSI Z60.1- 2014) standard for the specified caliper size. Where height is specified, root ball size shall correspond accordingly. Well-branched top and fibrous root system essential.

SHRUBS: Height shall be as indicated. Root ball or container size and number of canes shall correspond to American Standard for Nursery Stock (ANSI Z60.1- 2014) standard for the corresponding shrub height. Heavy root system, all shrubs shall be well branched to the ground.

VINES, GROUNDCOVER, AND HERBACEOUS PLANTS: Container size shall be as indicated on the plans. All plants shall have vigorous root systems and have grown in the container for at least one year prior to planting.

PLUGS: Plugs shall have vigorous root systems.

ANNUALS: Annual flowering plants shall be vigorous, well rooted, with no indications of disease or stress.

BULBS, CORMS, TUBERS AND RHIZOMES: All bulbs, corms, tubers and rhizomes shall be top size, firm, and non-desiccated.

PLANT SCHEDULE: See contract drawings.

PLANT SOURCING, SELECTION, AND INSPECTION: Contractor shall locate plant material source(s), confirm availability of each plant type in compliance with Contract Documents, and shall submit, as specified, a complete list of all plant material for Project with nursery source identification for each plant. Contractor shall prepare for plant selection by:

1. Make all pre-selection arrangements with and at nursery supply source(s) to insure a ready supply of materials, equipment, and manpower required for an efficient selection and tagging procedure.
2. Request visit of Engineer as applicable at least (14) days in advance of the Contractor's desired inspection date for each type of plant material.
3. As directed by Engineer, plant Installer's Supervisor and nursery representative shall be present for plant inspection and tagging at the nursery source and at applicable times on-site.

Inspection and Selection of Plant Materials: Engineer will inspect plant material and make selection prior to digging at place of growth for compliance with genus, species, variety, size and quality.

1. All trees will be inspected and selected at the nursery sources by Engineer for conformity to the specification requirements.
2. The Engineer may only require inspection of representative samples, typical of five (5), of each species of shrub, groundcover, vine, perennial, grass and bulbs.
3. Nursery shall certify, in writing, that all trees tagged are disease and pest free.

Selected plants shall be tagged in the nursery as directed by Engineer. Seals shall be placed by Engineer on selected plants and not removed until the end of the Guarantee / Warranty period.

Inspection and selection by Engineer shall not affect the right of inspection and rejection during delivery or during and after installation.

Photographs: Furnish photographs of the plant material at the Engineer's option or request.

1. Photographs (using digital camera) shall be taken at the nursery source. A scale figure or measuring device to indicate size shall be in each photograph.
    a. Tree photographs shall include images of the entire plant and detail photographs showing the following: base of the tree, leaves, branching structure, form and habit.
    b. Shrub photographs shall include images of the entire plant, and detail photographs showing the following: base of the plant, leaves, branching, structure, form and habit, rootball (for balled and burlap material), and /or roots (for potted material).
2. Each photograph taken shall be labeled with the botanical and common names, nursery name, location and date.

On-Site Inspection at Time of Delivery: Notify the Engineer seven (7) days in advance of any delivery of plant materials to the site.

The Engineer shall inspect all plant material upon delivery to the site prior to installation. Plant material inspection on site may be combined with inspection of the staked layout of all plant materials; however, no plants shall be installed prior to this inspection.

Rejected plants shall be removed from the site immediately. Replacements to be provided at no additional cost to Client. Replace promptly as to not delay project schedule.

On-Site Inspection at Time of Substantial Completion: At the completion of the planting installation, the Contractor shall request an inspection by the Engineer of all planting installations.

After the Substantial Completion Inspection, the Engineer shall issue a punch list of all items that require completion or adjustment prior to final acceptance

The Warranty Period shall not start until the Contractor has successfully completed all items on the Engineer's punch list. At such time that the punch list items are completed to the satisfaction of the Engineer's, he/she shall inform the Contractor in writing of the start of the Warranty Period.

Warranty Period Inspections: During the Warranty Period, the Engineer shall make periodic inspections of the plant material to ensure compliance with the terms of the Warranty and this specification section.

The Contractor shall correct any deficiencies immediately upon written notification.

At the conclusion of the Warranty Period, the Engineer shall make a final inspection of the plant material and issue a letter of completion of Warranty to the Contractor.

PLANTING OPERATIONS:

TIME OF PLANTING: Unless otherwise directed by the Engineer, deciduous material shall be planted from March 1st to May 1st and from October 15th to December 15th. Evergreen material shall be planted from April 1st to May 15th and from September 1st to October 15th, or as approved by the Engineer.

LOCATION: Site characteristics, such as overhead power lines, existing vegetation, and infrastructure items, such as curbs and sidewalks, shall be considered. Trees that grow taller than thirty feet (30') should not be planted directly under power lines. When the design allows, the tree leader shall be offset from power lines.

LAYOUT: The location of plants, as shown on the drawings, is intended only as a guide. Plants shall be delivered to the site and organized as per approved Detailed Work Plan. All species of plants that form a planting composition shall be delivered at the same time, unless otherwise directed. Bed layout and shrub species distribution shall be approved by Engineer prior to any planting installation. Contractor shall provide proper oversight of laborers to ensure shrub mixes are planted as per approved Work Plan and approved layout.

Should extent of planting bed change due to field conditions, Contractor shall notify Engineer so that plant quantities and layout can be adjusted within the planting beds or shifted to another bed, if required. Such adjustments due to field conditions are the responsibility of the contractor and shall be made at no additional cost to the Owner. Any such field conditions shall be brought to the Engineer's attention in a timely manner so no adjustments to schedule is required.

Stake tree pit locations, paint irrigation and utility lines and obtain approval by the Engineer before digging. Protect all utilities, irrigation lines, vegetation adjacent to construction and structures during work. Excavate all tree pits and planting areas to depths and dimensions indicated; remove all excavated subsoil from planting area and dispose of legally.

When tree and shrub pits have been dug (see Excavation of Plant Pits), the Contractor shall partially fill with water a representative number of pits in each area of the project to determine if there is adequate percolation in the subgrade at each pit. If not, notify the Engineer as specified above.

EXCAVATION OF PLANT PITS: Planting soil shall be unamended existing soil excavated from the planting pit, unless amendments, topsoil, or structural soil are specified elsewhere in the contract. When subsurface obstructions are encountered during excavation, the Contractor shall restore the disturbed area to its original condition.

All plant material in all planting applications should be checked to ensure the root crown has not been buried during containerization or balling and burlapping. If so, the excess soil should be removed and the plant set at the correct finished grade. The top of the root ball shall be set at finished grade.

Each tree shall be planted in an individual pit as specified. Pits for balled and burlapped, container material shall be dug as shown on the Standard Planting Details. The size of the root ball in diameter shall be deep enough so that the root ball sits on undisturbed subgrade, except in situations where curbs and/or adjacent pavements prevent achievement of planting pit dimensions. Sizes of restricted planting pits (i.e. street trees) shall be at the maximum width allowed, and the same depth as the root ball being planted. Any changes in the planting pit sizes shall be broad enough to accommodate the roots fully extended and only deep enough so that the uppermost roots will be just below the original grade.

No plant pits shall be dug until the proposed locations have been staked on the ground by the Contractor and approved by the Engineer. No plant pits shall be backfilled until planting is approved by the Engineer. Where directed, pits shall have sloped sides (or as per the Standard planting Details). Excavated material, when found to be unsuitable, shall be removed from the site and replaced with topsoil, as directed by the Engineer, and paid for under the Items, 'Unclassified Excavation' and 'Topsoil'. Any amendment will be as directed and determined by the Engineer.

Extreme care shall be taken not to excavate to a depth greater than required. The subgrade below the root ball shall be tamped slightly to prevent settlement. Where, in the opinion of the Engineer, the subgrade material is unsuitable, the size of the plant pits shall be dug one-half (1/2) wider than normally required. The bottom and sides of the pit shall be backfilled with the existing soil, without amendments, and thoroughly worked into place to remove air pockets and voids.

Planting beds for Shrubs, Vines, Herbaceous, and Groundcover plants shall be excavated to the dimensions and depths indicated on the plans and backfilled with approved topsoil. Bulbs, Corms, Tubers, Rhizomes and Annuals shall be planted in the existing unamended soil or prepared planting beds with improved soil and/or a water absorbent medium, as designated on the drawings.

Planting beds that are installed within tree protection zones, can only be done in the presence of the Engineer. All excavation and plant installation is to be done by hand, with minimal soil disturbance where shown on plans. No existing tree roots shall be cut without written authorization from the Engineer. Plants shall not be placed within (three) 3 feet of the tree trunk.

Mycorrhizal Fungi Innoculant: Shall be applied by means of a three ounce (3 oz.) premeasured dry formulation packet, such as Mycor Tree Saver Transplant®, as manufactured by Plant Health Care, Inc., Pittsburgh, PA. Rhizanova Tree Transplant, as manufactured by Becker Underwood, Inc., Ames, IA, or approved equal. Packets shall contain, as a minimum: one thousand (1000) live spores of Vesicular-Arbuscular fungi, including: Entrephosphora columbiana, Glomus clarum, Glomus etunicatum, and Glomus sp.; seventeen million five hundred thousand (17,500,000) live spores of Ectomycorrhizal fungi (Pisolithus tinctorius); Biostimulant ingrediants including Yucca schidigera extract; soluble sea kelp extract derived from Ascophylum nodosum; humic acids; and acrylamide copolymer gel as a water absorbent medium. Mycorrhizal fungi inoculant shall be added to the top six to eight inches (6-8") of backfill soil in each planting pit and thoroughly mixed to distribute the inoculant. The material shall be applied according to the following chart:

Size of rootball or container	Ounces per plant
1 gallon	1
2 gal.	2
3 gal.	3
5 gal.	3
7 gal.	3
10 gal.	3
15 gal.	3
20" B&B	6
24" B&B	9
30" B&B	9
36" B&B	12
12" B&B	12

Water Retention Additive: Water Retention Additives shall be a granular polyacrylamide polymer of a potassium base and not a sodium base that slowly releases moisture into the root zone such as Terra Sorb, as manufactured by Plant Health Care, Inc., Pittsburgh, Pa., or approved equal. It shall be applied at the time of planting during a dry planting as defined by Parks and Recreation. When planting trees, each tree shall receive three (3) ounces or amount specified by product instructions.

Half should be added at a depth of 8-10 inches and the other half just below the finished surface. When planting shrubs, perennials or annuals, the product should be applied as per product instructions.

Planting: Shall be performed by an approved Contractor. No planting shall be done except in the presence of the Engineer. All material shall be inspected by the Engineer as it is removed from the truck, prior to placing in an approved storage area or the designated planting site. All rejected plant material shall be removed from the site and replaced with acceptable material at no additional cost to the City.

Bare root material shall be adequately protected from drying out. It shall be removed from its plastic bag and planted immediately after inspection. The bundles of heeled-in plants shall be set upright on the ground, covered with mulch, and kept adequately moist until the time of installation. Until the time of planting, all plant material shall be stored in an approved location, securely fenced and maintained, to the satisfaction of the Engineer, at no additional cost to the City. All plants not planted immediately shall be watered as necessary to maintain optimal health until planting.

Place balled and burlapped material in the prepared planting pit by lifting and carry it by the rootball. Set the tree or shrub straight and in the center of the pit, with the most desirable side facing toward the predominant view. All material shall set, after settlement, at the same level at which they have grown in the nursery. Care shall be exercised in setting the plants plumb. All ropes, stones, etc. shall be removed from the pit before backfilling. Soil for backfill shall be loose and friable and not frozen or compacted.

Cut and remove rope or wire from the top fifty percent (50%) of the rootball and cut off the burlap back to the edge of the ball. Remove as much woven product and twine as possible. All plastic or synthetic fabric must be removed from the ball at the time of planting. If root ball is enclosed by a wire basket, the Contractor shall cut away at least two-thirds (2/3) of the wire basket from the sides and top of the root ball. Remaining lateral wires must be cut to prevent future root interference. Galvanized or aluminum wire for will not be accepted.

Balled and burlapped plants shall be handled so that the ball will not be loosened. After the soil has been thoroughly firmed under and around the ball, the burlap shall be cut away from the upper half of the ball, and the remaining burlap adjusted to prevent the formation of air pockets. Soil shall be firmed at six to eight-inch (6-8") intervals and thoroughly settled with water. Plants with exposed roots shall be placed in the proper position in the center of the pit after the soil in the bottom of the pit has been firmed. Roots shall be arranged in their natural position and existing soil worked in among them, firmed at intervals, and mycorrhizal inoculant and water retention additive worked into the top eight (8") inches of backfill soil in the correct proportions. The plants shall then be thoroughly settled in with water. Care shall be taken to avoid bruising or breaking the roots when tamping the soil. All large and fleshy roots that are bruised or broken shall be pruned, making a clean cut before planting. NOTE: No cuts of any root, including bruised or broken roots, shall be made except in the presence of the Engineer.

Vines, Herbaceous, and Groundcover plants shall be carefully removed from containers or flats immediately prior to planting and set to the same depths as they were grown in the nursery bed or container, to the correct spacing indicated on the plans. Roots shall be arranged in their natural position and topsoil worked in among them, taking care to avoid bruising or damaging the roots, and fertilizer tablets added to the top four (4") inches of backfill soil in the correct proportion for the respective pot size. No more than one hour after planting, all plants shall be thoroughly settled in with water.

Annual flowering plants shall be carefully removed from the flats or cell-packs to avoid damaging roots or stems and planted in prepared planting beds at the same depth they were growing in the containers. Soil shall be thoroughly firmed around each crown, and plants thoroughly watered in no longer than one hour after planting.

Bulbs shall be planted in the locations indicated on the plans and to the depths and spacing indicated on the Plant Schedule. Spring Flowering Bulbs, Corms, Tubers, and Rhizomes shall be planted in late September or October, no more than six (6) weeks before frost. Summer and Fall Flowering Bulbs, Corms, Tubers, Rhizomes and Plugs shall be planted in spring, after the last killing frost, or as directed by the Engineer. All of the above shall be planted according to best horticultural practice. Prior to planting, bulbs shall be stored in a cool, dry, well-ventilated location for no longer than two (2) weeks before planting.

FINISHING SURFACE AFTER BACKFILLING: The Contractor shall cultivate and rake over finished planting areas and shall leave the site in an orderly condition. On level ground or slight slopes in non-paved areas, a shallow basin a little larger than the diameter of the plant pit shall be left around each plant, as shown on the plans, or as directed by the Engineer. On steep slopes, the soil on the lower side of the plant shall be graded in such a manner that it will catch and hold water, as shown on the plans, or as directed by the Engineer. Upon completion of planting, all debris and waste material resulting from the planting operation shall be removed from the project area, and the affected area raked and cleaned as necessary.

All work done in preparing shallow basins or grading of plant pits on steep slopes and regrading and reseeding of plant saucers shall be deemed included in the unit price per plant. All berms raised for shallow basins in level or gently sloping grass areas shall be removed at the end of the guarantee period, as well as tree stakes. This topsoil shall be cast evenly over the surrounding grass areas and grass seed sown over the removed berms.

After the shallow tree basins and plant saucers and shrub beds have been prepared, they shall be mulched, three to four inches (3-4") in depth, inside and along the outside edge of the basins/saucers. Perennial beds shall be mulched to a two inch (2") depth. Mulch shall consist of shredded bark not exceeding three inches (3") in length and one inch (1") in width. Mulch

contaminated with leaves, twigs, and/or debris shall not be acceptable. Only mulch derived from tree material, not from wood waste products like sawdust, shall be acceptable. Mulch for tree pits and shrub and/ or perennial beds shall be included in the bid price.

STAKING: All staking shall be done immediately after planting and all stakes and nylon tree ties shall be maintained. Plants shall stand plumb after staking. Stakes shall be of white cedar with bark attached. They may have a maximum allowable deflection of ten percent (10%). Stakes of the dimensions shown on the plans and details shall be placed outside the root ball and shall be driven to the depths indicated on the plans and details.

Ties shall be attached to the stake no more than four (4") inches below the top of the stake. Stakes shall be fastened to the tree with re-usable nylon tree ties as manufactured by Zip-It Tree ties, Riverside, CA, or approved equal. Stakes shall be set parallel to the contours, curbs, or walks, unless otherwise directed by the Engineer. The ties shall be tied off firmly at the stake. Trees shall stand plumb after staking. Stakes and nylon tie shall be removed at the end of the one-year guarantee period, unless directed otherwise by the Engineer and shall become the property of the Contractor. At the time the stakes are removed any holes left by the stake shall be filled with topsoil as specified in the "Topsoil" specification.

PRUNING: Dead, injured or diseased wood shall be removed in accordance with good horticultural practice. Crossed branches shall be pruned with a sharp tool in such a manner as to preserve and encourage the plant's natural growth form. Do not cut leaders or use wound paint or dressing to treat cut areas. Additional pruning may be required as determined by the Transplanting Subcontractor to preserve aesthetic balance. Any pruning shall preserve the natural character of each plant and shall be done in a manner appropriate to its particular requirements. Any crown pruning shall be done during the transplanting season and may be performed either before or after transplanting, at the Subcontractor's discretion. If done before transplanting, additional pruning may be required to correct any damage incurred during the transplanting operation. In no case shall leader branches be removed or harmed. The crowns of young trees should not be cut back to compensate for root loss.

EDGING OF PLANTING AREAS: The Contractor shall establish a neat edge where planting areas meet grass areas, as shown on the plan or as directed by the Engineer. Edging shall be done by competent mechanics in a workmanlike manner with a spade or edging tool immediately after all planting and seeding is completed. Particular care shall be exercised in edging to establish good flowing curves, as shown on the plan or as directed by the Engineer. Edging shall be maintained by the Contractor until final acceptance of the contract.

MAINTENANCE: At the time of planting, the soil around each plant shall be thoroughly saturated with water, and as many times later as seasonable conditions require, until final acceptance of the plant materials. Where water is supplied from City hydrants, the Contractor shall obtain a hydrant permit from the Department of Environmental Protection.

The Contractor must have all tools necessary for using City hydrants in his possession at time of planting to ensure that this specification is adhered to. If conditions do not allow the use of New York City water sources, the Contractor must obtain their own source of water. No direct payment shall be made for water obtained from other than city sources, but the cost thereof shall be deemed included in various Items of the contract.

Maintenance shall include watering, weeding, cultivating, edging, control of insects, fungal infections, and other diseases by means of spraying with an approved insecticide or fungicide, pruning, adjustment and repair of stakes, anchors, and wires, repair of minor washouts and gullies up to twelve inches (12") in depth, and other horticultural operations necessary for the proper

growth of all trees, as well as replacement of plants stolen or vandalized prior to the Final Inspection, to a degree judged sufficient for replacement by the Engineer. The Contractor shall also be responsible for keeping the entire area within the contract limits neat in appearance until the final acceptance and completion of the whole work of this contract. All planting areas shall be watered, cultivated, and weeded with hoes or other approved tools within the growing season extending from May 1st to October 1st, and such cultivating and weeding shall be repeated at least once a week. Under no condition shall weeds be allowed to attain more than six inches (6") of growth. The cost of such maintenance shall be included in the bid price.

REPLACEMENT: The Contractor shall replace, in accordance with the contract plans and specifications, any plant material that is dead or, in the opinion of the Engineer, in an unhealthy or unsightly condition, and/or have lost their natural shape due to dead branches, excessive pruning, inadequate or improper maintenance, vandalism or other causes, prior to final acceptance. Replacement plants shall be installed in the following planting season. The cost of replacements(s) shall be included in the unit price bid for the various furnished items of the contract.

Where vandalism or related causes are agreed by the Engineer as the cause for plant material replacement, the Contractor shall not be responsible for replacement during the guarantee period.

Where dead plant material has been identified, whether due to natural causes or vandalism, the Contractor shall remove the dead material, including stakes, and wire (if applicable) **within three (3) weeks of notification.**

Where dead plant material has been identified, whether due to natural causes or vandalism, the Contractor shall remove the dead plant material, including stakes, burlap, and wire. Earth will be leveled and new topsoil and seed, or appropriate paving material, added at the direction of the

Engineer to eliminate any hazardous conditions.

The Contractor shall maintain Replaced Plant Material to the standards outlined in the "Maintenance" subsection above.

SUBMITTALS: All submittals shall be as per the S-Pages.

State Certification (in quarantine zone only): The Sub/Contractor shall submit a copy of a valid Compliance Agreement issued by the State of New York Department of Agriculture and Markets, Division of Plant Industry for review and approval prior to performing work.

Invoice: The Sub/Contractor shall submit an original invoice for all plant material delivered to the site. The invoice(s) must be on the Nursery letterhead and must indicate genus and species along with the quantity and size for each individual plant material delivered to the site.

Product Data: Submit technical descriptive data for each manufactured or packaged product of this Section including tree staking materials and plant treatment material. Include manufacturer's product testing and certified analysis and installation instructions for manufactured or processed items and materials.

Qualification Data: Submit qualification data for firms and persons to demonstrate and confirm their capabilities and experience as per quality assurance section of this specification. Include

lists of completed projects with project names and addresses, names and address of architects and owners, and other information requested.

Plant Inventory Log: Submit a complete inventory log, updated weekly, for all plant material for Project after delivery and transfer. Include in plant list the botanical and common names, size,

quantity, plant health, form, root ball, limb height (if applicable), and other requested data. Indicate plants available for planting, plants that have died and sourcing locations for all replacement plant materials. Inventory log shall indicate plant species that are fall dig hazards.

Planting Schedule and Detailed Work Plan:

1. Submit plans indicating anticipated planting schedule and detailed work plan approach for planting areas including but not limited to perennial and grass mix areas, perennial mix areas, grass mix areas, sloped planting beds, and wide planting beds. An approach to coordination with hardscape operations, stone layout and installation, fence installation (all types), floodwall and associated offsets, DEP sewer offsets, erosion control, sodded areas, irrigation, waterfront structures, buildings, bridges and landings, utilities and lighting, and soil installation shall be included in Work Plan. Work Plan to include fall dig hazards and approach to plantings with hazards.
2. Submit plans indicating anticipated planting schedule and detailed work plan approach for planting areas at Gouverneur Gardens.

Delivery Schedule: Provide a written delivery schedule for all plant material to indicate species, quantities and anticipated delivery dates per the construction schedule.

Master Nursery List: Detailed information for each nursery included on Master Nursery List. Include company name, address, phone, fax, email, website, and number of years in business under current ownership, USDA Plant Hardiness Zone in which nursery is located, contact individual, current ownership, any outstanding litigation, soil test(s) indicating soil properties at each relevant growing location within nursery, statement of current practices for use of pesticides and herbicides. If a nursery's share of the bid is greater than 10% total unburdened plant material costs, or if the quantity of plants is greater than 10% of the total number of plants, then provide three (3) references for projects of similar scope (provide contact name, email, telephone and name of project).

Nursery Soil Analysis: Submit nursery soil analysis prior to any tagging trip to such nursery. For each nursery location, furnish soil analysis not less than three (3) months old and a written report by a qualified soil-testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity; sodium absorption ratio; deleterious material; pH; and mineral and plant-nutrient content of the soil at each growing location.

Testing methods and written recommendations shall comply with USDA's Handbook No. 60.

Tagging Schedule: Tagging schedule to be submitted for all tagging trips at least one month prior to first trip. Provide Engineer with a Draft Tagging Schedule. Revise and update schedule based on Engineer's input and resubmit Final Tagging Schedule. Tagging to take place between January 15th and March 15th or August 15th to November 1st.

QUALITY ASSURANCE:

General: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, and other features indicated in Plant List and complying with ANSI Z60.1; and with healthy root systems developed by transplanting or root pruning. Plants shall be field grown and tagged while in the ground. At no time will pre-dug, balled and burlapped trees be accepted or considered for use on this project. Provide well-shaped, fully branched, healthy, vigorous stock,

densely foliated when in leaf and free of disease, pests, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.

1. Trees with damaged, crooked, or multiple leaders; tight vertical branches where bark is squeezed between two branches or between branch and trunk ("included bark"); crossing

trunks; cut-off limbs more than 3/4 inch (19 mm) in diameter; or with stem girdling roots will be rejected.

2. Collected Stock: Do not use plants harvested from the wild, from native stands, from an established landscape planting, or not grown in a nursery unless otherwise indicated.

Provide plants of sizes, grades, and ball or container sizes complying with ANSI Z60.1 for types and form of plants required. Plants of a larger size may be used if acceptable to Engineer, with a proportionate increase in size of roots or balls.

Installer Qualifications: Installations of work specified in this section shall be by firm(s) which can exhibit proof of a minimum of ten years prior successful experience with installations of equivalent type and similar scope of this Project.

1. Nursery/Plant Supplier Qualification: Plant Nursery(ies) shall have a nursery facility as an integral part of operation where majority of plants can be grown and reviewed, shall be reputable, and shall have been in continual operation with a minimum of ten (10) years' experience as a plant grower. Nursery shall be capable of the following as a minimum:
    a. Supplying plant material conforming to the quality standards, visual characteristics, sizes, species cultivars, and quantities indicated by Contract Documents.
    b. Conformance to cultural practices and maintenance procedures suitable for healthy plant material.
    c. Ability to hold and care for plants should schedule adjustments be required.
2. Plant Installer Qualifications: Engage an experienced installer who has completed plant installation work similar in material, design, and extent to that indicated for this project with a record of successful landscape establishment.
    a. Installer's Field Supervisor(s) for Installation and Maintenance shall be an English speaking supervisor(s) experienced in tree, shrub, groundcover and plant installation and maintenance.
    b. Supervisor(s) shall be maintained full-time on Project site when installation or maintenance is in progress.
    c. Provide adequate numbers and types of accessible personnel to meet the scheduling requirements of the exterior plant installation.
3. Use numbers of skilled workers and equipment type equal to work requirement or occasion. The skilled workers shall be thoroughly trained and experienced in the necessary crafts and shall be completely familiar with specific requirements and methods needed for performance of the work of this Section.

Personnel: All landscape work under this Section shall be performed by personnel totally familiar with planting work and under the supervision of an experienced foreman at all times.

The Planting Contractor shall have on the job, at all times, a foreman knowledgeable in horticultural practice and experienced in planting on steep slopes.

Standards: The names of the plants are required to conform to the nomenclature of "Standardized Plant Names," latest edition, adopted by the American Joint Committee on Horticultural Nomenclature.

Drawings References and Definitions: Refer to Contract Drawings for plant list and planting layouts. Plant list is for guide only. Quantities, sizes, and types of plant material shall be verified by Contractor's review of planting plans and layouts. Where discrepancies are identified and additionally verified with Engineer, the planting plans shall take precedence.

Mock-ups: mockups to set quality standard for fabrication and installation. All mock ups shall be undertaken after completion of pre-cast and soil installation. Build a mockup of all planting of the following areas for review to a minimum size of 12' x 20', including but not limited to:

1. Gouverneur Gardens
2. Tree, shrub, perennial, and grass at Nature Exploration
3. Fire Boat House Planters at Stairs
4. Landscape slope with seating stair at basketball court north of the Delancey Bridge
5. Nature exploration water play feature and boulder area
6. Stone in landscape slope at Corlears, Delancey and 10th Bridges
7. 10th Street Bridge city-side landing
8. 10th Street Playground stone slope between upper and lower playground areas
9. Planting at floodwall crossing within floodwall offset zone
10. Swale area
11. Esplanade planting on structure

All mock-ups with trees shall address height to which limbs shall be pruned including stone scrambles, play areas, and grade changes.

Plant Material Observation: Following tagging, Engineer shall observe plant material at place of growth for compliance with requirements for genus, species, variety, cultivar, size, and quality. Engineer retains right to observe trees and shrubs further for size and condition of root systems, pests, disease symptoms, injuries, and latent defects and to reject unsatisfactory or defective material at any time during progress of work. Observations by Engineer shall not be a substitute for the required Certificate of Plant Health (provided at time of transfer to Landscape Contractor) which shall be provided by each participating nursery for their plant stock.

MEASUREMENT AND PAYMENT: The quantity of **PLANT MATERIAL** to be paid for under these Items shall be the number of trees, shrubs, vines, herbaceous plants, groundcovers, and bulbs of each size planted and maintained, in accordance with the plans and specifications, to the satisfaction of the Engineer.

The price bid shall be a unit price per **EACH** tree, shrub, vine, herbaceous plant, groundcover, bulb, corm, tuber, rhizomes or plug of each size, as specified in the Plant Schedule, and shall include the cost of furnishing plants, excavation, mycorrhizal innoculant, water retention additive, shredded bark mulch for tree pits, shrub beds, and perennial or groundcover beds, inspecting, planting, staking, anchoring, watering, replacing, and maintaining all plant material and all work incidental thereto, in accordance with the plans and specifications, to the satisfaction of the Engineer.

All plant material substitutions must be pre-approved as described in "Ordering Plant Materials". Approved substitutions where size and/or description vary from that listed in the plant schedule included herein may result in a monetary credit due to the City.

Horticultural soil, planting soil, biochar and compost tea, where called for in the plans or details, will be paid for separately under their respective Items. Shredded bark mulch beyond the tree pit

and shrub or perennial bed outlines shall be paid for separately under the Item 'Shredded Bark Mulch'. The price of water, regardless of source, is deemed included in the unit price bid. No extra payment will be made for water coming from the Contractor's own source.

Item No.	Item	Pay Unit
PK-ESCR 110 D18-24	SHRUB 18-24 IN. HEIGHT	EA
PK-ESCR 110 D24-30	SHRUB 24-30 IN. HEIGHT	EA
PK-ESCR 110 D2G	SHRUB 2 GALLON	EA

PK-ESCR 110 D30-36	SHRUB 30-36 IN. HEIGHT	EA
PK-ESCR 110 D3G	SHRUB 3 GALLON	EA
PK-ESCR 110 D5G	SHRUB 5 GALLON	EA
PK-ESCR 110 D7G	SHRUB 7 GALLON	EA
PK-ESCR 110 FB	BULB	EA
PK-ESCR 110 OG1G	ORNAMENTAL GRASS 1 GALLON	EA
PK-ESCR 110 OG1QT	ORNAMENTAL GRASS 1 QUART	EA
PK-ESCR 110 OG2G	ORNAMENTAL GRASS 2 GALLON	EA
PK-ESCR 110 OG2QT	ORNAMENTAL GRASS 2 QUART	EA
PK-ESCR 110 OG3G	ORNAMENTAL GRASS 3 GALLON	EA
PK-ESCR 110 PG1G	PERENNIAL/GROUNDCOVER 1 GALLON	EA
PK-ESCR 110 PG1QT	PERENNIAL/GROUNDCOVER 1 QUART	EA
PK-ESCR 110 PG2G	PERENNIAL/GROUNDCOVER 2 GALLON	EA
PK-ESCR 110 PG2QT	PERENNIAL/GROUNDCOVER 2 QUART	EA
PK-ESCR 110 PG3G	PERENNIAL/GROUNDCOVER 3 GALLON	EA
PK-ESCR 110 PGP32	PERENNIAL/GROUNDCOVER DEEP PLUG 32	EA
PK-ESCR 110 PGP50	PERENNIAL/GROUNDCOVER DEEP PLUG 50	EA
PK-ESCR 110 T10-20	TREE PLANTING 1.0"-2.0" CALIPER	EA
PK-ESCR 110 T10G	TREE PLANTING 10 GALLON CONTAINER	EA
PK-ESCR 110 T20-25	TREE PLANTING 2.0"-2.5" CALIPER	EA
PK-ESCR 110 T20G	TREE PLANTING 20 GALLON CONTAINER	EA
PK-ESCR 110 T25-30	TREE PLANTING 2.5"-3.0" CALIPER	EA
PK-ESCR 110 T30-35	TREE PLANTING 3.0"-3.5" CALIPER	EA
PK-ESCR 110 T35-40	TREE PLANTING 3.5"-4.0" CALIPER	EA
PK-ESCR 110 T40-45	TREE PLANTING 4.0"-4.5" CALIPER	EA
PK-ESCR 110 T45-50	TREE PLANTING 4.5"-5.0" CALIPER	EA
PK-ESCR 110 T5G	TREE PLANTING 5 GALLON CONTAINER	EA
PK-ESCR 110 T6-8	TREE PLANTING 6-8 FT. HEIGHT	EA
PK-ESCR 110 C10-12	CONIFER TREE PLANTING 10-12 FT. HEIGHT	EA
PK-ESCR 110 C12-14	CONIFER TREE PLANTING 12-14 FT. HEIGHT	EA
PK-ESCR 110 C14-16	CONIFER TREE PLANTING 14-16 FT. HEIGHT	EA
PK-ESCR 110 C8-10	CONIFER TREE PLANTING 8-10 FT. HEIGHT	EA
PK-ESCR 110 M10-12	MULTI-STEM TREE PLANTING 10-12 FT. HEIGHT	EA
PK-ESCR 110 M12-14	MULTI-STEM TREE PLANTING 12-14 FT. HEIGHT	EA
PK-ESCR 110 M14-16	MULTI-STEM TREE PLANTING 14-16 FT. HEIGHT	EA
PK-ESCR 110 M8-10	MULTI-STEM TREE PLANTING 8-10 FT. HEIGHT	EA
PK-ESCR 110 VH10	VINE 10 IN. CONTAINER	EA
PK-ESCR 110 VH1G	VINE 1 GALLON	EA
PK-ESCR 110 VH2G	VINE 2 GALLON	EA

END OF SECTION

SECTION PK-ESCR 111 – SYNTHETIC TURF-INFILL TYPE ON STONE BASE

WORK: Under this Item, the Contractor shall furnish and install **SYNTHETIC TURF-INFILL TYPE ON STONE BASE (SPORTS)** with shock pad in accordance with the plans, specifications, and directions of the Engineer.

MATERIALS: Unless otherwise provided for herein, all materials and methods shall conform to the applicable portions of General Conditions, 'Materials and Methods of Construction'.

Geotextile: Shall be a nonwoven, rotproof, heavy weight synthetic geotextile necessary to provide reinforcement, separation of the base aggregate and subgrade soils, and filtration of water from the base aggregate to the subgrade soils. Geotextile used shall conform to the following properties:

Property	ASTM Test	
Elongation	D4595	>50%
Grab Strength (min.)	D4632	665 N (150 lbs)
Tear Strength (min.)	D4533	270 N (60 lbs)
CBR Puncture (min.)	D4833	370 N (85 lbs)
Permitivity (min.)	D4491	1.3/sec
Apparent Opening Size (max.)	D4751	0.212 mm (0.0083 in) Std. No. 70 sieve

Nonwoven geotextile shall be Mirafi® 160N, as manufactured by TenCate, Pendergrass, GA, AEF 880, as manufactured by BOOM Environmental Products, New Bedford, MA, FX-60HS manufactured by Carthage Mills, Cincinnati, OH or approved equal.

Slotted Polyethylene Pipe: Pipe shall be either full circular cross-section or a slim line drainage system, whichever is shown on the drawings. A slim line drainage system is a flexible, prefabricated drainage system, with either a series of small interconnected corrugated round pipes or a flat pipe with full horizontal cross-section, wrapped in a non-woven, drainage geotextile. The Contractor shall not have the option of substituting the slim line drainage system where round pipe is shown (or vice versa). The drawings shall strictly be followed. Pipe and fittings of both types shall be made from high density, virgin PE compounds that conform to the requirements of cell Class 324420C, as defined and described in ASTM D3350. Slim line drainage system manufactured for this specification shall comply with the requirements for test methods, dimensions, and markings found in AASHTO Designations M288. Slim line drainage pipe and fittings shall be Multi-Flow Drainage Systems as manufactured by Varicore Technologies, Inc., Prinsburg, MN, or AdvanEdge pipe as manufactured by Advanced Drainage Systems, Inc., Ludlow, MA, or approved equal. The slim line drainage system shall be eighteen (18") inches in width with an outer corrugated perforated pipe wall.

Circular pipe (N-12) manufactured for this specification shall comply with the requirements for test methods, dimensions, and markings found in AASHTO Designations M252 and M294. Pipe shall have an outer corrugated perforated wall and an essentially smooth inner wall (waterway).

Corrugations for these sizes may be either annular or spiral. Size shall conform to the AASHTO classification "Type SP" (which describes pipes with a smooth waterway and Class 2 perforations). Pipe and fitting shall be as manufactured by Advanced Drainage Systems, Ludlow, MA, or approved equal. The minimum parallel plate stiffness values when tested in accordance with ASTM D2412 shall be as follows:

Diameter	Pipe Stiffness
4" (100mm)	50 psi (340 Kpa)
6" (150mm)	50 psi (340 Kpa)
8" (200mm)	50 psi (340 Kpa)
12" (300 mm)	50 psi (340 Kpa)

Sock: The circular perforated pipe shall have a "DC Sock", a polyester machine knitted envelope factory applied and ready for installation. Sock not required for the slim line drainage system.

Fittings: The fittings shall not reduce or impair the overall integrity or function of the pipeline. Fittings may be either molded or fabricated. Common corrugated fittings include in-line joint fittings, such as couplers and reducers, and branch or complimentary assembly fittings such as tees, wyes, and end caps. These fittings may be installed by various methods, such as snap-on, screw-on, bell and spigot, and wrap around. Couplings shall provide sufficient longitudinal strength to preserve pipe alignment and prevent separation at the joints. Coupling of the pipes shall be performed using Standard ADS (Advanced Drainage Systems) N-12 split coupler PRO LINK ST, or PRO LINK 10.8, or PRO LINK 5, or approved equal. Only fittings supplied or recommended by the pipe manufacturer shall be used. Where designated on the plans, a neoprene or rubber gasket shall be supplied.

Base Aggregate: Shall consist solely of crushed ledge rock and shall be broken stone or gravel as defined in General Conditions, free draining, well graded, uniformly mixed washed stone aggregate. The total thickness of the base stone aggregate shall be six (6") inches minimum. Base aggregate shall be a combination of coarse aggregate with a fine top aggregate. The coarse aggregate shall be four (4") inches in thickness and the fine top aggregate shall be two (2") inches in thickness. Materials shall meet the gradations shown below.

Base Coarse Aggregate (3/4 inch material)

Sieve Size	Percent Passing by Weight
1 ½"	100
¾"	80 – 90
3/8"	30 – 65
No. 4	10 – 40
No.16	0 – 10
No.200	0 – 5

Base Fine Top Aggregate (3/8 inch material)

Sieve Size Percent	Passing by Weight
½"	100
3/8"	85 – 100
No. 4	10 – 30
No.8	0 – 10
No.200	0 – 2

The aggregate must contain three and one-half to four percent (3½ - 4%) moisture content to ensure that fine particles don't migrate and to facilitate proper compaction. The Contractor shall provide certification from the source plant that aggregate meets all requirements. If deliveries of base aggregate show segregation of sizes, material shall be deposited in stockpiles and

thoroughly mixed prior to installation. **Bank run gravel, rounded sands and recycled concrete material shall be rejected for use as base aggregate.**

Shock Pad: A system without a shock pad is NOT acceptable and will be rejected. Pad shall be free draining, constructed from a porous cross link, closed cell polyethylene pad made of 90% recycled HDPE (High Density Polyethylene), minimum twenty (20mm) millimeters thick, such as one of the following:

"Sport Drain Max" as manufactured by Engineered Sportfield Solutions, Baltimore, MD

"ProPlay20 Sport" as manufactured by Schmitz Foam Products, Inc. Coldwater, MI

"SportLite HD20SL-NW3-SG" as manufactured by ThermaGreen Sport products Toronto, Canada

Or approved equal.

Seam Tape: shall be as recommended by the manufacturer. All seam tape shall be a minimum of twelve (12") inches wide.

Synthetic Turf: Yarn shall be TenCate Tapeslide XP, Bonar FB Ultra HD, Bonar FB Global or Shaw High Performance Slit Tape, twisted parallel long-slit polyethylene tape, minimum ten thousand (10,000) denier, 100 micron, one hundred percent (100%) polyethylene non-abrasive fiber or approved equal. Monofilament fibers are NOT acceptable under this specification. Pile weight shall be between fifty (50) and fifty-two (52) ounces per square yard. The fiber shall be treated with an ultraviolet (UV) inhibitor and guaranteed minimum eight (8) years against UV degradation and fading.

Tuft height shall be one and three-quarter (1 3/4") inch long fibers with a minimum of one and onequarter (1-1/4") inches infill or more, to meet required G-max criteria. Turf shall be delivered in minimum twelve foot (12') width rolls of sufficient length to run from sideline to sideline. Turf color shall be Verde, simulating natural grass, unless otherwise shown on the drawings or approved by the Engineer. The backing shall consist of a perforated primary and secondary backing with a minimum drainage rate of twelve (12") inches per hour. Primary backing shall be woven polypropylene. Secondary backing shall include a nonwoven membrane system with polyester additive featuring dimensional stability characteristics, such as "Colback" manufactured by Colbond Nonwovens, Enka, NC, or approved equal.

Acceptable turf products are: "Rhino SF50" as manufactured by AstroTurf, Dalton, GA., "PremierXP50" as manufactured by A-Turf, Williamsville, NY, "Classic Eco-E50" as manufactured by Shaw Sports Turf, Calhoun, GA, "Smart Grass" as manufactured by AFS Corporation, Fort Washington, PA, or approved equal. A system without a shock pad is not acceptable and will be rejected. The system must meet all G-max field test requirements.

Synthetic Turf Infill Material: Resilient Infill shall be coated, sanitary, rounded, uniformly sized sand (silicon dioxide SiO2) or quartz made from virgin materials for synthetic turf systems. Sieve analysis shall show that material meets requirements for sieve sizes as described below but under no circumstances shall more than 3% pass the No. 30 sieve.

Infill shall be coated or colored sand and shall be one of the following:

- Envirofill infill manufactured by US Greentech, LLC, Cincinatti, OH
- Colorbrite SpectraQuartz colored pigmented quartz infill as manufactured by Fairmount Santrol, Chesterland, OH
- Or approved equal.

Size of infill shall be a blend between No.12 to No. 20 mesh size inclusive. Color of coating or pigment shall be green or light tan in color unless otherwise shown on the plans.

Tire derived SBR (styrene butadiene rubber) crumb infill product in any percentage will be rejected.

Infill shall be low thermal absorption and low thermal capacity. The infill mixture composition proposed for the site shall be submitted for approval prior to installation.

G-max: The manufacturer shall warranty that the G-Max rating of the synthetic turf system shall not exceed a reading of 145 at installation and 180 thereafter, as per ASTM F 355, Test Method A, and in accordance with ASTM F1936, for the entire term of the warranty. If readings do exceed 180 within the warranty period, the manufacturer shall be responsible for whatever measures are required to achieve G-Max ratings below 180, at no cost to the City. (See Submittals)

Goal or Perimeter Playing Lines and Logos: Shall be as shown on the drawings and shall be painted unless inlaid is specifically shown on the drawings. For primary playing lines, the turf color shall be white. Secondary lines shall be yellow (unless otherwise shown on the drawings). Line painting shall be performed and paid for under item "Paint Lines- 4" Width– Synthetic Turf".

Recycled Plastic Lumber Edge: Synthetic turf shall be attached to a recycled plastic lumber nailer placed around the perimeter of the field and the edges of any cutout areas, as designated on the contract drawing. For the nailer, either three by six (3 x 6) or three by eight (3 x 8) RPL is acceptable. Recycled plastic lumber shall be fabricated from one hundred percent (100%) High Density Polyethylene (HDPE) and Low Density Polyethylene (LDPE) recycled polyethylene, including UV-inhibiting pigment, Molded Grade Plastic Lumber as manufactured by Plastic Lumber Yard, Norristown, PA, PolyForce™ Structural Plastic Lumber manufactured by Tangent Technologies, LLC, Aurora, IL, SelectForce as manufactured by Bedford Technologies, Worthington, MN, or approved equal. Composition and mechanical properties shall be as follows:

Minimum High Density Polyethylene: 70%
Tensile Strength (ASTM D638): 1200 psi
Compressive Strength (ASTM D6108): 1200 psi
Flexural Modulus of Elasticity (ASTM D6109): 95,000 psi
Average Nail Pull Out Strength (ASTM D6117): 280 lbs

The Bulk Density and Specific Gravity of the recycled plastic lumber shall conform to the acceptable standards determined by the standard test method in ASTM D6111. Recycled plastic lumber shall not absorb moisture, corrode, rot, warp, splinter, or crack and the surface shall not be slippery when wet. The recycled plastic lumber shall not contain any material that will be irritating when in contact with skin. Cross sections shall not show wide deep gaps or holes. Plastic lumber shall remain unpainted. Lumber is totally below grade and therefore any color or combination of colors is acceptable.

Hardware: Hardware for attaching synthetic turf to recycled plastic lumber shall be minimum two (2") inches in length, stainless steel or galvanized and as supplied by the turf manufacturer/installer.

Reinforcing Bar: Shall be of the sizes and dimensions shown on the plans. Reinforcement shall meet the requirements of the NYCDOT Standard Highway Specifications.

Sealant: Shall be a one part polyurethane elastomeric sealant, such as Sikaflex 1a, as manufactured by Sika, Lyndhurst, NJ or approved equal. Sealant shall be resistant to water, diluted acids, and alkalis and the color shall match the recycled plastic lumber.

TESTS: Testing shall be conducted by an accredited independent environmental laboratory in conformance with the National Environmental Laboratory Accreditation Program (NELAP) conference standards. (Submit laboratory for approval: See Submittals paragraph). The proposed synthetic turf materials must meet the following test requirements and criteria:

1. Infill- Aqueous Test: After infill material is prepared in accordance with EPA Method 1312 Synthetic Precipitation Leaching Procedure (SPLP), a total analysis shall be performed to determine heavy metal content in accordance with either EPA Method 6010 or EPA Method 6020. Semi-volatile organic content shall be determined under Method 8270C and shall include data for aniline (CAS #62-53-3), phenol (108-95-2) and benzothiazole (9516-9). Heavy metal content shall not exceed NYS DEC Groundwater Standards. Total lead (Pb) content shall not exceed .025 parts per million (ppm), total Chromium (Cr) content shall not exceed .05 parts per million (ppm), total Zinc (Zn) shall not exceed 2.0 ppm.

2. Carpet Fibers- Solid Digestion Test: The synthetic turf fiber should be tested as per ASTM F2765 "Standard Specification for Total Lead Content Synthetic Turf Fibers" or latest rev. The total lead (Pb) content measured shall be less than 100 parts per million (ppm) and the total Chromium (Cr) content shall not exceed 25 parts per million (ppm). Testing shall be conducted by an accredited independent environmental laboratory in conformance with the National Environmental Laboratory Accreditation Program (NELAP) conference standards. (Submit laboratory for approval: See Submittals paragraph).

INSTALLATION: It shall be the responsibility of the synthetic turf contractor/installer to inspect and certify that the base is ready for the installation of the turf system, and when satisfied with its condition the turf contractor/installer shall notify the Engineer in writing of this acceptance.

Excavation of areas to receive synthetic turf shall be performed in accordance with the item "Unclassified Excavation", specified elsewhere in this contract. However, payment for excavation performed in connection with the installation of synthetic turf shall be deemed included in the price bid for this item.

The area to receive the resilient artificial turf shall be excavated to the correct depth, including peripheral drainage trenches, where shown in drawings for slotted polyethylene pipe. The subgrade shall be laser graded and pitched to ensure positive drainage (an average one-half percent (1/2%) from the center to the peripheral slotted pipe drainage lines), as indicated on the drawings, and all finished subgrade elevations verified with laser leveling instruments. The Contractor shall be careful to avoid over excavation. The geotextile shall be rolled directly over the prepared subgrade and the peripheral drainage trench, overlapping all seams a minimum of six inches (6") in all directions.

SURPLUS: Excess material excavated by the Contractor shall be legally disposed of as part of the bid price of this item. Disposal of contaminated materials, if present, shall be paid for separately.

All slotted polyethylene pipe shall be laid in reasonably close conformity to line and grade and shall have a full, firm, and even bearing at each joint and along the entire length of pipe and surrounded with the base aggregate drainage material, in accordance with the plans, specifications, and directions of the Engineer. Joint misalignment shall not result in offsets, in the interior smooth liner, greater than one-quarter inch (1/4"). Pipe laying shall begin at the downstream end and progress upstream. Any single run of pipe, excluding end sections, shall consist wholly of the same type material unless otherwise directed by the Engineer. No section of pipe used shall be less than three feet (3') in length. Installation of the pipe shall be in accordance

with ASTM D2321. Connection(s) to drainage system (pipes or structures) shall be deemed included in the price bid for this item.

Recycled Plastic Lumber Edging shall be installed around the perimeter of the field area and the clay cutout areas (if any) on a prepared level surface and drilled to receive the steel reinforcing rods, the rods hammered in place to one-quarter inch (1/4") below the lumber surface and the void filled with approved sealant.

The base aggregate shall be installed in three (3) two (2") inch lifts over the geotextile and compacted to a ninety percent (90%) Proctor Density, maintaining a consistent slope of one-half percent (1/2 %) from the centerline of the field to the sideline, unless otherwise shown on contract drawings. The base aggregate must be free draining, consistent with the vertical draining requirements of the synthetic turf manufacturer, and the surface of the field shall be perfectly level. The Contractor shall employ laser leveling devices to determine the correct subgrade and finished grade elevations.

Prior to beginning installation, the installer of the synthetic turf and pad shall inspect the subbase and supply a Certificate of Subbase Acceptance for the purpose of obtaining manufacturer's warranty for the finished synthetic playing surface. **The synthetic turf manufacturer's representative and the Engineer must approve the permeable base aggregate installation prior to installation of the synthetic turf.** The Contractor shall perform all work necessary to obtain the manufacturer's written approval as part of the bid price of this item.

The shock pad shall be installed directly over the properly prepared base aggregate. The Contractor shall take extreme care to prevent disturbance of the base aggregate in regard to compaction and planarity. Any disturbed areas shall be rerolled with a four to six (4~6) ton roller, to the satisfaction of the Engineer.

The full width rolls of turf shall be laid out across the field and the edges attached to the recycled plastic lumber perimeter attachment with a nail gun, or as per manufacturer's directions, at maximum six inch (6") intervals. Head seams, other than at sidelines, shall not be acceptable.

Synthetic turf shall be installed with no wrinkles, ripples or bubbles. Slits in the fabric to relieve such defects are not permitted.

Seams: Adhesive installations shall be glued down with minimum twelve (12") inch wide textured seam tape. Adhesive shall be applied to entire width of seam tape. Sewing, where used shall have stitches every one-quarter (1/4") inch or less. Thread shall be polyester or nylon, color to be green.

All seams shall be transverse to the field direction; i.e., run perpendicularly across the field. Seams shall be flat, tight, and permanent with no separation or fraying. Permanent playing lines (where shown) shall be laid out and incorporated in the turf as shown on the drawings. Drains shall be marked on the surface with an inlaid white dot two inches in diameter. Perimeter edge details required for the system shall be as shown on the drawings, as recommended by the manufacturer, and as approved by the Engineer.

Synthetic turf adhesive shall be one of the following:

A solvent based, one-part, thixotropic high green strength urethane, similar to NORDOT #34G as manufactured by Synthetic Surfaces, Inc. Scotch Plains, NJ.

A two component, thixotropic polyurethane based adhesive manufactured specifically for use on synthetic turf, such as STA-1000 Synthetic Turf Adhesive as manufactured by Sports Turf Direct, Finleyville, PA, or Ultrabond TurfPU 2K as manufactured by MAPEI, Deerfield Beach, FL.

Or an approved equal.

Rate of application shall be a maximum of thirty (30) linear feet of seam tape per gallon of adhesive unless otherwise recommended by the manufacturer. Hot melt glue is NOT acceptable as an approved equal adhesive. Seams shall be compressed after glue application using a one ton roller or equivalent. Roll each seam a minimum of two times to ensure adhesion.

Weather Restrictions: Where gluing of seams is proposed, the temperature must be 46 degrees °F and rising. Do not deliver or install surfacing material if either ambient air temperature or material temperature is below 32 degrees °F.

Installing Infill: The completed synthetic turf field shall be brushed with a motorized nylon rotary broom and the infill material immediately installed with a minimum four foot (4') width drop spreader. The infill shall be applied in a minimum two (2) lifts to one and one-quarter inch (11/4") depth, totaling nine pounds per square foot (9 lbs/sf) of infill material, and the infilled area brushed between each lift. The area shall be wetted as necessary during installation to minimize dust.

Follow-Up Visits: The Contractor shall prepay the synthetic turf manufacturer for two (2) followup visits at six month (6 mo.) intervals after the Final Inspection date. The visits shall be scheduled by the Engineer to inspect the condition of the synthetic turf, infill material, drainage system, clay skinned areas (if any), and peripheral attachments. Items found to require repair, amendment, or replacement shall be the responsibility of the Contractor. Repairs, except those due to vandalism, shall take place immediately upon notification by the Engineer.

CLEAN-UP: At the completion of the work, the Contractor shall remove accumulated debris, tools, equipment, containers, etc. from the site in an approved manner. The entire job shall be left broom clean and acceptable.

SUBMITTALS: All submittals shall be as per the S-Pages.

Certificate of Subbase Acceptance: Prior to the beginning of installation, the manufacturer/installer of the synthetic turf and pad shall inspect the subbase and supply a Certificate of Subbase Acceptance for the purpose of obtaining manufacturer's warranty for the finished synthetic playing surface. Acceptance of subbase (see Installation) shall be on synthetic turf manufacturer's representative letterhead.

Shop Drawings: Shop drawings shall be prepared at the scale of the construction documents, or larger, and shall contain all pertinent information regarding installation, including seaming plan, edge detail, field lines, logos, etc. These drawings shall be submitted to the Engineer for approval prior to the manufacturing and shipping of materials.

Installer Qualifications: The synthetic turf Sub/Contractor must demonstrate experience on at least five (5) installations of infill type synthetic turf. The synthetic turf manufacturer must certify the designated supervisory personnel on the project as competent. The Contractor shall submit for approval, the name and qualifications of the proposed sub/Contractor. The Contractor shall submit the following:

1. A letter on turf manufacturer's letterhead affirming the Sub/Contractor as competent in the installation of the material, including seams and proper installation of their product.
2. Proof of five (5) installations of infill type synthetic turf by the proposed Sub/Contractor.

3. Name, address, and phone numbers for a minimum of three (3) professional references associated with synthetic turf work performed by proposed Sub/Contractor.

Synthetic Turf Sample and Test Results: The Contractor shall submit an eighteen inch by twenty-four inch (18" x 24") minimum sample of green turf carpet without infill material showing backing with perforations. Samples of additional turf colors, where shown, shall also be submitted. Sample warrantee shall be submitted for approval prior to approval of turf subcontractor. Certified copies of independent (third Party) laboratory reports shall be submitted certifying the following properties at a minimum:

- Pile Weight and Total Product Weight: ASTM D5848
- Primary and Secondary Backing Weights: ASTM D5848
- Tuft Height: ASTM D5823
- Tuft bind: ASTM D1335
- Grab/Tear Strength: ASTM D5034

Heavy Metal and Semi-Volatile Organic Content Testing: The Contractor shall submit test results from the approved independent laboratory showing that turf fibers and infill meets the requirements specified herein.

Testing shall be conducted by an independent environmental laboratory accredited by the National Environmental Laboratory Accreditation Program (NELAP). The Contractor shall submit certification that the proposed laboratory is NELAP accredited to perform environmental analyses for the metals in question in both (a.) non potable water and (b.) solid and hazardous waste. If the laboratory is situated in the State of New York, NELAP accreditation must be provided by the New York State Department of Health Environmental Laboratory Approval Program (Wadsworth center). Laboratories outside New York State may obtain this accreditation from any State that issues NELAP accreditation.

Infill Samples and Testing: Two (2) samples, one (1) quart in size, of proposed infill material, along with sieve analysis shall be submitted for approval prior to installation.

Adhesive: Product literature shall be submitted prior to installation.

Seam Tape Sample: Contractor shall submit a twelve (12") inch sample of the seaming tape the manufacturer is proposing to use.

Shock Pad Sample: The Contractor shall submit an eighteen inch by twenty-four inch (18" x 24") minimum sample of the shock pad with manufacturer's product information for approval.

Base Aggregate Sample: The Contractor shall submit a five pound (5 lb.) bag of each of the proposed materials, with a sieve analysis and source of supply, for approval.

Geotextile sample: The Contractor shall submit an eighteen inch by twenty-four inch (18" x 24") minimum sample of the geotextile intended for separation and infiltration between subgrade and aggregate, along with manufacturer's product data, for approval.

Warranty: The Contractor shall submit a manufacturer's warranty listing, at minimum, an eight (8) year warranty against UV fading, degradation, or defects, such as excessive wear or fibrillation, stipulated as more than a forty percent (40%) decrease in pile height, seam rupture, dislodgment, or inadequate drainage. The warranty shall also guarantee a G-Max rating below 145 at the time of installation and below 180 for the remaining term of the warranty. Warranty shall clearly state that if test results show that G-Max rating is not maintained during the warranty period, the manufacturer will repair or replace product within the warranty period as necessary to meet those requirements at no cost to the City.

Maintenance Manuals: Prior to final acceptance, the Contractor shall submit three (3) copies of Maintenance Manuals, which shall include all necessary instructions for the proper care and preventative maintenance of the synthetic turf system, including any painting or markings.

Independent Field Test for G-Max: After completion of synthetic turf, the Contractor shall engage the services of an independent laboratory capable of performing field tests utilizing ASTM F355 Test Method A, in accordance with ASTM F1936. Tests shall be conducted on two (2) separate visits. The first test shall be conducted after installation, but prior to the final acceptance of the work. The second test shall be conducted at one of the two follow-up visits required within the guarantee period. Both tests shall be performed with no visible frost on the ground.

MEASUREMENT AND PAYMENT: The quantity of **SYNTHETIC TURF-INFILL TYPE ON STONE BASE (SPORTS)** to be paid for under this Item shall be the number of **SQUARE FEET** furnished and installed in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price per **SQUARE FOOT** of Synthetic Turf – Infill Type On Stone Base (Sports) and shall include the cost of all labor, equipment, and materials necessary or required to complete the work, including unclassified excavation, laser leveling of subgrade and finished grade, two types of base aggregates, shock pad, synthetic turf carpet, sand infill material, geotextile, slotted polyethylene pipe, filter fabric wrap for perforated pipes, sock, fittings, connection(s) to drainage system, recycled plastic lumber edge, reinforcing rods, sealant, attachments, all necessary testing, two (2) follow-up visits, all delivery charges and submittals, all in accordance with the plans, specifications, and directions of the Engineer.

Ten (10%) percent of the total dollar amount for this item shall be withheld until the first Independent Field conducted G-max Test results are submitted and found acceptable to the Agency.

Detention system including detention pipe, detention tanks, unclassified excavation for detention system and any broken stone beyond the six (6") inch base aggregate shall be paid under separately under their respective contract items. Painted lines, where shown on the plans, shall be paid for under its own contract item.

Item No.	Item	Pay Unit
PK-ESCR 111	SYNTHETIC TURF-INFILL TYPE ON STONE BASE	S.F.

END OF SECTION

SECTION PK-ESCR 1218S – STUMP REMOVAL

WORK: Under this Item, the Contractor shall remove and dispose of designated existing stumps over six (6") inches in diameter. All work shall be performed in accordance with the plans and specifications by experienced workers to the satisfaction of the Engineer.

SPECIAL REQUIREMENTS FOR LONGHORNED BEETLE QUARANTINE ZONE: For tree work to be performed within the quarantine zone, the Contractor shall utilize the service of a Sub/Contractor certified by the New York State Department of Agriculture and Markets. Due to current Federal, State and NYC DPR policy, any wood waste that is generated must be completely chipped within the Quarantine Zone, by said certified Sub/Contractor. Log splitting equipment, where necessary, shall be utilized at no extra cost to the CityFor additional information regarding procedures, the Contractor shall notify the Engineer a minimum of 48 hours in advance of any work. Also, see requirements listed under heading "Submittals".

METHOD: Stumps and roots shall be excavated to a depth of three (3') feet. All voids and excavations left after the removal of the stump and roots shall be backfilled to grade with clean earth fill. The fill shall be placed and compacted by acceptable methods to the satisfaction of the Engineer. Chips generated by stump removal operations shall be removed prior to backfilling.

If, when removing the stumps, existing walks or curbs are disturbed, the Contractor shall restore and/or reset these walks and curbs, at no additional cost, to the satisfaction of the Engineer. The Contractor is responsible for locating and protecting underground utilities from damage during excavation and/or grinding of stumps.

PAYMENT SCHEDULE: The Contractor will be paid at the following rates for the different size groups of stumps removed, based on the unit bid price for removing a stump over 6" to 12" in diameter (base unit).

STUMP DIAMETER	STUMP UNITS	PAYMENT PER STUMP REMOVED
Over 6" to 12"	1.0(base unit)	100% of Unit Bid Price
Over 12" to 18"	1.25	125% " " "
Over 18" to 24"	1.50	150% " " "
Over 24" to 30"	2.0	200% " " "
Over 30" to 36"	2.25	225% " " "
Over 36" to 42"	2.5	250% " " "
Over 42" to 48"	3.5	350% " " "
Over 48"	4.0	400% " " "

ARBITRARY EXAMPLE: For example, removal of one (1) 16" diameter stump would receive payment for 1.25 stump units, removal of one (1) 36" diameter stump would receive payment for 2.25 stump units and one (1) 26" diameter stump would receive payment for 2.0 stump units for a total of 5.50 stump units.

The stump diameter shall be measured in the presence of the Engineer.

SUBMITTALS: All submittals shall be as specified in the S-Pages. The Contractor shall submit the following for review and approval prior to performing work.

Qualifications In Quarantine Zone: State Certification-For all contracts within the Quarantine Zone, the Sub/Contractor must submit a copy of a valid Compliance Agreement issued by the State of New York Department of Agriculture and Markets, Division of Plant Industry.

MEASUREMENT AND PAYMENT: The quantity of **STUMP REMOVAL** to be paid for under this item shall be the number of stump units calculated in accordance with the above payment schedule, completely removed in accordance with the plans, specifications and directions of the Engineer.

The price bid shall be a unit price for **EACH** stump of over 6" to 12" diameter size group removed and shall include the cost of all labor, materials and equipment necessary for removing stumps, including disposal of any generated material and required fees for disposal, borrowed fill, restoration of walks and curbs disturbed by this operation, maintenance and repair of utilities and all other incidental expenses necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer.

The cost of State Certification and chipping wood waste shall be included in the bid price for all Contracts located within the Quarantine zone.

NOTE: All stumps 6" diameter and less shall be removed under the Item "Clear and Grub".

Item No.	Item	Pay Unit
PK-ESCR 0712S	STUMP REMOVAL 6" TO 12" in DIAMETER	EA

END OF SECTION

SECTION PK-ESCR 132 – COLOR SEAL COAT SYSTEM

WORK: Under these items, the Contractor shall apply a color seal coat system, games and park leaf to the asphaltic pavements in accordance with the plans, specifications and directions of the Engineer.

PAINTED GAMES, including Potsy, Skelly, Boxball and Nations, shall conform to Standard Detail "PAINTED GAME LAYOUT" and PAINTED PARK LEAF shall conform to Standard Detail "PARK LEAF OUTLINES", Stencil No.1 Basketball Court Tipoff Circle.

MATERIALS: The color seal coat system consists of multiple resurfacer coats, three (3) intermediate coats and one (1) wearing coat. Patching mix shall be installed as necessary and as described under Method.

PATCHING MIX: (also known as leveling mixture) The patching mix shall be "California Court Patch Binder", as manufactured by California Sport Surfaces, Andover, MA, "Laykold Acrylic Deep Patch" as manufactured by Advanced Polymer Technology, Harmony, PA, "Acrylic Patch Binder C1480" as manufactured by SportMaster Sport Surfaces, Sandusky, OH, "Action Pave Acrylic Resurfacer" as manufactured by Copeland Coating Co., Nassau, NY, or approved equal. When installed on existing pavement where crack repair is deemed necessary, crack repair shall be Armor Crack Repair System, or approved equal.

RESURFACER COATS: Resurfacer coats shall consist of a mixture of acrylic resurfacer and No. 40-60 mesh Silica sand. The resurfacer shall be "California Acrylic Resurfacer", as manufactured by California Sport Surfaces, Andover, MA; "Laykold Acrylic Resurfacer" as manufactured by Advanced Polymer Technology, Harmony, PA; "Acrylic Resurfacer C1300" as manufactured by SportMaster Sport Surfaces, Sandusky, OH, "Action Pave Acrylic Resurfacer" as manufactured by Copeland Coating Co., Nassau, NY, or approved equal.

The sand shall be mixed with the resurfacer at the rate of 600-800 pounds of sand to 55 gallons of undiluted resurfacer, or at such other rate as the manufacturer shall require to meet job conditions. Water shall be added per manufacturer's specifications.

INTERMEDIATE COATS: (also known as Filler Coat) The intermediate coats shall be full color acrylic filler coatings consisting of colored acrylic latex emulsion compounded with No. 80-100 mesh Silica sand. The intermediate coats shall be "Plexichrome" or "DecoColor MP", as manufactured by California Sports Surfaces, Andover, MA; "Laykold ColorCoat Concentrate" as manufactured by Advanced Polymer Technology, Harmony, PA; "Color Concentrate" as manufactured by SportMaster Sport Surfaces, Sandusky, OH, "Action Pave Acrylic Filler" as manufactured by Copeland Coating Co., Nassau, NY, or approved equal.

Sand and water shall be added per manufacturer's specifications. Advantage Laykold, DecoColor Plus, Factory Fortified Plexipave or approved equal may be substituted for small areas where sand and latex emulsion pre-mixed in the factory is desired.

WEARING COATS: (also known as Finish Coat) The wearing coats shall be full color acrylic latex emulsion. The wearing coats shall be either "Plexichrome" or "DecoColor MP", as manufactured by California Sports Surfaces; "Laykold Colorcoat Concentrate" as manufactured by Advanced Polymer Technology, Harmony, PA; "Color Concentrate" as manufactured by SportMaster Sport Surfaces, Sandusky, OH, "Action Pave Acrylic Finish" as manufactured by Copeland Coating Co., Nassau, NY, or approved equal. Colors shall be as shown on plans. Water shall be added per manufacturer's specifications.

LINE PAINT: Line paint to be installed on the color seal coat shall be equal to Fed. Spec. TTP19a. The paint shall be a 100% acrylic emulsion. All line paint to be textured unless otherwise shown

on the drawings. The line paint shall be thinned with water only. The paint shall be suitable for application by brush, spray or roller. Line color shall be white or as shown on the plans.

The paint shall be equal to "Hi Hide Line paint", as manufactured by California Sports Surfaces, Andover, MA, "Laykold Textured White Line Paint" as manufactured by Advanced Polymer Technology, Harmony, PA, "SportMaster Line Paint" as manufactured by SportMaster Sport Surfaces, Sandusky, OH, "Action Pave Acrylic textured White Line Paint" as manufactured by Copeland Coating Co., Nassau, NY, or approved equal.

METHOD: IMPORTANT RESTRICTIONS: Before the color seal coat system is applied, the asphaltic surface to receive the system shall have cured for a minimum of Thirty (30) days. The surface temperature shall be taken using a surface thermometer. The Contractor shall take readings every sixty (60) feet in all directions. If the average surface temperature is below fifty-five degrees Fahrenheit (550 °F.) or expected to be below 55 °F degrees within 24 hours, application will not be permitted. If the average surface temperature is above eighty degrees Fahrenheit (800 °F.), the surface shall be water fogged before application will be permitted. Application shall not be permitted during rain events or if a rain event is expected within 24 hours.

PREPARATION OF SURFACES: The surface shall be cleaned of all dirt, loose sand, and stone. The Contractor shall power wash the surface clean to the satisfaction of the Engineer prior to applying the color seal coat system. When installed on existing pavement where crack repair is deemed necessary, crack repair shall be performed per manufacturer's instructions prior to application of resurfacer coats.

Before application of each coat, the surface shall be hand scraped and blown free of all dirt and foreign matter and shall be free from standing water and oils.

APPLICATION OF MATERIALS: All materials shall be mixed at the site unless otherwise permitted by the Engineer. If the Contractor is granted permission to mix any material off the site the Contractor shall arrange with the Engineer to have a representative of the Engineer present during the mixing operations. The mixed materials shall be homogeneous, segregation before or during application will not be permitted.

All materials shall be applied by approved hand or mechanical squeegees. Each completed application shall be smooth, even textured, free from ridges, valleys and tool marks.

RESURFACER COATS: The purpose of the resurfacer coats is to fill the surface voids of the asphalt pavement. To this end the resurfacer coat material shall be applied in multiple coats until the surface of the asphalt is free of voids and no telegraphing of the aggregate in the asphalt is visible. A minimum of two coats shall be applied. However, the Contractor shall apply as many additional coats as may be required to fulfill the above requirements. The resurfacer may be diluted with water in accordance with the manufacturer's specifications to obtain workability.

The application of the resurfacing coat shall be parallel in one direction of the courts, a second application may be made at ninety degrees 900 to the first coat.

After the first coat of resurfacer is complete, the entire area shall be flooded with water and allowed to drain. Any areas holding over one-sixteenth inch (1/16") (thickness of a nickel) depth of water shall be leveled with a PATCHING MIX and allowed to thoroughly cure. Patching mix shall be applied in a maximum of (1/4") one-quarter inch lifts. A maximum of (1/2") one-half inch total patch (2 lifts) shall be allowed. This process of water flooding and leveling shall be repeated until all depressions over one-sixteenth (1/16") inch have been eliminated. Surface shall be inspected to ensure all depressions have been filled before application of Intermediate Coats.

INTERMEDIATE COATS: (also known as Filler Coat) Three (3) intermediate coats shall be applied. The total amount of material to be applied shall be .10 to .16 gallons per square yard

based on the material prior to any dilution. The acrylic resurfacer may be diluted as recommended by the manufacturer to obtain workability.

WEARING COATS: (also known as Finish Coat) One (1) wearing coat shall be applied. In the case of tennis court application, the wearing coat shall be applied parallel to the net line. The total amount of material to be applied shall be .18 to .30 gallons per square yard prior to any dilution. The material may be diluted as recommended by the manufacturer to obtain workability. Sand shall not be added to the wearing coats.

LINE PAINT: All painted lines shall be carefully laid out and defined on the surface by chalk markings before being painted.

Two (2) coats of line paint shall be applied. At least two (2) hours shall elapse between the painting of the first and second coats. All painted lines shall be accurately painted within the limits shown on the plans. Lines shall be clear and distinct with sharply defined edges.

Guarantee Inspection - At the guarantee inspection if the color seal coat is found to be peeling or fading due to improper installation, the Contractor shall be responsible to re-apply at the Contractor's own expense.

SUBMITTALS: At the time of the Pre-construction meeting, and in accordance with the S-Pages, the Contractor shall be required to submit, for approval, complete details of the color seal coat system the Contractor proposes to use. The specifications of all information (products or systems, manufacturer's names, product description, technical and laboratory data, mixing information, methods of application, rates and all other data) as may be required to demonstrate to the satisfaction of the Engineer that the color seal coat system the Contractor proposes to use meets the requirements of these specifications.

The Contractor shall be required to submit color samples for approval by the design division.

MEASUREMENT AND PAYMENT: The quantity of **COLOR SEAL COAT SYSTEM** to be paid for shall be the number of **SQUARE YARDS** of color seal coat applied and accepted in accordance with the plans, specifications, and directions of the Engineer.

For applying **PAINTED GAMES** and/or **PARK LEAF** in accordance with the plans and specifications and directions of the Engineer, the Contractor shall receive the unit prices bid.

The prices bid shall be a unit price per **SQUARE YARD** of COLOR SEAL COAT and unit prices for **EACH** PAINTED GAME and/or PARK LEAF applied and accepted and shall include the cost of furnishing all labor, materials, equipment and incidental expenses necessary to complete the work, including preparation of surfaces, crack repair (where needed), patching mix, resurfacer coats, intermediate coats, wearing coats and painted lines, in accordance with the plans and specifications to the satisfaction of the Engineer.

Where the painted games and park leaf are to be installed over color seal coat, it shall be paid under the item for "Color Seal Coat System."

Item No.	Item	Pay Unit
PK-ESCR 132	COLOR SEAL COAT SYSTEM	S.Y.

END OF SECTION

SECTION PK-ESCR 149 – Geotextiles – Separation, Stabilization

WORK: Under these Items, the Contractor shall furnish and install **GEOTEXTILE - SEPARATION** and/or **GEOTEXTILE - STABILIZATION** in accordance with the plans and specifications, as directed by the Engineer.

MATERIALS:

Fibers used in the manufacture of geotextiles, and the threads used in joining geotextiles by sewing, shall consist of long-chain, synthetic polymers, composed of at least 95 percent by weight polyolefins, polyesters, or polyamides. The geotextile and the threads used in sewing geotextiles, shall be resistant to chemical attack, rot, and mildew. The geotextile shall have no tears or defects which adversely alter its physical properties. They shall be formed into a stable network such that the filaments or yarns retain their dimensional stability relative to each other, including selvages. The geotextile shall have no tears or defects which adversely alter its physical properties. The separation and stabilization applications shall be as specified below:

GEOTEXTILE - SEPARATION APPLICATION: Separation application is defined as the placement of a flexible porous geotextile between dissimilar materials so that the integrity and functioning of both materials can be maintained or improved, but where water seepage through used in separation applications shall conform to the following AASHTO-M-288 properties for separation geotextiles:

	ASTM Test		
Structure		Woven	Non-Woven
Elongation	D4632	< 50%	≥ 50%
Grab Strength (Minimum)	D4632	1100 N (247 LBF)	700 N (157 LBF)
Tear Strength (Minimum)	D4533	400 N (90 LBF)	250N (56 LBF)
CBR Puncture (Minimum)	D4833	4000 N (900 LBF)	1820 N (410 LBF)
Permitivity (Minimum)	D4491	0.02 / sec.	0.02 / sec.
Apparent Opening Size (Maximum)	D4751	0.6 mm (0.023 inch) Std. No. 30 sieve	0.6 mm (0.023 inch) Std. No. 30 sieve

Geotextile used in separation applications shall be FX-66 (woven) or FX-60HS (nonwoven) manufactured by Carthage Mills, Cincinnati, OH, or 600X (woven) or 160N (nonwoven) as manufactured by Mirafi, Inc., Pendergrass, GA, or TerraTex HD (woven) or TerraTex N06

(nonwoven) as manufactured by Hanes Geo Components, Winston Salem, NC or approved equal.

GEOTEXTILE - STABILIZATION APPLICATION: Stabilization application is utilized in wet, saturated conditions to provide the coincident functions of separation and filtration. In some installations, the geotextile can also provide the function of reinforcement. The stabilization application is appropriate for subgrade soils that are saturated due to a high groundwater table or due to prolonged periods of wet weather. Geotextiles used in stabilization applications shall conform to the following AASHTO M-288 properties for stabilization geotextiles:

	ASTM Test		
Structure		Woven	Non-Woven
Elongation	D4595	< 50%	≥ 50%
Grab Strength (Minimum)	D4632	1400 N (315 LBF)	900 N (205 LBF)
Tear Strength (Minimum)	D4533	500 N (112 LBF)	360 N (80 LBF)
CBR Puncture (Minimum)	D6241	4000 N (900 LBF)	1820 N (410 LBF)
Permitivity (Minimum)	D4491	0.05 / sec.	0.05 / sec.
Apparent Opening Size (Maximum)	D4751	0.43 mm (0.0165 inch) Std. No. 40 sieve	0.43 mm (0.0165 inch) Std. No. 40 sieve

Geotextile used in stabilization applications shall be FX66 (woven) or FX80-HS (nonwoven) manufactured by Carthage Mills, or 600X(woven) manufactured by Mirafi, Inc. or TerraTex HD (woven) manufactured by Hanes Geo Components, or approved equal.

INSTALLATION: For separation and stabilization applications the ground shall be prepared by removing stumps and other organic material, along with any large boulders and sharp objects which may tear or damage the fabric. After the ground has been prepared, the fabric shall be rolled directly on the ground. All seams shall be overlapped approximately six (6") inches. No equipment, materials or machinery shall be placed on or be transported over exposed fabric. Topsoil backfill or other clean fill shall then be carefully placed to prevent dislocation of the fabric.

If the fabric is damaged during installation, the rupture shall be removed and the damaged area shall be covered with a patch of new fabric which will overlap the undamaged fabric approximately

six (6") inches in all directions. All repaired fabric surface costs will be deemed part of the price bid.

SUBMITTALS: All submittals shall be submitted prior to purchase and in accordance with the requirements of the S-Pages.

Manufacturer's Data: The Contractor shall submit manufacturer's data with sufficient detail to demonstrate compliance with the requirements of this specification.

Samples: The Contractor shall furnish two labeled (2) samples, six inch by six inch (6" x 6") minimum, of the geotextiles intended for use in the work for approval and the Engineer's use. The label shall include the manufacturer's product name, the type of fabric, and the weight of grade of the material. Geotextiles used in the work shall conform to the approved samples.

MEASUREMENT AND PAYMENT: The quantity of Geotextiles to be paid for shall be the number of **SQUARE YARDS** of **GEOTEXTILE - SEPARATION** and **GEOTEXTILE - STABILIZATION** required, measured in its final position, furnished and installed in accordance with the plans and specifications and the directions of the Engineer.

The price bid shall be a unit price per **SQUARE YARD** of each type of Geotextile installed and shall include the cost of furnishing all labor, material, equipment, submittals, and incidental expenses necessary to complete the work in accordance with the plans, specifications, and to the satisfaction of the Engineer.

Excavation, topsoil, or borrowed fill shall be paid for separately under their respective contract items.

Item No.	Item	Pay Unit
PK-ESCR 149	GEOTEXTILES–SEPARATION	S.Y.
PK-ESCR 150	GEOTEXTILES–STABILIZATION	S.Y.

END OF SECTION

SECTION PK-ESCR 152 – BENCH, 1964 WF RPL SLATS

WORK: Under this Item, the Contractor shall furnish and install **BENCH, 1964 WORLD'S FAIR W/ RPL SLATS** in accordance with the plans, specifications, and directions of the Engineer.

BENCH DESIGN: In general, 1964 World's Fair Bench standard detail (originally designed for wood slats) shall be followed except that recycled plastic lumber (RPL) slats shall have an unsupported span no greater than two feet six inches (2'-6"). Overhang shall not exceed three (3") inches. Steel supports shall be installed to adequately support the plastic slats. All standards shall have arms, unless otherwise shown on contract plans. The 1964 World's Fair bench shall be manufactured by Kenneth Lynch and Sons, Oxford, CT, Kevin G. Lindelow Quality Site Furnishings, Frenchtown, NJ, All City Play Equipment, Inc., Brooklyn, NY, or approved equal.

MATERIALS: Unless otherwise herein specified, all materials and methods of construction shall conform to the requirements of General Conditions, Materials and Methods of Construction.

STANDARDS: Bench standards shall be of cast ductile iron. The tensile strength shall meet a minimum of 65,000 psi, in accordance with ASTM designation A536, Grade 65-45-12.

Standards shall be hot dipped galvanized in accordance with ASTM A153. Any resulting dimples or sharp points shall be ground smooth.

Steel Supports: Steel supports for recycled plastic lumber shall be hot-rolled carbon steel flat bars and channels of the sizes indicated on the drawings and secure to the plastic slats with vandal resistant screws. All steel supports shall be hot dipped galvanized or stainless steel as per this specification.

Touch-up and Repair: For minor damage caused by grinding, installation or transportation, touchup galvanized finish in conformance with manufacturer's recommendations. Provide touch-up such that repair is not visible from a distance of six (6') feet.

BENCH SLATS – RECYCLED PLASTIC LUMBER: All slats for benches shall be fabricated from at least ninety percent (90%) post-consumer recycled plastic, dimensions as indicated on the plans. Recycled plastic lumber shall be Selectforce as manufactured by Bedford Technology, LLC Worthington, MN, PolyTuf™ as manufactured Tangent Technologies, LLC, Aurora, IL, or approved equal. Color to be Cedar, Brown or Weathered Wood unless otherwise indicated on the plans.

Recycled plastic lumber shall comply with or be tested in accordance with the following.

ASTM D6108 Standard Test Method for Compressive Properties of Plastic Lumber and Shapes

ASTM D6109 Standard Test Method for Flexural Properties of Unreinforced and Reinforced Plastic Lumber

ASTM D6111 Standard Test Method for Bulk Density and Specific Gravity of Plastic Lumber and Shapes by Displacement

ASTM D6112 Standard Test Methods for Compressive and Flexural Creep and Creep Rupture of Plastic Lumber and Shapes

ASTM D6117 Standard Test Methods for Mechanical Fasteners in Plastic Lumber and Shapes

ASTM D1248 Standard Specifications for Polyethylene Plastics Extrusion Materials for Wire and Cable

Recycled Plastic Lumber shall be fabricated primarily from recycled High Density Polyethylene (HDPE) and recycled Low Density Polyethylene (LDPE). HDPE resins shall meet the requirements of ASTM D1248 for Type III or IV (high density), Grade G7. Lumber shall contain no toxic materials, but shall contain UV-inhibited pigments. Composition and mechanical properties shall be as follows: Minimum Recycled Content 90%

Minimum High Density Polyethylene 70%
Maximum Percentage of Materials other than Polyolefins 5%
Minimum Specific Gravity (ASTM D6111) 0.02 lbs-in3
Minimum Flexural Modulus (ASTM D6109) 85,000 psi
Minimum Screw Pull-out Strength (ASTM D6117) 700 lbs

Flame Spread, Class C or better, tested in accordance with ASTM E84.

Coefficient of Thermal Expansion (ASTM D6341), in the range of -10 degrees C to 30 degrees C, shall not exceed 70 x 10-6 degrees F.

Recycled Plastic Lumber shall not absorb moisture, corrode, rot, warp, splinter, or crack and shall not contain fiberglass or any material that will be irritating in contact with skin.

Fabrication Tolerances: Ends shall be smooth with clean cuts. Cross-sections shall not have voids greater than 1/2" dia. Voids of 1/2" dia. or less shall be filled as per manufacturer's specifications. All edges shall have 1/4" radius. Maximum variation from flat surface across section shall be 1/8".

Delivery and Storage: Keep recycled plastic lumber protected at all times against exposure to extreme heat or impact. All material shall be bundled and fully supported during shipping and storage to prevent creep. Any lumber that is damaged or excessively scratched will be rejected and replaced with new. All material must be straight and true when placed in the construction.

Hardware: Bolts, locknuts, and washers used to secure slats to standards shall be stainless steel or hot dipped galvanized. Bolt or wood screw used for mid section steel support strap (RPL only) shall be a vandal resistant type, either stainless steel or hot-dipped galvanized. Type and dimensions of all bolts, nuts, and washers shall be as indicated on the plans. Anchor bolts used to secure the benches to pavements may be either stainless steel or hot-dipped galvanized steel. Bolts for securing slats shall be provided with nylon lock nuts so as to render the connection vandal resistant.

Concrete: Concrete for slabs or footings shall be class B-32 per the NYCDOT Standard Highway Specifications *Section ESCR-4.06* and shall be of the dimensions indicated on the plans.

ASSEMBLY AND INSTALLATION: Benches shall be pre-assembled before being installed in their final location and properly secured in place by anchor bolts drilled into concrete footings or slab, as indicated on the plans.

SUBMITTALS: All submittals shall be in accordance with the requirements of the S-Pages.

Shop Drawings: The Contractor shall submit Shop Drawings showing adequate number of supports and armrests required specifically for recycled plastic lumber design.

Foundry Certificates: Certifying Ductile Iron used in bench standards shall be submitted. The certificate shall be on foundry letterhead, dated and signed by the manufacturer with the Contract No., Contractor name, and Class of Ductile Iron provided.

Sample: The Contractor shall submit a twelve inch (12") sample of the recycled plastic lumber slat for surface and color approval. Required test results shall be submitted if an approved equal manufacturer is proposed.

MEASUREMENT AND PAYMENT: The quantity of **BENCH, 1964 WORLD'S FAIR W/ RPL SLATS** to be paid for under this item shall be the number of **LINEAR FEET** of bench measured in place along the top slat, installed in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price per **LINEAR FOOT of BENCH, 1964 WORLD'S FAIR W/ RPL SLATS** furnished and installed and shall include the cost of all labor, materials, equipment, and incidental expenses necessary, including hardware, anchors, recycled plastic lumber (R.P.L.), galvanized ductile iron standards, certificates, and submittals, all in accordance with the plans and specifications, to the satisfaction of the Engineer.

Excavation and Concrete for slabs or piers shall be paid for separately under their respective contract items.

Item No.	Item	Pay Unit
PK-ESCR 152	BENCH, 1964 WORLD'S FAIR W/ RPL SLATS W / ARMS, 4' LENGTH	L.F.
PK-ESCR 721	BENCH, 1964 WORLD'S FAIR W/ RPL SLATS, BACKLESS, 8' LENGTH	L.F.
PK-ESCR 722	BENCH, 1964 WORLD'S FAIR W/ RPL SLATS W / ARMS, 8' LENGTH	L.F.

END OF SECTION

SECTION PK-ESCR 155 – BENCH, TYPE C (SPORTS)

WORK: Under these Items, the Contractor shall furnish and install **BENCH, TYPE 'C' (SPORTS) W/ RPL SLATS - BACKLESS** as shown on the plans, herein specified, or as directed by the Engineer. Unless otherwise noted, benches shall conform to DPR Standard Details.

MATERIALS: Unless otherwise herein specified, all materials and methods of construction shall conform to the requirements of General Conditions.

Benches shall be manufactured by All City Play Equipment, Brooklyn, NY or approved equal.

BENCH STANDARDS: The bench standards shall be made up of galvanized and powder coated steel tubular supports and channel seat frames. Where the standards are to be set in concrete slabs, the tubular supports shall be provided with base angles. The steel tubular supports shall be continuously welded to the seat channel and the base angle as indicated on the Standard Detail. The standards shall be hot dipped galvanized in accordance with ASTM A123 or receive an approved equal corrosion resistant treatment.

Corrosion Resistant Treatment: All fabrication and welding shall be completed prior to application of the corrosion resistant coating, metal pieces shall be cleaned of all weld spatter, mill scale, varnish, rust, grease, and the like and the surface mechanically or chemically prepared to receive the coating. This corrosion resistant coating shall be either hot-dip galvanizing or a thermal spray zinc coating with a minimum thickness of 3 mils or a multi-step iron phosphate bath coating process.

Powdercoating: The steel tubular supports shall be powdercoated with a polyester thermosetting powdercoating. Color shall be Black, unless otherwise indicated on contract plans. Powdercoating shall be applied to the metal in such a manner that the coating will not peel off. Insure that surfaces to be coated are clean and dry and free of grease, dust, rust, etc.

Powdercoating shall be applied at a film thickness of 3 to 4 mils by electrostatic spray process and bake finished per the manufacturer's directions. It shall be applied without voids, tears or cuts that reveal the substrate and shall thoroughly adhere to the metal without peeling when scratched with a pick device or knife blade point. All visible nuts, washers, and ends of all bolts shall be painted with touchup paint as described below.

Touchup and Repair: For minor damage caused by installation or transportation, touchup finish in conformance with manufacturer's recommendations. Provide touchup such that repair is not visible from a distance of six (6') feet.

Laboratory Test For TGIC-Polyester Powdercoat: At the discretion of the Engineer, a sample TGIC-Polyester powdercoated bench standard may be laboratory tested for bonding of the powdercoating to the metal. Test shall be the Cross Hatch test per ASTM D3359, Method B. Failure to satisfactorily pass this test shall be a basis for rejection.

BENCH SLATS: All slats shall be recycled plastic lumber (RPL) and not absorb moisture, corrode, rot, warp, splinter, or crack and shall not contain fiberglass or any material that will cause irritation when in contact with skin. Warped or deflected slats shall not be accepted.

Recycled Plastic Lumber: All slats for benches shall be fabricated from at least ninety percent (90%) post-consumer recycled plastic, dimensions as indicated on the plans. Recycled plastic lumber shall be as Ecoboard manufactured by Trelleborg Marine Systems, Clearbrook, VA, or PolyTuf™ manufactured Tangent Technologies LLC, Aurora, IL or approved equal. Color to be Cedar unless otherwise indicated on the plans.

Recycled plastic lumber shall comply with or be tested in accordance with the following.

ASTM D6108	Standard Test Method for Compressive Products of Plastic and Shapes
ASTM D6109	Standard Test Method for Flexural Properties of Unreinforced and Reinforced Plastic Lumber
ASTM D6111	Standard Test Method for Bulk Density and Specific Gravity of Plastic Lumber and Shapes by Displacement
ASTM D6112	Standard Test Methods for Compressive and Flexural Creep and Creep Rupture of Plastic Lumber and Shapes
ASTM D6117	Standard Test Methods for Mechanical Fasteners in Plastic Lumber and Shapes
ASTM D1248	Standard Specifications for Polyethylene Plastics

Recycled Plastic Lumber shall be fabricated primarily from recycled High Density Polyethylene (HDPE) and recycled Low Density Polyethylene (LDPE). HDPE resins shall meet the requirements of ASTM D1248 for Type III or IV (high density), Grade G7. Lumber shall contain no toxic materials, but shall contain UV-inhibited pigments. Composition and mechanical properties shall be as follows:

Minimum Recycled Content	90%
Minimum High Density Polyethylene	70%
Maximum Percentage of Materials other than Polyolefins	5%
Minimum Specific Gravity (ASTM D6111)	0.02 lbs-in3
Minimum Flexural Modulus (ASTM D6109)	85,000 psi
Minimum Nail Pull-out Strength (ASTM D6117)	700 lbs

Flame Spread, Class C or better, tested in accordance with ASTM E84.

Coefficient of Thermal Expansion (ASTM D6341), in the range of -10C to 30C, shall not exceed 70 x 10-6/F.

Recycled Plastic Lumber shall not absorb moisture, corrode, rot, warp, splinter, or crack and shall not contain fiberglass or any material that will be irritating in contact with skin.

Fabrication Tolerances: Ends shall be smooth with clean cuts, cross-sections shall not have voids greater than 1/2" dia. Voids of 1/2" dia. or less shall be filled with a matching color of silicone caulk, as per manufacturer's specifications. All edges shall be eased. Maximum variation from flat surface across section shall be 1/8".

Delivery and Storage: Keep materials protected at all times against exposure to extreme heat or impact. All material shall be bundled and fully supported during shipping and storage to prevent creep. Any lumber that is damaged or excessively scratched will be rejected and replaced with new. All slat material must be straight and true when bolted to the standards.

HARDWARE: All hardware shall be stainless steel. Slats shall be attached to bench standards with 3/8" diameter carriage bolts with a 3/8" lock washer and a 3/8" nut.

CONCRETE: Concrete for slabs or footings shall be Concrete for park structures class B-32 per the NYCDOT Standard Highway Specifications, *Section ESCR-4.06* and shall be of the dimensions indicated on the plans.

INSTALLATION: The bench standards shall be set in concrete slabs or footings with supports vertical and true to line and position, as shown on the plans or as directed by the Engineer.

The slats shall be secured to the channel frames with vandal-resistant bolts of 18-8 Stainless Steel as indicated on the Standard Detail. Ends of all bolts shall be peened and filed smooth after tightening.

SUBMITTALS: All submittals shall be submitted prior to manufacture and in accordance with the requirements of the S-Pages.

Shop Drawings: Shop Drawings shall be submitted for approval by the Engineer. Shop Drawings will not be required if benches are fabricated in strict accordance with the details indicated on the Contract Drawings.

Recycled Plastic Lumber: The following tests shall be provided if the Contractor proposes an approved equal slat material.

1. ASTM D6108 - Compression Properties
2. ASTM D6109 - Flexural Properties
3. ASTM D6111 - Density tests
4. ASTM D6112 - Creep tests
5. ASTM D6117 - Mechanical Fasteners
6. ASTM D1248 - Standard Specifications for Polyethylene Plastics
7. ASTM E84 - Flame Spread

Sample: The Contractor shall submit a twelve inch (12") sample of the reinforced recycled plastic lumber slat for surface and color approval.

MEASUREMENT AND PAYMENTS: The quantity of **BENCH, TYPE 'C' (SPORTS) W/ RPL SLATS - BACKLESS** to be paid for under these Items shall be the number of **LINEAR FEET**, of each type, measured along the top slat, installed in accordance with the plans, specifications, and directions of the Engineer.

The prices bid shall be a unit price per **LINEAR FOOT of BENCH, TYPE 'C' (SPORTS) W/ RPL SLATS – BACKLESS** installed, and shall include the cost of all labor, materials, equipment and all incidental expenses necessary to complete the work, including steel standards, slats, hardware and powder coating, all in accordance with the plans, specifications, and directions of the Engineer.

Excavation, Concrete Pavement or concrete for park structures for piers will be paid for separately under their respective contract Items.

Item No.	Item	Pay Unit
PK-ESCR 155	BENCH, TYPE 'C' (SPORTS) W/RPL SLATS, BACKLESS	L.F.

END OF SECTION

SECTION PK-ESCR 156 – BICYCLE RACK – HOOP

WORK: Under this Item, the Contractor shall furnish and erect BICYCLE RACK - "HOOP" in accordance with the plans, specifications, and directions of the Engineer.

INTENT: This specification is intended for bicycle rack installation within NYC Parks property as well as the Public Right of Way under the jurisdiction of NYCDOT, but ordering procedure varies as described below.

MATERIALS: Unless otherwise specified herein, all materials and methods of construction shall conform to applicable portions of General Conditions, "Materials and Methods of Construction."

Bicycle Rack – "Hoop": The bicycle rack shall be the NYCDOT – NYCityRack, a trademarked design of the City of New York. The bicycle rack is constructed of cast ductile iron ASTM grade A536.

NYCDOT owns the intellectual property rights to the CityRack design. The NYCDOT contractually authorized manufacturer is Campbell Foundry Company, Harrison, NJ or the latest authorized manufacturer/supplier, as applicable.

No order can take place without authorization from the Engineer, in consultation with NYCDOT Director of CityRacks. The Director of the CityRacks Unit will issue an authorization letter so the Contractor may purchase CityRacks. Contractors will place orders with NYCDOT's authorized manufacturer/supplier only.

ORDERING PROCEDURE: Contractor shall contact the Director of City Racks for bid prices and to receive a purchase authorization letter. The Contractor shall supply the following information to the Director of City Racks a minimum of two months but no earlier than six months prior to desired delivery date:

FOR INSTALLATIONS ON PARK PROPERTY:

1. Contractor shall e-mail the number of CityRack units to be purchased for installation on Parks Property (verify that none will be installed on Public Right of Way), and
2. Provide the name of the Contractor, name of the Park, Park location and Parks contract number, and
3. Copy the Engineer in such e-mail.

FOR INSTALLATIONS ON PUBLIC RIGHT OF WAY:

1. Contractor shall e-mail the number of CityRack units to be purchased for installation on the Public Right of Way sidewalk (verify that none will be installed on Parks Property), and
2. Submit layout plan, marking exact location on sidewalk where bike rack(s) are shown using a thick pencil or marker and
3. Provide the name of the Contractor, name of the Park, Park location and Parks contract number, and
4. Copy the Engineer in such e-mail.

NYC-Department of Transportation
Director of City Racks, Bike Parking / Public Space Unit
Transportation Planning & Management
55 Water Street, 6th Floor | New York, New York 10041
Kenneth Lewis, Director Klewis@dot.nyc.gov (212) 839.7241 Office phone

Hardware: Mushroom head spikes for surface mount shall be either stainless steel, of the sizes shown on the Detail. Spikes will be provided by the manufacturer.

Concrete: Concrete pavement or piers shall be installed as shown on contract drawings.

EXECUTION: All Bicycle Racks shall be installed in locations as shown on the contract plans. Bicycle rack layout and details shall be as shown on the contract drawings.

Surface Mount: Bicycle rack shall be installed in their final location and properly secured in place. Holes shall be drilled into the concrete, in accordance with the detail. Base plate shall be secured with four (4) mushroom head spikes driven into the pre-drilled hole.

SUBMITTALS: All submittals shall be in accordance with the requirements of the S-Pages.

Contractor shall submit authorization letter from NYCDOT.

MEASUREMENT AND PAYMENT: For furnishing and installing **BICYCLE RACK - "HOOP"** complete in accordance with the plans and specifications and directions of the Engineer, the Contractor shall receive the unit price bid.

The price bid shall be a unit price for **EACH** Bicycle Rack - "Hoop" and shall include the cost of all labor, materials, equipment and incidental expenses necessary to complete the work including obtaining purchase authorization letter, hardware, all in accordance with the plans and specifications to the Satisfaction of the Engineer.

Excavation and concrete shall be paid for separately under their respective contract items.

Item No.	Item	Pay Unit
PK-ESCR 156	BICYCLE RACK – (HOOP)	EA

END OF SECTION

SECTION PK-ESCR 158 – PICNIC TABLE FIXED

WORK: Under these items, the Contractor shall furnish and install **PICNIC TABLE -FIXED** and **PICNIC TABLE -FIXED/ACCESSIBLE** with bench sets in accordance with the plans, specifications and directions of the Engineer.

MATERIALS: Unless otherwise specified herein, all materials and methods of construction shall conform to applicable portions of General Conditions, "Materials and Methods of Construction." The Picnic Table shall be manufactured by All City Play Equipment, Edison, NJ, or approved equal.

CONCRETE: Concrete piers or pavement shall be 3,200 psi average class B-32 concrete per the NYCDOT Standard Highway Specifications as shown on the plans and as directed by the Engineer.

STANDARDS: The picnic table and bench standards shall consist of steel tubular supports and channel seat and table frames. The tubular supports shall be provided with base angles. The steel tubular supports shall be continuously welded to the channels and the base angle as indicated on the plans. The standards shall be galvanized and powder coated after fabrication.

Galvanizing: All steel components shall be hot-dipped galvanized or receive an approved equal corrosion resistant coating prior to powdercoating. An approved equal corrosion resistant coating shall be either a thermal spray zinc coating with a minimum thickness of 3 mils, or a multi-step iron phosphate bath coating process.

Powder Coating: The galvanized picnic table and bench set standards shall be powder coated with a polyester thermosetting powder coating such as manufactured by Tiger Drylac USA, Reading, PA, or approved equal. Color to be gloss black, RAL 8022, unless otherwise indicated on the plans.

Galvanizing of standards shall provide an acceptable substrate for applied powder coatings. No lacquer, urethane or other coatings which would prevent proper adhesion of powder coating shall be applied to the steel.

The powder coating shall be applied to the galvanized standards in such a manner that the coating will not peel off. Insure surfaces to be coated are clean and dry and free of grease, dust, rust, etc. All coated parts shall first receive phosphating and chromatizing treatments to improve the adhesion of the surface coating.

The TGIC-Polyester shall be applied at a film thickness of 3 to 4 mils by electrostatic spray process and bake finished per manufacturer's directions. The TGIC-Polyester shall be applied without voids, tears or cuts that reveal the substrate and shall thoroughly adhere to the metal without peeling when scratched with a pick device or knife blade point.

Touch-up & Repair: For minor damages caused by installation or transportation, clean damaged area, then:

1. On damaged galvanized surfaces, apply organic zinc repair paint complying with ASTM A780, then repair powder coating per number 2 below. Galvanizing repair paint shall have 65 percent zinc by weight. Thickness of repair paint shall be not less than that required by ASTM A123.
2. On damaged powder coated surfaces, touch-up finish in conformance with manufacturer's recommendations. Provide touch-up such that repair is not visible from a distance of six feet (6').

RECYCLED PLASTIC LUMBER: All slats for table and benches shall be recycled plastic lumber that shall not absorb moisture, corrode, rot, warp, splinter, or crack and shall not contain fiberglass or any material that will be irritating when in contact to the skin.

Recycled plastic lumber shall be manufactured from high and low density plastic with at least ninety (90%) percent of the material to be post-consumer recycled plastic. HDPE resins shall meet requirements of ASTM D1248 for Type III or IV (high density), Grade G7. Recycled plastic lumber shall be manufactured by Bedford Technology LLC, Washington, MN, or approved equal. Color to be DARK GRAY or CEDAR unless otherwise indicated on the plans. Material shall contain no toxic materials. Recycled Plastic Lumber shall contain UV-inhibited pigment.

Composition and mechanical properties shall be as follows:

Minimum Recycled Content		90%
Minimum High Density Polyethylene		70%
Maximum percentage of materials other than polyolefins		5% Minimum
Specific Gravity (ASTM D6111)	0.86	
Minimum Flexural Strength (ASTM D6109)		1,300 psi
Minimum Flexural Modulus (ASTM D6109)		95,000 psi
Minimum Compression Strength (ASTM D6108)		1,400 psi
Minimum Nail Pull-out Strength (ASTM D6117)		500 lbs

Flame Spread, Class C or better, tested in accordance with ASTM E84.

Coefficient of Thermal Expansion (ASTM D6341), in the range of -10C to 30C, shall not exceed 60 x 10-6/F.

Creep performance data (time dependent stress/strain characteristics) shall be submitted in accordance with ASTM D6112, if required.

Fabrication Tolerances: Ends shall be smooth with clean cuts, cross-sections shall not have voids greater than ½" dia. Voids of ½" dia. or less shall be filled as per manufacturer's specifications. All edges shall be eased. Maximum variation from flat surface across section shall be 1/8".

Delivery and Storage: Keep materials protected at all times against exposure to extreme heat or impact. All material shall be bundled and fully supported during shipping and storage to prevent creep. Any lumber that is damaged or excessively scratched will be rejected and replaced with new. All material must be straight and true when placed in the construction.

HARDWARE: All hardware shall be either stainless steel or hot-dipped galvanized. Slats shall be attached to bench standards with 3/8" dia. carriage bolts with 3/8" lock washer and 3/8" nut. Ends of bolts shall be peened.

INSTALLATION: The standards shall be set in concrete with supports vertical and true to line and position as shown on the plans or as directed by the Engineer. Concrete footings shall be installed below pavement so it is not visible at finished grade.

The slats shall be secured to the channel frames with vandal proof bolts as indicated on the plans or approved equal. Ends of all bolts shall be peened and filed smooth after tightening.

SUBMITTALS: All submittals shall be submitted prior to manufacture and in accordance with the requirements of the S-Pages.

Recycled Plastic Lumber: The following tests shall be provided if the Contractor proposes an approved equal manufacturer for recycled plastic lumber:

1. ASTM D6108 - Compression Properties
2. ASTM D6109 - Flexural Properties
3. ASTM D6111 - Density tests
4. ASTM D6112 - Creep tests
5. ASTM D6117 - Mechanical Fasteners
6. ASTM D1248 - Standard Specifications for Polyethylene Plastics
7. ASTM E84 - Flame Spread

Laboratory Test For TGIC-Polyester Powder Coat: At the discretion of the Engineer, a sample TGIC Polyester powder coated standard shall be laboratory tested for bonding of the powder coating to the metal. Test shall be the Cross Hatch test per ASTM D3359, Method B. Failure to satisfactorily pass this test shall be a basis for rejection.

MEASUREMENT AND PAYMENT: The quantity of **PICNIC TABLE -FIXED** and **PICNIC TABLE -FIXED/ACCESSIBLE** to be paid for under these items shall be the number of units furnished and installed in accordance with the plans, specifications and directions of the Engineer

The price bid shall be a unit price for **EACH** Picnic Table -Fixed and for **EACH** Picnic Table Fixed/Accessible and shall include the cost of all labor, materials and equipment including table, benches, steel standards and frames, plastic lumber, hardware, and powder coating and all incidental expenses necessary to complete the work in accordance with the plans and specifications to the satisfaction of the Engineer.

Excavation, concrete for slab or piers shall be paid for separately under their respective contract items. Foundation Material, where required, shall be paid for under the item "Foundation Material For Concrete".

Item No.	Item	Pay Unit
PK-ESCR 158	**PICNIC TABLE – FIXED**	**EA**
PK-ESCR 718	**PICNIC TABLE – FIXED, ACCESSIBLE, WITH UMBRELLA HOLE**	**EA**
PK-ESCR 719	**PICNIC TABLE – FIXED, ACCESSIBLE**	**EA**
PK-ESCR 806	**PICNIC TABLE – FIXED, WITH UMBRELLA HOLE**	**EA**

END OF SECTION

SECTION PK-ESCR 161 – PUBLIC SPACE RECEPTACLE BINS

WORK: Under this Item, the Contractor shall furnish and install PUBLIC SPACE RECEPTACLE BINS in accordance with the plans, specifications and directions of the Engineer.

MATERIALS: Public Space Receptacles shall be 32 gallon size, and be similar to receptacles available through DCAS Requirements Contract RC/OMPA #3487003 (20141200601) "Public Space Receptacle Bins" as manufactured by Landscape Forms, Inc., Kalamazoo, MI or similar as manufactured by Maglin Site Furniture, Inc, Woodstock, ON or approved equal.

PURCHASING: There are three coordinated receptacles available through the DCAS contract. The **Public Space Trash Receptacle, Public Space MGP** (commingle Metal, Glass, Plastic) **Receptacle** and **Public Space Paper Receptacle** are contractually all identical in price.

Required quantities of each receptacle type are shown on the drawings. The Agency reserves the right to revise the quantity of each type of receptacle as shown in the chart below, provided that changes are requested in writing by the Agency prior to the order date. Receptacles must be ordered directly from the manufacturer a minimum of 120 days in advance of expected installation date.

Public Space Trash Receptacle	Landscape Forms, Inc Or approved equal	Maglin Site Furniture, Inc Or approved equal
Model No.	SF 1288-005	CMLWR90740-32-HST
Bin color (Unless otherwise shown on drawing)	Grey RAL #9023	Gunmetal Grey or Graphite
Lid Color	Black	Black
Graphics-Logo	Standard graphics for trash	Standard graphics for trash
Public Space MGP Receptacle	Landscape Forms, Inc Or approved equal	Maglin Site Furniture or approved equal
Model No.	SF 1288-003	CMLWR90740-32-HBC
Lid Color	Blue RAL #5015	Blue RAL #5015
Graphics	Graphics for Metal, Glass, Plastics Recycling	Graphics for Metal, Glass, Plastics Recycling
Public Space Paper Receptacle	Landscape Forms, Inc Or approved equal	Maglin Site Furniture or approved equal
Model No.	SF 1288-001	CMLWR90740-32-HPS
Lid Color	Green RAL #6018	Green RAL #6018
Graphics-Logo	Graphics for Mixed Paper Recycling	Graphics for Mixed Paper Recycling

INSTALLATION: Contractor shall install receptacles in locations as shown on the drawing into pavement with three (3) 3/8" x 4" minimum length, non-corrosive, concrete expansion anchors. Location of trash receptacle shall be as shown on the plans or as determined by the Engineer.

Public Space Receptacle Bins (All)	
Capacity	32 gallons
Lids	Hinged Top Opening
Plastic Liner	Required and Slotted for drainage
Optional lock	Not required
Optional extra key	Not required

SUBMITTALS: shall be submitted in accordance with the requirements of the S-Pages a minimum of 120 days in advance of receptacle installation.

Catalog cut of receptacle(s) with manufacturer name and features included. Submit final quantity of each type of receptacle to be ordered under this Contract. Submit color samples upon request.

MEASUREMENT AND PAYMENT: The quantity of **PUBLIC SPACE RECEPTACLE BINS** to be paid for under this Item shall be the number of receptacles (in any combination) furnished and installed, in accordance with the plans, specifications and directions of the Engineer.

The price bid shall be a Unit Price for **EACH** Public Space Receptacle Bin installed complete, and shall include the cost of furnishing all labor, materials and equipment to complete the work including anchoring receptacle to pavement and providing liner, all in accordance with the Plans and Specifications to the satisfaction of the Engineer..

Item No.	Item	Pay Unit
PK-ESCR 161	PUBLIC SPACE RECEPTACLE BINS	EA

END OF SECTION

SECTION PK-ESCR 170 – STEEL FENCE AND GATES

WORK: Under these Items, the Contractor shall furnish and erect **STEEL FENCES** and **GATES** of the types and sizes shown on the plans, in accordance with the plans, specifications, and directions of the Engineer.

MATERIALS: Unless otherwise specified, the materials shall meet the requirements of General Conditions, "Materials and Methods of Construction".

FENCES AND GATES shall be constructed of solid bars, posts, and rails of the sizes shown on the plans unless specifically noted as lightweight. All material shall conform to Specification ASTM A36.

FABRICATION- LIGHTWEIGHT GATE (where specified only): Shall be as manufactured by Shannon Gates and Railings, Deer Park, NY, or approved equal and shall be fabricated from 16G square tubing and 1/2" channels.

FABRICATION-STEEL FENCES AND GATES: Fences and Gates shall be fabricated in strict accordance with the plans and approved Shop Drawings. Posts and rails shall be formed into panels of the shapes on the plans and joints completely welded with welds of proper size and shape; all welds ground smooth to a neat finish. Connection shall be provided as indicated on the plans. Welding shall conform to the requirements given under the "Materials and Methods of Construction", General Conditions.

Posts and pickets shall, in all cases, be truly vertical. Rails and bars shall be parallel to grade as shown on the plans. Panels shall be curved as required by the work. Braces shall be required at two-thirds (2/3) of the way up each post when fence is ten feet (10') high or over.

HINGES: shall be Stanley #BB855, Heavy Duty Steel Ball Bearing Hinge, 5" x 6", as manufactured by Stanley Hardware, New Britain, CT, Shannon Gates and Railings, Deer Park NY or approved equal.

LOCK BOLT- Double Gates: Shall be a drop rod bar arranged to engage the gate stop. Locking device shall be constructed so that the drop rod cannot be raised when the gate is locked. The locking bolt and bolt catch hardware shall be constructed as shown on the standard detail drawings. The locking device shall have provisions for a padlock. All necessary fittings and gate holders to lock gates in both open and closed positions shall be furnished. The locking device shall be as manufactured by Shannon Gates and Railings, Deer Park NY, or an approved equal locking device.

GATE LATCH – Single Gates: Shall be a lockable stirrup type. Latch shall be constructed of steel bars and blocks with a stainless steel pin, as shown on the drawings. The ends of stirrups shall be treated with a heavy-duty flexible, rubberized coating such as Plastidip as manufactured by P.D.I. Inc., Circle Pines, MN, or approved equal.

PADLOCK: The Contractor shall furnish one padlock for each single gate and each leaf of double gates. The padlocks shall be American No. 5571 as manufactured by American Lock Co., Crete, IL., or approved equal. All padlocks for the same park facility shall be keyed alike, with two inch (2") wide by three-quarter inch (3/4") thick brass body, maximum security, five (5) pin tumblers with hardened alloy steel chrome plated shackle no less than three-eighth inch (3/8") diameter and two inch (2") clearance (elongated shackle). A galvanized steel chain, nine inches (9") long shall be fastened to the gate and body of the lock. The chain shall be five-sixteenths inch (5/16") by one and three-eighths inch (1 3/8"). The Contractor shall furnish two (2) keys for each padlock.

CAST IRON PARKS LEAF – Double Gates: The Park Leaf casting shall be as manufactured by Wemco Castings, Bohemia, N.Y, or approved equal. The City, through NYCDPR, retains

exclusive right to the use of the pattern. Leaf castings are to be fabricated from Ductile Iron 65-45-12. The small 9 1/2" leaf shall weigh approximately six pounds (6 lbs.) each. The back of the leaf casting is to be flat and the front face shall be contoured with the veins of the leaf shown in relief. See Contract Drawings for structural details.

Park leaves shall be welded to each leaf of the steel gate in the shop. Field welding will not be permitted.

GROUT: Grout for fence posts shall be non-shrink, cement based grout such as Sonogrout 10K as manufactured by BASF Building Systems, Shakopee, MN or SikaGrout 212, as manufactured by Sika Corporation, Lyndhurst, NJ, or approved equal.

SEALANT: Sealant around fence post shall be one part polyurethane, elastomeric adhesive such as MasterSeal CR 195, as manufactured by BASF Building Systems, Shakopee, MN or Sikaflex1a, as manufactured by Sika Corporation, Lyndhurst, NJ, or approved equal.

PAINTING: The fences and gates shall receive three (3) coats of paint. The first coat shall be shop applied; the second and third coat shall be field applied. Immediately prior to painting, all surfaces of fences and gates shall be thoroughly free of debris. All surfaces that are rust free shall be treated in accordance with SP-1, Solvent Cleaning. Treatment shall be performed with a solvent such as mineral spirits, xylol, or turpentine to remove all dirt, grease, and foreign matter. Surfaces that show evidence of scale and rust shall be cleaned in accordance with SP-2, Hand Tool Cleaning, a method generally confined to wire-brushing, sandpaper, hand scrapers, or hand impact tools or SP-3, Power Tool Cleaning, a method generally confined to power wire brushes, impact tools, power sanders, and grinders in order to achieve a sound substrate. After the fence and gates have been cleaned and prepared, they shall be painted as follows:

First Coat (Shop Applied): D.T.M.(Direct to Metal) Alkyd semi-gloss P24, as manufactured by Benjamin Moore & Co., Montvale, NJ, or Kem Bond® HS Metal Primer, B50NZ3, red oxide, as manufactured by Sherwin Williams Company, Woodside, NY, or approved equal. Primer shall be a fast drying, 53 to 61% weight solids, low VOC, rust inhibiting, modified alkyd metal primer with a dry film thickness of 1.7 - 5 mils. Paint requires up to two (2) to two and a half (2 ½) hours drying time before recoating (with alkyds).

Second Coat and Third Coats (Field Applied): D.T.M.(Direct to Metal) Alkyd semi-gloss P24, Safety Black, as manufactured by Benjamin Moore & Co., Montvale, NJ, or Steel Master 9500 Silicone Alkyd, as manufactured by Sherwin Williams Company, Woodside, NY, or approved equal. Color to be Black unless otherwise shown on the contract drawings. Topcoat shall be a silicon alkyd, semi or high gloss coating having a dry film thickness of 1.7 - 3 mils. Paint requires up to thirty (30) hours drying time @ 50° F; up to sixteen (16) to eighteen (18) hours drying time @ 77° F. Paint adhesion shall be 100% retention in accordance with ASTM D3359, classification 5B.

All paints shall be applied when ambient air temperature is 50 °F minimum and rising. No painting will be allowed below the minimum ambient air temperature. Surfaces to be painted shall be moisture free. In addition, no painting will be allowed below the temperature at which moisture will condense on surfaces; the ambient temperature must be at least 5 degrees F above the dew point.

INSTALLATION: The fences shall be erected in holes that have been formed in the concrete or stone to receive them. After the posts have been set in place and properly supported to hold them in line and grade, the annular space shall be filled with the specified non-shrink, cementitious grout. The grout shall be flush with the concrete curb. After the grout has cured, the Contractor is to install polyurethane sealant around the fence post. Sealant shall be gunned in between the base of the fence post and the concrete curb. Sealant shall be applied in strict accordance with

the manufacturer's instructions, and shall be tooled in as required. **Note: All gypsum (Calcium Sulfate, CaSO4) based grout will be rejected.**

Any fences and gates not set plumb and true to line and grade shall be removed and replaced at the Contractor's expense. The Contractor shall maintain the fences and gates during the life of the contract and shall repair replace all members that are disturbed, damaged, or destroyed.

SUBMITTALS: All submittals shall be in accordance with the requirements of the S-Pages.

Shop Drawings: shall be submitted prior to fabrication. Include plans, elevations, for entire length including all radial panels, sections, details, attachments to existing and stepped conditions, connectors, anchoring and connecting hardware, fence height, post spacing, gate locking device, gate construction, dimensions and unit weights of framework, and lightning protection for all fences. Include schedule for fence uprights and fabrications methods. Indicate all field and shop welds. Detail custom conditions at non-90° angles.

SAMPLES: The Contractor shall submit for the approval finished samples of parts of the fences. The workmanship and finish of the final product shall be equal to the approved samples. Only if proposed manufacturer is other than as specified, a full size sample must be submitted for approval for the following: Gate latch for single gate, padlock, cast iron parks leaf.

FOUNDRY CERTIFICATE: A certificate verifying the quality of ductile iron for the Parks Leaf shall be submitted. Certificate shall be on Manufacturers' letterhead, dated and signed by the company President with Contract Number, Contract Title, Contractor Name, and Class of Ductile Iron provided.

PAINT SUBSTITUTION: A written request for paint substitution must be submitted to the Engineer. The Contractor shall submit this request, along with manufacturer's data sheets for approval, a minimum of two (2) weeks prior to the intended date of paint application. All paint substitutions must be approved in writing prior to use.

MEASUREMENT AND PAYMENT: The quantity **of STEEL FENCE** to be paid for shall be the number of **LINEAR FEET** of each type fence furnished and erected complete, in accordance with the plans, specifications, and directions of the Engineer.

The quantity of **GATES** to be paid for shall be the number of **EACH** size (including both leaves of double gates and gate posts) furnished and erected complete in accordance with the plans, specifications, and directions of the Engineer, including Park leaf castings where double gates are specified, locking devices, gate stops, and padlocks.

The prices bid shall be unit prices per **LINEAR FOOT** of Steel Fence of each type and a unit price for EACH gate and shall include the cost of all labor, materials, and equipment required to furnish and erect fences and gates, including painting, grout, sealant, and all incidental expenses necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer.

Concrete and excavation shall be paid for separately under their respective Items.

Item No.	Item	Pay Unit
PK-ESCR 170	STEEL FENCE 4'-0" HIGH	L.F.
PK-ESCR 171	SINGLE GATE FOR STEEL FENCE 4'-0" HIGH	EA
PK-ESCR 173	DOUBLE GATE FOR STEEL FENCE 4'-0" HIGH	EA

END OF SECTION

SECTION PK-ESCR 180 – BASKETBALL BACKSTOP – SINGLE POST

WORK: Under this Item, the Contractor shall furnish and erect a complete cantilevered **BASKETBALL BACKSTOP - SINGLE POST** with clear polycarbonate (PC) BACKBOARD, in accordance with the plans, DPR standard details, specifications, and directions of the Engineer. The backstop shall be freestanding only.

MATERIALS: Unless otherwise herein specified, all materials and methods of construction shall conform to the requirements of General Conditions, "Materials and Methods of Construction".

Post: Post shall be galvanized steel, powdercoated per this specification. All fittings for the backboard shall be as indicated on the standard details and shall be powdercoated. Post and fittings shall be as manufactured by All City Play Equipment, Brooklyn, NY, or approved equal.

The cantilevered basketball backstop shall be attached to one six inch (6") square, three-sixteenth inch (3/16") thick powder coated square galvanized steel tube.

Posts shall be reinforced with two (2) three-eighths (3/8") inch reinforcing bars and filled with concrete for park structures as indicated on the plans and standard details.

Post Cap: The post caps shall be cast of class 65-45-12 ductile iron, powdercoated and secured as shown on the plans.

Fastenings: All fastenings shall be as indicated on the plans and the Contractor shall furnish and install all required bolts, drive and machine screws, pins, rivets, welds, and other fastenings necessary to complete the work, whether specifically indicated on the plans or not. Bolts and nuts shall be galvanized after threading. The drive screws shall be of stainless steel. All fastenings shall be neatly sprayed with powder coat touch-up spray after installation. All fastenings shall be coated with high locking adhesive immediately prior to tightening. The locking adhesive shall be Loctite® 271 manufactured by Henkel Corporation, Westlake, OH, or approved equal.

Backboard - Polycarbonate: Polycarbonate backboard shall be as manufactured TrueBounce Backboards, New Bedford, MA, model number XL7048, or approved equal. Dimension of backboard shall be as shown on the standard details or contract drawings. Backboard shall be made of half (1/2") inch unbreakable clear polycarbonate material, secured to frame with stainless steel bolts, sizes as shown in the plans. The frame for the backboard shall be made of aluminum, lap jointed at corners and bolted together, all as recommended by the manufacturer.

Goal: Goal shall be "Endurance Fixed Goal", Model No. 8550 as manufactured by Gared Sports, St. Louis, MO or "Heavy Duty Playground Goal" No. 00251-H00 as manufactured by Porter, Broadview, IL, or approved equal. Any equal submitted must match complete backplate hole layout as shown on standard details. Goal shall be unconditionally warranted for a minimum of 10 years. The goal shall be made of steel rod welded to steel brackets bolted to backboard, all as shown on the plans. All metal parts shall be hot-dipped galvanized and powder coated as heretofore specified, after fabrication. Powdercoating shall be color orange. Net is not required.

Concrete Footing: Shall be 3,200 psi Class B-32 concrete per the NYCDOT Standard Highway Specifications Section ESCR-4.06.

Steel Bar Reinforcement: Reinforcement shall meet the requirements of the NYCDOT Standard Highway Specifications, the N.Y.C. Building Code and the latest ASTM specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement", Designation A-615. Reinforcement shall be of the sizes and dimensions shown on the plans.

ERECTION: Posts shall be set in holes formed in new reinforced concrete footings; dimensions indicated on the Standard Detail. Posts shall then be set in holes and shall be grouted firmly in

place with a grout composed of one part Portland Cement and two parts sand, or approved equal. Posts shall be erected truly vertical.

POWDERCOATING: All new backstop parts (except for steel or polycarbonate backboards) shall be powdercoated with TGIC-Polyester; nuts, bolts and threaded ends of tie rods shall be neatly sprayed with powdercoat touch-up after installation. No lacquer, urethane, or other coatings which would prevent proper adhesion of powder coating shall be applied to the parts. The powdercoating shall be applied in such a manner that the coating will not peel off. Ensure surfaces to be coated are clean, dry, and free of grease, dust, rust, etc. All coated parts shall first receive phosphating and chromatizing treatments to improve the adhesion of the surface coating. Color to be black unless otherwise indicated on the plans.

The TGIC-Polyester shall be applied at a film thickness of 3 to 4 mils by electrostatic spray process and bake finished per manufacturer's directions. The TGIC-Polyester shall be applied without voids, tears or cuts that reveal the substrate and shall thoroughly adhere to the metal without peeling when scratched with a pick device or knife blade point.

Laboratory Test For TGIC-Polyester Powdercoat: At the discretion of the Engineer, a sample TGIC-Polyester powdercoated part shall be laboratory tested for bonding of the powdercoating to the metal. The test shall be the Cross Hatch test, as per ASTM D3359, Method B. Failure to satisfactorily pass this test shall be a basis for rejection.

TOUCH-UP & REPAIR: For minor damaged caused by installation or transportation, clean damaged area, then:

1. On damaged galvanized surfaces, apply organic zinc repair paint complying with ASTM A780, then repair powder coating per number 2 below. Galvanizing repair paint shall have 65 percent zinc by weight. Thickness of repair paint shall be not less than that required by ASTM A123.
2. On damaged powder coated surfaces, touch-up finish in conformance with manufacturer's recommendations. Provide touch-up such that repair is not visible from a distance of 6 (six) feet.

SUBMITTALS: All submittals shall be in accordance with the requirements of the S-Pages.

Shop Drawings: The Contractor shall submit Shop Drawings showing complete details of construction and installation.

Warranty for Goal: A ten (10) year warranty shall be submitted, and in turn handed over to the Engineer.

MEASUREMENT AND PAYMENT: For furnishing and installing **BASKETBALL BACKSTOP - SINGLE POST (PC BACKBOARD)** in accordance with the plans, specifications, and directions of the Engineer, the Contractor shall receive the unit price bid.

The price bid shall be a unit price for **EACH** Basketball Backstop–Single Post (PC Backboard) furnished and installed, and shall include the cost of all labor, materials, and equipment, including posts, concrete for park structures for footings, posts filled with concrete, steel reinforcement, unclassified excavation, sawcutting, core drilling (where required), outrigger, tie rods, polycarbonate backboard, goal, powder coating, locking adhesive and any other incidental expenses necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer.

Hand and/or Pneumatic Excavation, if required, shall be paid for separately under its own contract item.

Item No.	Item	Pay Unit
PK-ESCR 180	BASKETBALL BACKSTOP-SINGLE POST (PC BACKBOARD)	EA

END OF SECTION

SECTION PK-ESCR 185 – PAINT LINES 4 INCH – SYNTHETIC TURF

WORK: Under this item, the Contractor shall PAINT LINES 4" WIDTH – SYNTHETIC TURF in accordance with the Plans, Specifications, and the directions of the Engineer.

INTENT: This item is intended to provide initial painted lines on synthetic turf fields which will be maintained and repainted by leagues or organizations who utilize the fields.

MATERIALS:

Line Marking Paint: (where shown on the drawings): Paint shall be applied according to the substrate upon which it is being applied.

Polyethylene Fibers: Paint suitable for satisfactory application on polyethylene synthetic fibers shall be durable, 100% acrylic emulsion water-base paint, designed to last a minimum of six (6) months from the time of application. Paint shall be similar to ExtremeLine™ synthetic turf marking paint as manufactured by Pioneer Manufacturing, Cleveland, OH, or approved equal. Drying time shall be 48 to 72 hours. Coverage (undiluted) shall be a minimum of 250 linear feet of four (4") inch wide line per gallon. Color shall be white unless otherwise shown on the drawings.

Nylon Fibers: Paint suitable for satisfactory application on nylon synthetic fibers shall be a durable, 100% acrylic emulsion water-base paint, designed to last a minimum of six (6) months from the time of application. Paint shall be similar to Titan™ Synthetic Turf Marking Paint as manufactured by Pioneer Manufacturing, Cleveland, OH, or approved equal. Drying time shall be 48 to 72 hours. Coverage (undiluted) shall be a minimum 250 linear feet of four (4") inch wide line per gallon. Color shall be white unless otherwise shown on the drawings.

EXECUTION: Prior to painting, areas to receive paint shall be cleaned of debris and groomed so fibers stand up straight. Line paint application temperature shall be between 60 °F and 90 °F. Turf shall be clean and dry at the time of paint application. Lines shall be placed using an airless, high pressure field marking machine such as FieldLazer S100 airless field marker as manufactured by Graco, Inc., Minneapolis, MN, or the Brite Striper 3000 as manufactured by Pioneer Athletics, Cleveland, Ohio, or approved equal. All lines shall be clear and distinct with sharply defined edges. Painting shall be applied to fibers. Every effort shall be made to avoid paint leaking on to adjacent infill material. All lines shall be placed with a four (4") inch width unless otherwise shown on the drawings.

SUBMITTALS: All submittals shall be in accordance with the requirements of the S-Pages.

Paint Substitution: A written request for paint substitution, along with manufacturer's data sheets shall be submitted for approval a minimum of two (2) weeks prior to the intended date of paint application. All paint substitutions must be approved in writing.

MEASUREMENT AND PAYMENT: The quantity for **PAINT LINES 4" WIDTH – SYNTHETIC TURF** to be paid for under this Item shall be the number of **LINEAR FEET** painted in accordance with the Plans and Specifications to the satisfaction of the Engineer.

The Price bid shall be a unit price per **LINEAR FOOT** of Painted Lines provided and shall include the cost of all labor, materials, equipment and incidentals necessary to complete the Work all in accordance with the Plans, Specifications and directions of the Engineer.

Item No.	Item	Pay Unit
PK-ESCR 185	PAINT LINES 4 INCH – SYNTHETIC TURF	L.F.

END OF SECTION

SECTION PK-ESCR 188 – POLYETHYLENE PIPE, PERFORATED – NON PERF

WORK: Under this item, the Contractor shall furnish and lay **POLYETHYLENE CORRUGATED PIPE** or **PERFORATED POLYETHYLENE CORRUGATED PIPE** of the required size, in accordance with the plans, specifications, and directions of the Engineer. All work of connecting and joining to other pipes or drainage structure shall be included under this item.

MATERIALS: Pipe and fittings shall be manufactured by Advanced Drainage Systems, Inc. (ADS) Staybrook Industrial Area, Ludlow, MA, or approved equal. Sizes 4 – 36 inch (N-12) shall have a full circular cross-section, with an outer corrugated pipe wall and an essentially smooth inner wall (waterway). Corrugations for these sizes may be either annular or spiral. All sizes shall conform to the AASHTO classification "Type S" (smooth waterway) or "Type SP" (smooth waterway and Class 2 perforations) as specified.

Pipe manufactured for this specification shall comply with the requirements for test methods, dimensions, and markings found in AASHTO Designations M252 and M294. Pipe and fittings shall be made from Virgin PE compounds which conform with the requirements of cell Class 424420C for 4" through 10" diameters and Class 435400C for 12" through 60" diameters as defined and described in ASTM D3350.

The minimum parallel plate stiffness values when tested in accordance with ASTM D2412 shall be as follows:

Diameter	Pipe Stiffness
4" (100 mm)	50 psi (340 kPa)
6" (150mm)	50 psi (340 kPa)
8" (200mm)	50 psi (340 kPa)
10" (250mm)	50 psi (340 kPa)
12" (300mm)	50 psi (340 kPa)
18" (450 mm)	40 psi (280 kPa)
24" (600 mm)	34 psi (235 kPa)
36" (900 mm)	22 psi (150 kPa)

The fittings shall not reduce or impair the overall integrity or function of the pipe line. Common corrugated fittings may be either molded or fabricated. Common corrugated fittings include inline joint fittings, such as couplers and reducers, and branch or complimentary assembly fittings such as tees, wyes, and end caps. These fittings may be installed by various methods, such as snapon, screw-on, bell and spigot, and wrap around. Couplings shall provide sufficient longitudinal strength to preserve pipe alignment and prevent separation at the joints.

Only fittings supplied or recommended by the pipe manufacturer shall be used. Where designated on the plans, a neoprene or rubber gasket shall be supplied.

SOCK: The perforated pipe shall have a "DC Sock" - a polyester machine knitted envelope factory applied and ready for installation.

INSTALLATION: All pipe shall be laid in reasonably close conformity to line and grade and shall have a full, firm and even bearing at each joint and along the entire length of pipe. Joint misalignment shall not result in offsets, in the interior smooth liner, greater than one-quarter (1/4")

inch. Pipe laying shall begin at the downstream end and progress upstream. Any single run of pipe, excluding end sections, shall consist wholly of the same type material unless otherwise directed by the engineer. No section of pipe used shall be less than three feet (3') in length. Installation of the pipe shall be in accordance with ASTM Recommended Practice D2321.

Installation Requirements:

1. Crushed stone, gravel or compacted soil backfill material should be used as the bedding and envelope material around the culvert. The aggregate size should not exceed one-sixth (1/6) of the pipe diameter or four inch (4") diameter, whichever is smaller.
2. The corrugated pipe should be laid on grade, on a layer of bedding material. If native soil is used as the bedding and backfill material, it should be well compacted in six inch (6") layers under the haunches, around the sides, and above the pipe to the recommended minimum height of cover.
3. Either flexible (asphalt) or rigid (concrete) pavements may be laid as part of the minimum cover requirements.
4. Site conditions and availability of bedding materials often dictate the type of installation method used. See plans.
5. The load bearing capability of flexible conduits is dependent on the type of backfill material used and the degree of compaction achieved. Crushed stone and gravel backfill materials typically reach a compaction level of ninety to ninety five percent (90-95%) AASHTO standard density without compaction. When native soils are used as backfill material, a compaction level of eighty five percent (85%) is required. This is the same minimum compaction that is recommended by all culvert pipe manufacturers and can be achieved by either hand or mechanical tamping.

Two types of installations are recommended for H-20 live loads - the heaviest legal highway loads. These are the trench and open ditch installations. The minimum height of cover recommendations are the same for both conditions.

MINIMUM DIMENSIONS TRENCH OR OPEN DITCH INSTALLATIONS

Nominal Diameter	Min. Thickness Of Bedding	Minimum Cover	Minimum Trench Width
4"	3"	12"	21"
6"	3"	12"	23"
8"	3"	12"	26"
10"	4"	12"	28"
12"	5"	12"	30"
18"	6"	12"	39"
24"	6"	12"	48"
36"	6"	12"	64"

Coupling of the pipes shall be performed using Standard ADC (Advanced Drainage Systems) N12 split coupler PRO LINK ST, or PRO LINK 10.8, or PRO LINK 5, or approved equal.

MEASUREMENT AND PAYMENT: The quantity of **POLYETHYLENE CORRUGATED PIPE** to be paid for under this Item shall be the number of linear feet (laying length) of each size pipe, including fittings, measured in its final position, furnished, and placed in accordance with the plans, specifications, and the directions of the Engineer.

The price bid shall be a unit price per **LINEAR FOOT** of laying length Polyethylene Corrugated Pipe of each size shown and shall include the cost of all labor, materials and equipment necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer. Excavation and broken stone shall be paid for under their respective Items.

MEASUREMENT AND PAYMENT: The quantity of **PERFORATED POLYETHYLENE CORRUGATED PIPE** to be paid for under this Item shall be the number of linear feet (laying length) of each size pipe, including fittings, measured in its final position, furnished, and placed in accordance with the plans, specifications, and the directions of the Engineer.

The price bid shall be a unit price per **LINEAR FOOT** of laying length Polyethylene Corrugated Pipe of each size shown and shall include the cost of all labor, materials and equipment necessary to complete the work in accordance with the plans and specifications including the sock, to the satisfaction of the Engineer.

Excavation and broken stone shall be paid for under their respective contract Items.

Item No.	Item	Pay Unit
PK-ESCR 188	PERFORATED POLYETHYLENE CORRUGATED PIPE (12")	L.F.
PK-ESCR 188 B	POLYETHYLENE CORRUGATED PIPE (12")	L.F.
PK-ESCR 189	PERFORATED POLYETHYLENE CORRUGATED PIPE (4")	L.F.
PK-ESCR 189 B	PERFORATED POLYETHYLENE CORRUGATED PIPE (6")	L.F.

END OF SECTION

PK-ESCR 188P – POLYETHYLENE CORRUGATED PIPE (12")

PK-ESCR 188P.1. **WORK:** Under this item, the Contractor shall furnish and lay **POLYETHYLENE CORRUGATED PIPE** of the required size, in accordance with the plans, specifications, and directions of the Engineer. All work of connecting and joining to other pipes or drainage structures shall be included under this item.

PK-ESCR 188P.2. **MATERIALS:** Pipe and fittings shall be manufactured by Advanced Drainage Systems, Inc. (ADS) Staybrook Industrial Area, Ludlow, MA. 01056. or approved equal. Sizes 4 – 36 inch (N-12) shall have a full circular cross-section, with an outer corrugated pipe wall and an essentially smooth inner wall (waterway). Corrugations for these sizes may be either annular or spiral. All sizes shall conform to the AASHTO classification "Type S" (smooth waterway) or "Type SP" (smooth waterway and Class 2 perforations) as specified.

Pipe manufactured for this specification shall comply with the requirements for test methods, dimensions, and markings found in AASHTO Designations M252 and M294. Pipe and fittings shall be made from Virgin PE compounds which conform with the requirements of cell Class 424420C for 4" through 10" diameters and Class 435400C for 12" through 60" diameters as defined and described in ASTM D3350.

The minimum parallel plate stiffness values when tested in accordance with ASTM D2412 shall be as follows:

DIAMETER	PIPE STIFFNESS
12" (300 mm)	50 psi (340 kPa)

The fittings shall not reduce or impair the overall integrity or function of the pipe line. Common corrugated fittings may be either molded or fabricated. Common corrugated fittings include inline joint fittings, such as couplers and reducers, and branch or complimentary assembly fittings such as tees, wyes, and end caps. These fittings may be installed by various methods, such as snap-on, screw-on, bell and spigot, and wrap around. Couplings shall provide sufficient longitudinal strength to preserve pipe alignment and prevent separation at the joints.

Only fittings supplied or recommended by the pipe manufacturer shall be used. Where designated on the plans, a neoprene or rubber gasket shall be supplied.

PK-ESCR 188P.3. **SOCKS:** The perforated pipe shall have a "DC Sock" – a polyester machine knitted envelope factory applied and ready for installation.

PK-ESCR 188P.4. **INSTALLATION:** All pipe shall be laid in reasonably close conformity to line and grade and shall have a full, firm and even bearing at each joint and along the entire length of pipe. Joint misalignment shall not result in offsets, in the interior smooth liner, greater than one-quarter (1/4") inch. Pipe laying shall begin at the downstream end and progress upstream. Any single run of pipe, excluding end sections, shall consist wholly of the same type material unless otherwise directed by the Engineer. No section of pipe used shall be less than three feet (3') in length. Installation of the pipe shall be in accordance with ASTM Recommended Practice D2321.

Installation Requirements:

1. Crushed stone, gravel or compacted soil backfill material should be used as the bedding and envelope material around the culvert. The aggregate size should not exceed one-sixth (1/6) of the pipe diameter or four inch (4") diameter, whichever is smaller.

2. The corrugated pipe should be laid on grade, on a layer of bedding material. If native soil is used as the bedding and backfill material, it should be well compacted in six inch (6") layers under the haunches, around the sides, and above the pipe to recommended minimum height of cover.

3. Either flexible (asphalt) or rigid (concrete) pavements may be laid as part of the minimum cover requirements.

4. Site conditions and availability of bedding materials often dictate the type of installation method used. See plans.

5. The load bearing capability of flexible conduits is dependent on the type of backfill material used and the degree of compaction achieved. Crushed stone and gravel backfill materials typically reach a compaction level of ninety to ninety five percent (90-95%) AASTO standard density without compaction. When native soils are used as backfill material, a compaction level of eighty five percent (85%) is required. This is the same minimum compaction that is recommended by all culvert pipe manufacturers and can be achieved by either hand or mechanical tamping.

Two types of installations are recommended for H-20 live loads – the highest legal highway loads. These are the trench and open ditch installations. The minimum height for cover recommendations are the same for both conditions.

MINIMUM DIMENSIONS TRENCH OR OPEN DITCH INSTALLATIONS			
Nominal Diameter	Min. Thickness Of Bedding	Minimum Cover	Minimum Trench Width
12"	5"	12"	31"

Coupling of the pipes shall be performed using Standard ADC (Advanced Drainage Systems) N-12 split coupler PRO LINK ST, or PRO LINK 10.8, or PRO LINK 5, or approved equal.

PK-ESCR 188P.5 **MEASUREMENT AND PAYMENT:** The quantity of **POLYETHYLENE CORRUGATED PIPE** to be paid under this Item shall be the number of linear feet (laying length) of pipe, including fittings, measured in its final position, furnished, and placed in accordance with the plans, and the directions of the Engineer.

The price bid shall be a unit price per **LINEAR FOOT** of laying length Polyethylene Corrugated Pipe and shall include the cost of all labor, materials and equipment necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer.

Excavation and broken stone shall be paid for under their respective Items.

Item No.	Item	Pay Unit
PK-ESCR 188P	**POLYETHYLENE CORRUGATED PIPE (12")**	**L.F.**

END OF SECTION

PK-ESCR 201 – CHAIN LINK FABRIC FOR BASEBALL BACKSTOP

WORK: Under these Items, the Contractor shall remove existing damaged fabric, furnish and install new chain link fabric on existing baseball backstop framework at various park locations in accordance with the plans, specifications, and directions of the Engineer.

DESCRIPTION: It is the intent of these items to reconstruct baseball backstops by replacing damaged or missing fabric with new vinyl-clad chain link fabric. These fabric items shall be deemed to include the furnishing and installation of mesh, tension bands, tension bars, tie wires, and all attendant fastenings, as well as galvanized nuts and bolts missing from the framework. Fence fabric shall be under tension upon completion.

MATERIALS:

Fabric: Fabric shall be hot dip galvanized steel wire mesh as per ASTM - 641, with a thermally fused polyvinyl chloride powder coating of 7 to 12 mils thick as per ASTM F668 class 2b. Color to match framework. Fabric shall be produced by methods recognized as good commercial practices. Core wire tensile strength shall be 75,000 psi (517 MPa).

Wire used for the manufacture of fabric shall meet the requirements of ASTM F668 and shall be capable of being woven into fabric without the PVC coating cracking or peeling. PVC coating shall be a dense, impervious covering free of voids. Excessive roughness, bubbles, blisters, bruises, and flaking will be a basis for rejection. PVC shall be thermally fused. Bonded or extruded and glued surface coating will not be permitted. Fabric shall be stretched to provide a smooth, taut, uniform appearance free from sag. Vinyl shall be polyvinyl chloride meeting the following requirements:

Specific Gravity shall be a minimum of 1.30 tested in accordance with ASTM Serial Designation: D792.

Hardness shall have a minimum Durometer reading of A-95 in accordance with ASTM Serial Designation: D-676. Ultimate elongation shall be 275% in accordance with ASTM Serial Designation: D-412.

Tensile strength shall have a test minimum of 3,300 p.s.i. in accordance with ASTM Serial Designation: D-412.

Vinyl shall be dense and impervious covering free of voids, having a smooth, lustrous surface without pinholes, bubbles, voids, and rough or blistered surfaces.

Fabric shall be woven diamond mesh openings determined by taking the mean of two dimensions at right angles to each other. Size shall be two inches (2").

Wire for sides and back shall have an uncoated wire dimension of .192 inches in diameter. Zinc coating shall be 0.40 ounces per square foot of wire surfaces. Vinyl coating shall be not less than .022 inches. Total diameter of wire to be not less than .236 inches.

Wire for hood (top) shall be .148 inches in diameter. Zinc coating shall be 0.40 ounces per square foot of wire surfaces. Vinyl coating shall be not less than .022 inches. Total diameter of wire to be not less than .192 inches.

TIES: Tie-wire core thickness shall be 9 gauge (.148") wrought aluminum alloy 1100-H16 wire with an extruded vinyl coating in accordance with ASTM A641 Class 3. PVC shall be applied to a film thickness of 20 to 22 mils. Ties shall be spaced fifteen (15) inches apart on rails and twelve (12) inches apart on posts. The ends of ties shall be wound in a telegraph twist two and one half turns. Color to match mesh. Contractor shall touch-up PVC coating on ties damaged as result of installation.

Tension Bars: Tension bars shall be one-quarter inch (1/4") by three-quarter inch (3/4") galvanized steel in accordance with ASTM serial designation A-123 and shall extend the entire height of the chain link fabric.

Tension Bands: Tension bands shall be one-eighth inch (1/8") by one inch (1") pressed steel, and shall include a one-quarter inch (1/4") diameter nut and bolt. All tension bands with nuts and bolts shall be hot dipped galvanized in accordance with ASTM Serial Designation A-123. Bands shall be spaced on fence posts one foot (1') on center. All bolts shall be peened after tightening. Nuts and bolts shall be galvanized after threads are cut. Bolts which are installed six feet or less above grade shall not protrude more than one-quarter beyond the nut after tightening. All rough edges resulting from the cutting of bolts to achieve this requirement shall be filed smooth to the satisfaction of the Engineer.

Drive and Set Screws: Drive and set screws shall be stainless steel 18-8.

BOLT INSTALLATION: The ends of all bolts shall be peened after tightening. Bolts which are six feet (6') or less above grade shall not protrude more than one-quarter inch (1/4") beyond the nut after tightening. All rough edges resulting from cutting of bolts shall be filed smooth to the satisfaction of the Engineer.

INSTALLATION: Fabric shall be installed and fastened as indicated on plans and here before specified. Fabric shall be under tension upon completion.

DISPOSAL: All materials deemed salvageable shall become City property within the five boroughs and shall be delivered to the city storage yard specified, or as ordered by the Engineer. The Contractor shall notify the Foreman of Mechanics three (3) days in advance of such delivery. All other material shall become the property of the Contractor and properly disposed of. The cost of all removals shall be deemed as part of the installation item, and will not be paid for separately.

MEASUREMENT AND PAYMENT: The quantity of **CHAIN LINK FABRIC FOR TOP OF BASEBALL BACKSTOP** and **CHAIN LINK FABRIC FOR SIDES & BACK OF BASEBALL BACKSTOP** to be paid for under these items shall be the number of **SQUARE FEET** of vinyl clad steel fabric of each type, furnished and installed in accordance with the plans, specifications, and directions of the Engineer.

The prices bid shall be unit prices per **SQUARE FOOT** of chain link fabric of each type, and shall include the cost of all labor, materials and equipment required to remove existing chain link fabric and to furnish and install new chain link fabric, including tension bars, tension bands, tie wires, new and replacement nuts and bolts, and any other incidentals necessary to complete the work in accordance with the plans, specifications, and directions of the Engineer.

Item No.	Item	Pay Unit
PK-ESCR 201	CHAIN LINK FABRIC FOR BASEBALL BACKSTOP	SF

END OF SECTION

SECTION PK-ESCR 202 – DECORATIVE STEEL SPRAY FIXTURES, MURPHY'S BROTHER'S PLAYGROUND

WORK: Under this Item, the Contractor shall furnish and install **DECORATIVE STEEL SPRAY FIXTURES** (including Activation Bollard, where indicated) on concrete footings, all in accordance with the plans, specifications, and directions of the Engineer. In addition, the Contractor shall furnish extra material to D.P.R.M&O as specified under the heading INCIDENTAL MATERIALS.

MATERIALS:

Footings: Shall be 3,200 psi Average Concrete.

Decorative Steel Spray Fixtures: Spray fixtures shall be as manufactured by Aquajeux International, Inc., Sainte-Julie, Quebec, Canada; Vortex Aquatic Structures International, Inc., Montreal, Quebec, Canada, or approved equal.

Spray fixtures shall be constructed of Schedule10, Type 304/304L stainless steel to form various features of varying heights as shown on the drawings. A variety of spray features including but not limited to water arch, water cactus, water cane, water column, etc., shall be set on a concrete foundation, at the proper elevations, as per the manufacturer's recommendations. All components shall include all anchor hardware and stainless steel fasteners.

Each fixture shall have a one inch (1") male or a one and one half inch (1-1/2") threaded female water inlet attached at a point relative to the bottom of the fixture to facilitate water hook up.

In-Ground Sprays: In-ground sprays shall be constructed of minimum Schedule10, Type 304/304L stainless steel as per the sizes shown on the drawings. Each fixture shall have a one inch (1") threaded female water inlet attached at a point relative to the bottom of the fixture to facilitate water hookup. Sprays shall be equipped with a removable brass cover and shall be set on a concrete base in the locations indicated on the plans and approved Shop Drawings.

Flush Mounted Jets: Flush mounted jets shall be constructed of 2" diameter, Schedule10 (minimum) Type 304/304L stainless steel housing threaded to accept tamper resistant brass nozzle. The nozzle shall produce a single water stream. The direction of the water stream shall be adjustable to a maximum of 25 degrees from the vertical. A special tamper resistant tool and a winter cap shall be included with the assembly. The water inlet connection shall be ¾" NPT male stainless steel. Flush mounted jets shall be set on a concrete base in the locations indicated on the plans and approved Shop Drawings.

Nozzles: Where applicable, spray fixtures shall contain either interchangeable five (5) piece solid brass nozzles, or one piece in-pipe brass nozzles, and shall be concealed in a recessed nozzle socket to ensure that all spray devices are concealed within the spray fixture. Nozzles must be of tamper resistant design, secured in the nozzle socket by means of security tooling specifically designed to fit only hardware, nozzles, and fasteners. All nozzle installation shall be performed after the thorough flushing of the entire system (see Testing). Nozzles shall be secured as per manufacturer's installation instructions to the satisfaction of the Engineer.

Coating: Fixtures shall receive a polyester powder coat, similar to that manufactured by Tiger Drylac U.S.A. Inc., or approved equal. The shop coat shall conform to manufacturer's recommendations for surface preparation and mil. thickness of coating. The color shall be as indicated on the plans.

Activation Bollard: Where shown on the drawings, activation bollard shall be provided by the manufacturer. The bollard shall be constructed of stainless steel, Schedule 10, Type 304/304L,

with powder coated external finish (see Coating). There shall be a stainless steel connection supplied for drainage.

The activator shall operate on 24V and shall be accessible by removing the activation cap or back door with a special tamper-resistant tool provided by the manufacturer of spray fixtures. There shall be an internal stainless steel conduit from the activator to the underground conduit. A reducing coupler shall be provided as needed to connect to the conduit. All wiring shall be as specified and approved by the manufacturer of spray fixtures.

Programmable Controller: The controller shall be meet the following specifications:

Time Switch: The time switch shall be a 24 Hour/ 7 Day programmable digital time switch with a 100 hour battery backup system in case of power failure. The switch shall have the ability to program a different schedule for each day of the week or have several days operate on the same schedule.

Timers: Timers shall be two solid states to activate the valves. They shall be individually set and Each has range of 0.1min to 30hours.

Transformer: Transformer shall be 120V primary/24V secondary with a built in electrostatic shield – protection.

Selector switches: Selector switches shall be three positions to select among automatic manual and off mode.

Enclosure: Enclosure shall be watertight fiber reinforced electrical enclosure with quick release latches that can be secured with a padlock.

Solenoid Valves: The Solenoid valves shall be a normally closed 24 VAC, 50/60 Hz, solenoid actuated glove pattern with a balanced pressure diaphragm as manufactured by Rain Bird Sprinkler Corp., Glendora, California or approved equal.

The valve shall have a manual flow control for manual opening and closing the valve without electrically energizing the solenoid. The valve shall have a flow range of 5 to 40 GPM for 1" diameter and 20 to 130 GPM for 1 ½" diameter. The operating pressure shall be 15 to 220 PSI. At 24AVC average, inrush current shall not exceed 0.41 amps. Average holding current shall not exceed 0.23 amp. The valve body and bonnet shall be constructed of brass and all other internal parts shall be made of bronze and stainless steel to ensure corrosion resistance.

Flow Distribution Manifold: The manifold shall be constructed of three (3") inch, Schedule 10 (minimum) Type 304/304L stainless steel pipe, with female threading at both ends. Unit shall be factory assembled and water pressure tested. It shall be equipped with pressure gauge, mounting brackets and anchor bolts for mounting on a concrete wall.

Copper Tubing: The water service pipe shall be hard temper Type "K" copper tubing meeting the Department of Purchase Specification No. 32-T-1.64 and ASTM No. B88-1974. All tubing and fittings shall be as specified and paid for in the 'Copper Tubing' Item. Copper tubing and fittings are to be supplied from valves on the water supply line to the fixtures, with the connection at the fixture to be made with a dielectric coupling.

Fittings: Fittings shall be approved red brass Class "A" threadless type, containing no less than eighty five percent (85%) copper, adaptable for copper tubing.

Joints: Joints shall be made by soldering, using 95-5 tin antimony solder.

Hardware: All hardware, fittings, and fastenings shall be as indicated on the shop drawings and as required to complete the installation. Lag bolts shall be of best quality stainless steel with

sideslot flat type vandal proof head in the sizes indicated on the plans. Anchors shall be stainless steel in the sizes required. Tamper proof hardware shall be stainless steel.

Exterior Control Wires: Control wires shall be 24-volt solid wires. Minimum wire size: 14 gauge; 12 gauge for common wire.

PVC Conduit for Control Wiring: All underground exterior 24 volts control wiring for activation bollard shall be installed in PVC rigid (non-metallic) conduit with fittings. The conduit shall be manufactured to NEMA TC-2 Federal Specifications and UL 651 Specifications. The cement for PVC rigid conduit shall be approved equal to all weather quick set cement (5° – 100°F) Series VC9981 through VC9984.

Sleeves For Control Wires: Sleeves shall be installed under all walks and paving and where indicated on drawings. Sleeves shall be PVC schedule 40 or galvanized heavy wall steel pipe conduit, as shown on the drawings.

EXECUTION:

Excavating for Foundation: All excavation shall be cut accurately to required lines and dimensions for work on drawings, and shall be large enough to provide adequate clearance for the proper execution of the work within them.

Cast in Place Footings Inspection: When the excavation has been carried to the required depth, as shown on the drawings, the Contractor shall do no more work until after the inspection by the Engineer, who shall order the foundation work to proceed, or further excavation as the conditions indicate, and no other work shall be done until the excavation has been approved by the Engineer.

Forms: Forms for footings shall be lined with exterior grade plywood. The formwork shall be coated with an approved oil or lacquer.

Curing: All finished concrete shall be protected and kept moist continuously for three days, as directed by the Engineer.

Water Feature Fixtures: Spray fixtures shall be installed in accordance with the manufacturers written directions. Entire assemblies shall be installed in accurate locations, square and plumb on concrete footings and in required locations to surrounding finished grade, as shown on the plans. Anchor bolts shall be accurately set, plumb and true, in concrete footings, using templates supplied by the manufacturer.

Electrical work: A Licensed Electrician shall perform all electrical work. This includes the connection of the power supply and activation bollard to the controller. All field wiring shall be waterproof with heat shrink-wrapping.

Field Connection: All field connections to be made by a Licensed Master Plumber.

Testing: Before backfilling, the entire system shall be pretested and inspected. This shall include maintaining full pressure on the entire system for no less than one hour. Following the pressure test, it is imperative that all components be flushed by running the water supply through the fixture for a period of time to ensure all debris has been removed from the entire system prior to installation of any nozzles and in the presence of the Engineer. Nozzles shall be secured to the spray fixtures utilizing the security tooling provided by the manufacturer and all work shall be performed to the satisfaction of the Engineer. After paving is completed, all nozzles shall be adjusted and secured for proper operation and spray patterns, to the satisfaction of the Engineer.

M & O Training and Demonstration: After testing is completed and approved by the Engineer, a training and demonstration session shall be held for the M&O staff. The installed spray feature system shall be demonstrated for the district M & O Staff. The demonstrations shall include manual and automatic operations. The demonstration shall also include identification and

operation of each component, trouble shooting for each component, winterizing the system, removal and replacement of defective components, general and specific requirements for system maintenance, and a check list for frequent attention of components. Highlights of the demonstration, including identification of components shall be videotaped for future M&O training.

O & M Manual and Video: The Contractor shall furnish six (6) copies (see Submittals) of the O & M Manual (Operation & Maintenance Manual) for the spray shower system and the associated mechanical system. The manual shall include a checklist for trouble shooting and corrective measures in addition to operation and maintenance instructions. The Contractor shall also furnish an instructional video (DVD or USB) of highlights of the M & O Training and Demonstration, including identification of components of the spray shower system.

INCIDENTAL MATERIALS: The Contractor shall furnish (furnish only, not install) and deliver, to D.P.R. Maintenance and Operations, additional new materials obtained from the approved spray equipment manufacturer. Contractor shall also furnish to the Project Resident Engineer any catalogs, invoices, statements, etc. for verification that a complete set of all maintenance and operations manuals, Repair Kit tools, materials, etc. have been furnished. All furnished material shall be properly identified with the installation location. Extra new materials shall include the following:

1 (One) - Tools and Hardware Maintenance Repair Kit, complete with toolbox, fastener, tamper resistant tool wrenches for each nozzle size included with the equipment. The repair kit shall be clearly marked with the Contract Number and the Playground name. Marking shall be done with permanent marker or other method approved by the Engineer.

One (1) – Winterizing Caps EACH In-Ground Spray installed shall be provided if these spray features are included in the equipment.

SUBMITTALS:

Shop Drawings: The Contractor shall submit Shop Drawings of the spray fixtures (including spray nozzles and colors), activation bollard, programmable controller, solenoid valve, flow distribution manifold for approval.

Operation and Maintenance Manual: The Contractor shall furnish an Operation and Maintenance (O & M) Manual prepared in conjunction with the manufacturers of equipment in this specification. The O & M manual shall contain the following:

1) Description of system operation and operating modes.

2) Start-Up Procedures.

3) Troubleshooting and Repair Guide.

4) List of parts with their model numbers.

5) Electrical diagram showing the valve assembly, the controller, the activation bollard, the power supply, and all operating switches.

6) O & M Manual & Video: The six (6) copies of the Operation & Maintenance Manual and one (1) instructional video (all labeled with name of site and contract number) shall be distributed by the Engineer as follows:

One (1) laminated manual to be kept at the site, either in the equipment room or in the equipment vault.

One (1) O&M manual and one (1) instructional video to DPR Training Academy (contact- Michael Crescenzo 718-760-6588).

One (1) O&M manual and one (1) instructional video to DPR Training Academy (contact- Michael Crescenzo 718-760-6588).

Two (2) manuals to Borough Supervisor of Mechanics (S.O.M.).

Two (2) manuals to Construction division (file, map file).

MEASUREMENT AND PAYMENT: For furnishing and installing all **DECORATIVE STEEL SPRAY FIXTURES** (including Activation Bollard, where indicated) complete, in accordance with the plans, specifications, and directions of the Engineer, the Contractor shall receive the **LUMP SUM** price bid.

The price bid shall be a **LUMP SUM**, and shall include the cost of all labor, materials, equipment, and incidentals necessary or required to complete the work including unclassified excavation, backfill, concrete footings, hardware, fittings, dielectric coupler, activation bollard, programmable controller, control panel, solenoid valves, drain valves, flow distribution manifold, Electrical conduit & control wiring (from electrical panel to activation bollard), testing, training and all components integral with the spray fixtures, in accordance with the plans and specifications, to the satisfaction of the Engineer.

The Agency will retain ten (10%) of **DECORATIVE STEEL SPRAY FIXTURE(S)** bid amount until the Contractor completes the requirements of the Testing, M & O Training and Demonstration, and O & M Manual and Video sections of this specification, to the satisfaction of the Engineer.

In addition, the Contractor shall deliver INCIDENTAL MATERIALS as outlined above to D.P.R. M&O. No additional payment shall be made for extra materials. The Contractor shall include cost in the bid price. Failure to supply INCIDENTAL MATERIALS shall result in the City taking a Total Credit of $1,000.00 (one thousand dollars), regardless of number of units installed.

Backflow Preventer, Water Meter, Booster Pump, Copper Tubing, Gate Valves, Globe Valves, Valve Boxes, Broken Stone and Electric service to the panel, where applicable, shall be paid for separately under their respective Contract Items.

Item No.	Item	Pay Unit
PK-ESCR 202	DECORATIVE STEEL SPRAY FIXTURES, MURPHY'S BROTHER'S PLAYGROUND	L.S.

END OF SECTION

SECTION PK-ESCR 221 – STAINLESS STEEL HAND RAIL

WORK: Under this Item, the Contractor shall furnish and erect STAINLESS STEEL HAND RAIL for steps and/or ramps where shown on the plans or directed by the Engineer, in accordance with the plans, specifications, and directions of the Engineer. All handrail, including extensions, shall comply with Americans with Disabilities Act (ADA) provisions as described in ANSI A117.1-1998 (or most recent edition).

MATERIALS: All posts and rails shall be 316L in accordance with ASTM Designation

A. Tubing: ASTM A 554, Grade MT 316L. All materials as delivered shall be in condition for erection without field fitting or cutting. Stainless steel handrail shall be as manufactured by
   1. Architectural Metal Works.
   2. Blum, Julius & Co., Inc.
   3. Blumcraft of Pittsburgh. or approved equal.

WELDING: Welding shall be done by competent mechanics as specified under Section "B" and all welds shall be ground smooth.

ERECTION: The posts shall be set in holes which shall have been formed in the steps or footings, as shown on the plans or directed by the Engineer. After the posts have been set in place and property supported to hold them to line and grade, the remaining space shall be neatly filled with a grout consisting of one (1) part cement and two (2) parts sand. Color of grout shall match surrounding pavement or stone.

SUBMITTALS: All submittals shall be in accordance with the requirements of the S-Pages.

Sample: Submit one twelve (12") inch section of stainless steel pipe for approval.

Shop Drawings: The Contractor shall submit shop drawings including complete details of handrail construction, height, post spacing layout, dimensions and concrete footing detail. Stainless steel handrail shall be fabricated in strict accordance with the plans and shop drawings.

Certification: Submit certification that the materials used comply with this specification.

MEASUREMENT AND PAYMENT: The quantity of STAINLESS STEEL HANDRAIL to be paid for shall be the number of LINEAR FEET of stainless steel handrail, including handrail extensions furnished and erected complete in accordance with the plans, specifications and directions of the Engineer.

The price bid shall be unit prices per LINEAR FOOT of handrail and shall include the cost of all labor, materials, equipment and incidental expenses necessary to complete the work, all in accordance with the plans and specifications to the satisfaction of the Engineer.

Excavation, concrete for piers, and core drilling, if required, shall be paid for separately under their respective contract items.

Item No.	Item	Pay Unit
PK-ESCR 221	STAINLESS STEEL HANDRAIL	LF

END OF SECTION

PK-ESCR 402 – CATCH BASIN COVER & FRAME WITH BALLAST SCREEN

PK-ESCR 402.1. **WORK:** Under this item, the Contractor shall furnish and **CATCH BASIN COVER & FRAME WITH BALLAST SCREEN,** including locking bolts and keys, in accordance with the plans, specifications, and as directed by the Engineer.

PK-ESCR 402.2. **INTENT:** The purpose of this item is to construct a catch basin with ballast screen in areas where safety surfacing is installed to ensure drainage above and below safety surfacing. Work shall include all materials required to ensure drainage and shall include, but are not limited to, rectangular catch basin cover, frame with ballast screen, concrete for park structures, steel reinforcement, broken stone, and geotextile-drainage.

PK-ESCR 402.3. **MATERIALS:** All materials shall meet the requirements as given in NYCDOT Standard Highway Specifications or as directed by the Engineer.

Catch Basin Cover and Frame with Ballast Screen: Catch Basin Cover, frame, and ballast screen shall be cast gray iron per ASTM A48, latest revision, Class 35B and shall be as manufactured by Neenah foundry, Lincoln, NE or approved equal. Catch Basin cover shall be pattern number 7516-0600, frame shall be 7516-0602, and the ballast screen shall be 7516-601, or approved equal.

Bolt & Key: Each cover shall be furnished with two (2) locking bolts, similar to the *Intimidator Man-Lock*, as manufactured by McGard, Inc., Orchard Park, N.Y., or approved equal. Two (2) keys shall be furnished per site. For security reasons, keys shall be sent directly from the manufacturer to a location directed by the Engineer.

Concrete for park structures: Average Class B-32 Concrete as specified in NYCDOT Standard Highway Specifications or as directed by the Engineer.

Steel Bar Reinforcement: Reinforcement shall be as specified under NYCDOT Standard Highway Specifications or as directed by the Engineer.

Geotextile – Drainage: Geotextiles shall be FX-60HS (nonwoven) as manufactured by Carthage Mills, Cincinnati, OH, or 160N (nonwoven) by Mirafi, Inc., Charlotte, NC, or TerraTex N06 (nonwoven) by Hanes Geo Components, Edison, NJ, approved equal. Drainage geotextile shall meet the requirements specified under the item "Geotextile – Drainage".

Broken Stone: Broken Stone shall consist solely of crushed ledge rock. Stone shall be No. 3 size and shall be of approved size and quality as specified in General Conditions, 'Materials and Methods of Construction'. Material substitutions will not be approved under any circumstances. All recycled material will be rejected.

PK-ESCR 402.4. **INSTALLATION:**

Concrete: concrete for park structures shall be installed on two or three sides of the frame as shown on contract drawing. The Contractor shall furnish and place forms as required and shall remove them as directed by the Engineer. All finished concrete shall be protected and cured as directed by the Engineer. Steel reinforcement shall be placed as shown prior to installation of concrete.

Broken Stone and Geotextile: The drainage geotextile shall be placed loosely with no wrinkles or folds. Care will be taken to place the geotextile in intimate contact with the concrete so that no void spaces occur between the geotextile and trench. Broken stone shall be placed as shown on the Standard Details and the geotextile shall be overlapped at the top of the trench, twelve (12") inches or the full width of the trench, whichever is less.

Cover and Frame with Ballast Screen: The Covers and ballast screen shall be installed on frames as shown on the Standard Details. Immediately prior to the final inspection the Contractor shall clean cover surfaces that show evidence of loose mill scale, non-adherent rust, peeling paint and other deleterious matter in accordance with SSPC SP2, Hand Tool Cleaning, a method generally confined to wire brushing, sandpaper, hand scrapers or hand impact tools. Unless otherwise directed by the Engineer, covers shall be painted with two coats of black silicone alkyd paint, such as Steel Master 9500 manufactured by Sherwin Williams, Woodside, NY or approved equal.

PK-ESCR 402.5. **SUBMITTALS:** All submittals shall conform to the S-Pages.

Foundry Certificates: Foundry Certificates shall be submitted on pattern holder's letterhead certifying the cover, frame, and ballast screen is manufactured of materials that meet this specification.

PK-ESCR 402.6. **MEASUREMENT AND PAYMENT:**

For furnishing and installing **CATCH BASIN COVER & FRAME WITH BALLAST SCREEN** in accordance with the plans, specifications, and directions of the Engineer, the Contractor shall receive the unit price bid.

The price bid shall be a unit price for **EACH** Catch basin Cover & Frame with Ballast Screen, furnished and installed, and shall include the cost for all labor, material, equipment, and incidental expenses necessary to complete the work, including frame, cover, ballast screen,concrete for park structures, steel reinforcement, broken stone, geotextile – drainage, locking bolts, painting, and keys, all in accordance with the plans and specifications, to the satisfaction of the Engineer.

Excavation, Concrete Curb, Brick Masonry/Precast concrete for Drainage Structure, and Safety Surfacing shall be paid for separately under their respective contract items.

Item No.	Item	Pay Unit
PK-ESCR 402	CATCH BASIN COVER & FRAME WITH BALLAST SCREEN	EA

END OF SECTION

SECTION PK-ESCR 619 – SPORTS STEEL SPRAY FIXTURE

WORK: Under this Item, the Contractor shall furnish and install a hydraulic **SPORTS STEEL SPRAY FIXTURE** with concrete footing, all in accordance with the plans, specifications, and directions of the Engineer. In addition, the Contractor shall furnish incidental material to the Engineer as specified under the heading INCIDENTAL MATERIALS.

MATERIALS: Except as otherwise provided for herein, all materials and methods of construction shall conform to the specifications and requirements for "Materials and Methods of Construction" in General Conditions. General Condition.

Concrete Footings: Concrete for footings shall be 3,200 psi Average Class B-32 Concrete per the NYCDOT Standard Highway Specifications.

Sports Steel Spray Fixture: Sports steel spray fixture shall be activated by a mechanical push button, constructed of Schedule10, Type 304L stainless steel tubing, six (6") inches O.D. The sports spray fixture shall be set in a concrete footing, at the proper elevations, as shown on contract plans. The Sports spray fixture shall be eighty-four (84") inches in height from finish grade and welded to a three-eighth (3/8") inch thick stainless steel plate for anchoring into concrete footing. The Sports Spray Fixture shall be provided with a 3/4" NPT female threaded coupling for connection to water supply.

Sports spray fixtures shall be manufactured by Aquajeux International, Inc., Quebec, Canada, or approved equal and shall be one of the following models as shown on the contract plans or as directed by the Engineer:

- Model 1506-MALF-09 – Recommended for installation in asphalt pavement, natural turf, or other paved areas. Equally distributed nine (9) low flow Super Mist nozzles located, at 40 degrees, at the top of a 12.75" outer diameter spray head. o Model 1506 - MALF-06 – For installation against wall or fence only. Total of six (6) Super Mist nozzles, at 40 degrees, located at the top of the spray head and sprayed along one side of the post.
- Model 1507 - MALF -09 – Recommended for installation in synthetic turf, spray shower areas, or other free draining areas. Total of nine (9) low flow Super Mist Nozzles located nine (9") inches apart vertically in three levels. All nozzles shall be spaced evenly and offsets each other. o Model 1507 - MALF-08 – For installations against wall or fence only. Total of eight (8) Super Mist nozzles located nine (9") inches apart vertically in three levels. All nozzles shall be offset and sprayed along one side of the post.

Nozzles: Nozzles shall be made of brass and built recessed into the structure body. Each nozzle shall achieve a maximum flow rate of 2.1 GPH at a water pressure of 20 psi. Nozzles shall be manufactured by Aquajeux International, Inc., or approved equal.

Coating: The Sports Spray Fixture shall receive one UV resistant, non-toxic, lead free electrostatic powder color coating and one non-toxic, lead free, electrostatic powder clear coating. Color of the sports spray fixture shall be "Red" or another contrasting color to surrounding turf or pavement, as noted on the contract plans or directed by the Engineer.

Pneumatic Activated Valve: Push button for activation shall be Aquajeux Add-on for Mechanical Push-button Model No. "MECPB", or approved equal. Push button shall be factory assembled and integrated to the fixture. Access door to permit access to the valve shall be located at the side of the spray post, protected by stainless steel, tamper resistant screws. Activation time shall be adjustable from thirty (30) seconds to one hundred and twenty (120) seconds. Exact activation time shall be as directed by the Engineer.

Copper Tubing: The water service pipe shall be hard temper Type "K" copper tubing meeting the Department of Purchase Specification No. 32-T-1.64 and ASTM No. B88. All tubing and

fittings shall be as specified and paid for in the contract item for 'Copper Tubing'. Copper tubing and fittings are to be supplied from valves on the water supply line to the post, with the connection at the fixture to be made with a dielectric coupling.

Fittings: Fittings shall be approved red brass Class "A" threadless type, containing no less than eighty five (85%) percent copper, adaptable for copper tubing

Hardware: All hardware, fittings, and fastenings shall be as indicated on the shop drawings and as required to complete the installation. Anchor bolts shall be stainless steel in the sizes required. Tamper proof hardware shall be stainless steel.

EXECUTION:

Excavating for Foundation: All excavation shall be cut accurately to required lines and dimensions for work on drawings, and shall be large enough to provide adequate clearance for the proper execution of the work within them.

Cast in Place Footings Inspection: When the excavation has been carried to the required depth, as shown on the drawings, the Contractor shall do no more work until after the inspection by the Engineer, who shall order the foundation work to proceed, or further excavation as the conditions indicate, and no other work shall be done until the excavation has been approved by the Engineer.

Forms: Forms for footings shall be lined with exterior grade plywood. The formwork shall be coated with an approved oil or lacquer.

Curing: All finished concrete shall be protected and kept moist continuously for three days, as directed by the Engineer.

Sports Steel Spray Fixture: The sports spray fixture shall be installed in accordance with the manufacturer's written directions. Entire assemblies shall be installed in accurate locations, square and plumb in concrete footings and in required locations to surrounding finished grade, as shown on the plans. Anchor bolts shall be accurately set, plumb and true, in concrete footings, using templates supplied by the manufacturer. Concrete footings shall be below finish grade unless otherwise shown on the contract plans.

Field Connection: All field connections to be made by a Licensed Plumber.

Testing: Before backfilling, the entire system shall be pretested and inspected. This shall include maintaining full pressure on the entire system for no less than one hour. Following the pressure test, it is imperative that all components be flushed by running the water supply through the fixture for a period of time to ensure all debris has been removed from the entire system prior to installation of any nozzles and in the presence of the Engineer. Nozzles shall be secured to the spray post utilizing the security tooling provided by the manufacturer and all work shall be performed to the satisfaction of the Engineer. Where appropriate, the Contractor shall winterize the system prior to turning over the site as directed by the Engineer.

Manufacturer's Orientation and Demonstration: After testing is completed and approved by the Engineer, an orientation and demonstration session shall be held for the Engineer and the NYCDPR M&O staff. The session shall be performed by the manufacturer of the sports spray fixture. The demonstration shall include identification and operation of each component, trouble shooting for each component, winterizing the system, removal and replacement of defective components, general and specific requirements for system maintenance, and a check list for frequent attention of components.

INCIDENTAL MATERIALS: The Contractor shall furnish (furnish only, not install) and deliver, to the Engineer, additional new materials obtained from the approved sports spray fixture

manufacturer. Contractor shall also furnish to the Project Engineer any catalogs, invoices, statements, etc. for verification that a complete set of all maintenance and operations manuals, materials, etc. have been furnished. All furnished material shall be properly identified with the installation location. Incidental new materials shall be the following:

1 (One) - Tools and Hardware Maintenance Repair Kit, complete with toolbox, fastener, tamper resistant tool wrenches for nozzle included with the equipment. The repair kit shall be clearly marked with the Contract Number and the name of Park. Marking shall be done with permanent magic marker or other method approved by the Engineer.

SUBMITTALS: All submittals shall be in accordance with the requirements of the S-Pages.

Shop Drawings: The Contractor shall submit Shop Drawings of the sports steel spray fixture showing all connection details, nozzle type and sizes for approval prior to manufacture. Contractor must demonstrate that the nozzle is appropriate for the flow rate and water pressure specified.

Operation and Maintenance Manual: The Contractor shall furnish an Operation and Maintenance (O & M) Manual prepared in conjunction with the manufacturers of equipment in this specification. The O & M manual shall contain the following:

1) Description of system operation and operating modes.
2) Start-up procedures.
3) Troubleshooting and Repair Guide.
4) List of parts with their model numbers.
5) M & O Manual: The six (6) copies of the Operation & Maintenance Manual shall be distributed by the Engineer as follows:
   - One (1) laminated manual to be kept at the site, either in the equipment room or in the equipment vault.
   - One (1) O&M manual for the DPR Training Academy (contact- Michael Crescenzo 718-760-6588).
   - Two (2) manuals for the DPR Borough Supervisor of Mechanics (S.O.M.).
   - Two (2) manuals for the DPR Construction division (file, map file).

MEASUREMENT AND PAYMENT: For each **SPORTS STEEL SPRAY FIXTURE** furnished and installed in accordance with the plans, specifications, and directions of the Engineer, the Contractor shall receive the unit price bid.

The price bid shall be a unit price for **EACH** Sports Steel Spray Fixture, and shall include the cost of all labor, materials, equipment, and incidentals necessary or required to complete the work including excavation, backfill, concrete footing, hardware, fittings, pneumatic activation valve, drain valves, testing, orientation session, submittals, all components integral with the sports spray and copper tubing within five (5') feet from the edges of the sports spray fixture, all in accordance with the plans and specifications, to the satisfaction of the Engineer.

Backflow Preventer, Water Meter, Copper Tubing beyond five (5') feet of the fixture, all valves and Valve Boxes, where required, shall be paid for separately under their respective Contract Items

Item No.	Item	Pay Unit
PK-ESCR 619	SPORTS STEEL SPRAY FIXTURE	EA

END OF SECTION

SECTION PK-ESCR 620 – WATER TAP 1½" DIA.

SECTION PK-ESCR 621 – WATER TAP 2" DIA.

WORK: Under these Items, the Contractor shall make a **WATER TAP** or **WET CONNECTION** of the size shown on the plans, to the existing water main in accordance with the plans, specifications, and directions of the Engineer. The Contractor shall obtain a permit from NYCDEP, saw cut pavement, prepare opening, abandon, disconnect, cap, or plug any existing water service from the existing water main in accordance with the Rules of the Bureau of Water Supply, arrange NYCDEP installation, arrange inspection (where required) prior to backfilling and restore street pavement.

PERMITS: The Contractor shall employ a licensed Certified Master Plumber to obtain a permit from the New York City Department of Environmental Protection (NYCDEP). All permits for work requiring opening or obstructing a street and/or sidewalk shall be contingent on approval by the New York City Department of Transportation (NYCDOT) or the agency having jurisdiction to authorize such opening. All permits shall be displayed at the work site.

MATERIALS & EXECUTION: The Contractor shall notify the Engineer three (3) days prior to intended date of work. Water taps and wet connections to a City Main shall be inserted or installed only by NYCDEP employees, unless waived by NYCDEP. The Contractor shall set up appointment with NYCDEP and pay all NYCDEP fees under this item. The Contractor shall erect proper barricades and all other protective devices in strict compliance with City ordinances governing the protection of the public. All materials, excavation, saw cutting, and restoration of street pavement (where applicable) shall be performed in accordance with NYCDEP and New York City Department of Transportation requirements. Size of excavation for water tap or wet connection shall be in accordance with the requirements of NYC Department of Environmental Protection "Rules governing and Restricting the Use and Supply of Water" Appendix Table #4 and Detail Figure No.1. If subsurface conditions prevent a plumber from making an excavation of the dimensions indicated therein, the plumber shall immediately notify the Engineer. The Engineer, in turn shall notify NYCDEP, who has the discretion to determine whether the dimensions should be changed, and what the new dimensions for the excavation shall be. Where excavations are required to be larger than Appendix Table #4, such excavation shall be paid separately under the item "Unclassified Excavation". All excavations shall be made safe by sheeting and bracing, where depth of excavation exceeds five (5) feet. Hand excavate as necessary to protect underground utilities. Arrange for inspection by NYCDEP (where necessary) prior to compacting backfill in six (6") inch lifts and street pavement restoration.

INSPECTION: Where required by NYCDEP, the connection shall be inspected prior to backfilling.

MEASUREMENT AND PAYMENT: For each **WATER TAP** or **WET CONNECTION** made in accordance with the plans, specifications, directions of the Engineer and provisions of the NYCDEP permit, the Contractor shall receive the unit price bid.

The price bid shall be a unit price for **EACH** Water Tap or Wet Connection made and shall include furnishing all labor, material, equipment, and incidental expenses including obtaining permits, saw cutting, gooseneck connection for copper water tubing, unclassified excavation and/or hand excavation as required, all fees to NYCDEP, backfilling and compaction to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer.

Excavation beyond what is required by NYCDEP Appendix Table #4, Cap water line, Maintenance and protection of traffic, Restoration of Street Pavement, water line beyond the gooseneck connection, and Temporary Sheeting (where applicable) shall be paid under separate contract items.

Item No.	Item	Pay Unit
ESCR-620	Water Tap 1½" DIA.	EA
ESCR-621	Water Tap 2" DIA.	EA

END OF SECTION

SECTION PK-ESCR 622 – CURB AND PROPERTY LINE VALVES – 1½" DIA.

SECTION PK-ESCR 623 – CURB AND PROPERTY LINE VALVES – 2" DIA.

WORK: Under this Item, the Contractor shall furnish and install **CURB & PROPERTY LINE VALVES** set of the size shown on the plans, in strict accordance with the plans, specifications, and directions of the Engineer. Each set shall consist of one curb valve and one adjacent property line valve.

INTENT: The Property Line Valve is intended for use as an on-site, shut-off valve to decrease use of the Curb Valve, and shall be located in an accessible area inside the Park's property line.

CURB VALVES: "The curb valves and boxes shall be set in the service pipe in the sidewalk area at the curb or within 2 ft. of the curb. Curb valves shall be of the gate type nonrising stem valve, designed for a minimum of 150 psi wwp." [NYC Building Code: RS16, P107.2(a) 9 and NYC DEP Rules and Regs. Section 138]. Valves shall be Stockham No. LFB-103; Nibco T113-LF; Milwaukee UP105, or approved equal. Curb Gate Valves shall have bronze body, bronze bonnet, inside screw, non-rising stem, solid wedge disk, and threaded ends.

EFFECTIVE JAN. 4TH, 2014, ALL PROPOSED INSTALLATIONS/ REPAIR OF VALVES TO BE UTILIZED ON ALL DOMESTIC DRINKING WATER SERVICES FOR HUMAN CONSUMPTION, MUST BE LEAD-FREE IN COMPLIANCE WITH THE AMENDED FEDERAL LAW, SAFE DRINKING WATER ACT (SDWA).

PROPERTY LINE VALVES: Property Line Valves two inches (2") and under shall be of the cylindrical Plug Type with a closed bottom and a top seal, fully enclosed one-quarter (1/4) turn check, straight through flow way which is resistant to turbulation of the flow stream, one piece cast bronze cylindrical plug and "T" head that aligns with the ports to provide a visual check of valve position, inside screw ends with I.P. threads, as is manufactured by Mueller Co. No. H-10283N, or approved equal. Adaptors are required for connecting to copper tubing.

OPERATING KEY: An approved operating key of proper size for each valve shall be furnished by the Contractor. However, the Contractor need not furnish more than two (2) keys for each type of valve, regardless of the quantity of valves called for in the Contract. For valves 2" diameter, the operating key shall be Stockham No. 1V437 for Stockham Valves, or the appropriate key for an approved equal valve.

SUBMITTALS: Provide Product Data including Manufacturer's catalog sheets and specifications for each valve type. List type of valves, manufacturer's model number, and size for each service application.

MEASUREMENT AND PAYMENT: The quantity of **CURB & PROPERTY LINE VALVES** to be paid for under this Item shall be the number of **SETS** consisting of both valves of each size, furnished and installed in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price for each **SET** of **CURB & PROPERTY LINE VALVES** (two valves) of each size, and shall include the cost of all labor, materials, equipment, and other incidentals necessary to complete the Work in accordance with the plans and specifications, to the satisfaction of the Engineer.

Excavation, Valve boxes, water piping, including the pipe between the curb and property line gate valves shall be paid for separately under their respective contract items.

Item No.	Item	Pay Unit
ESCR-622	Curb & Property Line Valves- 1 1/2" DIA.	SETS
ESCR-623	Curb & Property Line Valves- 2" DIA.	SETS

END OF SECTION

SECTION PK-ESCR 624 – RPZ & WATER METER W/REMOTE AND STRUCTURE – 1½" DIA.

SECTION PK-ESCR 625 – RPZ & WATER METER W/REMOTE AND STRUCTURE – 2" DIA.

WORK: Under these Items, the Contractor shall provide all labor, materials and equipment necessary or required to furnish and install **RPZ and WATER METER W/ REMOTE & STRUCTURE** of the size indicated on the Contract Drawings, including all piping, fittings, valves, test tee, and test tee valve, if required and other incidentals necessary to complete plumbing work and connection to water service and water feed lines in accordance with the plans, specifications, and directions of the Engineer. RPZ (Reduced Pressure Zone) device is a type of Backflow Preventer. Water Meter W/ Remote Reader shall include Water Meter, Water Meter Strainer and Automatic Reading & Billing System (also known as Remote Reading Device). All factory plumbing work is to be done by a Licensed Plumber. All on-site plumbing work is to be done by a New York City Master Licensed Plumber.

EFFECTIVE JAN. 4TH, 2014, ALL PROPOSED INSTALLATIONS/ REPAIR OF BACK FLOW PREVENTER (BFP) DEVICESAND ALL ASSOCIATED VALVES TO BE UTILIZED ON ALL DOMESTIC DRINKING WATER SERVICES FOR HUMAN CONSUMPTION, MUST BE LEAD-FREE IN COMPLIANCE WITH THE AMENDED FEDERAL LAW, SAFE DRINKING WATER ACT (SDWA).

DEP APPROVED PLANS: The RPZ/Water Meter installation plans have been submitted to the NYC Department of Environmental Protection (DEP), Bureau of Water and Sewer Operation's (BWSO) Cross Connection Control Unit for approval. No work shall be done prior to receiving DEP approval of the aforementioned plans. Upon receiving approval, the plans shall be provided to the Contractor as a Supplemental Drawing, on or about the Order-to-Work (OTW) date.

To complete work under this item, the Contractor shall pay for the DEP Review Fees, including but not limited to the Backflow Prevention Device Review Fee, under the contract item "ALLOWANCE FOR DEP BPD REVIEW FEE". Checks shall be made payable to the New York City Water Board.

MATERIALS: Entire unit shall be fabricated and installed in accordance with this specification and Contract Drawings.

Precast Concrete Structures: Enclosure structures for the RPZ and water meter shall be as manufactured by A.C. Miller Concrete Products Inc., Spring City, PA., or approved equal.

Concrete: All concrete shall fulfill the material requirements Class A-40 concrete per NYCDOT Standard Highway Specifications Section 3.05, except that compressive strength shall be 5,000 psi at 28 days. All precast concrete shall have a honed finish. The precast concrete shall be well cured, shall be dense and shall have good edges. The cement and aggregate shall be thoroughly mixed in a proportion of one (1) part Portland Cement to not over six (6) or less than four (4) parts of aggregate. The aggregate fine and course shall conform to ASTM C-33. Aggregate shall be free of all deleterious substances which cause reactivity with oxidized hydrogen sulfides. Aggregate shall be graded to produce a homogeneous concrete mix. All exposed concrete edges shall be finished with a forty-five (45°) degree, three-quarter (3/4") inch chamfer.

Coating For Concrete: Above grade portion of precast concrete boxes shall be patched to conceal holes and then receive one (1) coat of a 100% acrylic polymer coating with a pebble finish similar to Color Coat #3107, as manufactured by BASF Senergy, Florham Park, NJ or approved equal. Color to be Sage.

Reinforcement: Steel reinforcement shall conform to the provisions of the NYCDOT Standard Highway Specifications. Reinforcement shall be placed as shown on the drawings.

Ladder Rungs: Ladder rungs for each water meter structure shall be constructed of copolymer polypropylene plastic, as manufactured by M.A. Industries, Peachtree City, Ga., or approved equal.

RPZ Structure Access Doors: Shall be high security flat plate stainless steel, single leaf, similar to JustSet Doors as manufactured by Pennsylvania Insert Corp., Spring City, PA, or approved equal. The two (2) types of RPZ Structure Access doors are as follows:

Two (2) vertical 30" x 24" (hinged) high security stainless steel access doors, painted. One (1) Horizontal 12" x 24" (no hinges) high security stainless steel access door, painted.

Stainless steel doors for RPZ structure shall be painted with one primer coat and one finish coat. All three doors shall be cleaned with solvent to remove oil, grease, dirt and other foreign material, then primed with a low VOC, water based wash primer, free of heavy metals and mineral acids, similar to DTM Wash Primer as manufactured by Sherwin Williams Protective & Marine Coatings, Edison, NJ or approved equal. Finish coat shall be high gloss enamel paint similar to Industrial Enamel HS (B54Z-400 series) as manufactured by Sherwin Williams Industrial Coatings, Edison, NJ or approved equal. Color to be Sage to match coating for concrete.

Water Meter Structure Access Door: Access door shall be 36" x 30" size, heavy duty (H20 loading) high security, color (brown) anodized aluminum, similar to JustSet Door as manufactured by Pennsylvania Insert Corp., Spring City, PA, or approved equal. Frame shall have integral drain channel, anchor flanges, and neoprene gasket. A one-and-one half inch (1 1/2") drain coupling shall be located on the corner of the frame. Operation shall be spring assisted for easy operation. A hold open arm shall automatically lock the door in the 90 degree position. Hinge shall be heavy forged brass with a stainless steel pin. Door shall be provided with two locks. Lock shall be "Ford" lifter worm lock with waterworks bronze pentagonal bolt type "LL". All hardware shall be zinc or cadmium plated.

Construction Accessories: Frames shall be 3/16" x 2" x 2" angle welded with joints ground smooth, after fabrication. Hinges shall be heavy duty and welded to door and frame.

Security Bolts for RPZ Structure doors: Security Bolts for RPZ Structure shall be NYC DPR pattern # 83 registration # "116183", Part # H11777155, as manufactured by McGard, Orchard Park, NY, or approved equal. Threads for security bolts shall be at least one-third (1/3) bolt dia. for proper "bite". Vertical doors shall have two (2) security bolts; 7/16 - 20 x .750. Horizontal door for RPZ structure shall have four (4) security bolts; 7/16 - 20 x .750. For security reasons, one security bolt key for each RPZ installed shall be shipped by McGard directly to the attention of: The Administrative Assistant to the Director of Engineering, NYC Parks Olmsted Center, Corona, NY 11368, with written confirmation provided to the Engineer. Under no circumstances shall the Contractor be provided with a key.

Security bolts for Water Meter Structure Horizontal Access Door: Security bolts for Water Meter

Structure Horizontal Door shall be two (2) pentahead security bolts. Special Design Criteria For Security Bolts:

1) Bolt must be made from alloy steel, heat treated to 150,000 psi tensile strength.
2) Head of bolt must be selectively hardened to Rc 60 min. to prevent the use of files, hacksaws, and chisels.
3) Bolt is to be made with either a flat or 120^{o} cone seat as required.

4) Bolt will be torqued by means of a recessed curvilinear ("Daisy") groove in the top face of bolt head. A special mating key is required to operate in groove for installation and removal of bolt.
5) Bolts are to be zinc nickel plated in order to meet an ASTM B-368 C.A.S.S. test for 22 hours.
6) Bolt lengths are to be held to +/- .01".
7) Bolt threads are to be class UNC-2A.

Water Piping: Shall be hard temper type 'K' copper tubing meeting the Department of General Services; Division of Municipal Supplies, Dept. of Purchase, Specification No. 32-T-1.64 and ASTM No. B88-1974. Fittings shall be approved wrought copper and bronze solder -joint pressure fittings (ANSI B 16.22).

RPZ: The RPZ device shall be Febco Model LF825YA, or approved equal. Size shall be as indicated on the Contract Drawings and shall fit inside the precast concrete structure as shown on Contract Drawings. The RPZ shall meet the requirements of American Society of Sanitary Engineers (ASSE) Standard 1013 and the American Water Works Association (AWWA) Standard Code 506-78. RPZ shall be lead free in compliance with the amended Federal Law Safe Drinking Water Act (SDWA).

The RPZ shall consist of two independently operating center guided, spring loaded, "Y" pattern check valves and one hydraulically dependent differential relief valve. Mainline valve body and caps including relief valve body and cover shall be bronze. Check valve and relief valve components shall be constructed so they may be serviced without removing the valve body from the line. Shut-off valves and test cocks shall be full ported resilient seated ball valves.

Gate Valves: The House Control Valve (HCV) and Valve for Test Tee shall be a Class 125, all bronze gate valve, with non-rising stem and solid disc, with screwed bonnet and threaded ends, such as Stockham Figure LFB-103, or approved equal. For water meters up to 1" size, a plain-tip (end faucet) test tee shall be used. For meters larger than 1.5", the test tee shall be with a valve and capped.

Ball Valves: The Meter Inlet Control Valve (MICV) and Meter Outlet Control Valve (MOCV) shall be lead free, brass, full port ball valve, such as Ultra Pure UPBA400 P2, or approved equal.

Electrical Grounding: For continuity of Electrical Grounding (during RPZ Maintenance) the Contractor is to furnish and install one (1) #2 tinned copper ground conductor and copper alloy ground connectors as per O.Z. Gedney, Type ABG for 1" & 1-1/2" dia. and CG for 2" dia. pipe or approval equal. Ground work is to be done prior to any painting or insulation if needed.

Water Meter: The one (1") inch water meter shall be Neptune T-10, as manufactured by Neptune Technology Group, Inc., Tallassee, AL, or AccuStream manufactured by Sensus, Raleigh, NC or approved equal. The one and one-half (1 ½") inch water meter shall be Neptune T-10 manufactured by Neptune Technology Group, Inc., or Omni C^2 manufactured by Sensus or approved equal. The two (2") inch water meter shall be Omni C^2 manufactured by Sensus or evoQ4 Electronic manufactured by Elster AMCO Water, LLC, Ocala, FL, or approved equal.

All water meters furnished shall conform to the "Standard Specifications for Cold Water Meters", AWWA Standard C700 latest revision. Only meters on the current "List of Approved Water Meters and Related Equipment", published by NYC DEP will be accepted as an approved equal.

The size, capacity and meter lengths shall be as specified in AWWA Standard C700, latest revision. The maximum number of disc nutations is not to exceed those specified in AWWA C700 latest revision to minimize premature wear. The installation of water meters shall comply with RCNY Title 15, Chapter 20, "Rules and Regulations Governing and Restricting the Use and Supply of Water".

Meter Maincase: All one (1") inch meter maincase shall be the removable bottom cap type with the bottom cap secured by six (6) bolts. Bottom caps shall be interchangeable, size for size, between frost-protected synthetic polymer or cast iron and non-frost protected (bronze) models. No meters utilizing frost plugs will be accepted. Non-frost protected meters shall have bronze or synthetic polymer bottom caps. The cross section of the bottom shall break clean when subjected to freezing pressure of 600-850 psi. All maincase bolts shall be of 300 series stainless steel to prevent corrosion. Bottom cap bolt lugs shall be enclosed in the maincase and shall not have externally exposed, threaded through holes. All one and one-half (1-1/2") inch and two (2") inch meters shall have a split design secured by bronze or stainless steel bolts.

Register: The register shall be of the straight reading sealed magnetic drive type and shall contain six (6) numeral wheels. Registers must be sealed and dry. All direct reading register lenses shall be flat, of high strength, and impact resistant glass to prevent breakage. The dial shall be of the center sweep pointer type and shall contain 100 equally divided graduations at its periphery. The register must contain a low flow indicator with a 1:1 disc nutating ratio to provide leak detection. Register boxes shall be bronze.

All meters must be adaptable to digital encoder register without interruption of the customer's service for the purpose of pit, remote, or central meter reading. The registers shall be secured to the maincase by means of a plastic tamperproof seal pin to allow for in-line service replacement. Seal screws are not acceptable.

Register retainer rings shall have an impact resistant design which absorbs register glass lens impact. All registers shall have the size, model, and date of manufacture stamped on the dial plate.

Measuring Chamber: The measuring chamber shall be a nutating disc type, the flat nutating disc shall be molded of a non-hydrolyzing hard rubber or synthetic polymer and shall contain a type 316 stainless steel spindle. The nutating disc shall be equipped with a synthetic polymer thrust roller with a stainless steel shaft located within the disc slot. The roller head shall roll on the

buttressed track provided by the diaphragm in the measuring chamber. The measuring chamber shall be of a 2-piece snap-joint type. The measuring chamber shall be made of non-hydrolyzing synthetic polymer, shall be smoothly and accurately machined and shall contain a removable molded diaphragm of the same material as that of the chamber. No screws shall be used to secure the chamber together. The control block shall be the same material as the measuring chamber and be mounted on the chamber top to provide sand ring protection. The control block assembly shall be removable to facilitate repairing. Control block assemblies shall be designed to allow no magnetic slippage which would result in a loss of revenue. The measuring chamber outlet port shall be sealed to the maincase outlet port by means of an "O" Ring gasket to eliminate chamber leak paths.

Warranty: All meters and registers will be warranted for one year on material and workmanship. To ensure accuracy, each meter must be accompanied by a factory test tag certifying the accuracy at the flows required by AWWA C700 (low, intermediate, and full flow). All meters shall be guaranteed adaptable to the Neptune ARB Encoder Electronic Meter Reading Systems.

Strainer: The strainer shall be located near the inlet maincase port, before the measuring chamber and control block assembly.

Remote Reader: The Remote Reader shall be Neptune Proread ARB System ® as manufactured by Neptune Technology Group, Inc., Tallassee, AL, or ECR or Full Electronic Register as manufactured by Sensus, or Scancoder Emulation as manufactured by Elster, or approved equal. The Remote Reader shall be a self-contained encoder register metering system designed to obtain remote simultaneous water meter registration directly from the register odometer. The metering information shall be obtained through a remotely located receptacle using a compatible data capture system.

Encoder Meter Register: Shall be direct mounted with encoded odometer wheels and digital data stream. Batteries or pulses are not allowed.

Registration: The register shall provide a six digit visual registration at the meter. The unit shall, in a digital format, simultaneously encode the four or six most significant digits of the meter reading for transmission through the remotely located receptacle. (The most significant meter registration digits are defined as those digits on the register number wheels that denote the highest recorded values of water consumption.) A quick indexing mechanism shall be employed which shall prevent ambiguous reading. The register shall have a full test sweephand or dial divided into gradients of down to 1/100th of the units of registration. Register test rings shall be available for shop testing. The units of registration shall be in U.S. gallons. These units shall be clearly designated on the face of the register. The month and year of manufacture and other identification information shall appear on the face of the register. The register shall employ a leak detection indicator on the dial face. Registers using pulse generation or conversion of pulses to digital output is not permitted. Batteries shall not be required.

Mechanical Construction: Materials used in the construction of the register shall be compatible with the normal water meter environment and with each other. The unit shall possess a copper bottom and incorporate a rubber O-ring seal. Where indicated, pit set

registers must be provided with moisture protection for all internal components when operating under flooded pit conditions. The register and mounting base shall be integral components and should not allow for disassembly. The register shall be attached to the meter case by a bayonet attachment. Fastening screws or nuts shall not be required. A tamperproof plastic seal pin shall be used to secure the register to the main case. No special tools shall be required to remove the register. The register head must swivel 360 degrees without removing the seal pin to facilitate visual reading and ease of wiring. The register shall be removable from the meter without disassembling the meter body and shall permit field installation and/or removal without taking the meter out of service. Provision shall be made in the register for the use of seal wires to further secure the register. Terminal screws must be accessible on the register for transmission wire connection to the remote receptacle or future connections to a telephone system.

Electrical Construction: The materials employed for contacts and connectors shall inhibit corrosion and shall suffer minimal effect from environmental conditions to which they are exposed. The number wheels used in the register assembly shall be provided with spring-type bifurcated metal contacts to insure a high probability of information transmission.

Connection shall be made to the register by three screw-type terminals, sonically inserted into the register top. Access to the terminals shall be available to all models of register. A port cover shall be provided to cover the terminals after they have been wired. Digitally formatted data transmitted from the register shall incorporate a check sum character to verify correct information transmission and integrity. Data errors shall be indicated by the reading equipment.

Meter Reading Information: The encoder register shall provide up to six digits of information to the reading equipment. A ten digit identification number shall also be provided with each reading. The utility shall have the option to reprogram the internal register identification number an unlimited number of times. The encoder register must have the capability to provide additional custom information to the reader. This information shall be programmed (and reprogrammed at any time) by the utility. Information on programming the register, equipment needed, and encoder meter reading output shall be provided with each proposal.

Remote Mounted Receptacle: Remote receptacle shall provide a communication link for the transmission of information from the register.

Mechanical Construction: Where indicated, a remote receptacle must be provided for attachment to a pit meter lid with another unit also designed for attachment by wall mounting. The materials employed shall be corrosion resistant, resist ultraviolet degradation, unaffected by rain or condensation, and compatible with rugged service and long life. The pit mounted receptacle shall be mounted to the water meter access door of the meter concrete structure using two screws to be provided by the utility. The hole size to be drilled in the access door shall not exceed 3/8" each. The pit mounted receptacle shall be provided with a minimum length of ten feet of wire connected and sealed at the receptacle without terminal exposure.

Electrical Construction: The receptacle construction shall incorporate the function of a cable clamp or strain relief. Design of the unit shall be such that it provides for mechanical and electrical connection between the receptacle and interrogation equipment.

Cable: The connecting cable shall be of the two-wire conductor type in a sheath which shall be abrasion and moisture resistant. Each conductor shall be color coded.

INSTALLATION:

Excavation: The Contractor shall excavate to the lines as shown in the drawings. Temporary sheeting is required in excavation for the precast concrete structure.

Temporary Sheeting: All shoring work shall meet or exceed the requirements of the New York State Department of Labor, Industrial Code Rule 23 and Title 29 Code of Federal Regulations Part 1926, Safety and Health Regulations for Construction (OSHA).

The type of sheeting and bracing shall be satisfactory to the Engineer and subject to the Contractor's approval, but the approval by the Engineer of a method to be used does not relieve the Contractor of the Contractor's responsibility for protection and safety.

Setting of Precast Concrete Water Meter Structure: The precast concrete water meter structure shall be set on a six (6) inch thickness of broken stone with additional stone added inside the twelve inch (12") x twelve inch (12") drain sleeve to the top of the bottom slab. The RPZ Structure shall be set on the Water Meter Structure, as shown on the Contract Drawings.

The Contractor shall install supports for the water meter at the height shown on the Contract Drawings. The meter shall be set so that the dial faces upward and is horizontal. The dial shall not be more than three (3) feet above the floor. The encoder register shall be installed on meter as per manufacturer's instructions. The remote reader receptacle shall be installed in the pit cover as per the manufacturer's directions and recommendations, allowing reading of the meter from above ground level. The Contractor to allow sufficient Water Meter Remote Reader cable slack for manhole cover removal. The RPZ shall be installed as shown on the Contract Drawings and per manufacturer's instructions.

Connections: The Contractor shall connect the water piping as shown on the Contract Drawings for complete and satisfactory operating unit to the satisfaction of the Engineer. Connections shall be made to The Water Meter by coupling union or flange union on both inlet and outlet

ends of the meter and bored for sealing with holes not less that one-eight (1/8) of an inch in diameter - solder connections are not permitted. Connections to the RPZ shall be as shown on the Contract Drawings and per manufacturer's instructions.

SUBMITTALS: Provide Product Data including Manufacturer's catalog sheets and specifications for each item type.

Shop Drawings: The Contractor shall submit Shop Drawings showing installation of the complete RPZ assembly, water meter, piping, pipe supports, precast concrete structures, doors and the coatings.

Catalog Cuts: The Contractor shall submit Catalog Cuts of the RPZ, water meter, meter reading system, control valve, and all connected piping for approval prior to installation.

Certifications: The Contractor shall be responsible for obtaining all Certification necessary to comply with the NYC Department of Environmental Protection (DEP), Bureau of Water and Sewer Operation's (BWSO) Cross Connection Control Unit for approval & the NYS Department of Health regulations for RPZ's (after installation) including:

1. Certification by Backflow Prevention Device Tester, Certification of Master Plumber responsible for the RPZ & Water Meter installation, and

2. A Professional Engineer's or Registered Architect's Certification that the installation is in accordance with the Approved Plans.

The Contractor shall be held completely responsible to ensure that all Work is in compliance with NYC form GEN-215B.

MEASUREMENT AND PAYMENT: For the furnishing and installation of **EACH** size of the **RPZ and WATER METER W/ REMOTE AND STRUCTURE** indicated, including installation of all plumbing work, certifications, etc., in accordance with the plans, specifications, and directions of the Engineer, the Contractor shall receive the unit price bid.

The price bid shall be a unit price for **EACH** size RPZ and Water Meter w/ Remote and Structure and shall include the cost of all labor, materials, equipment, and any incidental expenses necessary, including unclassified excavation, temporary sheeting, broken stone base, certifications, all plumbing work within the structure, connection to the water service at the structure; and precast concrete structure, including reinforcing steel, brick masonry, rungs, and access doors, and DEP review fee, all in accordance with the plans and specifications, to the satisfaction of the Engineer.

Copper tubing and all water service beyond the exterior face of the concrete structure shall be paid for separately under their respective contract items.

Item No.	Item	Pay Unit
ESCR-624	RPZ & Water Meter w/Remote and Structure – 1½" DIA.	EA
ESCR-625	RPZ & Water Meter w/ Remote and Structure - 2" DIA.	EA

END OF SECTION

SECTION PK-ESCR 626 – PLUG VALVE – 1" DIA.

SECTION PK-ESCR 627 – PLUG VALVE – 1¼" DIA.

SECTION PK-ESCR 628 – PLUG VALVE – 1½" DIA.

SECTION PK-ESCR 629 – PLUG VALVE – 2" DIA.

WORK: Under these Items, the Contractor shall furnish and install **PLUG VALVES**, of the sizes and type shown on the plans, in strict accordance with the plans, specifications, and directions of the Engineer.

PLUG VALVES: Valves two inches (2") and under shall be of the cylindrical Plug Type with a closed bottom and a top seal, fully enclosed one-quarter (1/4) turn check, straight through flow way which is resistant to turbulation of the flow stream, one piece cast bronze cylindrical plug and "T" head that aligns with the ports to provide a visual check of valve position, inside screw ends with I.P. threads, as is manufactured by Mueller Co. No. H-10283N, or approved equal. Adaptors are required for connecting to copper tubing.

EFFECTIVE JAN. 4TH, 2014, ALL PROPOSED INSTALLATIONS/ REPAIR OF VALVES TO BE UTILIZED ON ALL DOMESTIC DRINKING WATER SERVICES FOR HUMAN CONSUMPTION, MUST BE LEAD-FREE IN COMPLIANCE WITH THE AMENDED FEDERAL LAW, SAFE DRINKING WATER ACT (SDWA).

OPERATING KEY: An approved operating key of proper size for each valve shall be furnished by the Contractor, except that the Contractor need not furnish more than two (2) keys for each type of valve, regardless of the quantity of valves called for in the contract. For plug valves two inches (2") and under, the operating key shall be Mueller Co. No. H-10322N, or approved equal.

SUBMITTALS: Provide Product Data including Manufacturer's catalog sheets and specifications for each valve type. List type of valves, manufacturer's model number, and size for each service application.

MEASUREMENT AND PAYMENT: The quantity of **PLUG VALVES** of various sizes to be paid for under these items shall be the number of valves of each size, furnished and installed in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price for **EACH** valve of the type and size specified, and shall include the cost of all labor, materials, equipment, and incidental expenses necessary to complete the work, in accordance with the plans and specifications, to the satisfaction of the Engineer.

Excavation shall be paid for separately under its own item.

Item No.	Item	Pay Unit
ESCR-626	Plug Valve - 1" DIA.	EA
ESCR-627	Plug Valve - 1¼" DIA.	EA
ESCR-628	Plug Valve - 1½" DIA.	EA
ESCR-629	Plug Valve - 2" DIA.	EA

END OF SECTION

SECTION PK-ESCR 630 –TYPE "K" COPPER TUBING - 1" DIA.

SECTION PK-ESCR 631 – TYPE "K" COPPER TUBING – 1¼" DIA.

SECTION PK-ESCR 632 – TYPE "K" COPPER TUBING – 1½" DIA.

SECTION PK-ESCR 633 – TYPE "K" COPPER TUBING - 2" DIA.

WORK: Under these items, the Contractor shall furnish, install and connect the water pipe of the size shown in accordance with the plans, specifications and directions of the Engineer.

PIPE: The water service pipe shall be rigid (drawn) temper type "K" copper tubing in straight lengths meeting the specification for ASTM designation No. B88.

Exception: If the distance between the water tap to the curb valve is greater than ten (10') feet or cannot be spanned with a single piece of rigid tubing, ductile (annealed) copper tubing may be installed, as approved by the Engineer.

FITTINGS: Fittings shall be approved wrought copper and bronze solder - joint pressure fittings (ANSI B 16.22), Di-Electric fittings as required.

JOINTS: Joints shall be made by soldering, using 95-5 tin antimony solder. Except from the curb valve to the water tap, joints shall be of the "flared" type.

INSTALLATION: The pipe shall be laid true to line and grade with a cover as indicated on the plans or as directed by the Engineer. When the foundation is good firm earth, the earth should be pared or molded to give a full support and if necessary a layer of fine gravel, sand or other suitable material should be placed. The same means of securing firm foundation should be adopted in case the excavation has been made deeper than necessary, in which case the Contractor shall furnish the fine gravel, sand or other suitable foundation material at the Contractor's own expense.

Where the bottom of the trench is in rock, fresh fill, soil of low bearing power or other situations where special foundations are required, the Contractor shall provide such foundation in accordance with the written order of the Engineer. The work shall be paid for at the unit prices bid for the materials used in the work.

TESTS: The Contractor shall not backfill over any pipe until ordered by the Engineer. The pipe system shall be tight and show no leaks when filled with water, sealed and subjected to an internal hydrostatic pressure of 100 psi for thirty minutes. Temporary caps shall be placed where required to permit making the tests where valves are not available. The tests shall be made in the presence of the Engineer.

MEASUREMENT AND PAYMENT: The quantity of **TYPE "K" COPPER TUBING** to be

paid for under these items shall be the number of **LINEAR FEET** (laying length), of each size, including fittings, furnished and incorporated in the work in accordance with the plans, specifications and directions of the Engineer.

The price bid shall be unit price per **LINEAR FOOT** of Type K Copper Tubing of each size and shall include the cost of all labor, materials, equipment and incidental expenses necessary to complete the work, including fine gravel or sand foundation material (where needed), in accordance with the plans and specifications to the satisfaction of the Engineer.

Excavation, water tap and restoration shall be paid for separately under their respective contract items.

Item No.	Item	Pay Unit
ESCR-630	Type "K" Copper Tubing - 1" DIA.	LF
ESCR-631	Type "K" Copper Tubing – 1¼" DIA.	LF
ESCR-632	Type "K" Copper Tubing – 1½" DIA.	LF
ESCR-633	Type "K" Copper Tubing - 2" DIA.	LF

END OF SECTION

SECTION PK-ESCR 634 – CAST IRON VALVE BOX, 5¼" DIA.

WORK: Under this Item, the Contractor shall furnish and install **CAST IRON VALVE BOX, 5 1/4" DIA.** in accordance with the plans, specifications, and directions of the Engineer.

MATERIALS: All materials should be as follows:

Box: 5 1/4" diameter valve boxes shall be Bingham & Taylor Fig. No. 4908 (2-Piece Sliding Type Adjustable Valve Box) with a Fig No. 4904-L locking cover, or approved equal. The cover shall have the designation "WATER" cast thereon. The boxes shall extend within the limits called for on the plans.

Setting: The valve boxes shall be set plumb, as shown on the plans, on a footing of brick laid in cement mortar, supported on a foundation of broken stone. The entire area surrounding the valve box shall be fully compacted after setting.

Brick: The brick shall be made from clay or shale, well burned, of a quality approved by the Engineer. The mortar shall be composed of one-part Portland Cement and two parts sand.

Broken Stone: The broken stone shall be clean broken traprock, or other approved stone, all of which shall pass a one-inch square opening screen and retained on a 5/8-inch square opening screen.

SHOP DRAWINGS: The Contractor shall submit Shop Drawings indicating box manufacturer, box size and material.

MEASUREMENT & PAYMENT: The quantity of **CAST IRON VALVE BOXES, 5 1/4" DIA.** to be paid for under this item shall be the number of boxes, including brick and broken stone setting bed furnished and installed in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price per **EACH** Cast Iron Valve Box and shall include the cost of all labor, materials, equipment and other incidentals necessary to complete the work, in accordance with the plans and specifications, to the satisfaction of the Engineer.

Excavation will be paid for separately.

Item No.	Item	Pay Unit
ESCR-634	Cast Iron Valve Box, 5 1/4" DIA.	EA

END OF SECTION

SECTION PK-ESCR 635 – BOTTLE FILLER

SECTION PK-ESCR 636 – BOTTLE FILLER W/ DOG BOWL

SECTION PK-ESCR 637 – BOTTLE FILLER W/ HI-LO DRINKING FOUNTAIN BASINS

WORK: Under these items, the Contractor shall provide all labor, materials, and equipment necessary or required to furnish and install **BOTTLE FILLER** and/or **BOTTLE FILLER W/DOG BOWL** and/or **BOTTLE FILLER W/HI-LO DRINKING FOUNTAIN BASINS,**

including concrete foundation, all internal plumbing, access panels and all external plumbing work and connection to water service and drain within five feet (5') of the tubular body, all in accordance with the plans, specifications, and directions of the Engineer.

MATERIALS: Except as otherwise provided for herein, the materials shall meet the requirements of General Conditions.

Broken Stone Base: Shall consist solely of crushed ledge rock. Stone shall be no. 3 size and shall be of approved size and quality as specified in General Conditions General Condition.

Geotextile –Drainage: shall be FX-60HS (nonwoven) as manufactured by Carthage Mills, Cincinnati, OH, or 160N (nonwoven) by Mirafi, Inc., Charlotte, NC, or TerraTex N06 (nonwoven) by Hanes Geo Components, Edison, NJ, or approved equal.

Polyethylene vapor retarder: shall be a Reinforced Vapor Retarder 3-ply laminate, combining 2 layers of high-density polyethylene and 1 high strength non-woven cord grid similar to Griffolyn Type-65 as manufactured by Reef Industries, Inc., Houston, Texas or approved equal.

Concrete pad, Concrete pipe support and Cleanout: (for Bottle filler and Bottle Filler w /Dog Bowl) Concrete shall be 3,200 psi Average class B-32 Concrete per the NYCDOT Standard Highway Specifications.

Cleanout manhole cover and frame: (for Bottle filler and Bottle Filler w /Dog Bowl) shall be heavy dutycast iron per ASTM A48, latest revision Class 30 or better. Manhole cover shall be a locking cover with frame, similar to Pattern No. 1000010 as manufactured by Campbell Foundry, Harrison, NJ or approved equal. See Hardware: paragraph.

Sand: surrounding cleanout shall be cushion sand as described in General Conditions.

Drain pipe: Shall be cast iron.

Cleanout ferrule: Shall be similar to model # CO-380 cast iron cleanout with gasketed brass countersunk plug, no hub connection as manufactured by Watts Drainage products, Spindale, NC or approved equal.

Expansion joint with sealant: material shall be one of the following: A premolded bituminous fiber joint filler, as specified in Section "B" (requires a bond breaker and sealant) or, a premolded closed cell expanded polyethylene foam joint filler, such as MasterSeal 920 by BASF Inc., Shakopee, MN (requires only sealant) or, an approved equal of any of the above. If bituminous fiber material is used, a bond breaker such as one-half inch (1/2") width polyethylene tape or five-eighths inch (5/8") diameter expanded polyethylene foam backer rod shall be installed as recommended by manufacturer. A bond breaker will not be required for a premolded foam joint or a shredded recycled rubber aggregate joint filler, but sealant is always required. Prepared expansion joints shall be coated with a primer followed by installation of a bond breaker and a self-leveling two-component polyurethane-based elastomeric sealant. The Contractor shall apply Sikaflex 429 primer with Sikaflex - 2C SL sealant, manufactured by Sika Corp., Lyndhurst, N.J; or BASF MasterSeal P 173 with MasterSeal SL 2 sealant, by BASF, Inc., Shakopee, MN, or approved equal.

Color of sealant shall be concrete gray. Asphalt cement will not be approved as a sealant.

Precast Concrete plumbing pit: (for Bottle Filler w/Hi-lo Drinking Fountain Basins) The Concrete Plumbing Pit shall be precast, manufactured by Key Cast Stone Company, Inc., Amityville, NY, Pro Concrete Precast, Jamaica, NY, or approved equal.

Cement: Air entrained Portland cement shall comply with the requirements of the ASTM Designation C150. It shall be Type IIA, moderate sulfate resistant.

Cast stone shall have a compressive strength of not less than forty-five hundred (4,500) pounds per square inch when tested as 2" x 2" x 2" cubes at an age of not more than twenty-eight (28) days and shall have an absorption rate not to exceed seven (7%) percent of the dry weight after being dried to constant weight at 150 degrees Fahrenheit. No chipped, broken, or checked stone showing fine hair cracks or checks on the surface will be accepted.

Aggregate: Natural Sand and gravel shall conform to the requirements of ASTM C33. Calcium Chloride: Do not use calcium chloride in precast concrete.

Reinforcing Bars: ASTM A 615, Grade 40 or Grade 60 as necessary. Bars are to be used to handle transportation and handling stresses.

Welded Wire Fabric: Shall meet ASTM A1064/1064M.

Supports for Reinforcement: Provide supports for reinforcement including bolster, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing.

Miscellaneous Iron and Steel: Access into the concrete plumbing pit shall be via a two (2') foot diameter ductile cast iron frame and "Parks Leaf" manhole cover as shown on contract plans. Manhole Covers shall be of gray iron per ASTM A48, latest revision, Class 30 or better. Covers shall be as manufactured by Campbell Foundry Co., Harrison NJ or EJ USA, Inc., East Jordan, MI or approved equal. All covers shall be suitable for highway traffic, meeting the requirements for heavy duty H-20 loading, per AASHTO M306-10.

Hardware: Each cover shall be furnished with two (2) Stainless Steel Penta-Head bolts as supplied by Campbell Foundry Co., Harrison, NJ, or approved equal. Typical plastic end caps are to be supplied with hardware and installed on Penta-Head bolts.

Bottle Filler: Shall be Model #10125-SM-NYC as manufactured by Most Dependable Fountains, Inc. Arlington, TN, Model #M-OBFX-NYC as manufactured by Murdock Manufacturing, City of Industry, CA, Model #LK4400BF-NYC as manufactured by Elkay, Oak Brook, IL, or approved equal.

Bottle Filler w/dog bowl: Shall be Model #10125-SM-DB-LHB-NYC as manufactured by Most Dependable Fountains, Inc. Arlington, TN, Model #M-OBFX-PF-NYC-HB6 as manufactured by Murdock Manufacturing, City of Industry, CA, Model #LK4400-DB-BF-LHB-NYC as manufactured by Elkay, Oak Brook, IL, or approved equal.

Bottle Filler w/ Hi-Lo Drinking Fountain basins: a "Hi-Lo" drinking fountain is defined by ADA as a unit where one fountain basin is accessible to those who use wheelchairs and one fountain basin is at a standard height convenient for those who have difficulty bending.

Bottle Filler w/ Hi-Lo Drinking Fountain basins: Shall be Model #10145-SM-NYC as manufactured by Most Dependable Fountains, Inc. Arlington, TN, Model #GYQ5X-NYC as manufactured by Murdock Manufacturing, City of Industry, CA, Model #LK4430-BF-1U-NYC as manufactured by Elkay, Oak Brook, IL, or approved equal.

Customization of bottle fillers for NYC use:

Manufacturer's identification-shall be displayed discreetly on the unit's access panel to facilitate ordering replacement parts.

All parts and installation shall meet applicable requirements of N.Y.C. Codes, including type "K" copper tubing throughout for water supply within unit.

Sensor operated bottle filler and freeze resistant valves are Not required under this specification.

Tubular Body: Shall be either pipe or tubular steel or fabricated 304 stainless steel, 12 gauge or better.

Access covers: shall be located for easy access to facilitate maintenance and replacement of parts and shall be fastened with vandal resistant stainless steel screws.

Surface mount: Shall be either stainless steel mount or optional stainless steel surface carrier.

Corrosion Resistant Treatment: All fabrication and welding shall be completed prior to application of the corrosion resistant coating, metal pieces shall be cleaned of all weld spatter, mill scale, varnish, rust, grease, and the like and the surface mechanically and chemically prepared to receive the coating. This corrosion resistant coating shall be a thermal spray zinc coating or electrostatic or immersion applied primer with a minimum thickness of 3 mils. All metal pieces, including welds, shall receive the coating inside and out.

Polyester Powder Coating: A surface coat shall be applied to the thermal zinc coated metal pieces in such a manner that the coating will not peel off. The manufacturer shall perform all processes required to achieve a smooth material bond. An epoxy or acrylic polymer primer shall be applied prior to application of powdercoating. The surface coat shall be an electrostatically sprayed, lead-free, superdurable TGIC (triglycidyl isocynanurate) polyester powder coating applied to a minimum of three (3) mils thickness which shall be oven cured. The TGIC polyester powder coating shall be UV resistant and comply with the ASTM standards.

Material manufacturer's directions for storage and use shall be adhered to. Material surfaces shall be protected during shipment so as to arrive mar and scratch free in the field.

Color- shall be Blue, Green, Black or Silver/Gray, as shown on the drawings and/or as selected by the Engineer. Where Silver/Gray color is specified, satin finish stainless steel (without powder coating) may be substituted.

NYC Water Logo: shall be a vinyl decal with ultraviolet (UV) cured ink, designed for outdoor use, minimum thickness 5 mil. Decal shall include a UV protected laminate. Adhesive shall be guaranteed to perform at temperatures as low as -10 degrees F. Minimum durability shall be 3 years. Dimension of decal shall be 3 7/8" in width, 7 3/8" in height, light blue color shall be Pantone Process Cyan (4 color print CMYK 100,0,0,0), white color shall be Pantone Process White (4 color print CMYK 0,0,0,0) or approved equal. Logo shall be placed in recess as shown on attached sketch or as approved by the Engineer.

Hardware: All hardware, fittings, and fastenings shall be tamper resistant 18-8 stainless steel, type 304 in accordance with ASTM F593 of sizes as indicated on the shop drawings and as required to complete the installation. Anchor bolts shall be minimum 3/8 inch, ten (10") inches long and may be either stainless steel or galvanized steel, quantity as required by the manufacturer.

Bubbler Head: Bubblers shall be rounded one piece design, vandal-resistant type, certified to be lead-free. Bubblers may be either 18-8 stainless steel type 304 or chrome plated cast brass.

Push Button: Shall be stainless steel valve body with a 1 ½" diameter feather touch vandal resistant push button. Push button for bottle filler and accessible "lo" basin shall be activated by a maximum five (5) pounds of pressure, in compliance with ADA.

Stainless Steel Bowls: Shall be 18 gauge or better stainless steel, type 304, satin finish to comply with ASTM A380 and ASTM A967 standards, install with tamper proof stainless steel screws.

Dog Bowl: construction and finish to match the bottle filler and stainless steel bowl as specified herein.

Lockable Hose Bibb: shall be included in dog bowl/pet fountain models. Locking device shall be constructed to be vandal resistant. The Agency shall supply the lock. A vacuum breaker shall be included.

Waste Strainer: Shall be satin chrome plated brass or stainless steel waste strainer with a 1-1/4"

O.D. tailpiece. Plastic waste drain/strainers are not acceptable.

Plumbing: The manufacturer shall have all factory installed plumbing components pre-tested installed before delivery to site. All factory connections to be made by a licensed plumber.

PLUMBING: The Contractor shall furnish and install all pipe, fittings, valves, and other foundries to complete the plumbing for the connections and concrete pit. The drain pipe shall be extended five (5) feet beyond the foundation and connected to the sanitary drain line or dry well, as shown on the plans. The one and one-quarter (1 1/4") inch cold water line shall be extended five (5') feet beyond the foundation and connected to the water supply pipe, as shown on the plans.

Connection to water supply shall be made with a threaded, extra heavy fitting. The Contractor shall provide dielectric fitting at appropriate locations, as shown on plan.

Water Piping: Water Piping shall be one and one-quarter (1 1/4") inch rigid hard temper type "K" copper tubing as shown on the plans meeting the specification for ASTM B88. Fittings shall be approved wrought copper and bronze solder-joint pressure fitting (A.N.S.I. B16.22).

Pipes through precast concrete plumbing pit wall shall be protected with a sleeve caulked watertight with a silicone sealant. All appurtenances such as 1 1/4" Gate Valve, 3/4" drain cock, reducer coupling and 3/8" pressure regulator valve shall be installed as per plans, and as directed by the Engineer.

Pipe Supports: Pipe clamps shall be made up of 1" x 3/8" strap iron galvanized and shall be constructed to rigidly hold the pipes firmly in place. Clamps shall be held in place with anchor bolts set in fountain shaft or base.

INSTALLATION: Water supply and drainage lines shall be installed as shown on the detail and the plans. Prior to placement of concrete pad or precast concrete plumbing pit, the subgrade and broken stone shall be level and compacted. Concrete pad shall be a smooth, flat, broom finished surface installed flush with adjacent pavement grade and in accordance with the plans and details. Adjacent pavement shall be pitched away from bottle filler.

Bottle Filler: The unit is to be handled at lifting locations designated by the manufacturer; no chipped, cracked, or otherwise defective Bottle Filler will be acceptable.

The fixture shall be surface mounted and installed in accordance with the manufacturer's written directions. Entire assemblies shall be installed in accurate locations, square and plumb in concrete foundation and in required locations to surrounding finished grade, as shown on the plans. Anchor

bolts shall be accurately set, plumb and true, in concrete foundation, quantity as recommended by the manufacturer.

Field connection: All field connections to be made by a Licensed Plumber. The factory installed portion of the cold water supply and waste water lines shall be extended from the Bottle Filler/Drinking Fountain Base at lengths indicated on the drawings. Water and Drain lines shall be pitched away from the Bottle Filler/Drinking Fountain. Pockets in rigid piping that cannot be drained by gravity will be rejected. The plumber will be required to reinstall piping until gravity drain is achieved.

Winterization: The unit shall be winterized by shutting off water supply and opening bleeder valve (outside of fountain). The bottle filler, dog bowl and drinking fountain basins shall be designed to allow internal water to drain by gravity.

SUBMITTALS: All submittals shall be in accordance with the requirements of the S-Pages.

Shop Drawings: The Contractor shall submit a catalogue cut and a complete dimensional Shop Drawing of the bottle filler showing all components including color, internal plumbing, access panels, gauges of metal and thickness of wall construction at least twelve (12) weeks prior to proposed installation. NYC Water logo decal shall be displayed on shop drawing.

Operation and Maintenance Manual: The Contractor shall furnish an Operation and Maintenance (O & M) Manual prepared in conjunction with the manufacturers of equipment in this specification. The O & M manual shall contain the following:

Description of system operation.

Troubleshooting and Repair Guide.

List of parts with their model numbers.

MEASUREMENT AND PAYMENT: For each **BOTTLE FILLER** furnished and installed in accordance with the plans, specifications, and directions of the Engineer, the Contractor shall receive the unit price bid.

The price bid shall be a unit price for **EACH BOTTLE FILLER** and shall include the cost of all labor, materials, equipment, and incidentals necessary or required to complete the work including excavation, broken stone base, sand, polyethylene vapor retarder, geotextile, concrete, stainless steel anchor bolts, cleanout pipe, ferrule, manhole frame and cover, vandal resistant bolts, expansion joint with sealant, logo decal, submittals, all components integral with the bottle filler, all plumbing work and connections to water and drain service within five (5') feet from the center of the tubular body, all in accordance with the plans and specifications, to the satisfaction of the Engineer.

For each **BOTTLE FILLER W/DOG BOWL** furnished and installed in accordance with the plans, specifications, and directions of the Engineer, the Contractor shall receive the unit price bid.

The price bid shall be a unit price for **EACH BOTTLE FILLER W/DOG BOWL** and shall include the cost of all labor, materials, equipment, and incidentals necessary or required to complete the work including excavation, broken stone, sand, polyethylene vapor retarder, geotextile, concrete, stainless steel anchor bolts, cleanout pipe, ferrule, manhole frame and cover, vandal resistant bolts, expansion joint with sealant, logo decal, submittals, all components integral with the bottle filler including dog bowl and lockable hose bib, all plumbing work and connections to water and

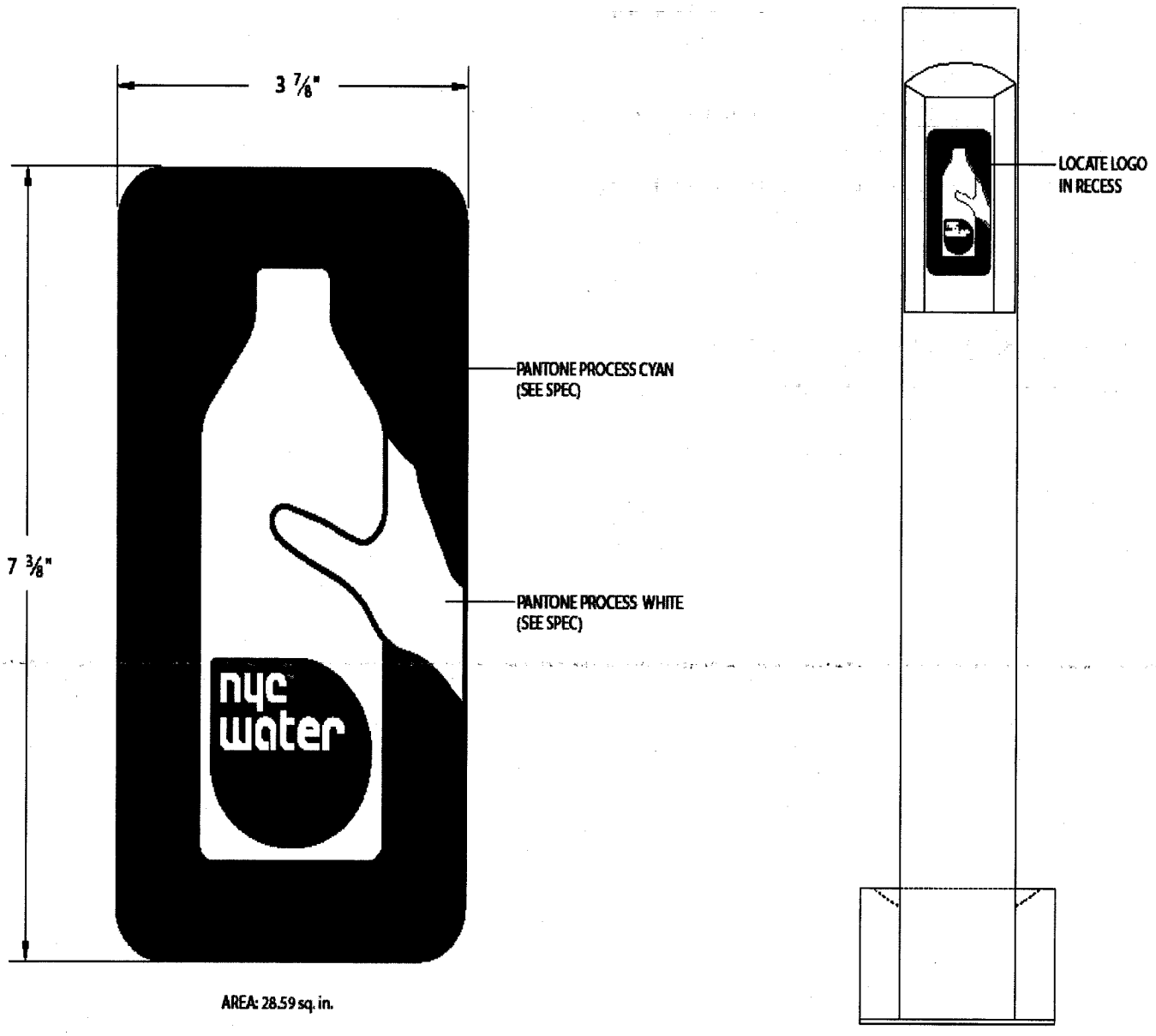
drain service within five (5') feet from the center of the tubular body, all in accordance with the plans and specifications, to the satisfaction of the Engineer.

For each **BOTTLE FILLER W/ HI-LO DRINKING FOUNTAIN BASINS** furnished and installed in accordance with the plans, specifications, and directions of the Engineer, the Contractor shall receive the unit price bid.

The price bid shall be a unit price for **EACH BOTTLE FILLER W/ HI-LO DRINKING FOUNTAIN BASINS** and shall include the cost of all labor, materials, equipment, and incidentals necessary or required to complete the work including excavation, broken stone, precast concrete plumbing pit, miscellaneous iron and steel, Parks Leaf manhole cover, vandal resistant bolts, hardware, logo decal, submittals, all components integral with the bottle filler, all plumbing work and connections to water and drain service within five (5') feet from the outside edges of the foundation, all in accordance with the plans and specifications, to the satisfaction of the Engineer.

Item No.	Item	Pay Unit
ESCR-635	Bottle Filler	EA
ESCR-636	Bottle Filler W/ Dog Bowl	EA
ESCR-637	Bottle Filler w/ Hi-Lo Drinking Fountain Basins	EA

NYC WATER LOGO



END OF SECTION

SECTION PK-ESCR 640 – GROUND HYDRANT – 1" DIA.

WORK: Under these Items, the Contractor shall furnish all labor, materials and equipment necessary or required to install **GROUND HYDRANT - 1" DIA.** including all plumbing work, connection to water service and irrigation in accordance with the plans, specifications, and directions of Engineer.

SCOPE: The Contractor shall furnish and install a ground hydrant, all piping, fittings, and other sundries necessary to connect the water lines and provide irrigation, as shown on the plans, to the satisfaction of the Engineer.

MATERIALS:

Hydrant: One Inch (1") Diameter Ground Hydrant shall be Type Z-1360-BC-HD-RK-NB as manufactured by Zurn Industries Inc., Hydromechanics Division, Erie, PA, or approved equal. Hose connection shall be one inch (1").

Hydrant is encased, ground hydrant for flush-with-grade installation, complete with bronze casing, polished nickel bronze box, all bronze interior parts, bronze seat and replaceable seat washer, non- turning operating rod with free-floating compression closure valve with 1" connection. Polished nickel-bronze box shall have a scoriated heavy-duty cover with operating key lock and "Water" cast on cover. Depth of bury is two (2) feet minimum for both size Ground Hydrants. Four (4) keys are to be supplied to the Engineer.

Broken Stone: Broken Stone shall consist solely of crushed ledge rock. Stone shall be as designated on the detail and shall be of the approved size and quality specified General Conditions.

Coupling Valve & Key: Quick coupling valve shall be solid red brass, bayonet type, with a one (1") inch inlet size, Buckner Model QB44LRC10, or approved equal. Corresponding coupling key shall be three quarter (3/4") inch inside diameter with a one (1") inch male thread, Buckner Model QB44K10, as manufactured by Buckner Brass, Storm Manufacturing Group, Inc., Torrance, CA, or approved equal. One valve and two keys required per site.

Hose Swivel Ell: Hose Swivel Ell shall be bronze with one (1") inch female thread for coupler and three quarter (3/4") inch male garden thread for hose. *Hose Swivel Ell must be manufactured by the same company as the Quick Coupling Valve & Key*, and shall be Buckner Model HS-100 or approved equal. One required per site.

Brass Garden Hose Adaptor: Shall be a one (1") inch FPT, with a three-quarter (¾") inch garden hose thread, Model # FM1076 as manufactured by George Taylor Brass and Bronze Works, Huntington, N.Y., or approved equal. One required per site.

Siamese "Y" Connectors: Siamese "Y" connectors shall be brass, with shut-off valves at each connection. Size shall be three quarter (3/4") inch by three quarter (3/4") inch. Two required per site.

Nozzle: Nozzle shall be a solid brass nozzle to fit a three-quarter (3/4") inch hose, Midsize #529 as manufactured by Gilmour, Chicago, IL or approved equal. One required per site.

Brass Rose: Rose shall be Brass, four (4") inches in Diameter with protective rubber guard and metric to inch hose thread converter, Model #540B, as manufactured by Dramm Corporation, Manitowoc, Wisconsin, or approved equal. One required per site.

Extension Handle: Extension handle shall be extruded aluminum tubing, thirty (30") inches long, with forged brass hose couplings and comfort hand grip, Model #130-G, as manufactured by Dramm Corporation, Manitowoc, Wisconsin, or approved equal. One required per site.

Shut-Off Valve: Shut-off valve shall be brass with Teflon® seals and a hard chrome plated ball, Model #300, as manufactured by Dramm Corporation, Manitowoc, Wisconsin, or approved equal. One required per site.

Sprinkler Head With Base: Sprinkler head shall be brass and stainless steel impulse type mounted on a Rezimar wheeled base, six and one half inches (6 ½") wide by nine inches (9") high, one and one half (1 ½) pounds minimum weight for stability, with ergonomic grip and swivel coupling and a powder coated finish, to fit three-quarter (3/4") inch hose. Sprinkler head and base shall be "Pulsating Sprinkler" Model # 50260 as manufactured by Nelson, Peoria, IL or approved equal. Two required per site.

Hose: Hose shall be garden hose, three-quarter (3/4") inch diameter in four (4) fifty (50') foot lengths, with a burst pressure of 500 psi minimum, equipped with approved connectors. Hose shall be "Flexogen" as manufactured by Gilmour, Chicago, IL or approved equal. 200 feet of hose required per site.

Hose Reel: Hose Reel shall be constructed of one (1") inch diameter steel frame, with heavy-duty ten (10") inch wheels. Cart and reel shall have a baked enamel finish and be capable of holding two hundred (200') feet of 3/4" hose. Hose reel shall be as manufactured by A. M. Leonard or approved equal. One required per site.

Soaker Hose: Shall be porous pipe constructed primarily of recycled rubber tires. Hose shall weep along its entire length. Hose shall be five eighth (5/8") inch diameter in fifty (50') foot coupled lengths. All fittings shall be nickel plated brass. Hose shall be No. 17010 ColorStorm Premium 50 Foot Soaker Garden Hose as manufactured by Dramm, or approved equal. 100 linear feet of hose required per site.

Anchor Pins for Soaker Hose: Shall be five (5") inch x one (1") U-shaped 11-gauge steel pins. Each package shall contain ten (10) pins. Two packages required per site.

Tests: Before any irrigation materials are accepted, they shall meet such tests as may be required to prove to the satisfaction of the Engineer that they are in proper working order and will do the work for which they are intended, in a satisfactory manner.

SUBMITTALS: Provide Product Data including Manufacturer's catalog sheets and specifications for each valve type. List type of valves, manufacturer's model number, and size for each service application.

Operating Keys: The Contractor shall furnish four (4)-operating keys for each hydrant installed under this item.

Parts Repair Kit: Contractor shall supply one (1) Parts Repair Kit for each Ground Hydrant installed under this item.

MEASUREMENT & PAYMENT: For **EACH** Ground Hydrant – 1" Dia. furnished and installed, complete with all plumbing work in accordance with the plans, specifications, and directions of the Engineer, and delivery of all irrigation materials, the Contractor shall receive the unit price bid.

The price bid shall be a unit price for **EACH** Ground Hydrant – 1" Dia. and shall include the cost of all labor, materials, equipment and incidental expenses necessary to complete the work, including all plumbing work and connections to water service within five (5') feet of the ground hydrant, broken stone. The following items are required per site: one (1) Quick Coupling Valve and two (2) Keys, one (1) Hose Swivel Ell, one (1) Brass Garden Hose Adaptor, two (2) Sprinkler Heads with Base, two hundred linear feet (200') of 3/4" Hose, one hundred linear feet (100') of

soaker hose, twenty (20) anchor pins, one (1) Hose Reel, two (2) Brass Siamese "Y" Connectors with Shut-off Valves, one (1) Brass Rose, one (1) Extension Handle, and all submittals in accordance with the plans and specifications to the satisfaction of the Engineer.

Plug Valve, Valve Box, Excavation and Concrete for Park Structures shall be paid for under their respective items.

Item No.	Item	Pay Unit
ESCR-640	Ground Hydrant - 1" DIA.	EA

END OF SECTION

SECTION PK-ESCR 644 – SERVICE WEIGHT CAST IRON SOIL PIPE – 4" DIA.

WORK: Under these Items, the Contractor shall furnish and install SERVICE WEIGHT CAST IRON SOIL PIPE (formerly known as Extra Heavy Cast Iron Soil Pipe) of the sizes called for and shown on the plans or as directed by the Engineer.

MATERIALS: Service Weight Cast Iron Soil Pipe shall consist of hub and spigot joint cast iron soil pipe and fittings, similar or equal to that manufactured by the Tyler Pipe Co., Tyler, Texas, or approved equal, and of the grade called for.

INSTALLATION: Service Weight Pipe shall be laid true to line and grade with hubs upstream and shall have a full, firm and even bearing. Joints are to be connected with SV Ty Seal Gasket, as manufactured by Tyler Pipe Co., Tyler, Texas, or approved equal.

CONNECTION: The Contractor shall do all the work necessary to join the Cast Iron Soil Pipe to the existing sewer as shown on the Plans. The cost for doing this shall be included in the unit price bid for this Item.

MEASUREMENT AND PAYMENT: The quantity of SERVICE WEIGHT CAST IRON SOIL PIPE to be paid for under this Item shall be the number of linear feet (laying length) of each size pipe, including fittings, clean-out structures, measured in its final position, furnished and placed in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price per LINEAR FOOT of laying length Service Weight Cast Iron Soil Pipe of each size shown and shall include the cost of all labor, materials and equipment necessary pipe to complete the Work in accordance with the plans and specifications, to the satisfaction of the Engineer.

Excavation shall be paid for separately under its own Item.

Item No.	Item	Pay Unit
PK-ESCR 644	SERVICE WEIGHT CAST IRON SOIL PIPE – 4" DIA.	LF

END OF SECTION

PK-ESCR 646 – MISCELLANEOUS IRON AND STEEL

PK-ESCR 646.1. **WORK:** Under this item, the Contractor shall furnish and place all cast iron, cast steel, wrought iron and steel, not especially included under other items, as shown on the plans and for miscellaneous castings, etc.

PK-ESCR 646.2. **MATERIALS:** All materials shall meet the requirements as given in NYCDOT Standard Highway Specifications or as directed by the Engineer.

PK-ESCR 646.3. **CLEANING:** Except otherwise ordered by the Engineer, immediately prior to the final inspection the Contractor shall clean unimbedded surfaces that show evidence of loose mill scale, non-adherent rust, peeling paint and other deleterious matter in accordance with SSPC SP2, Hand Tool Cleaning, a method generally confined to wirebrushing, sandpaper, hand scrapers or hand impact tools.

PK-ESCR 646.4. **MEASUREMENT AND PAYMENT:**

The quantity of **MISCELLANEOUS IRON AND STEEL** to be paid for under this item shall be the number of **POUNDS** furnished and placed in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price per **POUND** and shall include the cost of all labor, materials, equipment and incidental expenses necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer.

Item No.	Item	Pay Unit
PK-ESCR 646	MISCELLANEOUS IRON AND STEEL	LBS

END OF SECTION

SECTION PK-ESCR 659 – ELECTRIC SERVICE AND DISTRIBUTION WORK AT MURPHY BROTHERS PARK

GENERAL: Under this item the Contractor shall furnish and install a complete Electric Service and Distribution work with all incidentals required and as shown on the contract drawings as specified herein. All work shall be performed in a neat and workmanlike manner.

All materials to be furnished and all work to be performed shall be in strict compliance with the requirements of the latest specifications and standard practice of the New York City Electric Code. The Contractor shall submit shop drawings of all equipment to be furnished and drawings must be approved by the Engineer before beginning the manufacture of the equipment.

WORK INCLUDED: The work shall include, but shall not be limited to the following: Furnish and install and connect all items of labor and material for a complete electrical system as indicated on the drawings and specified herein. Small and sundry items not necessarily indicated or specified, but required for the complete installation, shall be included in the Contractor's proposal and incorporated in the Work.

1. Electric Service Cabinet with Con-Ed CT meter and meter pan.
2. Conduit and Wire
3. Pull Boxes, Junction Boxes
4. System and Equipment Grounding
5. Heavy Duty Safety Switch
6. Panelboard with circuit breakers
7. Outdoor GFCI receptacles & weatherproof covers
8. Misc. supports and equipment.

WORK NOT INCLUDED:

1. Concrete pads are paid for under "ESCR-4.06 PF Concrete Park Features"
2. Epoxy Coated Steel Reinforcement to be paid for Park Structures" under "ESCR-4.14"

ACCESSIBILITY: All work shall be installed so as to be readily accessible for operation, maintenance and repair. Minor deviations from the drawings may be made to accomplish this, but no changes shall be made without the prior approval, in writing, of the Engineer.

CODES, PERMITS AND CERTIFICATES: All items of labor and material shall be in accordance with the requirements of the latest edition of the New York City Electric Code, and the rules, regulations, standards, etc. of all other local or national agencies having jurisdiction. Only materials approved by the Underwriters' Laboratories and the N.Y. Board of Fire Underwriters are permissible. In addition, all applicable regulations and requirements of Con-Edison shall apply to work under the Contract.

The Contractor shall pay all fees, give all notices, file all necessary drawings, obtain all permits and certificates of approval as may be required in connection with the Work under this Contract.

1. All materials and workmanship shall comply in all respects with the rules and regulations of the Electrical Code of the City of New York.
2. The materials and workmanship shall comply in every respect with the contract specifications and drawing and fulfill the full intent thereof.

CONTRACT DRAWINGS: The contract drawings are diagrammatic but shall be followed as closely as conditions at the site of work or the work of other trades will permit. As the Work progresses, these drawings may be revised or supplemented by the Engineer, to illustrate the work further, and the Contractor shall perform the work required by such revisions or supplements without additional compensation subject to the provisions defined in the Specifications.

See contract drawings for equipment sizing, requirements, etc.

TESTS AND GUARANTEE: The entire electrical system and equipment furnished and installed under the Contract shall test free of shorts and grounds. Insulation resistance tests shall be performed on all wiring and equipment with instruments as approved. Insulation resistance as measured shall conform to the requirements of the New York City Electrical Code. The Contractor shall provide all equipment and personnel necessary to perform such tests. Performed tests shall be made in the presence of the Engineer.

All items of labor and material provided under the contract shall be guaranteed free of defects for a the period shown in Schedule A. Any defects appearing in this period shall be immediately corrected by the Contractor upon notification by the Engineer.

ELECTRICAL SERVICE: Electric Service shall be at three phase, four wire, 60 Hertz, 120/208 volt power source as indicated on the drawings.

CONDUIT, HOT DIPPED GALVANIZED RIGID STEEL: The ends of all conduits shall be carefully reamed before installation and after the application for the die. Where it becomes necessary to cut a length of conduit it shall be done with a hacksaw or a specially approved cutter. Care shall be taken to secure a square end on all conduit.

Provide No. 10 drag wire in all empty conduit raceways.

The entire conduit and wiring system shall be thoroughly grounded in an approved manner. Exposed connection of ground wires shall be suitable protected from mechanical injury with rigid conduit and approved clamps and fittings.

Running threads shall not be used. Where conduit with tapered threads cannot be coupled with standard conduit couplings, O.Z. Split Couplings or Erickson Couplings shall be used. Underground, or where coupling is to be covered with concrete, a watertight union shall be used. All male threads of steel conduit shall be coated with red lead of graphite base pipe compound. Do not paint female threads.

The excavation for the installation of the conduit is specified in other sections of this Contract. Payment limit lines are shown on the drawings.

All appurtenances, fittings, hangers, with RGS steel conduit shall be galvanized and asphaltum coated.

During installation, the conduit shall be plugged tightly with conduit caps at the close of each day's work or whenever work is discontinued for any length of time, to prevent the entrance of earth, water or other foreign matter. Paper or wood plugs are not acceptable.

After laying, all conduit runs shall be tested for clear bore and correct installation. Snaking the conduits shall be done in the presence of Engineer. Any conduit, which rejects the mandrel, shall be removed at once, the Contractor bearing all costs of replacing defective conduit and restoring the ground or structure around it.

The end of each conduit one inch and smaller shall be provided with a lock nut and bushing where it enters a sheet steel cabinet box, etc. For conduits 1-1/4 inches and larger, insulated grounding bushings shall be used. Care shall be taken to see that all conduits form a permanent and continuous ground return back to the service ground connection point. Ground bushings shall be bronze type "RBLG", O.Z., or equal.

All conduit shall be manufacturer's best grade delivered to the site in full pipe lengths, each trademarked by the manufacturer. All conduit connectors shall have insulated throats.

All ground connections to water pipes shall be made with type KH ground clamp Penn-Union, O.Z., Thomas & Betts, or approved equal.

In general, conduits shall be installed exposed and shall run parallel or perpendicular to wall lines.

Exposed conduits shall be securely fastened in place with PVC coated galvanized pipe clamps, racks, or other approved means, in a manner acceptable to the Engineer. Wood hangers and perforated sheet metal hanger straps will not be permitted. Spacing of conduit supports shall not exceed five (5) feet. All auxiliary items for fastening conduits shall be furnished and installed by the Contractor.

Conduit shall be of such sizes that required conductors may be pulled without strain or injury. Standard manufactured elbows shall be used for all conduits 1-1/4 inch or larger.

The routing of conduits, as shown on the plans, is diagrammatic. Before installing any work, it shall be the responsibility of the Contractor to examine the working layouts of all other trades to determine exact locations and clearances. Where equipment is installed by other trades requiring connection by the Contractor, Contractor shall likewise determine exact conduit entry locations from shop drawings or actual piece of equipment. Modifications to conduit runs shown on the drawings as found necessary, shall be made without additional cost to the City, all subject to the Engineer's approval.

Conduits crossing construction expansion Joints shall be installed with approved expansion fittings, O.Z. type AX or EX or approved equal, and provided with approved flexible grounding bonds bypassing the fitting.

Where it becomes necessary to offset exposed conduit runs due to construction conditions, etc., such offsets shall be made using conduit "EL" fittings, or other means as approved by the Engineer.

Final connections to motors shall be made with Type 'UA' sealtite flexible conduit with external copper bonding strap.

All piping, conduits or other items to be imbedded in new concrete shall be inspected and approved by the Engineer prior to concrete placement.

WIRE AND CABLE: Unless otherwise specified, all wires and cables shall be single copper conductor type Cross-Linked polyethylene (XLPE) moisture and heat resistant thermoplastic insulated with Jacket USE-2; for use at 600 volts A.C. rated 75 degrees C. operating temperature suitable for wet and dry locations equal in every respect to the latest Insulated Power Cables Engineers' Association (IPCEA) Specifications(Latest Revision). The wire and cables shall have Underwriters' Laboratories, Inc. label and be surface printed throughout the entire length at two-foot intervals with permanent identifying markings indicating manufacturers' name, size, type, and voltage.

Wire shall be no more than one year (1 year) old when purchased. All wire and cables shall be furnished on reels or spools and in lengths required to minimize splicing.

All conductors No. 10 AWG and smaller shall be solid; No. 8 AWG and larger, stranded except for ground wire which shall be solid.

Wires and cables No. 2 AWG and smaller shall be of continuous solid colors in accordance with the New York City Electric Code.

All wires larger than No. 2 AWG shall be colortape coded at all terminations.

All wire and cables shall be 98 percent conductivity copper as manufactured by Rome Cable Company, Essex Wire & Cable, Okonite, Anaconda Wire and Cable Company, or other acceptable manufacturer.

CABLE TEST DATA: No cables shall be shipped from the manufacturer's plant until the final certified test data is received from cable manufacturer stating that such cables are approved by the Engineer and they conform with the New York City Electric Code requirements.

JUNCTION AND PULL BOXES: Submittals Product Data: Catalog sheets, specifications and installation instructions. Samples: One of each product.

Threaded type Boxes: Malleable iron with cadmium of galvanized finish for use with steel conduit, as manufactured by Appleton Electric Co., Crouse-Hinds Co., or OZ/Gedney Co., or approved equal.

1. Malleable iron boxes shall be provided with galvanized malleable iron covers with approved gaskets, held by Everdur or approved equal machine screws. All threaded entries that are not used shall be closed by threaded pipe plugs, red leaded.

Preparation: Before proceeding with the installation of junction boxes, check the locations with the Engineer and have same approved.

Specific Purpose Outlet Boxes: Use to mount equipment when available and suitable for job conditions. Unless otherwise specified, boxes shall be threaded type for exposed conduit system, PVC coated.

Supplementary Junction and Pull Boxes: In addition to junction and pull boxes indicated on the drawings and required by the NEC, provide supplementary junction and pull boxes as follows:

1. When required to facilitate installation of wiring.
2. At every third 90 degree turn in conjunction with raceway sizes over 1".
3. At intervals not exceeding 100' in conjunction with raceway sizes over 1".
4. The box sizes shall be in accordance with code requirements.

ROADWAY PULLBOXES: The junction boxes shall be concrete, 48" x 24", Type 6-R and 24" X 18" Type 2-R unless otherwise noted with roadway type cast iron frame and cast steel cover as per New York City Dept. of Parks and Recreation Specification Sheet # 65. .

The excavation for the installation of Handholes is specified in other sections of this Contract

ELECTRICAL SERVICE AND DISTRIBUTION CABINET: Electric service and distribution cabinet 72"W x 72"H x 18"D mounted on concrete pad. cabinet to be stainless steel type 316 rainproof NEMA 3R enclosure with 100 amp 208/120V, 3 phase, 4 wire heavy duty main service switch, panelboard, and receptacles.

SERVICE SWITCH: Service switch to be heavy duty, NEMA 4X stainless steel with removable ground-neutral link. Switch to be 208/120 volt, 3 phase, 4 wire, 600 volt rated. Service switch to be located within electrical service and distribution cabinet.

CON-ED METER PAN: Cabinet shall be rated NEMA 3R and shall be constructed from the code gauge galvanized or galvanized steel. Bus Bar shall be Silver or Tin Plated and shall be sized per the NEC. Contractor to only use only manufacturer's approved lug and other mounting accouris.

GFCI OUTDOOR RECPTACLES AND WEATHERPROOF COVERS: Receptacles to be GFCI outdoor rated 20 AMP within Cast Iron 'FD' boxes with Die-Cast metal pad lockable In-Use Cover.

CUTTING AND PATCHING: The Contractor shall perform all cutting and patching of work that may be required. All patching shall be done by qualified personnel.

The Contractor shall coordinate with all trades so that all cutting and patching required for the Contractor's work is performed in a timely manner.

Wherever possible, the Contractor shall provide sleeves for new concrete, to avoid cutting and patching. Install sleeves and equipment shown on electrical drawings in forms, before concrete is placed. Where utility sleeves are not installed before concrete is placed, complete all cutting and core drilling required to install all new conduit or other required new items as shown on the drawings. Holes cut for new conduit shall be done with core-boring tools. Holes for large items shall have edges neatly cut with a power saw.

The Contractor shall be responsible for the patching of all openings to provide a snug and waterproof seal. Any other damages to the structures shall be properly repaired at no additional cost.

The use of power driven impact tools will not be permitted to install openings.

INSTALLATION OF CONDUCTORS IN CONDUIT OR RACEWAY: No wire shall be pulled until the conduit and/or raceway system for a specified section or area is complete.

All feeders and mains shall be of the sizes shown on the Contract Drawings all in accordance with these specifications. All wires to be installed in any one conduit shall be pulled in at the same time and directly from reels. For pulling wires and cables, an approved lubricant may be used. All wires shall be continuous without splices between boxes, panelboards, cabinets, etc. Sufficient slack shall be left in all boxes for splicing wires and making proper connections.

All cable taps and splices in boxes shall be made secure with solderless compressive type connectors as manufactured by Burndy or approved equal. Connectors shall be installed with approved hydraulic tools to assure a permanent mechanically secure high conductivity joint. Insulation tape shall be No. 23 M.M.M. or approved equal. Jacket tape shall be applied over the insulation tape to a thickness of two times thickness of cable jacket. Jacket tape shall be water-resisting type Scotch No. 88 M.M.M. or approved equal. All splices and tape shall be waterproof.

All wiring in troughs shall be neatly tied and racked. Wires shall be grouped as to the equipment they serve, and shall have brass tags attached thereto. Tags shall have engraved lettering indicating panel or equipment source, circuit number and equipment served.

All conduit shall be carefully cleaned before and after erection. All ends shall be free from burrs and inside surfaces shall be free from all imperfections likely to injure the wires and cables. Immediately before the wires and cables are pulled into any conduit run, such completed conduit run shall be snaked with a steel band to which shall be attached an approved tube cleaner equipped with an approved spherical mandrel of a diameter not less than 85 percent of the nominal inside diameter of the conduit. All conduit through which this mandrel does not pass shall be removed and replaced by the Contractor at the Contractor's own expense.

PANELBOARDS AND CIRCUIT BREAKERS: Panelboard shall be 208/120 volt, 3 phase, 4 wire copper bus bar with NEMA 4X stainless steel enclosure. Circuit breakers to be bolt on type. Panel to be rated for 22 KAIC. Branch disconnecting devices shall consist of circuit breakers, built in molded composition, of type, voltage, capacity and trip element ratings and number of poles as indicated on the panel schedule. The branch circuit breaker units shall be quick-break, trip-free toggle-mechanism type with distinct Off and On indications and clearly numbered with circuit numbers and trip ratings. All circuit breakers shall be interchangeable and operable in any position, and removable from the front of the panel without disturbing adjacent units. Circuit

breaker interrupting capacity shall be 22,000 symmetrical amps (R.M.S.). Circuit breakers shall be bolt on type, Cutler Hammer type adjustable trip Series C or approved equal.

CIRCUIT BREAKERS: Branch disconnecting devices shall consist of circuit breakers, built in molded composition, of type, voltage, capacity and trip element ratings and number of poles as indicated on the panel schedule. The branch circuit breaker units shall be quick-break, trip-free toggle-mechanism type with distinct Off and On indications and clearly numbered with circuit numbers and trip ratings. They shall be interchangeable and operable in any position, and removable from the front of the panel without disturbing adjacent units. Circuit breaker interrupting capacity shall be 22,000 symmetrical amps (R.M.S.). Circuit breakers shall be bolt on type, Cutler Hammer type adjustable trip Series C or approved equal.

GROUNDING: The entire conduit system and equipment shall be permanently, continuously, and effectively grounded. The conduit system shall be made electrically continuous by using threaded fitting with joints made up tight. Use a conductive copper compound as a lubricant on all pipe threads. Where boxes or fittings are made of sheet steel having no threaded hubs, electrical continuity shall be obtained by using grounding bushing type IBC-L-BC series, O.Z. or approved equal.

All grounding shall be in strict accordance with Art. 8 of the New York City Electrical Code and other agencies having jurisdiction. Contractor shall furnish and install all items of material and labor for the grounding systems, including conduits, cables, clamps, fittings and connections.

All underground ground connections to be made by exothermic welds.

BONDING: All boxes and metal frames, conduits, etc. shall be bonded in an approved manner, using not less than #6 AWG gauge, bare, stranded, tinned, soft drawn or annealed copper wire.

REGULATORY REQUIREMENTS: Special caution note: The Contractor is fully aware that the work involved is an active roadway and in some cases requires additional safety precautions. The Contractor is responsible to protect workers in the performance of the work.

Codes:

1. General: Comply with the requirements of American National Standards Institute (ANSI), National Electrical Manufacturers Association (NEMA), Underwriters Laboratories (UL), New York City Department of Transportation, (NYCDOT), New York State (NYS), New York City (NYC), & Federal, etc. codes referred to in these specifications, except where requirements of these specifications are more restrictive or stringent. Such codes shall be the date of latest revision in effect at the time of performing the work, unless the date is given.
2. Building Code: Comply with the requirements of the New York State Uniform Fire Prevention and Building Code and New York City Building Code.
3. Electrical Codes:
    a. Work Area: Electrical Work shall conform to the requirements of the latest edition of the NYC Electrical Code (NYCEC) and National Electrical Code (NEC), and all state and local codes. The Engineer shall be the sole judge of the interpretation of these rules and requirements.
    b. Work and Off-Site Staging Area: Electrical Work shall conform to the requirements of the Electrical Code of the City of New York, latest edition and NYS DOT latest edition and Addenda.
    c. All applicable regulations of the local utility companies.
4. Safety and Health: Comply with applicable requirements of the Occupational Safety and Health Act, including most recent amendments and New York State safety, health and

labor regulations and contract documents.

5. In the event of conflict between codes, the most restrictive requirements shall apply as interpreted by the Engineer.
6. Permits and Inspections:
   a. Underwriters' Certificate:
      i. Work Within Limits of the Contract: A New York Board of Fire Underwriters Inspection Certificate is required.
   b. Certificate of Inspection:
      i. Work Within Limits of the Contract: An inspection and certificate by the City of New York, Dept. of Public Works, Bureau of Electricity, is required.
   c. NYC DOT DSL shall review and approve shop drawings, installation and final system.

Listings: Equipment and materials for which Underwriters' Laboratories, Inc. (UL) provides product listing service, shall be listed and bear the listing mark.

1. Alternately, ETL Testing Laboratories, Inc. Product Safety Testing Listing is acceptable if the listed product has been tested to the applicable UL Standard.

2. Equipment shall have New York City Board of Standards and Appeals listing as required.

SHOP DRAWINGS: Shop drawings shall be submitted for all equipment to be installed. Shop drawings shall include all required information and details to show compliance to the contract plans and specifications. Contractor shall submit shop drawings to Engineer for all site lighting equipment.

Shop Drawings shall include, but not be limited to the following:

A. Electric Service Cabinet with Con-Ed CT meter and meter pan.
B. Conduit and Wire
C. Pull Boxes, Junction Boxes
D. System and Equipment Grounding
E. Heavy Duty Safety Switch
F. Panelboard with circuit breakers
G. Outdoor GFCI receptacles & weatherproof covers
H. Misc. supports and equipment.

MEASUREMENT AND PAYMENT: For furnishing and installing electrical work in accordance with the specifications, contract drawings, and directions of the Engineer, the Contractor shall receive the **LUMP SUM** price bid.

The price bid shall be a **LUMP SUM** price for this item and shall include the cost of all labor, materials, equipment, and incidental expenses necessary and required for installing the electrical work with connection, and other items necessary or required to complete the work, including, but not limited to miscellaneous site work, permits, etc., in all accordance with the plans, specification, and as directed by the Engineer.

The lump sum item for electric work will not include excavation, backfill and restoration of finished surface.

CONTRACTOR'S ESTIMATE FOR ELECTRICAL WORK: The contractor, prior to the start of any work, shall prepare and submit to the Engineer, for the approval, a Lump Sum Breakdown per Article 41 of the Standard Construction Contract.

Item No.	Item	Pay Unit
PK-ESCR-659	ELECTRIC SERVICE AND DISTRIBUTION WORK AT MURPHY BROTHERS PARK	LS

END OF SECTION

SECTION PK-ESCR 669 – 2" DIA. HIGH DENSITY POLYETHYLENE (HDPE) SCHEDULE 80 CONDUIT

GENERAL: Furnish and install a High Density Polyethylene (HDPE) Schedule 80 conduit and fittings for exterior underground branch circuit to in compliance with National Electrical Code and NYC Electric Code.

The item shall include the labor material and equipment for installation of conduit with all required accessories such as couplings, bends, elbows, nipples, unions, reducers, etc. All the work shall be done in compliance with code requirement. All associated material for complete installation of conduit shall be included under each item.

MATERIALS: The High Density Polyethylene conduit material must conform to UL 651A and ASTM F2160 (Solid Wall). All conduit supplied shall be clearly marked with the appropriate ASTM as certified. Nominal conduit size is determined by an inside diameter.

SPECIFICATIONS FOR CONDUIT:

1. Conduits installed shall be High Density Polyethylene (HDPE) Schedule 80 with minimum wall thickness of 0.218".
2. All fittings for High Density Polyethylene (HDPE) conduit shall be of an approved type and shall be HDPE Schedule 80.
3. Conduits shall be free from blisters, cracks or injurious defects and shall be reamed at each end. All bends shall be of a long sweep free from kinks and of such easy curvature as to permit the drawings in of cable without injury.
4. Conduit ends, shall extend into pull or junction boxes, one and one-half inch (1½") and be equipped with approved bushings.
5. Each length of conduit shall bear the manufacturer's Trademark or Stamp.
6. Conduits ends shall clean cut, straight and true.
7. Contractor shall be responsible for all excavation, backfilling, and restoration necessary for the installation of conduits as shown on drawing.
8. All capped conduits shall be provided with a HDPE Schedule 80 Steel cap securely fastened to end of conduit.
9. When necessary to connect conduits in other than the regular manner, Contractor shall utilize couplings approved by an engineer.
10. All conduits which are installed underground shall be not less than twenty-four inches (24") below final grade, unless otherwise indicated on the Contract Drawings.
11. Conduit bends shall be made without kinking conduit or appreciably reducing the internal diameter. The radius of the inner edge of any field bend shall be not less than six (6) times the normal diameter of the conduit. Where changes of directions are necessary, long gradual sweeps shall be installed rather than short bends. Pull boxes shall be installed as required to provide a maximum of three (3) right angle bends between pulling points.
12. The Contractor shall bend conduit as required to avoid interferences and provide proper clearance.

13. Conduits and fittings shall be manufactured by Dura-Line, Blue Diamond Industries or approved equal.

14. The Contractor shall test and clean all conduits installed under this Contract and all existing conduits to be re-used by pulling a test ball and brush of approved size through each conduit. If any obstructions remain so that the cleaning devices cannot be rodded or pulled through clearly, the conduit shall be replaced. After testing and cleaning, each spare conduit shall be left with a ½" nylon pull line in the conduit. Each spare conduit shall be sealed by the use of "Duxseal", or approved equal, at the manholes.

15. To seal cables inside conduits entering and leaving manholes, apply untarred, unoiled jute packing around outside of and in the crotch between the cables in such a manner as to completely fill the duct. Use short pieces of the jute (2" to 6") and pack them tightly. Insert approved duct sealing material, taking care to secure a perfect bond around edge of conduit and cables. Cables shall be kept apart from edge of conduit by sealing material.

16. The HDPE conduit shall be rated for temperature range for installation, from -20 degrees C to 90 degree C operating temperature for cables.

17. The HDPE conduit shall be rated for Chemical and corrosion resistance.

MEASUREMENT & PAYMENT: Payment will be made at the unit price bid for the total length in feet of **HIGH DENSITY POLYETHYLENE (HDPE) SCHEDULE 80 CONDUIT** actually installed as measured in the field along the longitudinal axis of each length of conduit by the Engineer.

The price bid for this item shall be a unit price per linear foot of **HIGH DENSITY POLYETHYLENE (HDPE) SCHEDULE 80 CONDUIT** shall include the cost of furnishing all labor, materials, and equipment to install, secure in place, clean and mandrel the conduit runs shown on the drawings. Conduit shall be installed complete with all couplings, fittings, bushings, sweeps, elbows, spacers, tie wire, drag lines and fiber plugs, straps, etc.

Item No.	Item	Pay Unit
PK-ESCR-669	2" DIA. High Density Polyethylene (HDPE) Schedule 80 Conduit	LF

END OF SECTION

SECTION PK-ESCR 670 – ¾" DIA. HOT DIPPED/HEAVY GAUGE GALVANIZED RIGID STEEL CONDUIT

SECTION PK-ESCR 671 – 1½" DIA. HOT DIPPED/HEAVY GAUGE GALVANIZED RIGID STEEL CONDUIT

SECTION PK-ESCR 672 – 2" DIA. HOT DIPPED/HEAVY GAUGE GALVANIZED RIGID STEEL CONDUIT

GENERAL: Furnish and install hot-dipped galvanized rigid, steel conduit for exterior underground branch circuit to in compliance with National Electrical Code and NYC Electric Code.

The item shall include the labor material and equipment for installation of conduit with all required accessories such as couplings, bends, elbows, nipples, unions, reducers, strap screws, bolts, nuts, anchors, etc. All the work shall be done in compliance with code requirement. All associated material for complete installation of conduit shall be included under each item.

SPECIFICATIONS FOR CONDUIT:

1] Conduits installed shall be heavy gauge rigid galvanized steel for exterior underground.

2] All fittings for galvanized metal conduits shall be of an approved type and shall be malleable iron castings, hot dipped galvanized. Conduit fittings shall be provided with gasket and metal covers and shall be equal to Crouse-Hinds Form 8.

3] Conduits shall be free from blisters, cracks or injurious defects and shall be reamed at each end. All bends shall be of a long sweep free from kinks and of such easy curvature as to permit the drawings in of cable without injury.

4] Conduit ends, except for threaded cast boxes, shall extend into pull or junction boxes, one and one-half inch (1½") and be equipped with approved bronze ground bushings. Locknuts and bushings shall be provided where conduits terminate in metallic boxes.

5] Conduits shall be of the sizes noted on Contract Drawings which are indicated as the nominal inside diameter and shall be of standard weight and equal in quality as called for in the Standard Specifications of the American Society for Testing Materials. Minimum size conduit shall be ¾". Each length of conduit shall bear the manufacturer's Trademark or Stamp.

6] Conduits shall have standard conduit threads, clean cut, straight and true. The threads shall be protected during transit and installation, and shall be of sufficient length to permit the proper coupling connections as noted heretofore.

7] Contractor shall be responsible for all excavation, backfilling, and restoration necessary for the installation of both the exterior and the interior conduits as shown on drawing.

8] Long running threads will not be permitted on any part of the work.

9] All capped conduits shall be provided with a galvanized cast iron cap securely screwed into a clean cut factory threaded end of conduit.

10] When necessary to connect conduits in other than the regular manner, Contractor shall use "Erickson" or similar couplings, or approved equal.

11] All conduits which are installed underground shall be not less than twenty-four inches (24") below final grade, unless otherwise indicated on the Contract Drawings.

12] Conduit bends shall be made without kinking conduit or appreciably reducing the internal diameter. All bends in conduit of 2 inch size or larger shall be made with a hydraulic or power

pipe bender. The radius of the inner edge of any field bend shall be not less than six (6) times the normal diameter of the conduit. Where changes of directions are necessary, long gradual sweeps shall be installed rather than short bends. Pull boxes shall be installed as required to provide a maximum of two (2) right angle bends between pulling points.

13] The Contractor shall bend conduit as required to avoid interferences and provide proper clearance.

14] Where conduits pass through foundation walls, concrete or floors, O.Z. Type "FSK" fitting or approved equal, of proper diameter, shall be installed.

15] Conduits and fittings shall be manufactured by Allied, Triangle, Crouse-Hinds Company, or approved equal.

16] The Contractor shall test and clean all conduits installed under this Contract and all existing conduits to be re-used by pulling a test ball and brush of approved size through each conduit. If any obstructions remain so that the cleaning devices cannot be rodded or pulled through clearly, the conduit shall be replaced. After testing and cleaning, each spare conduit shall be left with a ½" nylon pull line in the conduit. Each spare conduit shall be sealed by the use of "Duxseal", or approved equal, at the manholes.

17] To seal cables inside conduits entering and leaving manholes, apply untarred, unoiled jute packing around outside of and in the crotch between the cables in such a manner as to completely fill the duct. Use short pieces of the jute (2" to 6") and pack them tightly. Insert approved duct sealing material, taking care to secure a perfect bond around edge of conduit and cables. Cables shall be kept apart from edge of conduit by sealing material.

MEASUREMENT & PAYMENT: Payment will be made at the unit price bid for the total length in feet of **HOT-DIPPED/ HEAVY GAUGE GALVANIZED RIGID STEEL CONDUIT** actually installed as measured in the field along the longitudinal axis of each length of conduit by the Engineer.

The price bid for this item shall be a unit price per linear foot of **HOT-DIPPED/ HEAVY GAUGE GALVANIZED RIGID STEEL CONDUIT** shall include the cost of furnishing all labor, materials, and equipment to install, secure in place, clean and mandrel the conduit runs shown on the drawings. Conduit shall be installed complete with all couplings, fittings, bushings, sweeps, elbows, spacers, tie wire, drag lines and fiber plugs, straps, splice and junction boxes, etc.

Item No.	Item	Pay Unit
PK-ESCR 670	3/4" DIA. Hot Dipped/Heavy Gauge Galvanized Rigid Steel Conduit	LF
PK-ESCR-671	1½" DIA. Hot Dipped/Heavy Gauge Galvanized Rigid Steel Conduit	LF
PK-ESCR-672	2" DIA. Hot Dipped/Heavy Gauge Galvanized Rigid Steel Conduit	LF
PK-ESCR-673	3" DIA. Hot Dipped/Heavy Gauge Galvanized Rigid Steel Conduit	LF
PK-ESCR-674	4" DIA. Hot Dipped/Heavy Gauge Galvanized Rigid Steel Conduit	LF

END OF SECTION

SECTION PK-ESCR 676 – PULLBOXES WITH FRAME AND COVER 24" L X 18" W X 26" D, TYPE 2418 (2-R)

SECTION PK-ESCR 677 – PULLBOXES WITH FRAME AND COVER 36" L X 24" W X 26" D, TYPE 3624 (5-R)

SECTION PK-ESCR 678 – PULLBOXES WITH FRAME AND COVER 48"L X 24" W X 26" D, TYPE 4824 (6-R)

GENERAL: Under this item the contractor shall furnish and install concrete boxes, cast iron frame and cast iron cover with all required accessories in compliance with Contract Drawings and Specifications.

The concrete boxes shall be made of pre-cast reinforced concrete. The box shall include cast iron frame and cover.

The contractor shall refer to Contract Drawings & NYC DOT Division of Street Lighting for construction details. All work shall be done in compliance with the standard details and specifications given on the above drawing.

The item title dimensions shown are clear inner dimensions of the concrete box. Overall dimension shall be larger for walls and bottom thickness of the box. All non-current carrying metal components within the box shall be bonded to ground as shown on the drawings in compliance with National Electrical Code. All ground bonding connections shall be included under this item.

These concrete boxes shall be furnished with required knockouts for conduit entrances. All unused knockouts shall be sealed with waterproofing concrete mixture.

Excavation: The excavation and backfill for this item is not included in this item. Contractor shall under this item, cut, dig or drill trenches or pits to install manholes.

Construction:

1] Precast concrete similar to property line box except as detailed on the drawings. Floors to be free of pockets to slope ¼" per foot to drain points. Refer to Contract Drawings for additional Details.

2] **Drains:** Cast iron, slotted or perforated, hinged cover, 9" dia., 4" outlet, with a short length of outlet pipe terminating in a drywell below the floor.

3] **Frame & Cover:** Cast iron, with sizes indicated on Drawings, heavy duty roadway type. Cast iron of uniform quality free from blowholes, hard spots, shrinkage distortion or other defects. Cast iron shall be well cleaned by shot blasting and coated with asphalt paint resulting in a smooth, tough and tenacious coating; conform to ASTM spec. for gray iron.

Manufacture castings true to pattern, of non-rocking design or shall have bearing surfaces machined to prevent rocking and rattling.

4] **Covers:** Indented solid top design, with two drop handles; cast integral letters at least 2" high reading " N.Y.C. Parks Electrical" on upper side.

5] **Accessories:** Provide embedded inserts in pullbox walls for cable racks. Provide pulling-in irons in walls opposite each duct bank entrance and in floor opposite pullbox opening. Pulling-in irons shall be securely fastened to reinforcing bars. Provide racks at 3' centers on pullbox perimeter, to be clear or present and future conduit entries. Provide racks and a set of porcelain insulators for per set of cables for each entering conduit.

6] **Grounding**: Wherever continuous ground wire from system grounding is not available for bonding, providing a ¾" driven ground rod, at least 10' long or as required to reach ground water. Extend top 6" above pullbox floor. Connect all non-current carrying metal parts in the pullbox to the ground rod with a #6 AWG bare copper conductor.

7] **Installation**: Set pullbox to approximate grade using a minimum of a 24" deep brick throat. Add or remove bricks as required to achieve final cover elevation.

8] **Cable Racks**: Provide fiberglass cable racks in all pullboxes larger than 18" width or 36" length (interior) for supporting cables.

MEASUREMENT & PAYMENT For furnishing and installation of this item Pull boxes with all accessories described in the specifications, the contractor shall furnish unit bid price.

The bid price shall be a unit price for each Pull Box installed with cover and frame and shall include the cost of all labor, materials and equipment necessary to complete the work in accordance with the specifications, and to the satisfaction of the Engineer.

The payment shall be made for actual number of Pull Boxes installed.

Item No.	Item	Pay Unit
PK- ESCR-676	Pullboxes with Frame and Cover 24"L X 18" W X 26" D, Type 2418 (2-R)	EA
PK-ESCR-677	Pullboxes with Frame and Cover 36"L X 24" W X 26" D, Type 3624 (5-R)	EA
PK-ESCR-678	Pullboxes with Frame and Cover 48"L X 24" W X 26" D, Type 4824 (6-R)	EA

END OF SECTION

SECTION PK-ESCR 680 – #12 AWG COPPER, 600V WIRE
SECTION PK-ESCR 681 – #6 AWG COPPER, 600V WIRE
SECTION PK-ESCR 682 – #2 AWG COPPER, 600V WIRE

GENERAL: Under this item the contractor shall furnish and install new wire and cable as specified on drawings.

The work shall include but not limited to furnishing and installation of cable in conduit and boxes including cleaning of the conduits, splices, terminations and final connection on line and load sides of Electrical existing installations and newly supplied under this contract and supplied by others.

All work shall be done in compliance with National Electrical Code and NYC Electric Code.

1] All wiring shall be in conduit as shown on drawing and protected from mechanical injury by metal coverings. All electrical parts shall be approved by the National Board of Fire Underwriters and the Bureau of Electrical Control and shall comply with the National Electric Code. The cable shall be U.L. Listed for exterior application Type USE-2 with EPR insulation.

2] Wire & cable up to 600v shall be copper and have current carrying capacity not less than indicated and shall conform to the standards of the Underwriter's Laboratories, Inc. Conductor sizes shall be as indicated on the drawings. 75C insulation shall be used for all size of wire, unless otherwise noted on plans and in accordance with the requirements of N.Y.C. Dept. of Buildings, Bureau of Electrical Control.

3] Factory color coding for cable shall be as follows: 120/208 volts black, red, blue, and white; white conductors shall serve as neutral conductors.

4] Unless otherwise particularly approved, no wires shall be pulled in until the conduit system is completed. No grease or oil shall be used to facilitate the pulling of the wires; only approved pulling compound shall be used. All wire shall be continuous between pull boxes & lamp posts.

5] Joints that become necessary in circuit work at the outlets shall be made with approved pressure connectors. All joints shall be covered with an insulation equal to that on the conductors. Approved pressure connectors, Ideal Wingnuts, Scotch-lock, Buchanan, Thomas and Betts or as accepted, shall be used in lieu of solder and tape. The cost of splices shall be a part of this item.

6] All existing conduits are to be cleaned prior to cable installation.

7] New conduit to be used for installation of cable shall be properly cleared from one end to the other with mandrel approximately 85% diameter of the conduit size.

SPLICING:

1] Splices in the run are not permitted.

2] Splicing shall conform to the National Electrical Code in accordance with the requirements of the Department of Buildings, Bureau of Electrical Control, "Specification for Single Conductor Wire and Cable".

3] Maintain splices and joints in accessible enclosures, where easy inspection is available.

4] Join, tap and terminate stranded 120/208 volt conductors #6 AWG and larger by means of long barrel copper butt splice crimp sleeves with oil stops, approved taps and two hole compression lugs. Exclude connectors and lugs of the types which apply set screws directly to conductors.

Apply pressure indent type connectors, taps and lugs utilizing tools manufactured specifically for the purpose and having features preventing their release until the final pressure has been exerted on the lug or connector. Heat shrink sleeve over entire splice. 3M or equal scotch coat over entire shrink sleeve. Wrap one half lapped layer of electrical tape over entire splice. Burndy, T & B, MAC products or approved equal.

Except where wire nuts are used, build up insulation over conductor joints to a value, equal both in thickness and dielectric strength, to that of the factory applied conductor insulation. Insulation of conductor taps and joints shall be by means of half-lapped layers of rubber tape, with an outer layer of friction tape, by means of half-lapped layers of approved plastic electric insulating tape, or (in the case of bolted type connector joints) by means of split insulating casings molded specifically to insulate the particular connector & conductor, and fastened with stainless steel or non-metallic snaps or clips.

Protection: The Contractor shall protect and be responsible for the Contractor's materials, tools, work and equipment until completion thereof and until the acceptance of same by the Engineer.

CABLE SAMPLES:

1] The Engineer shall take samples of each size of cable not less than ten feet in length for tests. These samples will be taken by the Engineer in the field and the Engineer may select same from any reel at random.

2] The Engineer may order any reel delivered to a City approved laboratory for test. Transportation of such reel to and from the laboratory and all costs of testing shall be at the expense of the Contractor.

CABLE TAGS: Furnish and install approved tags with the wire identification permanently marked thereon so that all wires may be traced from box to box, where splices occur, install a tag on the wire on all sides of every splice. Tag shall equal to Panduit PLM marker ties.

TESTING AFTER INSTALLATION: The cable shall be tested after installation but before final connections for the continuity and insulating. The insulation resistance must comply with the NETA recommended testing requirements.

MEASUREMENT & PAYMENT: The quantity of wires to be paid for under each of the items shall be the number of linear feet of wire installed in accordance with the plans, specifications and directions of the Engineer.

The price bid shall be a unit price per linear foot, including splices, furnished and installed and shall include the cost of all labor, materials, equipment and incidental expenses necessary to complete the work, including testing, all in accordance with the plans and specifications to the satisfaction of the Engineer.

Item No.	Item	Pay Unit
PK-ESCR-680	#12 AWG Copper, 600V Wire	LF
PK-ESCR-681	#6 AWG Copper, 600V Wire	LF
PK-ESCR-682	#2 AWG Copper, 600V Wire	LF

END OF SECTION

SECTION PK-ESCR 687 – TEMPORARY WALKWAY LIGHTING AND POWER FOR STUYVESANT COVE 20TH STREET FERRY TERMINAL

GENERAL: Under this item the contractor shall furnish and install Temporary Walkway lighting and Power to and from Stuyvesant Cove 20th Street Ferry Terminal during construction as specified on drawings in compliance with National Electrical Code, NYC Electric Code and NYC DOT Division of Street Lighting.

The item shall include the labor, material, equipment installation with all required accessories such as electrical conductors, switches, Con-Ed service distribution work/costs, portable generator, fuel etc. All the work shall be done in compliance with all required code.

GENERAL SPECIFICATIONS:

All Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.

All construction must conform to all local codes.

Comply with NFPA 70.

Comply with NECA 1 and NECA 413.

All Electrical work shall be performed by a Licensed Electrician, as specified by NYC Building Department in a neat manner and in accordance with best practices. All work shall comply with the National Electrical Code (NEC), all New York City amendments to that code, state and Federal rules and regulations.

An onsite evaluation is required to determine conduit, wiring etc. requirements before any work.

Notify the Engineer before any work is done. All work must be done under the direction of a licensed electrician.

WORK INCLUDED:

The Contractor shall make all necessary arrangements to provide temporary walkway lighting and power to and from Stuyvesant Cove 20th Street Ferry Terminal.

Contractor to provide temporary lighting system to light the temporary pathways to and from the 20th street Ferry Terminal, at all times for the duration of construction. Contractor shall provide portable generator or temporary electric service with appropriate switches, cable, connectors, overcurrent protection, controls etc. according to NEC, OSHA and NYCDOT Department of Street Lighting standards.

The temporary power & lighting system shall be determined, designed and maintained by the contractor. Contractor to submit temporary power and lighting plans for review and approval.

Temporary lighting shall provide average maintained lighting level of 1.0 foot candles with a 3 to 1 average to minimum uniformity. The temporary lighting system shall extend from the Ferry Terminal thru Stuyvesant Cove Park (during construction when the park lighting system is not operational) to the area west of the FDR to Avenue C.

Upon completion of the project, remove all temporary power work and restore all affected finishes and connections.

MEASUREMENT & PAYMENT: Temporary Power shall be paid on a Lump Sum basis and installed in accordance with the plans, specifications and directions of the Engineer.

The price bid shall be a Lump Sum to furnished and install and shall include the Shop drawing submissions for review, cost of all labor, materials, equipment and incidental expenses necessary to complete the work, including testing, generator, fuel, personal, temporary Con-Ed service, Con-Ed invoices, etc. all in accordance with the plans and specifications to the satisfaction of the Engineer.

Item No.	Item	Pay Unit
PK-ESCR-687	TEMPORARY WALKWAY LIGHTING AND POWER FOR STUYVESANT COVE 20TH STREET FERRY TERMINAL	L.S.

END OF SECTION

SECTION PK-ESCR 690 – CONDUIT INTERIOR SEALING FITTING

GENERAL: Under this item the contractor shall furnish and install new Conduit Interior Seal Fitting specified on drawings in compliance with National Electrical Code and NYC Electric Code.

The item shall include the labor material and equipment for installation of Conduit Seal with all required accessories such as Cables, Screws, Fittings, Frames/Seals, Lubricant etc. All the work shall be done in compliance with code requirement. All associated material for complete installation of Conduit Interior Seal shall be included under each item.

GENERAL SPECIFICATIONS:

1. All Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
2. All construction must conform to all applicable codes .
3. Comply with NFPA 70.
4. Comply with NECA 1 and NECA 413.
5. An onsite evaluation is required to determine conduit and wiring requirements before Conduit Seal Installation.
6. Any change to the Installation detail must be approved by the Engineer.
7. Conduit Interior Seal must be watertight and dust tight manufactured by Roxtec Inc.
8. Contractor to provide Shop Drawings, Catalog Sheets, Installation Instructions and etc.
9. All Conduit Interior Sealing work is specified in drawings and specification but not limited to it.

MATERIALS:

All work material should be according manufacturer is specified in drawings and specification.

ROXTEC Frames:

1. RG M or approved equal

ROXTEC Seals:

1. H3 UG Seal or approved equal

ROXTEC Modules:

1. RM Modules or approved Equal

Sealing Components:

Contract shall use ROXTEC lubricant to provide a correct compression and a secure seal.

1. ROXTEC Natural Grease Lubricant 25ML ALT0000003000.
2. ROXTEC Assembly Gel 30ML ALT0000004000.

Fittings:

1. EN 1.4404 Fitting
2. ROXYLON Rubber
3. MC6S M6x70 AD Screws

INSTALLATION:

1. Contractor shall coordinate with manufacturer for On Site installation orientation and post installation inspection for safe on-site installation.
2. Install systems in accordance with UL systems, and manufacturer's specifications.

3. Thoroughly clean surfaces and spaces to receive materials, removing foreign matter such as dirt, dust, moisture, rust, laitance, mill scale, oil, paint, lacquer, form coatings, water repellents and protective coatings.
4. Do not use cleaning solvents which leave residue. Do any solutions for cleaning unless which in not recommended by the sealant manufacturer.
5. Follow manufacturer's directions for specific products and surfaces.
6. Remove the knock-out of the sleeve before inserting the seal.
7. The seal must always be installed in the correct end of the knockout sleeve.
8. Use the flange as template for the drilling of the bolt holes.
9. Attached the frame to the structure using suitable sealing method and suitable stainless fasteners.
10. Weld the ROXTEC seal to the wall according to the ROXTEC welding guidelines.
11. Make all cables go straight, not angled through the seal.
12. Warm up the installation lubricant to soften it when installing in the cold areas.
13. Only One Cable is permitted through each module.

TESTING:

1. Check for Mechanical Damage
2. Check that only one cable passes through each module.
3. Check that there is no center core missing.
4. Check the bolts are tightened similarly.
5. Verify the frame is push all they way to the sleeve.
6. Make sure the cable goes straight through the frame.
7. Verify the correct utilization of the entire packing space.
8. Make sure the front fittings are positioned.
9. Check the compression
10. Check that there no visible gap between cable/pipe and modules.

MEASUREMENT & PAYMENT: Conduit Interior Sealing Fittings shall be payed and installed in accordance with the plans, specifications and directions of the Engineer.

The price bid shall be for Each, furnished and installed Conduit Interior Sealing Fitting and shall include the cost of all labor, materials, equipment and incidental expenses necessary to complete the work, including testing, all in accordance with the plans and specifications to the satisfaction of the Engineer.

Item No.	Item	Pay Unit
PK-ESCR-690	CONDUIT INTERIOR SEALING FITTING	EA

END OF SECTION

PK-ESCR 691 – BRICK MASONRY/PRECAST CONCRETE FOR DRAINAGE STRUCTURE

PK-ESCR 691.1. WORK: Under this item, the Contractor shall build or provide **BRICK MASONRY/PRECAST CONCRETE FOR DRAINAGE STRUCTURE** in accordance with the plans, specifications, and directions of the Engineer.

PK-ESCR 691.2. MATERIALS:

Brick: Brick Masonry drainage structures shall not be permitted for the ESCR contract. All structures shall be precast concrete. Brick shall be only utilized for manhole cover and catch basin grate adjustments, as directed by the Engineer and in accordance with details located in Appendix A of the contract drawings.

Mortar: The mortar shall be composed of one (1) part of Portland cement and a maximum of two (2) parts fine aggregate, with not more than five percent (5%) of the cement content of hydrated lime putty.

Precast Concrete: All new Park Drainage and Sanitary structures shall be precast concrete. The Contractor and Precaster shall be responsible for the structural design, to meet H-20 loading, of any new structures to meet the rim and invert elevations indicated on the details located in Appendix A of the contract drawings. Payment shall be made on a cubic yard basis of precast concrete at the same price bid for brick masonry. No additional payment shall be made for structural design of precast structures.

Ladder Rungs for Precast Concrete Drainage Structures: Ladder rungs for precast drainage structures shall be constructed of copolymer polypropylene plastic, as manufactured by M.A. Industries Peachtree City, GA, or approved equal. The cost for these ladder rungs shall be included in the cubic yard unit cast for precast structure.

PK-ESCR 691.3 INSTALLATION:

Laying Bricks: Bricks shall be satisfactorily wet when being laid, and each brick shall be laid in cement mortar so as to form full bed, end and side joints at one operation. The joints shall not be wider than three eighth inch (3/8"), except when the bricks are laid radially, in which case the narrowest part of the joint shall not exceed one quarter inch (1/4"). The bricks shall be laid in a workmanlike manner true to line and wherever practicable, the joint shall be carefully struck and pointed on the inside. Brick work shall be laid with a satisfactory bond and as it progresses, shall be racked back in course, unless otherwise permitted.

Cold Weather: In freezing weather, bricks shall be heated sufficiently to remove all ice and frost. No brickwork shall be laid or relaid when the temperature is below 25° Fahrenheit..

PK-ESCR 691.4. PROTECTION: All fresh brickwork shall be carefully protected from freezing and from drying effects of the sun and wind and, if required, shall be sprinkled with water at such intervals and for such time as may be directed. Brickwork shall be protected from injuries of all sorts, and all portions which may become damaged or may be found defective shall be repaired, or if directed, to be removed and rebuilt to the satisfaction of the Engineer.

PK-ESCR 691.5. LIABILITY: When using precast concrete drainage structures, the Contractor accepts full and complete responsibility for the location of knock-out holes that allow for the entrance of drainage pipes. All pipe invert dimensions shall be verified in the field by the contractor prior to ordering precast drainage structures. No additional compensation shall be paid by the city of any discrepancies that may occur.

PK-ESCR 691.6. SUBMITTALS: All submittals shall be in accordance with the requirements of the S-Pages.

Shop Drawings showing all invert elevations must be submitted for approval, prior to use of the precast drainage structures.

PK-ESCR 691.7. MEASUREMENT AND PAYMENT: The quantity of **BRICK MASONRY/PRECAST CONCRETE FOR DRAINAGE STRUCTURE** to be paid for under this item shall be the number of **CUBIC YARDS** furnished and laid complete in the work, in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price per **CUBIC YARD** of Brick Masonry/Precast concrete furnished and incorporated in the work complete, and shall include the cost of furnishing all labor, material, equipment, including ladder rungs as necessary, and incidental expenses necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer.

No deductions will be made for spaces occupied by pipes entering drainage structure.

Any frames, covers, etc. if necessary shall be paid for separately under their respective contract item.

Excavation shall be paid for separately under its own contract item.

Item No.	Item	Pay Unit
PK-ESCR 691	**BRICK MASONRY/PRECAST CONCRETE FOR DRAINAGE STRUCTURE**	C.Y.

END OF SECTION

SECTION PK-ESCR 701 – SAFETY SURFACING

WORK: Under these items, the Contractor shall furnish and install SAFETY SURFACING of various types in accordance with the plans, specifications and directions of the Engineer.

Note: The safety surfacing shall be installed as soon as possible after the play equipment installation is complete. The Contractor shall be responsible for temporarily barricading the Play Equipment prior to completion of the safety surfacing installation.

INTENT: In general, mats shall be utilized according to ASTM F1292 (latest issue) drop height criteria as follows: tot unit play areas shall be surfaced with mats which meet or exceed 5 foot drop height criteria; ten foot high play swing areas shall be surfaced with mats which meet or exceed 10 foot drop height criteria; all other areas shall be surfaced with mats which meet or exceed 8 foot drop height criteria.

MATERIALS: Unless otherwise herein specified, all materials and methods of construction shall conform to the requirements of General Conditions, "Materials and Methods of Construction.

Molded Rubber Mats: Safety surfacing shall be a waffle type compression molded rubber mat with an abrasion resistant surfacing and ribs underneath which will provide an air entrained cushion. Each material shall be of a thickness necessary to meet or exceed the standards and testing requirements as stated in this specification. Color shall be as shown on the drawings. All colors (other than red) shall be paid as colored. Color speckles on black background shall be paid as red. Color speckles on color background shall be paid as colored. Marbleized color design shall be paid as colored.

Compression molded synthetic rubber mats shall consist of a minimum one-quarter (1/4") inch thick abrasion resistant top membrane with a cushion-course rib system underneath. Material shall not have more than one-sixteenth (1/16") inch surface distortion and shall be of uniform specified color and appearance.

Safety surfacing shall be one of the following products subject to conformance with all testing criteria:

"EZ Fall" as manufactured by Mitchell Rubber Products, Inc., Mira Loma, CA; or

"SpectraLock" as manufactured by Play Safe Surfaces LTD., Syosset; NY, or "SaferZone Tiles" as manufactured by Sutcliffe Play Limited, Upton, West Yorkshire, England, or approved equal.

Premolded synthetic polyurethane safety surfacing consisting of rubber crumbs bound together with a polyurethane binder and/or poured in place safety surfacing are not acceptable under this specification.

Adhesives: Any variation from pre-approved adhesives must be submitted as per "Submittals". The following adhesives have been pre-approved for specific applications:

"Epoxygrout" 2 Part Epoxy as manufactured by U.S. Epoxy, Patchogue, NY, or approved equal, for plastic or rubber anchor to asphalt applications.

Lord® Cyanoacrylate Adhesive as manufactured by Lord Chemical Products Corp., Cary, NC, or approved equal, for rubber to rubber applications. Cyanoacrylate adhesive is commonly known as "Superglue", or "Crazy Glue".

STANDARDS: All safety surface material shall meet the latest suggested guidelines published in the "Handbook for Public Playground Safety" by The U.S. Consumer Product Safety Commission (C.P.S.C.), and The American Society for Testing and Materials (ASTM) as outlined below.

TESTS: Safety surfacing must meet the following test requirements and criteria:

1. Critical Fall Height Laboratory test - When tested in accordance with ASTM F1292 (latest issue) Test Method F355, Procedure C (Metal Headform), the surface shall not impart to the headform upon impact, a peak deceleration exceeding 200 times the acceleration due to gravity (200G's) and shall not exceed 1000 Head Injury Criteria (HIC). Test submittals must clearly state that test was performed in a laboratory, over the seam and anchoring system, and on the body of the tile. The drop height(s) used in this test shall be the height(s) as noted on the contract drawings.

2. Weathering (Aging) - After being subject to fifty (50) freeze-thaw cycles in accordance with ASTM C67, "Freezing and Thawing", and after being subject to 200°F for 7 days in accordance with ASTM D573, "Rubber Deterioration in an Air Oven", the same sample shall be re-tested in compliance with ASTM F1292 at 72°F only. A peak deceleration reading not exceeding 200G's shall be maintained. HIC testing is not required for re-testing.

3. Slip Resistance - When using the "British Portable Skid Resistance Tester" in accordance with ASTM E303, the wet-dynamic reading shall not be less than 40.

4. Flammability - When tested in accordance with ASTM E648, "Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source", the material shall have a minimum critical radiant flux of 0.22 Watts/cm2

INSTALLATION: Installation of all types shall be in accordance with CPSC guidelines and manufacturers installation instructions approved by the Engineer. The safety surfacing should not create new hazards; hence, all installations shall be done as carefully as possible in a neat and workmanlike manner.

All safety surfacing shall either be recessed with the top flush with surrounding finish grade, or have a beveled perimeter transition piece along its entire open perimeter to allow for a smooth, easy transition between the surrounding finish grade and the level of the safety surfacing. Safety surfacing in swing areas shall be installed with full thickness to the fence or curb except in the entryway, which shall have a beveled edge.

Molded rubber mat installation must be by mechanical means of each individual tile. Adhesives to hold small, cut pieces of mat to pavement surface are unacceptable. Adhesives are only to be used with anchoring devices, transition piece, or caps as described in "Adhesives". Shop drawing shall clearly show that every piece is connected by mechanical means. The installation shall be vandal resistant and be firmly secured so that it cannot be pulled up from the playground surface.

Mats shall have either: a) all center tiles secured individually to the playground surface with vandal-resistant anchors, or b) mechanically locked together to prevent separation or removal of blocks from play area. The perimeter transition pieces shall be secured to the pavement with vandal-resistant anchors or approved adhesives.

Any anchoring system used shall not create "hard" spots within the surfacing which fails to meet test requirement No. 1 and ASTM F1292. All plugs shall be installed flush with or slightly recessed (1/8" maximum) below the rest of the surfacing; plugs shall not protrude above the surrounding surfacing. All mats shall be installed so that they will be hand tight in hot weather. Necessary adjustments shall be made for installation in cool weather.

SPECIAL CONDITIONS: Where surfacing may cover a drain opening, the surfacing shall be drilled or slotted in a pattern matching the basin openings to allow for drainage. Where surfacing covers a basin or manhole, the Contractor shall drill six (6) one-quarter (1/4") inch holes at an angle of 45o providing a vent for the basin or manhole. Surfacing shall be formed around tree pits and not cover granite block, provided that such elements are outside the fall zone.

ADDITIONAL TESTING: The City reserves the right to make any additional tests it feels necessary, and the Contractor shall furnish material when needed for testing.

SUBMITTALS: All submittals shall be submitted prior to manufacture and in accordance with the requirements of the S-Pages.

Material: For approval and prior to installation, the Contractor shall submit two samples of each drop height specified of the safety surface material no larger than one foot by one foot (1' x 1') in size representing color, composition and thickness proposed to be used, the drop height used, and the supporting certified test data showing that the material meets or exceeds the test requirements of this specification. Per ASTM F1292 paragraph 4.3.4, the laboratory test used to determine critical fall height of materials shall have been conducted no more than five years prior to the date of installation of the playground surface. In addition, all anchoring / attachment components and product literature for necessary adhesives which vary from preapproved adhesives shall be submitted for approval.

Shop Drawings: A Shop drawing of the proposed safety surfacing layout shall be drawn in 1/4" = 1'-0" scale (unless otherwise specified by the project manager) and shall clearly show the following details: actual size of mats or modular tiles; size of transition pieces; size of cut pieces, if any; location of all mechanical anchors, rods, or clips; type of adhesive to be used; and exact location of all play equipment, posts, springs or other support systems. As-built deviations from the proposed safety surfacing layout made during installation shall be approved in the field by the Engineer in writing on the shop drawing.

Installer Certification. Installer must be trained and certified by the manufacturer. Installer's certification on manufacturer's letterhead shall be submitted to the Engineer.

Insurance Certificate: The Contractor shall furnish a Manufacturer's Certificate of Product Liability Insurance for a minimum of one (1) million dollars naming "The City of New York" as Additional Insured. Insurance shall be for eighteen months, starting at the Contract Final inspection date.

Warranty Against Shrinkage: The Contractor shall furnish a standard one year manufacturer's warranty, enhanced as follows: For eighteen months, starting from the date of Final inspection, the Manufacturer agrees to reinstall or replace material which shrinks, creating a gap between mats of more than one-half (½") inch. Measurement shall be performed at ambient temperature of 72 °F + 5 °F.

Manufacturer's Recommended Installation Instructions and Maintenance and Repair Instructions. Installation, maintenance and repair of all types of safety surfacing, including adhesives, graffiti removal, etc. shall be per manufacturer's instructions. Instructions shall be submitted and subject to approval by the Engineer.

MEASUREMENT AND PAYMENT: The quantity of **SAFETY SURFACING** of various types to be paid for under this item shall be the number of **SQUARE FEET** furnished and installed in accordance with the plans, specifications, and directions of the Engineer. No deduction shall be made for cut surfacing removed for cross section of posts.

The price bid shall be the unit price per **SQUARE FOOT** of each type and shall include the cost of all labor, materials and incidentals necessary to complete the work, in accordance with the plans and specifications to the satisfaction of the Engineer.

Upon submission and approval of the required shop drawings, the Contractor shall receive two (2%) percent of the total bid price. Partial payment for stored materials may be granted in accordance with the NYCDOT Standard Highway Specifications, **Section 1.06.35**.

Item No.	Item	Pay Uni
PK-ESCR 701 A	SAFETY SURFACE 8' FALL HEIGHT, BLACK	S.F.
PK-ESCR 701 B	SAFETY SURFACE 8' FALL HEIGHT, RED	S.F.
PK-ESCR 701 C	SAFETY SURFACE 8' FALL HEIGHT, OTHER COLOR	S.F.

END OF SECTION

SECTION PK-ESCR 705 – SWINGS 7, 8, 10 FOOT HIGH

WORK: Under these Items, the Contractor shall furnish and install **SWINGS 7'-0" or 8'-0" HIGH**, and **PLAY SWINGS-10'-0" HIGH** and, in accordance with the plans and specifications where shown on the plans, or as directed by the Engineer.

Each play swing unit 10'-0" High consists of a swing frame and two (2) flat seats. Each eight foot (8'-0") High and seven (7'-0") foot high swing unit consist of a swing frame and two (2) swing seats. The seat combinations shall be two (2) tot bucket seats, two (2) strap seats, or one (1) inclusive seat and one (1) tot bucket seat.

STANDARDS: All swings shall meet or exceed the latest requirements as published in the Handbook for Public Playground Safety - Volumes I and II by the National Bureau of Standards for the U.S. Consumer Product Safety Commission and the ASTM F-1487-latest rev. "Standard Consumer Safety Performance Specification for Playground Equipment for Public Use". Swing design and construction shall also comply with the Guide to ADA Accessibility Guidelines for Play Areas, Final Rule. See Parks Standard Details: Play Swing 10'-0" High, Swing 8'-0" High, Swing 7'-0" High.

MATERIALS: Unless otherwise herein specified, all materials and methods of construction shall conform to General Conditions, "Materials and Methods of Construction". Swings shall be as manufactured by All City Play Equipment Inc., Brooklyn, NY; Shannon Gates and Railings, Deer Park NY; or approved equal.

Concrete Footings: Shall be 3,200-psi minimum compressive strength class B-32 per the NYCDOT Standard Highway Specifications, Section ESCR-4.06.

Powder Coated Pipe and Fittings: Pipe shall be Schedule 40, steel pipe conforming to the requirements of ASTM A-53 and shall be of the same sizes and dimensions indicated on the plans. Pipe shall be hot dipped galvanized in accordance with ASTM F1083 and powder coated with TGIC-Polyester. Galvanizing of pipes and fittings shall provide an acceptable substrate so that applied powder coatings will not peel off. Insure surfaces to be coated are clean and dry and free of grease, dust, rust, etc. No lacquer, urethane or other coatings which would prevent proper adhesion of powder coating shall be applied to the pipe or fittings. All coated parts shall first receive phosphating and chromatizing treatments to improve the adhesion of the surface coating.

The TGIC-Polyester shall be applied to pipe and fittings at a film thickness of 3 to 6 mils by electrostatic spray process and bake finished per manufacturer's directions. The TGIC-Polyester shall be applied without voids, tears or cuts that reveal the substrate and shall thoroughly adhere to the metal without peeling when scratched with a pick device or knife blade point. Color to be black unless otherwise indicated on the plans.

Laboratory Test For TGIC-Polyester Powder Coat: At the discretion of the Engineer, a sample TGIC-Polyester powder coated pipe and/or fitting shall be laboratory tested for bonding of the powder coating to the surface. Test shall be the CrossHatch test per ASTM D3359, method B. Failure to satisfactorily pass this test shall be a basis for rejection.

Fittings, Swing Clamps and Hangers: Shall be of cast ductile iron as shown on the standard details, and shall be galvanized by the hot-dip process after fabrication. Ductile iron tensile strength shall meet a minimum of 65,000 psi, in accordance with ASTM specification A536-84 Class 65-45-12. Galvanizing shall withstand a minimum of five (5) one-minute dips by the Preece Test. Fittings and swing clamps shall be powder coated to match frame.

Bronze Bushings: Shall be frictionless oil-bearing bronze oilite flange bushing, l/2" bore, as

manufactured by Isostatic Industries, Chicago, IL, Catalogue No. FB812-4, or approved equal.

Swing Clamps and Hangers: Shall be ductile iron, as manufactured by All City Play Equipment, Brooklyn, NY, Shannon Gates and Railings, Deer Park, NY or approved equal.

Fastenings: All pipe rails and standards shall be let into fittings from four and a half (4 ½") to five inches (5") as shown on the plans by step head on inside of fitting, and shall be pinned through with steel pins of sizes shown on the plans with ends countersunk riveted. Holes in fittings shall be drilled and countersunk in the shop before galvanizing. Pins shall be galvanized or stainless steel. Holes in the steel pin supports shall be drilled to the exact size as shown on the plans. No hole burning of steel will be permitted. All fastenings shall be coated with high locking adhesive, provided by the manufacturer, immediately prior to tightening. The locking adhesive shall be Loctite® 271 manufactured by Henkel Corporation, Westlake, OH, or approved equal.

The horizontal pipe for each swing shall be in one piece extending through center fitting, and shall be provided with cast frive pattern end plugs as shown on the plans.

All rivets and bolts shall be galvanized by the hot-dip process as specified above for fittings. Bolts and nuts shall be galvanized after threading.

Chain Shackle: Shackle shall be a three-eighths (3/8") inch dia. D- shackle, fabricated from type 316 forged stainless steel. The shackle shall have a minimum working load limit of 1,200 pounds. Pin for shackle shall be a flush non-snag screw pin with a tamper resistant, hex drive, flat head shoulder bolt. Shackle shall be as manufactured by Suncor, Pembroke, MA, Item No. S0115NS10; or approved equal. The pin shall be installed with shim washers and tightened with an Allen wrench. The shim washers shall be installed on both sides of the chain's end link to center link on pin. The Contractor shall coat the threads with a high locking adhesive immediately prior to closing of the shackle. The locking adhesive shall be Loctite® 271 manufactured by Henkel Corporation, Westlake, OH, or approved equal.

Chain: Chain for all types of swings shall be one-quarter inch (1/4") carbon steel chain, hot galvanized after fabrication, exception is accessible seat. Chain shall be made of welded links, proof tested for a working load limit of 2,600 pounds in accordance with ASTM Designation A413, Class Grade 43-High-test chain. Chain shall be Campbell, System 4, High Test Chain grade 40 as manufactured by Campbell Corp., York, PA, or approved equal. At specific intervals, links shall be embossed with a "C4" quality grade mark, or equal marking.

S-Hook: S-Hook for all applications shown on the drawing shall be three-eighths inch (3/8") wire size carbon steel, hot galvanized after fabrication. S-Hook shall be Campbell No. 120 catalogue 610-1234, as manufactured by Campbell Corp., York, PA, or approved equal. S-Hook shall be closed to 1 mm (.04 inches) or less as shown on the standard detail.

Full Bucket Tot Seats: Shall be molded, U.V. resistant, full-bucket rubber tot seats encapsulating a reinforcing metal plate. Seat shall be Model No. S100 as manufactured by Jensen Swing Products, Inc., Santee, CA, or approved equal. The yokes for Bucket tot Swing Seats shall be furnished by the seat manufacturer. Seat shall have a rubber sticker that advises users of the maximum weight limitation of the seat firmly attached to the front and rear of the seat. Color of seat to be black, warning label shall have white letters with a black background.

A NOTE REGARDING BUCKET SEATS: Although the drawings show the full bucket rubber tot seat for 8' High Swing described herein, the intent of this item is to install the "dog resistant" type of this seat (described below) where a "dog problem" has been identified

at the site. The existence or non-existence of a "dog problem" shall be determined by the designated M & O Representative.

Dog Resistant Bucket Tot Swing Seat: Dog Resistant Bucket tot Swing Seat shall be S175NYC Rotational Molded Infant Seat as manufactured by Jensen Swing Products, Santee, CA, or NYCS75 as manufactured by Superior International Industries, Carrollton, GA, or approved equal. The Dog Resistant Bucket Swing Seat shall be seat shall be rotationally molded with linear low-density polyethylene in fade resistant black. Each swing seat shall include (2) two stainless steel integral yokes and associated hardware. The Dog Resistant Bucket tot Swing Seat yokes shall be bolted to the seat with a maximum of two threads projecting below the eyebolt nuts.

Strap Seat for 8' High Frame: Shall be approximately twenty-four (24") inches long by six inches (6") wide by five-sixteenths (5/16") inch thick with stainless steel hangers. Seat shall be a U.V. resistant, EPDM, strap rubber seat reinforced with Kevlar insert, or approved equal. Strap seats with steel insert will not be accepted as an equal. The swing seat shall be capable of supporting a center load of at least eight hundred- (800) lbs. without showing a permanent deflection and no visible fracture or cracking. Strap seat shall be Kevlar Insert Strap Seat No. S 140, as manufactured by Jensen Swing Products, Santee, CA, or approved equal. Color to be black.

Note: Installing strap and bucket seats in the same unit (bay) is prohibited.

Inclusive Seat with Chain: Shall be Zero-G Chair #8554 for ages 2 to 5 years as manufactured by Gametime, Ft. Payne, AL, or Molded Bucket Seat (2-5), with Harness (Model No. 218671) manufactured by Landscape Structures, Delano, MN, approved equal. The accessible seat shall be rotationally molded with linear low-density polyethylene conforming to the specifications herein. The accessible seat shall incorporate a "Roller Coaster" style Brace and Latch to secure the user in place. The Brace and Latch shall be rotationally molded with linear low-density polyethylene conforming to the specifications herein. The accessible seat shall include a stainless steel chain, fabricated from standard 7/32" diameter stainless steel wire chain appropriate to hang from a seven or eight foot high swing frame.

Steel Yoke for Flat Seats: Steel Yoke for Flat Play Swing Seats shall be one-half inch (½") diameter. Yoke shall be cold drawn, hot-dipped galvanized steel formed to dimensions as shown on DPR Standard Details for Swings. Yokes are available for purchase from All City Play Equipment, Brooklyn, NY, or approved equal. Yoke for play swing seat shall be securely fastened to seat with vandal resistant heavy weight zinc plated elastic locknuts; yoke for full-bucket or strap seat shall be integrally fastened at each end of seat with a bracket and three steel rivets.

Flat Play Swing Seats: Shall be approximately twenty inches (20") long by nine and one-half inches (9 ½") wide. Seats shall be molded, shock absorbing, U. V. resistant, flat rubber seats reinforced with an aluminum plate. The swing seat shall be capable of supporting a center load of at least one thousand (1,000) lbs. without showing a permanent deflection and no visible fracture or cracking. Play swing seat shall be one of the following:

Model No. SRE 185 as manufactured by Sutcliffe Play Ltd., Yorkshire, England or

Model No. 289-80797, Flat Swing Seat as manufactured by Landscape Structures, Inc., Delano, MN, or approved equal. Color of seat to be black.

Holes in Play Swing seats must accept std. One-half (½") inch dia. metal yokes.

INSTALLATION: The swing supports shall be erected on concrete for park structures footings prepared to receive them as shown on the plans and Parks Standard Details. Concrete footing shall be finished so that the surface is plane and level and safety surfacing will not buckle.

TOUCH-UP & REPAIR: For minor damaged caused by installation or transportation, clean damaged area, then;

1. On damaged galvanized surfaces, apply organic zinc repair paint complying with ASTM A780, then repair powder coating per number 2 below. Galvanizing repair paint shall have 65 percent zinc by weight. Thickness of repair paint shall be not less than that required by ASTM A123.
2. On damaged powder coated surfaces, touch-up finish in conformance with manufacturer's recommendations. Provide touch-up such that repair is not visible from a distance of 6 (six) feet.

Dog Resistant Bucket Tot Swing Seat: The Dog Resistant Bucket Tot Swing Seat yokes shall be bolted to the seat with a maximum of two threads projecting below the eyebolt nuts.

SUBMITTALS: All submittals shall be submitted prior to manufacture and in accordance with the requirements of the S-Pages.

SHOP DRAWINGS: Where required, the Contractor shall submit shop drawings for approval in accordance with the S-Pages.

FOUNDRY CERTIFICATES: A foundry certificate verifying authenticity of the cast ductile iron supplied on this Contract shall be submitted. Certificate shall be on foundry letterhead, dated and signed by an officer of the company with Contract name and #, Contractor Name & Class of Ductile provided. A metallurgical analysis certifying that the material is cast iron performed by an independent, accredited, laboratory may be accepted in lieu of the Foundry Certificate.

PROOF TEST CERTIFICATE: Manufacturers Certificates: Certificates are required for the shackle assembly and the chain to substantiate evidence of working load limit. Where a metallurgical analysis is submitted in lieu of the Foundry Certificate, the Contractor shall also submit the working load limit certificate from an independent, accredited laboratory for the swing clamps. Submit to the Engineer.

MEASUREMENT AND PAYMENT: For **EACH** Swing 7'-0" or 8'-0" high consisting of a frame and two swing seats, furnished and installed in accordance with the plans and specifications and directions of the Engineer, the Contractor shall receive the unit price bid.

For **EACH** Play Swing 10'-0' high, consisting of a frame and two swing seats, furnished and installed complete in accordance with the plans and specifications and directions of the Engineer, the Contractor shall receive the unit price bid.

The prices bid shall be a unit price for **EACH** 7'-0" or 8'-0" or 10'-0" high Swing unit and shall include the cost of all labor, materials, unclassified excavation, concrete footings, Seats (flat, strap, full bucket, or inclusive seat) including yokes, equipment, powder coating, locking adhesive for all fastenings, and incidental expenses necessary to furnish and install swings in accordance with the plans, and specifications to the satisfaction of the Engineer.

Hand and/or Pneumatic Excavation or Rock Excavation, if required, shall be paid for separately under their respective contract items.

Item No.	Item	Pay Unit
PK-ESCR 100	SWING – 7'-0" WITH INCLUSIVE SEAT AND TOT BUCKET SEAT TYPE 2	L.S.

END OF SECTION

SECTION PK-ESCR 707 – MESH FOR CHAIN LINK FABRIC (CLF)

WORK: Under these items, the Contractor shall remove existing damaged chain link fabric, and furnish and install new polyvinyl chloride powder coated chain link fabric with new tension bars, new tension bands, new tie wires and new nuts and bolts on existing fence framework in accordance with the plans, specifications, and directions of the Engineer.

DESCRIPTION: The intent of these items is to reconstruct existing chain link fence by replacing damaged or missing fabric with new polyvinyl chloride powder coated chain link fabric. These fabric items shall be deemed to include the furnishing and installation of mesh, tension bands, tension bars, tie wires and all attendant fastenings, as well as galvanized nuts and bolts missing from frame work.

MATERIALS:

FABRIC: Fabric shall be hot dip galvanized steel wire mesh with a thermally fused polyvinyl chloride powder coating of 7 to 12 mils thick as per ASTM F668 class 2b. Color to match framework unless otherwise indicated on drawings. Fabric shall be produced by methods recognized as good commercial practices. Core wire tensile strength shall be 75,000 psi (517) MPa). Wire used for the manufacture of fabric shall meet the requirements of ASTM F668 and shall be capable of being woven into fabric without the PVC coating cracking or peeling.
PVC coating shall be a dense, impervious covering free of voids. Excessive roughness, bubbles, blisters, bruises and flaking will be a basis for rejection. PVC shall be thermally fused. Bonded or extruded and glued surface coating will not be permitted.

Fabric shall be stretched to provide a smooth, taut, uniform appearance free from sag. Maintain min. 1" clearance between finished grade and bottom of fabric.

Field Test: Three sample sections of the fabric shall be tested for bonding of the powder coat to the metal. Each test will consist of making two cuts parallel to the axis of the wire through the coating, appx. 1/16 inch (1.6 mm) apart, at least ½ inch (12.7 mm) long. With a knife peel back a section of the coating between inch (3.2 mm) and ¼ inch (6.4 mm) long to produce a tab. Attempt to remove the 1/16 inch. (1.6 mm) strip of coating by pulling the tab. The fabric shall be deemed acceptable if the coating breaks rather than separates from the metal on all three samples.

Thickness of Fabric:

One (1) Inch Mesh: Uncoated wire dimension shall be .120 inches in diameter (11 gauge). Zinc coating shall be 0.30 ounces per square foot of wire surface.

One and Three Quarter (1¾) Inch and Two (2) Inch Mesh: Uncoated wire dimension shall be .148 inches in diameter (9 gauge). Zinc coating shall be 0.40 ounces per square foot of wire surface.

SELVAGES: Fabric shall be barbed at the top and knuckled at the bottom on fences over 6'-0" high. Fabric on fences 4'-0" and 6'-0" shall be knuckled top and bottom. Loops of knuckled fabric shall be closed or nearly closed. The wire ends of barbed selvages shall be twisted in a closed helix of 1-1/2 turns and cut at an acute angle. The length of the ends beyond the twist shall be at least ¼" long. One (1) inch mesh shall be knuckled both top and bottom.

TIES: Tie-wire core thickness shall be 9 gauge (.148") wrought aluminum alloy 1100-H16 wire with an extruded vinyl coating in accordance with ASTM A641 Class 3. PVC shall be applied to a film thickness of 20 to 22 mils. Ties shall be spaced fifteen (15) inches apart on rails and twelve (12) inches apart on posts. The ends of ties shall be wound in a telegraph twist two and one half turns. Color to match mesh. Contractor shall touch-up PVC coating on ties damaged as result of installation.

TENSION BARS: Tension bars shall be galvanized in accordance with ASTM Serial Designation A-123, and shall extend the entire height of the chain link fabric. Tension bars shall be 3/16" x 3/8" galvanized steel for 1" mesh and ¼" x ¾" for 1¾" and 2" mesh. Tension bars shall be painted per the requirements specified in the "Paint C.L.F. Framework" item.

TENSION BANDS: Tension bands shall be 1/8" x 1" pressed steel with ¼" diameter nut and bolt, hot-dipped galvanized in accordance with ASTM Serial Designation A-123. Bands shall be spaced on fence posts 1'-0" on center. Tension bands shall be painted per the requirements specified in the "Paint C.L.F. Framework" item.

NUTS & BOLTS: All nuts and bolts shall be hot-dipped galvanized after threads are cut. Nuts and bolts shall be painted per the requirements specified in the "Paint C.L.F. Framework" item.

BOLT INSTALLATION: The ends of all bolts shall be peened after tightening. Bolts which are installed six (6) feet or less above grade shall not protrude more than 1/4" beyond the nut after tightening. All rough edges resulting from cutting of bolts to achieve this requirement shall be filed smooth to the satisfaction of the Engineer.

SUBMITTALS: All submittals shall be in accordance with the requirements of the S-Pages.

Sample: Submit one piece of fabric twelve (12") inches square for approval.

Certification: Contractor shall submit certification that the materials used comply with this specification.

DISPOSAL: All materials deemed salvageable by the Engineer shall become the City's property and shall be delivered to a city storage yard within the five boroughs, or as ordered by the Engineer. All other material shall become the property of the Contractor and properly disposed of.

DISPOSAL OF DAMAGED MATERIAL: Materials deemed unsalvageable by the Engineer shall become the property of the Contractor, and shall be removed and disposed of from the site. The cost of all removals shall be deemed as part of the installation item, and will not be paid for separately.

MEASUREMENT AND PAYMENT: The quantity of **MESH FOR CHAIN LINK FENCE** to be paid for under these items shall be the number of **SQUARE FEET** of thermally fused PVC coated steel fabric, of each mesh size, furnished and installed in accordance with the plans, specifications and directions of the Engineer.

The prices bid shall be a unit price per **SQUARE FOOT** of mesh, of each mesh size, and shall include the cost of all labor, materials, equipment and all incidental expenses necessary to furnish and install new powder coated chain link fabric on existing fence framework, including tension bars, tension bands, tie wire, fastenings, replacement of missing nuts and bolts, painting of fittings, removal and disposal and/or delivery of existing fabric, all in accordance with the plans and specifications to the satisfaction of the Engineer.

Existing framework shall be painted under "Paint C.L.F. Framework

Item No.	Item	Pay Unit
PK-ESCR 707	MESH FOR CHAIN LINK FENCE – 1" (HANDBALL)	S.F.
PK-ESCR 708	MESH FOR CHAIN LINK FENCE – 2"	S.F.

END OF SECTION

SECTION PK-ESCR 709 – REMOVE AND RESET STEEL PANEL, GATE, POST

WORK: Under these items, the Contractor shall remove and reset existing steel fence panels, gates, and/or posts (picket or panel) in existing and/or new curbs and/or piers in accordance with the plans, specifications and directions of the Engineers.

Steel Gate shall be defined as one gate leaf and supporting posts and/or structures.

New panels and posts, and painting shall be paid for under their separate items. Miscellaneous hardware shall be included in this item.

MATERIALS: Unless otherwise herein specified, all materials and methods of construction shall conform to requirements of General Conditions, "Materials and Methods of Construction".

GROUT: Grout for fence posts shall be non-shrink, cement based grout such as Sonneborn 10K Grout as manufactured by BASF Building Systems, Shakopee, MN or SikaGrout 212, as manufactured by Sika Corporation, Lyndhurst, NJ, or approved equal.

SEALANT: Sealant around fence post shall be one part polyurethane, elastomeric adhesive such as Sonneborn's Ultra Sealant, as manufactured by BASF Building Systems, Shakopee, MN or Sikaflex-1a, as manufactured by Sika Corporation, Lyndhurst, NJ, or approved equal.

HARDWARE: Any hardware that needs to be replaced shall be in accordance with the latest revision of DPR Standard Details.

ERECTION: The posts shall be erected in holes that have been formed in the concrete or stone to receive them. After the posts have been set in place and properly supported to hold them in line and grade, the annular space shall be filled with the specified non-shrink, cementitious grout. The grout shall be flush with the concrete curb. After the grout has cured, the Contractor is to install polyurethane sealant around the fence post. Sealant shall be gunned in between the base of the fence post and the concrete curb. Sealant shall be applied in strict accordance with the manufacturer's instructions, and shall be tooled in as required. **Note: All gypsum (Calcium Sulfate, CaSO4) based grout will be rejected.**

Any fences and gates not set plumb and true to line and grade shall be removed and replaced at the Contractor's expense. The Contractor shall maintain the fences and gates during the life of the contract and shall repair replace all members that are disturbed, damaged, or destroyed.

MEASUREMENT AND PAYMENT: The quantity of **REMOVE AND RESET STEEL FENCE** to be paid for under this item shall be the number of **LINEAR FEET** of fence of any height removed and reset in accordance with the plans, specifications, park standards, and direction of the Engineer.

The quantity of **REMOVE AND RESET STEEL FENCE GATE** to be paid for under this item shall be the number of gate leaves removed and reset in accordance with the plans, specifications, park standards, and direction of the Engineer.

The quantity of **REMOVE AND RESET STEEL FENCE POST** to be paid for under this item shall be the number of posts removed and reset in accordance with the plans, specifications, park standards, and direction of the Engineer.

The price bid shall be a unit price per **LINEAR FOOT** of steel fence (picket or panel) of any height removed and reset, a unit price for **EACH** gate removed and reset, and a unit for **EACH** post removed and reset, and shall include the cost of all labor, material, equipment and incidental expenses necessary to complete the work, including grout and sealant, all in accordance with the plans, specifications, and directions of the Engineer.

Excavation, new concrete curb, concrete piers, core drilling, new panels, new posts and painting shall be paid for separately under their respective contract items.

Item No.	Item	Pay Unit
PK-ESCR 709	REMOVE AND RESET STEEL PANEL, GATE, POST	L.F.

END OF SECTION

SECTION PK-ESCR 710 – PAINT CHAIN LINK FENCE (CLF) FRAMEWORK

WORK: Under these items, the Contractor shall prepare and paint the existing rehabilitated chain link fence framework of the heights and sizes shown on the plans and/or as directed by the Engineer. The work will include, but not necessarily be limited to, preparing and painting all existing and new chain link fence posts, rails, fittings, and other frame components, in accordance with the plans and specifications, and/or as directed by the Engineer.

METHOD: The existing rehabilitated chain link fence framework shall be painted after removals and rehabilitation have been performed to the framework and prior to installation of new chain link fabric.

The framework can be painted with the original fabric in place, if the fabric is not required to be replaced. The rehabilitated framework will consist of various quantities of weathered aluminum, weathered or rusty galvanized steel and new galvanized steel components.

PAINTING: The entire rehabilitated framework, both new and weathered components, shall receive three (3) coats of paint. Immediately prior to painting, all surfaces of framework shall be thoroughly cleaned in accordance with guidelines recommended by The Society for Protective Coatings (SSPC). All surfaces shall be cleaned in accordance with SP-1, Solvent Cleaning. Cleaning shall be performed with a solvent such as mineral spirits, xylol or toluol to remove all dirt, grease and foreign matter. Surfaces that show evidence of loose mill scale, non-adherent rust, peeling paint and other deleterious matter shall be cleaned in accordance with SP-2, Hand Tool Cleaning, a method generally confined to wire brushing, sandpaper, hand scrapers, or hand impact tools or SP-3, Power Tool Cleaning, a method generally confined to power wire brushes, impact tools, power sanders and grinders in order to achieve a sound substrate. Paint shall be applied immediately after a final SP-1 solvent cleaning and drying.

After the framework has been cleaned and prepared, it shall be painted as follows:

For New Galvanized Components or Aluminum Components:

First Coat: Super Spec HP Acrylic Metal Primer P04, as manufactured by Benjamin Moore Paints, Montvale, NJ, or Pro-Cryl® Universal Primer, B66-310, Red Oxide, acrylic primer for galvanized surfaces as manufactured by Sherwin Williams Company, Woodside, NY, or approved equal. Primer shall be a fast drying, 36 to 43% weight solids, VOC compliant, corrosion resistant with a dry film thickness of 1.7 - 3.6 mils. Paint requires up to two (2) to four (4) hours drying time before recoating (with alkyds).

For Previously Painted Surfaces in Sound Condition:

First Coat: Extreme Bond Primer as manufactured by Sherwin Williams Company, Woodside, NY, or approved equal. Primer shall be a water borne, acrylic coating having a dry film thickness of .9 - 1 Mills. Paint requires one (1) hour drying time before recoating. Paint adhesion shall be 100% retention in accordance with ASTM D3359, classification 5B.

For Weathered or Rusty Steel:

First Coat: D.T.M.(Direct to Metal) Alkyd semi-gloss P24, as manufactured by Benjamin Moore & Co., Montvale, NJ, or Kem Bond® HS Metal Primer, B50NZ3, red oxide, as manufactured by Sherwin Williams Company, Woodside, NY, or approved equal. Primer shall be a fast drying, 53 to 61% weight solids, low VOC, rust inhibiting, modified alkyd metal primer with a dry film thickness of 1.7 - 5 mils. Paint

requires up to two (2) to two and a half (2 ½) hours drying time before recoating (with alkyds).

The entire rehabilitated framework shall have two (2) topcoats applied over the primer in all situations:

Second and Third Coat: D.T.M.(Direct to Metal) Alkyd semi-gloss P24, Safety Black, as manufactured by Benjamin Moore & Co., Montvale, NJ, or Steel Master 9500 Silicone Alkyd, Black, as manufactured by Sherwin Williams Company, Woodside, NY, or approved equal. Topcoat shall be a silicon alkyd, semi or high gloss coating having a dry film thickness of 1.7 - 3 mils. Paint requires up to thirty (30) hours drying time @ 50 degrees F; up to sixteen (16) to eighteen (18) hours drying time @ 77 degrees F. Paint adhesion shall be 100% retention in accordance with ASTM D3359, classification 5B.

APPLICATION OF PAINT: All painting shall be done in a neat and workmanlike manner. The paint shall be applied by brush, and thoroughly worked into the surface and into all cracks and fissures without leaving fins or runs. Drop cloths shall be used to protect existing ground surfaces and adjacent appurtenances.

All paints shall be applied when ambient air temperature is 50 degrees °F and rising and surfaces to be painted are moisture free. No painting will be allowed below the minimum ambient air temperature.

In addition, no painting will be allowed below the temperature at which moisture will condense on surfaces; the ambient temperature must be at least 5 degrees F above the dew point.

PAINT SUBSTITUTION: A written request for paint substitution must be submitted to the Engineer. Contractor shall submit paint manufacturer's data sheets for approval of an equal product prior to application of paint.

MEASUREMENT AND PAYMENT: The quantity of Paint Chain Link Fence Framework to be paid for under this item shall be the number of **LINEAR FEET** of framework of each height of fence, measured along the base, starting with a post and ending with a post and painting all rails and all miscellaneous hardware in between, in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price per **LINEAR FOOT** of framework painted for the full height, with or without fabric attached, and shall include the cost of all labor, materials, equipment and incidental expense necessary to complete the work in accordance with the plans and specifications to the satisfaction of the Engineer.

Item No.	Item	Pay Unit
PK-ESCR 710	PAINT CLF FRAMEWORK	L.F.

END OF SECTION

SECTION PK-ESCR 711 – CHAIN LINK FENCE

WORK: Under these Items, the Contractor shall furnish and erect powder coated chain link fences and powder coated chain link fence gates of the heights and sizes shown on the drawings, in accordance with the plans and specifications and directions of the Engineer.

INTENT: It is the intent of these items to effectively enclose the areas shown on the plans, and when new fences terminate at existing or new structures or fences within the areas or adjacent to the areas, the clear spaces between the fences and structures shall not exceed three and one half (3 1/2") inches. Closures, if necessary, shall be made by the Contractor in a manner approved by the Engineer. Payment for such closures will be made per linear foot or a fraction thereof, at the unit prices bid for the fences.

MATERIAL: All fittings, hardware and equipment shall be designed to carry one hundred percent (100%) overload.

Malleable iron castings shall be powder coated after hot dipped galvanizing in accordance with ASTM Serial Designation: A153.

Pressed steel fittings and appurtenances shall be powder coated after hot dipped galvanizing in accordance with ASTM Serial Designation: A123.

All fittings, hardware and equipment shall be powder coated of a color to match the framework and shall be of the materials listed in the following schedule:

FENCE/GATE PART	MATERIAL
Boulevards, Corner (Split) Fittings and End Fittings	Malleable Iron or Pressed Steel-3/16" thick
Post Caps and Post Line Tops	Malleable Iron or Pressed Steel - 3/16" thick
Couplings	Galv. Steel Pipe - 1/8" thick with 1/4" Dia. Full Depth Rivet
Gate Hinges	Malleable Iron or Pressed Steel-1/4" thick with 1" Dia. Stainless Steel Pin Welded to 1/2" thick Pin Support
Bolts and Nuts	Galv. Steel or Stainless Steel as indicated on Plans
Tension Bars	1/4" x 3/4" Galv. Steel for 2" and 1-3/4" Mesh, 3/16" x 3/8" Galv. Flat Steel for 1" Mesh
Tension Bands	1/8" x 1" Pressed Steel
Truss Rods	1/2" Dia. Galv. Steel
Truss Tightener	3/8" x 1" Galv. Steel
Truss Clamp	1/4" Pressed Steel
Locking Device	Powdercoated steel, dimensions as shown on the Standard Detail.
Gate Stop	7/16" thick malleable iron
Drive Pins and Set Screws	Stainless Steel, 18-8

POSTS AND RAILS: TYPE I - Posts and rails shall be standard weight galvanized steel pipe of the sizes shown on the plans and shall conform to ASTM Serial Designation F-1083 Schedule 40, except for chain link fence posts 20'-0" height, which shall be Schedule 80. Posts and rails shall be hot dip galvanized inside and outside in accordance with ASTM Serial Designation F-1083 or: For fence up to and including ten (10) feet height, posts and rails may be TYPE II, SS-

40 steel tubing as manufactured by Allied Tube and Conduit Corp. of Harvey, Illinois, or approved equal. Tubing must conform to ASTM A1011/A1011M, cold rolled steel pipe and coated with a minimum of 0.9 ounces of zinc per square foot, a minimum of 15 micrograms of zinc chromate per square inch. Steel pipe supplied under this option shall be of the same outside diameter as Schedule 40 pipe and achieve minimum yield strength of 50,000 p.s.i.

SURFACE COATINGS: All posts, rails and fittings shall be powder coated with either polyvinyl chloride (PVC) or TGIC-Polyester (with the exception of the turnbuckles and threaded ends of the truss rods, both of which shall be sprayed with powder coat touch-up after installation).

Galvanizing of all components shall provide an acceptable substrate for applied powder coatings. No lacquer, urethane or other coatings which would prevent proper adhesion of powder coating shall be applied to the pipe. The powder coating shall be applied to the galvanized surfaces in such a manner that the coating will not peel off. Ensure surfaces to be coated are clean and dry and free of grease, dust, rust, etc. All galvanized parts, prior to powdercoating, shall first receive phosphating and chromatizing treatments to improve the adhesion of the surface coating. Color to be black unless otherwise indicated on the plans.

The entire fence installation shall be coated with one of the two following types of powder coating, (with the exception of gates, all of which shall be TGIC-Polyester and fabric which shall always be PVC). All Fence components shall be coated on all surfaces, of a color to match the framework. All coated surfaces shall comply with the adhesion specifications listed in ASTM F1043.

TYPE A - Polyvinyl Chloride Powder Coating: PVC Powder coating shall be applied to the galvanized steel or iron by the fluid bed method to a preheated base which has been cleaned and primed prior to submersion in vinyl, resulting in a firm bond between the PVC and the metal. PVC shall be applied to a film thickness of 10 to 15 mils on framework and fittings, and 7 to 12 mils on fabric without voids, tears or cuts that reveal the substrate and shall thoroughly adhere to the metal without peeling when scratched with a pick device or knife blade point.

TYPE B - TGIC-Polyester Powder Coating: TGIC-Polyester Powder shall be applied to the galvanized steel or iron in such a manner that the coating will not peel off. The TGIC-Polyester shall be applied at a film thickness of 3 to 6 mils by electrostatic spray process and bake finished per manufacturer's directions. The TGIC-Polyester shall be applied without voids, tears or cuts that reveal the substrate and shall thoroughly adhere to the metal without peeling when scratched with a pick device or knife blade point.

TESTS:

Field Test for PVC Powder Coating: As per ASTM F668, three sample sections of the PVC powder coated fence shall be tested for bonding of the powder coat to the metal. Each test will consist of making two cuts parallel to the axis of the pipe or fitting, through the coating, appx. 1/16 inch (1.6 mm) apart, at least 1/2 inch (12.7 mm) long. With a knife peel back a section of the coating between 1/8 inch (3.2 mm) and 1/4 inch (6.4 mm) long to produce a tab. Attempt to remove the 1/16 inch strip of coating by pulling the tab. The fence shall be deemed acceptable if the coating breaks rather than separates from the metal on all three (3) samples.

Laboratory Test for TGIC-Polyester Powder Coat: At the discretion of the Engineer, a sample of the TGIC-Polyester powder coated fence shall be laboratory tested for bonding of the powder coating to the metal. Test shall be the Cross Hatch test per ASTM D3359, Method B. Failure to satisfactorily pass this test shall be a basis for rejection.

TOUCH-UP AND REPAIR: For minor damage caused by installation, transportation, field welding and cutting of metal powder coated surfaces: clean welds, bolted connections, abraded or sawcut areas, then:

1. On welded and cut surfaces, apply organic zinc repair paint complying with ASTM A780, then repair powder coating per number 2 below. Galvanizing repair paint shall have 65 percent zinc by weight. Thickness of repair paint shall be not less than that required by ASTM A123.
2. On damaged powder coated surfaces, touch-up finish in conformance with manufacturer's recommendations. Provide touch-up such that repair is not visible from a distance of six feet (6').

FABRIC: Fabric shall be hot dip galvanized steel wire mesh as per ASTM A641, with a thermally fused polyvinyl chloride powder coating of 7 to 12 mils thick as per ASTM F668 class 2b. Color to match framework. Fabric shall be produced by methods recognized as good commercial practices. Core wire tensile strength shall be 75,000 psi (517 MPa).

Wire used for the manufacture of fabric shall meet the requirements of ASTM F668 and shall be capable of being woven into fabric without the PVC coating cracking or peeling. PVC coating shall be a dense, impervious covering free of voids. Excessive roughness, bubbles, blisters, bruises and flaking will be a basis for rejection. PVC shall be thermally fused. Bonded or extruded and glued surface coating will not be permitted. Fabric shall be stretched to provide a smooth, taut, uniform appearance free from sag.

Field Test: PVC coating on fabric shall be field tested for adherence to the metal as outlined elsewhere in this specification.

Thickness of Fabric: One (1) Inch Mesh: Uncoated wire dimension shall be 0.120 inches in diameter (11 gauge). Zinc coating shall be 0.30 ounces per square foot of wire surface.

One and Three Quarter (1-3/4) Inch and Two (2) Inch Mesh: Uncoated wire dimension shall be 0.148 inches in diameter (9 gauge). Zinc coating shall be .3 ounces per square foot of wire surface.

Selvages: Fabric shall be barbed at the top and knuckled at the bottom on fences over 6'-0" high. Fabric on fences 4'-0" and 6'-0" shall be knuckled top and bottom. Loops of knuckled fabric shall be closed or nearly closed. The wire ends of barbed selvages shall be twisted in a closed helix of 1- matching turns and cut at an acute angle. The length of the ends beyond the twist shall be at least 1/4 inch long. One (1) inch mesh shall be knuckled both top and bottom.

TIES: Tie-wire core thickness shall be 9 gauge (0.148") wrought aluminum alloy 1100-H16 wire with an extruded vinyl coating in accordance with ASTM A641 Class 3. PVC shall be applied to a film thickness of 20 to 22 mils. Ties shall be spaced fifteen (15) inches apart on rails and twelve (12) inches apart on posts. The ends of ties shall be wound in a telegraph twist two and one half turns. Color to match mesh. Contractor shall touch-up PVC coating on ties damaged as result of installation.

GATES: Gates shall be furnished and installed on reinforced concrete slabs where indicated on the plans or directed by the Engineer. All gates shall be galvanized steel and shall be TGIC Polyester powder coated after fabrication per requirements for fence framework outlined elsewhere in this specification. Welded joints shall have a suitable rust preventive coating applied to the welds prior to powder coating. Gate fabric shall match line fabric adjacent to gate opening. Gates shall be installed plumb, level and secure for full opening without interference. The hinges shall be so designed to permit the gate to swing a full 180 degrees.

Gate Locking Device: Gate locking device shall be fabricated in accordance with the Standard Details and shall be the "Strong Arm Latch" for single gates and the "Commercial Double Gate Latch" for double gates, both manufactured by DAC Industries, Grand Rapids, MI or approved equal. Latch shall be bolted and welded to the gate/fence frame in accordance with the standard detail. In addition to the locking mechanism there shall be a steel drop bolt arranged to engage the gate stop. The drop bolt shall have a flange that meets a fixed locking eyelet, welded on the gate, to lock the gate in the open and closed position. All necessary fittings and gate holders to lock gates in both open and closed positions shall be furnished. The gate locking device shall be installed to face the fenced in area, unless otherwise directed by the Engineer. All welds shall be ground smooth to a neat finish and shall conform to the requirements given under the "Materials and Methods of Construction", General Conditions. All field welds shall be touched-up as specified under the heading "Touch-up and Repair."

Padlock: The Contractor shall furnish one (1) padlock for each single gate and for each leaf of the double gates. The padlocks shall be American No. 5571 as manufactured by American Lock Co. of Crete, Illinois, or approved equal. All padlocks for the same park facility shall be keyed alike, with two (2) inch width by three-quarter (3/4) inch thick brass body, maximum security, five (5) pin tumblers with hardened alloy steel chrome plated shackle no less than three-eighths (3/8) inch diameter and two (2) inch clearance (elongated shackle). The Contractor shall furnish two (2) keys for each padlock.

REINFORCED CONCRETE SLAB: At gates shall be as shown on the standard details and as specified under "Reinforced Concrete Pavement".

Concrete: Concrete shall be 3,200 psi class B-32 per the NYCDOT Standard Highway Specifications Section ESCR-4.06.

ERECTION: The posts shall be set in holes which shall have been formed in the concrete curb as shown on the plans or directed by the Engineer. Voids for posts shall be formed in the concrete by removable waxed sonotubes or galvanized sheet metal sleeves to remain.

Core drilling is not permitted. After the posts have been set in place and properly supported to hold them in line and grade, the resulting space shall be neatly filled with a grout consisting of one (1) part cement and two (2) parts sand or approved equal. All gates and all end, corner and gateposts, regardless of height of fence shall have a 1/2" diameter truss rod and turnbuckle. Rod shall be tied to the mesh every 12 inches on center with tie-wires. Bolts on the turnbuckle shall be tack welded to prevent loosening. The only exception to the above is that truss rods are not required for end, corner and gateposts for fences 4'-0" ht. and under.

Chain link fabric shall be attached to line and corner posts and top, intermediate and bottom rails. Maintain a min. 1" (inch) clearance between finished grade and fence fabric. Posts shall be set plumb and true to line and grade. Any post not set true to line and grade shall be removed and replaced at the Contractor's expense. Bending posts to make them plumb will not be permitted.

The Contractor shall maintain the chain link fences and gates during the life of the contract and shall repair and replace all members that are disturbed, damaged, or destroyed from any cause at no cost to the City.

Bolt and Hardware Installation: Nuts and bolts shall be galvanized but not powder coated. Cans of TGIC-Polyester or PVC touch-up powder coating shall be used to paint the nuts and bolts per manufacturer's recommendations. The ends of all bolts shall be peened after tightening.

Bolts which are installed six feet (6') or less above grade shall not protrude more than 1/4" beyond the nut after tightening. All rough edges resulting from the cutting of bolts to achieve this requirement shall be filed smooth to the satisfaction of the Engineer. All post caps, corner and

end fittings, and gate hinges on all fence elevations are to be secured in place with #14 SS drive screws to the satisfaction of the Engineer.

SUBMITTALS: All submittals shall be in accordance with the requirements of the S-Pages.

Certification: The Contractor shall submit, at the Contractor's own expense, a certification from the supplier for the following:

1. All castings are made from malleable iron.
2. All hot-dipped galvanized items have met the ASTM serial designations as indicated in this specification.
3. All powder coating meets the ASTM serial designations as indicated in these specifications.

Shop Drawings: Before the work in the shop is started, the Contractor shall submit shop drawings for approval. Include plans, elevations, for entire length including all radial panels, sections, details, attachments to existing and stepped conditions, connectors, anchoring and connecting hardware, fence height, post spacing, gate locking device, gate construction, dimensions and unit weights of framework, and lightning protection for all fences. Include schedule for fence uprights and fabrications methods. Indicate all field and shop welds. Detail custom conditions at non-90° angles.

Samples: Prior to erection of the fence the following shall be submitted: Fence framework: One piece of each pipe size, twelve (12") inches long. Fence Fabric: One piece twelve (12") inches square.

Shipping Lists: The shipping list for the materials furnished shall be certified by the manufacturer that the materials used comply with these specifications.

MEASUREMENT AND PAYMENT: The quantity of **CHAIN LINK FENCE** to be paid for shall be the number **of LINEAR FEET** of each height, furnished and erected complete in accordance with the plans, specifications and directions of the Engineer.

The price bid shall be a unit price per **LINEAR FOOT** of **CHAIN LINK FENCE** of each height and shall include the cost of all labor, material, equipment and all incidental expenses necessary to complete the work, including powder coating and powder coating touch-up, required to furnish and erect chain link fence with PVC powder coated steel fabric, all in accordance with the plans and specifications, and as shown on standard Parks drawings here and therein, to the satisfaction of the Engineer.

The quantity of **GATES** for chain link fence with PVC powder coated fabric shall be the number of TGIC-Polyester powder coated gates for chain link fence with PVC powder coated steel fabric (including both leaves of two-leaf gates, gate posts, locking device with drop bolt, gate stop and chain link fence over the gates) furnished and erected complete in accordance with the plans, specifications, and directions of the Engineer.

The price bid for PVC powder coated gates shall be a unit price for **EACH GATE** for the height of fence specified and shall include the cost of all labor, material, equipment and all incidental expenses necessary to complete the work, including gate stop, padlocks, powder coating and powder coating touch-up required to furnish and erect gates with PVC powder coated steel fabric, and incidentals, all in accordance with the plans and specifications, and as shown on standard Parks drawings here and therein to the satisfaction of the Engineer.

The cost of excavation and concrete shall be paid for separately under their respective contract Items. No deductions will be made for openings in fence except where gates occur. The cost for installing portals, as shown on the plans, shall be deemed included in the unit prices bid for these items.

Item No.	Items	Pay Unit
PK-305	CHAIN LINK FENCE 8'-0" HT.	L.F.
PK-308	CHAIN LINK FENCE 12'-0" HT.	L.F.
PK-316	SINGLE GATE FOR CHAIN LINK FENCE 8' HT. & OVER	EA
PK-320	DOUBLE GATE FOR CHAIN LINK FENCE 10' HT. & OVER	EA
PK-ESCR 070	CHAIN LINK FENCE 16'-0" HT.	L.F.
PK-ESCR 071	SINGLE GATE FOR CHAIN LINK FENCE 4' HT	EA
PK-ESCR 073	DOUBLE GATE FOR CHAIN LINK FENCE 4' HT	EA
PK-ESCR 167	CHAIN LINK FENCE 4'-0" HT.	L.F.

END OF SECTION

SECTION PK-ESCR 717 – SHREDDED BARK MULCH

WORK: Under this Item, the Contractor shall furnish and place SHREDDED BARK MULCH in accordance with the plans, specifications, and directions of the Engineer.

MATERIAL: Shredded Bark Mulch shall be a natural forest product composed of shredded bark or wood not exceeding three inches (3") in length and one inch (1") in width. Mulch shall be derived from tree material, not from wood waste or by-products like sawdust, shredded palettes, or other debris. Mulch shall be natural in color and not dyed. It shall be of a uniform grade with no additives or any other treatment. Mulch with leaves, twigs, and/or debris shall not be acceptable. The pH factor should range from 5.8 to 6.2.

Commercial Fertilizer Low Phosphorus (Slow Release): shall have the following composition by weight: Nitrogen (N) shall be min. 7% - max. 10%, of which min. of 50% is slow-release; available Phosphorus (P) shall be min. 1% - max. 2%; and soluble Potash (K) shall be min. 4% - max. 12%.

Fertilizer shall be a pesticide free (no weed-and-feed) product such as "Healthy Turf (8-1-9)" as manufactured by Plant Health Care, Inc, Pittsburgh, PA; or Safer Ringer Lawn Restore (10-2-6) as manufactured by Woodstream Corp., Lifitz, PA; or Nutrients Plus (7-2-12) as manufactured by Nutrients Plus, Virginia Beach VA, or approved equal.

All Commercial Fertilizer Low Phosphorous (Slow Release) shall be delivered in standard size bags of the manufacturer, showing weight, analysis, and name of manufacturer. It shall be stored as directed by the Engineer in such a manner that its effectiveness will not be impaired.

METHOD: Upon completion of planting and prior to application of shredded bark, Commercial Fertilizer Low Phosphorous (Slow Release) shall be incorporated into soil to a depth of three inches (3") at the rate of twenty pounds per thousand square feet. ((20 lbs./1,000 s.f.)

Shredded bark mulch shall be applied to the surface of the beds and tree pit areas, as shown on the plans or Standard Details and as directed by the Engineer. Mulch shall be applied to a uniform depth of three to four inches (3"-4") over the tree pit and shrub bed areas and two to three inches (2"-3") over groundcover beds, and shall be so distributed as to create a smooth level cover over the exposed soil. Plants shall not be covered.

MEASUREMENT AND PAYMENT: The quantity of **SHREDDED BARK MULCH** to be paid for under this item shall be the number of **CUBIC YARDS** of mulch measured in final position, furnished and installed in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price per **CUBIC YARD** and shall include the cost of all labor, materials, and equipment necessary or required to complete the work including furnishing and applying Commercial Fertilizer Low Phosphorous (Slow Release), mulch, and watering, all in accordance with the plans and specifications, to the satisfaction of the Engineer.

Landscape Fabric shall be paid for separately under its own item.

Item No.	Item	Pay Unit
PK-ESCR 717	SHREDDED BARK MULCH	C.Y.

END OF SECTION

SECTION PK-ESCR 725 – PAINT HOODED BASEBALL BACKSTOP

WORK: Under this Item, the Contractor shall prepare and paint existing hooded baseball backstop framework including replaced pipes and hardware, in accordance with the plans, specifications, and directions of the Engineer.

METHOD: The existing hooded baseball backstop framework shall be painted after removals and rehabilitation have been performed to the framework and prior to installation of new chain link fabric.

The framework can be painted with the original fabric in place, if the fabric is not required to be replaced. The rehabilitated framework will consist of various quantities of weathered aluminum, weathered or rusty galvanized steel, and new galvanized steel components.

PAINTING: The entire hooded baseball backstop framework, both new and weathered components, shall receive three (3) coats of paint.

Immediately prior to painting, all surfaces of framework shall be thoroughly cleaned. All surfaces shall be cleaned in accordance with SP-1, Solvent Cleaning. Cleaning shall be performed with a solvent such as mineral spirits, xylol, or turpentine to remove all dirt, grease, and foreign matter. Surfaces that show evidence of loose mill scale, non-adherent rust, peeling paint and other deleterious matter shall be cleaned in accordance with SP-2, Hand Tool Cleaning, a method generally confined to wirebrushing, sandpaper, hand scrapers, or hand impact tools or SP-3, Power Tool Cleaning, a method generally confined to power wirebrushes, impact tools, power sanders, and grinders in order to achieve a sound substrate. Paint shall be applied immediately after a final SP-1 solvent cleaning and drying.

After the framework has been cleaned and prepared, it shall be painted as follows:

For New Galvanized Components or Aluminum Components:

First Coat: Super Spec HP Acrylic Metal Primer P04, as manufactured by Benjamin Moore Paints, Montvale, NJ, or Pro-Cryl® Universal Primer, B66-310, Red Oxide, acrylic primer for galvanized surfaces as manufactured by Sherwin Williams Company, Woodside, NY, or approved equal. Primer shall be a fast drying, 36 to 43% weight solids, VOC compliant corrosion resistant with a dry film thickness of 1.7 - 3.6 mils. Paint requires up to two (2) to four (4) hours drying time before recoating (with alkyds).

For Aluminum and Previously Painted Surfaces in Sound Condition:

First Coat: Extreme Bond Primer as manufactured by Sherwin Williams Company, Woodside, NY, or approved equal. Primer is a water borne, acrylic coating having a dry film thickness of .9 - 1 Mills. Paint requires one (1) hour drying time before recoating. Paint adhesion shall be 100% retention in accordance with ASTM D3359, classification 5B.

For Weathered or Rusty Steel:

First Coat: D.T.M.(Direct to Metal) Alkyd semi-gloss P24, as manufactured by Benjamin Moore & Co., Montvale, NJ, or Kem Bond® HS Metal Primer, B50NZ3, red oxide, as manufactured by Sherwin Williams Company, Woodside, NY, or approved equal. Primer shall be a fast drying, 53 to 61% weight solids, low VOC, rust inhibiting, modified alkyd metal primer with a dry film thickness of 1.7 - 5 mils. Paint requires up to two (2) to two and a half (2 ½) hours drying time before recoating (with alkyds).

The entire rehabilitated framework shall have two (2) topcoats applied over the primer in all situations:

Second and Third Coat: D.T.M.(Direct to Metal) Alkyd semi-gloss P24, Safety Black, as manufactured by Benjamin Moore & Co., Montvale, NJ, or Steel Master 9500 Silicone Alkyd, Black, as manufactured by Sherwin Williams Company, Woodside, NY, or approved equal. Topcoat shall be a silicon alkyd, semi or high gloss coating having a dry film thickness of 1.7 - 3 mils. Paint requires up to thirty (30) hours drying time @ 50 °F; up to sixteen (16) to eighteen (18) hours drying time @ 77 °F. Paint adhesion shall be 100% retention in accordance with ASTM D3359, classification 5B.

All paints shall be applied when ambient air temperature is 50 degrees °F and rising and surfaces to be painted are moisture free. No painting will be allowed below the minimum ambient air temperature.

In addition, no painting will be allowed below the temperature at which moisture will condense on surfaces; the ambient temperature must be at least 5 degrees F above the dew point.

APPLICATION OF PAINT: All painting shall be done in a neat and workmanlike manner. The paint shall be applied by brush, and thoroughly worked into the surface and into all cracks and fissures without leaving fins or runs. Drop cloths shall be used to protect existing ground surfaces and adjacent appurtenances.

PAINT SUBSTITUTION: All submittals shall be in accordance with the requirements of the S-Pages. A written request for paint substitution must be submitted to the Engineer. Contractor shall submit paint manufacturer's data sheets for approval of an equal product prior to application of paint.

MEASUREMENT AND PAYMENT: The quantity of **PAINT HOODED BASEBALL BACKSTOP FRAMEWORK** to be paid for under this item shall be the number of backstops prepared and painted in accordance with plans, specifications, and directions of the Engineer.

The price bid shall be a unit prices for **EACH** hooded baseball backstop framework prepared and painted and shall include the cost of all labor, materials, equipment, and any incidentals necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer.

Item No.	Item	Pay Unit
PK-ESCR 725	PAINT HOODED BASEBALL BACKSTOP	EA

END OF SECTION

SECTION PK-ESCR 731 – REPLACE MISC CHAIN LINK FENCE (CLF) PARTS

WORK: Under this Item, the Contractor shall replace damaged or missing chain link fence parts limited to boulevards, corner fittings, end fittings, couplings, line tops, and post caps. All other chain link fence parts shall be replaced under separate items. All parts shall be furnished and installed on existing fence frameworks in accordance with the plans, specifications, and directions of the Engineer.

DESCRIPTION: It is the intent of this Item to replace damaged or missing fence parts, as herein listed, on chain link fence framework. Where one or both adjacent 1 5/8" or 3" O.D. rails are missing, the boulevard, corner fittings, couplings and/or end fittings shall be installed and paid for under the Items "Replace 1 5/8" or 3" O.D. Rail".

MATERIALS:

Boulevards: All boulevards to be replaced shall be 3/16" thick pressed steel fittings, and shall be hot dipped galvanized in accordance with ASTM Serial Designation A-123. The boulevard shall include four (4) 5/16" galvanized steel carriage bolts and nuts. Bolts which are installed six feet (6') or less above grade shall not protrude more than ¼" beyond the nut after tightening. All rough edges resulting from cutting of bolts to achieve this requirement, shall be filed smooth to the satisfaction of the Engineer. All bolts ends shall be peened.

Corner Fittings: All corner fittings to be replaced shall contain one 3/16" thick pressed steel split fitting, and shall be galvanized in accordance with ASTM Serial Designation A-123. Each split fitting shall include one 5/16" diameter galvanized steel carriage bolt and nut. Bolts which are installed six feet or less above grade shall not protrude more than ¼" beyond the nut after tightening. All rough edges resulting from the cutting of bolts to achieve this requirement shall be filed smooth to the satisfaction of the Engineer. All bolts shall be peened. Each corner fitting shall be pinned to the fence posts using # 14 stainless steel drive screws.

Couplings: Couplings to be replaced shall be 5/8" thick galvanized steel pipe, six inches (6") long and of sufficient size to receive the top rails. Coupling shall conform to ASTM Serial Designation A-120, except that pipe shall be unthreaded and untested for water pressure. Couplings shall be secured in place using a ¼" diameter steel rivet.

End Fittings: All end fittings to be replaced shall be 3/16" thick pressed steel, and shall be galvanized in accordance with ASTM Serial Designation A-123. The fitting shall include one 5/16" diameter galvanized steel carriage bolt and nut. Bolts which are installed six feet or less above grade shall not protrude more than ¼" beyond the nut after tightening. All rough edges resulting from cutting of bolts to achieve this requirement shall be filed smooth to the satisfaction of the Engineer. All bolts shall be peened. Fittings shall be pinned to the fence posts using two # 14 stainless steel drive screws.

Line Tops: All line tops to be replaced shall be 3/16" thick Malleable Iron Castings, and shall be designed to carry one hundred percent (100%) overload. Casting shall be hot dipped galvanized in accordance with ASTM Serial Designation A-153.

Post Caps: Post cap to be replaced shall be 3/16" thick Malleable Iron Castings, and shall be designed to carry 100% overload. Castings shall be hot dipped galvanized in accordance with A.S.T.M. Serial Designation A-153. Post cap shall be pinned to posts using two (2) #14 stainless steel drive or set screws. Refer to Standard Detail Sheet #30 for sizes.

MEASUREMENT AND PAYMENT: The quantity of **REPLACE MISCELLANEOUS CHAINLINK FENCE PARTS** to be paid for under this Item shall be the number of fence parts furnished and installed in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price for **EACH** fence part furnished and installed and shall include the cost of all labor, materials, equipment, and incidental expenses necessary to complete the work, including nuts, bolts, and drive screws and the removal and disposal of damaged fence parts, all in accordance with the plans and specifications, to the satisfaction of the Engineer.

Painting of miscellaneous chain link fence parts shall be paid for under the Item "Paint C.L.F. Framework".

Item No.	Item	Pay Unit
PK-ESCR 731	REPLACE MISC CLF PARTS	EA

END OF SECTION

SECTION PK-ESCR 732 – REPLACE HEADRAIL

WORK: Under this item the Contractor shall completely replace missing or damaged 3" O.D. rail on chain link fence gate portal in accordance with the plans, specifications, and direction of the Engineer.

DESCRIPTION: It is the intent of this item to replace damaged or missing 3" O.D. rails. The Contractor shall furnish and install all adjacent fittings necessary to properly attach the rails to the fence posts and chain link fabric. This shall include all split fittings, tie wires, nuts and bolts, and attendant fastenings. The aforementioned fittings and the removal of any existing rails shall be deemed included under this Item and shall not be paid for separately.

MATERIALS:

RAILS: Rails shall be standard weight galvanized steel pipe of the sizes shown on the plans and shall be either Type I or Type II as specified below:

TYPE I: Type I rails shall be standard weight galvanized steel pipe of the sizes shown on the plans and shall conform to ASTM Serial Designation F-1083 Schedule as specified below. Rails shall be hot dipped galvanized inside and outside in accordance with ASTM Serial Designation F-1083.

TYPE II: Type II rails shall be SS-40 steel tubing as manufactured by Allied Tube and Conduit Corp., Harvey, IL, or approved equal. Tubing must conform to ASTM A1011/A1011M, cold rolled steel pipe and coated with a minimum of 0.9 ounces of zinc per square foot, a minimum of 15 micrograms of zinc chromate per square inch. Steel pipe supplied under this option shall be of the same outside diameter as Schedule 40 pipe and achieve minimum yield strength of 50,000 p.s.i.

FITTINGS: Split fittings shall be 3/16" thick pressed steel and shall include galvanized steel nuts and bolts as required. Rails shall be secured to chain link fabric using 3/16" wrought aluminum alloy tie wires, 1100-H16 wire, and spaced 15" apart on the rails; ends are to be wound in a telegraph twist of 2½ turns.

DISPOSAL: All materials deemed salvageable shall become Parks property and shall be delivered to a city storage yard within the five boroughs, or ordered by the Engineer. The Contractor shall notify the Engineer three (3) days in advance of such delivery. All other material shall become the property of the Contractor and properly disposed of.

The cost of all removals shall be deemed as part of the installation item, and will not be paid for separately.

MEASUREMENT AND PAYMENT: The quantity of **REPLACE 3" O.D. RAIL** to be paid for under this item shall be the number of **LINEAR FEET** furnished and installed in accordance with the plans, specifications, and directions of the Engineer.

The price bid for shall be a unit price per **LINEAR FOOT of 3" O.D.** galvanized steel rail furnished and installed and shall include the cost of all labor, materials, and equipment required to complete the work including all adjacent fittings (split fittings, tie wires, nuts, bolts, and other attendant fastening), removal and disposal of damaged materials, and incidentals necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer.

Painting of rails shall be paid for under the Item "Paint C.L.F. Framework".

Item No.	Item	Pay Unit
PK-ESCR 732	REPLACE HEADRAIL	L.F.

END OF SECTION

SECTION PK-ESCR 733 – REPLACE FENCE POST

WORK: Under these Items, the Contractor shall furnish and erect Replacement Fence Posts of the heights and sizes shown on the plans in accordance with the specifications, and directions of the Engineer.

Replacement Fence Posts are to be erected on existing curbs and/or piers that have previously had chain link fence posts erected upon them. The existing posts are to be cut and the remaining embedded portion of the post is to be used as a socket for installing the Replacement Fence Post.

MATERIAL: Replacement Fence Posts shall be standard weight (Schedule 40) or extra strong weight (Schedule 80) galvanized steel pipe as designated in the paragraph entitled "Erection" in this Item. Galvanized steel pipe shall be of the sizes shown on the DPR Standards and shall conform to:

TYPE I: Posts shall be standard weight galvanized steel pipe of the sizes shown on the plans and shall conform to ASTM Serial Designation F-1083 Schedule as specified below. Posts shall be hot dipped galvanized inside and outside in accordance with ASTM Serial Designation F-1083 or

TYPE II: For fence up to and including ten (10) feet height, posts may be SS-40 steel tubing as manufactured by Allied Tube and Conduit Corp. of Harvey, Illinois, or approved equal. Tubing must conform to ASTM A1011/A1011M, cold rolled steel pipe and coated with a minimum of 0.9 ounces of zinc per square foot, a minimum of 15 micrograms of zinc chromate per square inch. Steel pipe supplied under this option shall be of the same outside diameter as Schedule 40 pipe and achieve minimum yield strength of 50,000 p.s.i.

ERECTION: For 4'-0" and 8'-0" high fences, new standard weight (Schedule 40) Replacement Fence Post shall be installed by sleeving the new posts over inserts that have been set into the existing pier or curb using the existing cut off fence post as a socket.

For 10'-0", 12'-0" and 16'-0" high fences, extra strong weight (Schedule 80) Replacement Fence Posts shall be installed by setting the new post into the existing pier or curb using the existing cut off fence post as a socket.

After the inserts or posts have been set in the existing cut off posts and properly supported to hold them in line and grade, the resulting space shall be filled with grout consisting of one (1) part cement and two (2) parts sand.

Posts shall be set plumb and true to line and grade. Any post not set true to line and grade shall be removed and replaced at the Contractor's expense. Bending posts to make them plumb will not be permitted.

MEASUREMENT AND PAYMENT: The quantity of **REPLACE FENCE POST** to be paid for shall be the number of Replacement Fence Posts, furnished and erected in existing cut off posts complete in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price for **EACH** fence post replaced and shall include the cost of all labor, material, equipment and expenses necessary to complete the work, including disassembly and reassembly of fence and clearing debris from posts, all in accordance with the plans and specifications, to the satisfaction of the Engineer.

Painting of posts shall be paid for under the Item "Paint CLF Framework."

Item No.	Item	Pay Unit
PK-ESCR 733	REPLACE FENCE POST	EA

END OF SECTION

SECTION PK-ESCR 734 – REPLACE RAIL

WORK: Under this Item, the Contractor shall completely REPLACE 1 5/8" O.D. RAIL on chain link fence and baseball backstops that is missing or has been damaged, in accordance with the plans, specifications, and direction of the Engineer.

DESCRIPTION: It is the intent of this Item to replace damaged or missing 1 5/8" O.D. rails. The Contractor shall furnish and install all adjacent fittings necessary to properly attach the rails to the fence posts and chain link fabric. This shall include all couplings, boulevards, corner fittings, end fittings, malleable iron pipe ends, single and double clamps, tie wires, nuts and bolts, and attendant fastenings. The aforementioned fittings and the removal of any existing rails shall be deemed included under this Item and shall not be paid for separately.

MATERIALS: Unless otherwise provided for herein, all materials shall comply with General Conditions, 'Materials and Methods of Construction'.

Rails: Rails shall be standard weight galvanized steel pipe of the sizes shown on the plans and shall be either Type I or Type II as specified below:

TYPE I: Type I rails shall be standard weight galvanized steel pipe of the sizes shown on the plans and shall conform to ASTM Serial Designation F-1083 Schedule as specified below. Rails shall be hot dipped galvanized inside and outside in accordance with ASTM Serial Designation F-1083.

TYPE II: Type II rails shall be SS-40 steel tubing as manufactured by Allied Tube and Conduit Corp., Harvey, IL, or approved equal. Tubing must conform to ASTM A1011/A1011M, cold rolled steel pipe and coated with a minimum of 0.9 ounces of zinc per square foot, a minimum of 15 micrograms of zinc chromate per square inch. Steel pipe supplied under this option shall be of the same outside diameter as Schedule 40 pipe and achieve minimum yield strength of 50,000 p.s.i.

Fittings: Boulevards, corner fittings, and end fittings shall be 3/16" thick pressed steel and shall include galvanized steel nuts and bolts as required. Couplings shall be standard weight galvanized steel pipe as described above. Rails shall be secured to chain link fabric using 3/16" wrought aluminum alloy tie wires, 1100-H16 wire, and spaced 15" apart on the rails; ends are to be wound in a telegraph twist of 2 1/2 turns.

DISPOSAL: All materials deemed salvageable shall become City property and shall be delivered to a city storage yard within the five boroughs, or ordered by the Engineer. The Contractor shall notify the Engineer three (3) days in advance of such delivery. All other material shall become the property of the Contractor and properly disposed of. The cost of all removals shall be deemed part of the installation Item and will not be paid for separately.

MEASUREMENT AND PAYMENT: The quantity of **REPLACE 1 5/8"O.D. RAIL** to be paid for under this Item shall be the number of **LINEAR FEET** furnished and installed in accordance with the plans, specifications, and directions of the Engineer.

The price bid for shall be a unit price per **LINEAR FOOT of 1 5/8" O.D.** galvanized steel rail furnished and installed and shall include the cost of all labor, materials, and equipment required to complete the work including all adjacent fittings (couplings, boulevards, corner fittings, end fittings, tie wires, nuts, bolts, and other attendant fastening), removal and disposal of damaged materials, and incidentals necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer.

Painting of rails shall be paid for under the Item "Paint C.L.F. Framework Item PK- ESCR-710".

Item No.	Item	Pay Unit
PK-ESCR 734	REPLACE RAIL	L.F.

END OF SECTION

SECTION PK-ESCR 735 – SUPPLY PORTAL IN EXISTING CHAIN LINK FENCE

WORK: Under this Item, the Contractor shall install portals in existing chain link fences at locations shown on the plans, in accordance with the specifications and directions of the Engineer.

DESCRIPTION: Existing mesh shall be cut to accommodate the new portal, as necessary. The existing fence curb shall be core drilled to receive new galvanized steel fence posts. The posts shall be set in the curb and the resulting space filled with a 1:3 cement/sand grout. A new top rail for fences 8'-0" high and higher shall be secured to the new portal posts by means of end fittings; mesh is secured to the posts and rail by means of tie wire, tension bands and tension bars. Chain link fabric shall be under tension upon completion of the portal.

MATERIALS: All fence materials that constitute portals (e.g. galvanized steel pipe rail, line tops, post caps, end fittings, tension bars for 2" mesh and 1" mesh, tension bands, and galvanized bolts and nuts) shall conform to the standards described in the Item "Chain Link Fence" and in the Parks Standard Details.

MEASUREMENT AND PAYMENT: The quantity of **SUPPLY PORTAL IN EXISTING CHAIN LINK FENCE** to be paid for under this Item shall be the number of portals installed in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price for **EACH** portal installed and shall include the cost of all labor, materials, equipment, and incidentals necessary to complete the work, including cutting existing mesh, core-drilling and grouting, all in accordance with the plans and specifications, to the satisfaction of the Engineer.

Item No.	Item	Pay Unit
PK-ESCR 735	SUPPLY PORTAL IN EXISTING Chain Link Fence	EA

END OF SECTION

SECTION PK-ESCR 736 – CORE DRILLING

WORK: Under this Item, the Contractor shall Core Drill holes of the indicated sizes into rock or masonry for the setting of fence and gate posts, as indicated on the plans or as directed by the Engineer.

METHODS: Holes shall be drilled in masonry and rock by approved core drilling methods and equipment. The holes shall be of the sizes and depths indicated on the plans, required by local conditions or as directed by the Engineer. Care shall be taken while drilling in masonry that no damage will be done. Any damage to existing masonry resulting from drilling operations shall be repaired by the Contractor at the Contractor's own cost and expense.

MEASUREMENT AND PAYMENT: The quantity of **CORE DRILLING** to be paid for, shall be the number of LINEAR FEET of holes actually drilled, of the indicated sizes, in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price per **LINEAR FOOT** of holes drilled of each size and shall include the cost of all work, labor, materials, and equipment required to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer.

Item No.	Item	Pay Unit
PK-ESCR 736	CORE DRILLING	L.F.

END OF SECTION

SECTION PK-ESCR 737 – STEEL PIPE BOLLARD

WORK: Under this item, the Contractor shall furnish, erect, and powder coat **STEEL PIPE BOLLARD, FIXED** or **REMOVABLE**, in accordance with the plans, specifications, and directions of the Engineer.

MATERIALS: Steel Pipe Bollard shall be as manufactured by All City Play Equipment, Brooklyn, NY, Shannon Gates and Railings, Deer Park, NY, or approved equal.

All fittings and hardware shall be of the materials listed in the following schedule:

PART	MATERIAL
Post Caps	Malleable Iron - 3/16" thick
Drive Pins and Set Screws	Stainless Steel, 18-8
Flange	Pressed Steel
"U" Bolts	Pressed Steel, Extra Heavy-3/4" X 1/2"

Malleable iron castings shall be hot dipped galvanized in accordance with ASTM Serial Designation A-153 and powder coated per this specification.

Pressed steel fittings and appurtenances shall be powder coated and hot dipped galvanized in accordance with ASTM Serial Designation A-123.

Posts: Posts shall be extra strong galvanized steel pipe, 4" O.D. and shall conform to ASTM Serial Designation A53, Type S, Grade B, Schedule 80, except that pipe shall be unthreaded and untested for water pressure.

Sleeves: Sleeves shall be standard weight galvanized steel pipe, 5" I.D. and shall conform to ASTM Serial Designation A53, Type S, Grade B, Schedule 80, except that pipe shall be unthreaded and untested for water pressure.

Padlocks: One padlock shall be furnished for each removable bollard. The padlocks shall be Master Pro Series 6125LJ, as manufactured by Master Lock Company, or approved equal. All padlocks for the same park facility shall be keyed alike, with two and three-eighth inch (2 3/8") width, by three-quarter inch (3/4") thick laminated steel body, maximum security, five (5) pin tumblers with hardened boron alloy shackle no less than three-eighths inch (3/8") diameter, two and one-half inches (2 1/2") vertical clearance and 29/32" inches horizontal clearance. The Contractor shall furnish two (2) keys for each padlock.

Concrete: Concrete shall be placed as shown. Concrete shall conform to N.Y.C. Dept. Of Transportation Standard Highway Specifications class B-32, Type II A, air entrained, moderate sulphate resistant. The batch shall contain a minimum of six (6) bags of cement per cubic yard of concrete, maximum of 6¼ gallons of water per bag, a maximum of three (3") inch slump, and a minimum compressive strength of 3,200 psi. Large aggregate shall be limited to one (1") inch.

Cement: Air Entraining Portland Cement shall comply with the ASTM Specification for Portland Cement, Designation C150. It shall be Type IIA, Moderate Sulfate Resistant.

Fly Ash/GGBFS: A maximum of thirty (30 %) percent of Portland Cement content may be substituted with Fly Ash or Ground Granulated Blast Furnace Slag. Fly Ash shall conform to the requirements for Class F as defined by ASTM C618 – "Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete". Ground Granulated Furnace Blast Slag (GGBFS) shall conform to the requirements for Grade 100 or 120 slag as defined by ASTM C989 – "Standard Specification for Slag Cement for Use in Concrete and Mortars". Portland

Cement substitutions that demonstrate the same or similar properties as Fly Ash/GGBFS shall be accepted pending review and approval by the Engineer.

ERECTION: The posts for fixed bollards shall be set in concrete footings as shown on the plans or as directed by the Engineer. Once erected, steel pipe of the fixed bollard shall be filled with concrete for park structures. The sleeves for removable bollards shall be set in concrete footings, as shown on the plans or as directed by the Engineer.

All posts and sleeves shall be set plumb and true to line and grade. Any post and sleeve not set true to line and grade shall be removed and replaced at the Contractor's expense. Bending posts to make them plumb will not be permitted.

POWDER COATING: The galvanized steel pipe and fittings shall be powder coated with TGICPolyester.

Galvanizing shall provide an acceptable substrate for applied powder coatings. No lacquer, urethane or other coatings which would prevent proper adhesion of powder coating shall be applied to the pipe and fittings. The powder coating shall be applied to the galvanized pipe and fittings in such a manner that the coating will not peel off. Insure surfaces to be coated are clean and dry and free of grease, dust, rust, etc. All coated parts shall first receive phosphating and chromatizing treatments to improve the adhesion of the surface coating. Color to be black unless otherwise indicated on the plans. The TGIC-Polyester shall be applied at a film thickness of 3 to 4 mils by electrostatic spray process and bake finished per manufacturer's directions. The TGIC-Polyester shall be applied without voids, tears or cuts that reveal the substrate and shall thoroughly adhere to the metal without peeling when scratched with a pick device or knife blade point.

Laboratory Test For TGIC-Polyester Powder Coat: At the discretion of the Engineer, a sample TGIC-Polyester powder coated bollard shall be laboratory tested for bonding of the powder coating to the metal. Test shall be the Cross Hatch test per ASTM D3359, method B. Failure to satisfactorily pass this test shall be a basis for rejection.

TOUCH-UP & REPAIR: For minor damaged caused by installation or transportation, clean damaged area, then;

1. On damaged galvanized surfaces, apply organic zinc repair paint complying with ASTM A780, then repair powder coating per number 2 below. Galvanizing repair paint shall have 65 percent zinc by weight. Thickness of repair paint shall be not less than that required by ASTM A123.
2. On damaged powder coated surfaces, touch-up finish in conformance with manufacturer's recommendations. Provide touch-up such that repair is not visible from a distance of 6 (six) feet.

SUBMITTALS: All submittals shall be in accordance with the requirements of the S-Pages.

Shop Drawings: Before the work is started, the Contractor shall submit shop drawings for approval.

Design Mix report: The Contractor shall submit a design mix report per the requirements of the NYCDOT Standard Highway Specifications.

MEASUREMENT AND PAYMENT: The quantity of **STEEL PIPE BOLLARD-30" HT. (FIXED)** and **STEEL PIPE BOLLARD-30" HT. (REMOVABLE)** to be paid for under these items shall be

the number of bollard furnished and installed in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be separate unit price for **EACH** Steel Pipe Bollard, furnished and erected, and shall include the cost for all labor, material, equipment, and incidental expenses necessary to complete the work, including excavation concrete for park structures, powder coating, and padlock, where required, all in accordance with the plans and specifications, to the satisfaction of the Engineer.

Item No.	Item	Pay Unit
PK-ESCR 737	STEEL PIPE BOLLARD	EA

END OF SECTION

SECTION PK-ESCR 741 – PLANT STREET TREE

WORK: Under this Item, the Contractor shall perform all work necessary to **PLANT STREET TREE, 2 1/2-3" CALIPER**, in accordance with the plans, specifications, and directions of the Engineer. This Item is not intended for use with the Structural Soil Item; the Tree Item shall be used for planting in the Structural Soil.

Work shall include removal of existing dead trees and stumps in the designated planting pit up to 6" cal., excavation, furnishing, mixing, and incorporating topsoil, manure, mycorrhizal inoculant, and fertilizer tablets in the backfill of all tree pits, furnishing, planting, maintaining, and replacing new trees of the type and size designated on the lists, furnishing and installing tree stakes, and all incidental work shall be completed under this Item.

The Contractor shall be liable for any damage to property caused by planting operations and related work, and all areas and construction disturbed shall be restored to their original conditions, to the satisfaction of the Engineer.

ASIAN LONGHORNED BEETLE QUARANTINE ZONE REGULATIONS: Due to current Federal, State and NYC DPR policy, the following host species may not be planted in the quarantine zone. Host species are as follows: Acer-Maple, Aesculus-Horsechestnut/Buckeye, Salix-Willow, Betula-Birch, Populus-Poplar, Ulmus-Elm, Albiza-Mimosa/Silk Tree, CeltisHackberry, Fraxinus-Ash, Platanus-London Planetree,Sycamore, Sorbus-Mountain Ash.

In addition, Nurseries located within the quarantine zone shall comply with State and Federal Law and all Contractors and/or Subcontractors shall be Certified by the New York State Department of Agriculture and Markets to perform work within the Quarantine Zone (see Submittals section below).

TREE:

Names: Plant names, size, and grading standards shall conform to those prepared by the American Association of Nurserymen Horticultural Standards, 1995 Edition, unless otherwise specified. No substitution shall be permitted except by written permission of the Engineer.

Quality: All trees shall be typical of their species or variety. They shall have normal well developed branches and vigorous fibrous root systems. They shall be sound, healthy, vigorous trees, free from defects, disfiguring knots, sunscald injuries, abrasions of the bark, plant diseases, insect eggs, borers, and all forms of infestation. All trees shall be tagged by the Engineer, who shall reject all trees not meeting the above specifications, and trees having damaged or missing leaders, multiple leaders, Y-crotches, or indications of topping or heading back. All trees shall be nursery grown and shall have been growing under the same climatic conditions as the location of this project for at least two (2) years prior to date of contract. Trees held in storage will be rejected if they show signs of growth during storage.

Dimensions: Each tree shall be dimensioned as it stands in its natural position. Stock furnished shall be a fair average of the minimum and maximum sizes specified

PREPARATION OF TREES: All precautions customary in good trade practice shall be taken in preparing trees for moving, and workmanship that fails to meet the highest standards will be rejected. All trees shall be dug immediately before moving, unless otherwise specified. All trees shall be dug to retain as many fibrous roots as possible. Balled and burlapped trees shall have a solid ball of earth of the minimum specified size, securely held in place by burlap and stout rope or twine. Oversize or exceptionally heavy trees are acceptable if the size of the ball or spread of roots is proportionally increased, to the satisfaction of the Engineer. Loose, broken, or manufactured balls will be rejected.

BACKFILL: Material shall consist of natural loam topsoil with the addition of humus only, and no other soil type, such as a sand or clay soil type, shall be accepted. Topsoil must be free from subsoil, obtained from an area which has never been stripped. It shall be removed to a depth of one (1) foot, or less if subsoil is encountered. Topsoil shall be of uniform quality, free from hard clods, stiff clay, hardpan, sods, partially disintegrated stone, lime, cement, ashes, slag, concrete, tar residues, tarred paper, boards, chips, sticks or any other undesirable material. If a truck load of topsoil is considered by the Engineer to contain too much undesirable material to be corrected on the site, the entire truck load shall be rejected. No topsoil shall be delivered in a frozen or muddy condition.

Topsoil shall comply with the following requirements:

CHEMICAL AND PHYSICAL COMPOSITION: Natural loam with the addition of humus shall comply with the following requirements:

a. Organic Matter--must be between nine (9) and twelve (12) percent by weight, as determined by the Dry Combustion Method for Total Carbon and Organic Carbon (using a multiplying factor of 2) as described in Methods of Soil Analysis, #9, Part 2, 2nd ed. published by the American Society of Agronomy. The organic content shall not exceed fourteen percent (14%).

b. pH range--shall be 6.0 to 7.0 inclusive.

c. Sieve Analysis -- By Wash Test, ASTM Designation C-117. Passing 2" sieve 100% Passing 1" sieve 95% to 100% Passing #4 sieve 90% to 100% Passing #100 sieve 30% to 60%

d. Clay--the test method to measure the clay content of the soil shall be ASTM D 422. The Engineer reserves the right to reject topsoil in which more than 60% of the material passing the No. 100 U.S.S. Mesh sieve consists of clay as determined by the Buoyoucous Hydrometer or by the decantation method. All percentages are to be based on dry weight of sample.

When the topsoil otherwise complies with the requirements of the specification but shows a deficiency of not more than one (1) percent in organic matter, it may be incorporated when and as permitted by the Engineer.

Electrical Conductivity shall be less than 1500 mhos/cm. A higher level would indicate excessive salt content. The testing method must be the saturated paste method.

The Contractor shall at the direction and discretion of the Engineer furnish a certified report of an approved analytical chemist showing the analysis of representative samples of the topsoil which the Contractor proposes to use. All samples are to be taken by and delivered to the laboratory by the Engineer; the price bid shall include inspection and laboratory charges. No topsoil shall be delivered until the approval of samples by the Engineer, but such approval shall not constitute final acceptance. The Engineer reserves the right to reject on or after delivery any materials which do not, in the Engineer's opinion, meet these specifications and resample. Sampling procedure shall be explained in detail at the preconstruction meeting. If the Engineer directs, topsoil which varies only slightly from the specifications may be made acceptable by such corrections as the Engineer deems necessary.

Mycorrhizal Fungi Inoculant: Shall be applied by means of a three ounce (3 oz.) premeasured dry formulation packet, such as Mycor Tree Saver Transplant®, as manufactured by Plant Health Care, Inc., Pittsburgh, PA, or approved equal. Packets shall contain, as a minimum: one thousand (1000) live spores of Vesicular-Arbuscular fungi, including: Entrephosphora columbiana, Glomus clarum, Glomus etunicatum, and Glomus sp.; seventeen million five hundred thousand

(17,500,000) live spores of Ectomycorrhizal fungi, including: Pisolithus tinctorius; biostimulants including Yucca schidigera extract; soluble sea kelp extract derived from Ascophylum nodosum; humic acids; and acrylamide copolymer gel as a water absorbent medium. Three ounce (3 oz.) packets shall be added to the top six to eight inches (6-8") of backfill soil added to each pit and thoroughly mixed to distribute the inoculant.

Water Retention Additive: Water Retention Additives shall be a granular polyacrylamide polymer of a potassium base and not a sodium base that slowly releases moisture into the root zone such as Terra Sorb, as manufactured by Plant Health Care, Inc., Pittsburgh, Pa., or approved equal. It shall be applied at the time of planting during a dry planting as defined by Parks and Recreation. Each tree shall receive three (3) ounces or amount specified by product instructions. Half should be added at a depth of 8-10 inches and the other half just below the finished surface.

Delivery: Trees shall be packed, transported, and handled with utmost care to insure adequate protection against injury. When transported in closed vehicles, plants shall receive adequate ventilation to prevent sweating. When transported in open vehicles, plants shall be protected by tarpaulins or other suitable cover material. Balled and burlapped trees shall be set on the ground and balls covered with soil. Until planted, all materials shall be properly maintained and kept adequately moist, to the satisfaction of the Engineer.

Inspection: Inspection may be made before digging, if the Engineer directs, but no trees shall be planted by the Contractor until inspected by the Engineer at the site of the work. All rejected trees shall be immediately removed from the site and replaced with acceptable material at no additional cost. Final inspection shall be made upon completion of the contract.

PLANT LIST:

Abbreviations:

Dia. - Indicates the CALIPER of the trunk of the tree.

B & B - Indicates tree to be balled and burlapped.

Ginko biloba - 2 1/2" -3" Dia. B & B 30" branched 6-7' from ground. Average height 11' - 13' Should have single, straight trunks with leader intact, symmetrical well branched tops.. Fibrous root system essential. Spread of 4'-5'.

Platanus x acerifolia - 2 1/2" -3" Dia. B & B 30". Branched 6'-7' from ground. Average height 12'-14'. Should have single, straight trunks with leader intact, symmetrical well branched tops. No limb cuts over 3/4" which have not completely calloused over. Heavy fibrous root system essential. No cut back trees.

Sophora japonica - 2 1/2" -3" Dia. B & B 30" branched 6-7' from ground. Average height 11'-13' branched tops. Fibrous root system essential. Spread of 4'-5'.

SITE SPECIFICATIONS:

Time of Planting: Unless otherwise directed by the Engineer, deciduous trees shall be planted from March 1st to May 1st, and from October 15th to December 15th.

Location: Site characteristics, such as overhead power lines, existing vegetation, and infrastructure items, such as curbs and sidewalks, shall be considered. Trees that grow taller than thirty feet (30') should not be planted directly under power lines. When the design allows, the tree leader shall be offset from power lines.

Excavation of Tree Pits: Sizes of tree pits shall be as shown on the Planting Plan. When subsurface obstructions are encountered during excavation, the Contractor shall restore the disturbed area to its original condition. Each tree shall be planted in an individual pit as specified.

Pits shall be dug three (3) times the size of the root ball in Caliper and only deep enough so that the root ball sits on undisturbed subgrade, except in situations where curbs and/or adjacent pavements prevent achievement of planting pit dimensions. Sizes of restricted planting pits (i.e. street trees) shall be at the maximum width allowed, and the same depth as the root ball being planted. Any changes in the planting pit sizes shall be broad enough to accommodate the roots fully extended and only deep enough so that the uppermost roots will be just below the original grade. No tree pits shall be dug until the proposed locations have been staked on site by the Contractor and approved by the Engineer. No tree pits shall be backfilled until approved by the Engineer. All tree pits shall have vertical sides, unless otherwise directed. Excavated material shall be removed from the site unless the Engineer determines the material is suitable for backfilling. Any amendment will be as directed and determined by the Engineer.

Extreme care shall be taken not to excavate to a depth greater than required. The subgrade below the root ball shall be tamped slightly to prevent settlement. Where, in the opinion of the Engineer, the subgrade material is unsuitable, the size of the tree pits shall be dug one-half (1/2) wider than normally required. The bottom and sides of the pit shall be backfilled with existing topsoil thoroughly worked into place.

PLANTING: Planting shall be performed by a Subcontractor approved by the Engineer. No planting shall be done, except in the presence of the Engineer. All material shall be inspected by the Engineer as it is being removed from the truck, prior to placing in an approved storage area or the designated planting site. All rejected material shall be removed from the site and replaced with acceptable material at no cost to the City.

Place balled and burlapped material in the prepared planting pit by lifting, and carry it by the rootball. Set the tree straight and in the center of the pit, with the most desirable side facing the predominant view. All trees shall set, after settlement, at the same level at which they have grown in the nursery, with the root flare exposed. Care shall be exercised in setting the trees plumb. All ropes, stones, etc. shall be removed from the pit before backfilling. The backfilling mixture shall be loose and friable, and not frozen or solid.

Cut and remove rope or wire from the top fifty percent (50%) of the rootball and cut and remove the burlap to the edge of the ball. Remove as much woven product and twine as possible. All plastic or synthetic fabric must be removed from the ball at the time of planting. Any wire basket enclosed root ball will need to have at least 2/3 of the wire basket cut away from the sides and top of the ball, and removed from the site. Remaining lateral wires must be cut to prevent future root interference. Wire must not be galvanized or aluminum wire.

Trees shall be handled so that the ball will not be loosened. After the soil has been thoroughly firmed under and around the ball, the burlap shall be cut away from the upper half of the ball, and the remaining burlap adjusted to prevent the formation of air pockets. Where directed by the Engineer, the burlap shall be entirely removed. Soil shall be firmed at six (6") to eight inch (8") intervals and thoroughly settled with water.

All ropes, stones, etc. shall be removed from the pit before backfilling. Soil for backfilling shall be loose, friable, and not frozen. Trees shall be handled so that the ball will not be loosened.

FINISHING SURFACE AFTER BACKFILLING: The Contractor shall cultivate and rake over finished planting areas and shall leave them in an orderly condition. On level ground or slight slopes a shallow basin a little larger than the CALIPER of the tree pit shall be left around each tree, as shown on the details, or as directed by the Engineer. After the shallow basins have been prepared, they shall be mulched three to four inches (3" – 4") deep. Mulch shall consist of shredded wood or bark not exceeding three inches (3") in length and one inch (1") in width. Mulch

with leaves, twigs, and/or debris shall not be acceptable. Mulch for tree pits shall be included in the bid price.

STAKING: All staking shall be done immediately after planting and all stakes and wire shall be maintained. Plants shall stand plumb after staking. Stakes shall be of white cedar with bark attached. They may have a maximum allowable deflection of ten percent (10%). Stakes of the dimensions shown on the plans and details shall be placed outside the root ball and shall be driven to the depths indicated on the plans and details.

Stakes shall be fastened to the tree with double No. 12 gauge annealed galvanized steel wire run through a suitable length (at least twelve (12") inches) of new reinforced one-half inch (1/2") rubber hose or with a suitable length of ¾" wide, flat, woven polypropylene material as manufactured by DeepRoot, San Francisco, CA or approved equal, that is knotted and nailed to the stakes with 1" galvanized roofing nails as directed by the Engineer. Stakes shall be set parallel to the curbs, unless otherwise directed by the Engineer. The length of doubled wire between the tree and stakes shall be hand twisted several times prior to fastening to the stakes. The wires shall be tied off firmly at the stake, not crank twisted at the center. Trees shall stand plumb after staking. Stakes, wires and hoses shall be removed at the end of the one year guarantee period, unless directed otherwise by the Engineer. At the time the stakes are removed any holes left by the stake shall be filled with topsoil as specified in the "Topsoil" specification. Unless otherwise directed, trees shall be staked as shown on the plans and details.

PRUNING: Broken or badly bruised branches shall be removed with a clean cut. Do not cut leaders or use wound paint or dressing to treat cut areas. Crossed branches shall be pruned with a sharp tool in such a manner as to preserve and encourage the plants natural growth form. Crowns of young trees shall not be cut back to compensate for root loss.

MAINTENANCE: At the time of planting, the soil around each tree shall be thoroughly saturated with at least twenty (20) gallons of water.

Water for the irrigation of the planted trees in this contract may be supplied by the Department of Environmental Protection free of charge, until the final acceptance and completion of the whole work of this contract. In any event, the Contractor shall furnish and apply water, in accordance with the provisions of this contract.

Where water is supplied from City hydrants, the Contractor shall obtain a hydrant permit from the Department of Environmental Protection.

The Contractor shall maintain all planted trees within the limits of this contract, in accordance with the plans, specifications, and directions of the Engineer, until the acceptance and completion of each site of this contract.

Maintenance shall include weeding, cultivating, edging, control of insects, fungus, and other diseases by means of spraying with an approved insecticide or fungicide, pruning, adjustment and repair of stakes, anchors and wires, repair of minor washouts and gullies up to twelve inches (12") in depth, and other horticultural operations necessary for the proper growth of all trees, and for keeping the entire area within the contract limits neat in appearance until the final acceptance and completion of the whole work of this contract.

All planting areas shall be cultivated and weeded with hoes or other approved tools within the period from May 1st to October 1st, and such cultivating and weeding shall be repeated at least once a week. Under no conditions shall weeds be allowed to attain more than six inches (6") of growth. The cost of maintenance shall be included in the price bid.

REPLACEMENT: The Contractor shall replace in the next planting season, in accordance with the contract plans and specifications, any Tree that is dead or, in the opinion of the Engineer, in

an unhealthy or unsightly condition, and/or have lost their natural shape due to dead branches, excessive pruning, inadequate or improper maintenance, or other causes, including vandalism prior to final acceptance. Where vandalism or related causes are agreed by the Engineer as the cause for tree death, the Contractor shall not be responsible for replacement during the guarantee period.

Where dead tree has been identified, whether due to natural causes or vandalism, the Contractor shall remove the dead material, including stakes, and wire (if applicable) **within three (3) weeks of notification.**

Where dead tree has been identified, whether due to natural causes or vandalism, the Contractor shall remove the dead Tree, including stakes, burlap, and wire. Earth will be leveled and new topsoil and seed, or appropriate paving material, added at the direction of the Engineer to eliminate any hazardous conditions.

The Contractor shall maintain Replaced Tree to the standards outlined in the "Maintenance" section above.

SUBMITTALS: All submittals shall be as per the S-Pages. The Sub/Contractor shall submit the following for review and approval prior to performing work:

State Certification (in quarantine zone only): The Sub/Contractor must submit a copy of a valid Compliance Agreement issued by the State of New York Department of Agriculture and Markets, Division of Plant Industry.

MEASUREMENT AND PAYMENT: The quantity of **TREES, 2-1/2" - 3" CALIPER.** to be paid for under this Item shall be the number of trees of each size and species, supplied, planted, and maintained, in accordance with details and specifications, to the satisfaction of the Engineer

The price bid shall be a unit price for **EACH** tree of each size and species planted, and shall include the cost of excavating plant pits, furnishing and incorporating topsoil and manure in backfill of all tree pits, removal of dead stumps and trees up to six inches (6") Caliper in designated pits, furnishing, planting, pruning, staking, watering, maintaining, and replacing all trees, and all other work incidental thereto, including mycorrhizal fungi inoculant, and water retention additives, in accordance with the sketches, specifications, and to the satisfaction of the Engineer.

The price of water, regardless of source, is deemed included in the unit price bid. No extra payment will be made for water obtained from the Contractor's own source.

Item No.	Item	Pay Unit
PK-ESCR 741	PLANT STREET TREE	EA

END OF SECTION

SECTION PK-ESCR 747 – ASPHALT FULL DEPTH – TENNIS COURTS

WORK: Under these items, the Contractor shall furnish and install **FULL DEPTH ASPHALT PAVEMENT** and **ASPHALT PAVEMENT FOR TENNIS COURTS** in accordance with the plans, specifications, and directions of the Engineer.

DESCRIPTION: The asphalt pavement shall consist of a binder course and a top course to the dimensions as shown on the plans and details. The binder course shall be asphalt concrete, Type 3 and the top course(s) shall be Type 7 or Type 7F as defined by the N.Y.S. D.O.T. Standard Specifications. For tennis courts only the top course shall be installed in two (2) lifts as shown on the details. A Laser Spreader will be required for Tennis Courts. See 'Spreading of Top Course Tennis Courts Only'.

MATERIALS:

Asphalt: The following requirements shall apply for both Binder Course and Top Course:

Asphalt Cement shall be 100% soluble in Trichloroethylene. The mixing and placing temperature shall be 250 degrees to 325 degrees °F. The viscosity of the asphalt shall be AC 20. The mix shall have a minimum Marshall Stability of 500 lbs, flow of 8 to 16, and percent of air voids 3 to 5 percent. For full depth asphalt pavement (top and base courses) and the base course (only) for tennis courts, the asphalt mix may contain a maximum of 15% by weight of Recycled Asphalt Pavement (R.A.P.) material. The R.A.P. shall be certified by the inspection service before use and shall be free of dirt, debris, garbage, metal, glass and any other deleterious material. R.A.P. must have the binder content tested by the plant before mixing. R.A.P. shall be screened prior to mixing so that final mix meets the specification delineated below. The City reserves the right to reject the R.A.P. asphalt mix if in the determination of the Engineer, the mix is contaminated with dirt, debris, garbage, metal, or glass. R.A.P. is not acceptable for the top courses of asphalt pavement for tennis courts.

Binder Course: The material for the binder course shall meet the requirements of the latest edition of the NYSDOT Standard Specification Section 400 "Bituminous Pavements". Composition of the asphalt concrete binder shall be Type 3 as indicated in the following table:

COMPOSITION OF BINDER TYPE 3

SCREEN SIZE	GENERAL LIMITS % PASSING	JOB MIX TOL. %
1 1/2"	100	---
1"	95-100	---
1/2"	70-90	+/-6
1/4"	48-74	+/-7
1/8"	32-62	+/-7
No. 20	15-39	+/-7
No. 40	8-27	+/-7
No. 80	4-16	+/-4
No. 200	2-8	+/-2
Asphalt Content, %	4.5-6.5	+/-0.4

Top Course: The material for the top course shall meet the requirements of the latest edition of the NYS DOT Standard Specifications Section 400 "Bituminous Pavements". Composition of the asphalt concrete top course shall be Type 7 or Type 7F as indicated in the following table:

COMPOSITION OF TOP COURSE- TYPE 7

SCREEN SIZE	GENERAL LIMITS % PASSING	JOB MIX TOL %
1/2"	100	-
1/4"	90-100	-
1/8"	45-70	+/-6
No. 20	15-40	+/-7
No. 40	8-27	+/-7
No. 80	4-16	+/-4
No. 200	2-6	+/-2
Asphalt Content %	6.0-8.0	+/-0.4

Forms: The forms for this work shall be of wood of an approved type and a minimum length of ten feet (10') for tangents and curves, unless otherwise shown of the plans.

All forms shall be straight, free from bends and warps at all times, and shall be cleaned thoroughly and oiled before pavement is placed against them; this cleaning and oiling being repeated daily as the forms are moved ahead. The forms shall rest firmly upon the thoroughly compacted sub-grade throughout their entire length, shall be joined neatly and tightly and staked securely to line and grade at least two hundred feet (200') in advance of the point of placing pavement by using at least three (3) bracing pins or stakes to each ten foot (10') length of side form, so that they will resist the pressure of the pavement and the impact of the roller without springing.

Approval of Sources of Supply: Approval of the sources of supply of aggregates shall be obtained from the Engineer prior to the delivery of material.

Inspection: Equipment, materials, and preparation of the mixtures will be subject to inspection and approval at the refineries and plant as may be directed. In conjunction therewith, the

Contractor shall employ the services of an approved inspection service for the purposes of providing plant certification of the asphalt pavement mixtures conformance to these specifications.

The inspection service shall be under the jurisdiction of and shall report directly to the Engineer.

Mix Samples: The Contractor shall submit, when required by the Engineer, samples of the materials and mixtures the Contractor proposes to use. Submittals shall be in accordance with the S-Pages. For the top course, the following samples shall be submitted:

(a) Coarse aggregate.....2 pounds
(b) Fine aggregate.....2 pounds
(c) Filler..... 2 pounds
(d) Asphalt..... 1 quart
(e) Asphaltic mixture..... 10 pounds

Pavement Samples: The Contractor shall furnish for testing, when required by the Engineer, samples from the completed work. The areas of pavement so removed shall be replaced by new mixture and refinished without additional compensation.

Tests: Unless otherwise specifically provided, tests of materials shall be made in accordance with the latest specifications of the American Society for Testing and Materials.

Transporting: Shipments of material shall be made in tight vehicles previously cleaned of all foreign material, and delivered to the work, so that it will not become contaminated in any way.

INSTALLATION:

Subgrade Preparation: The subgrade shall be compacted with equipment that will yield the following density:

Cohesive Subgrade -	Minimum of 95% of AASHTO T 180 Method D density
Cohesionless Subgrade -	Minimum 100% of AASHTO T 180 Method D density

Spreading of Binder Course: Plant-Mixed binder course, shall be furnished and laid by means of a mechanical spreader of approved design to a depth which after final compaction shall be equal to the specified depth. In areas where the use of a mechanical spreader is impractical, as determined by the Engineer, other approved means of spreading and compacting may be permitted. The use of hand rakes will not be permitted. The Contractor shall use lutes where necessary.

Rolling and Compacting: Rollers used for compacting the binder course shall be well balanced, self-propelled, tandem rollers, weighing between seven (7) and eight (8) tons or approved vibratory roller. Rolling shall proceed continuously not in excess of the following rates:

Method of Placement	Square Yards/Hour/Roller
Hand	800
Machine	1200

After the final compaction, the binder course shall have a density of not less than 95% percent of the theoretical maximum density as calculated in accordance with Appendix B of the Asphalt Institute Manual, MS-2.

After the compaction of the binder course and before the placing of the top course, the binder course shall be checked for depressions. The Contractor shall check the entire area using a ten foot (10') wood or metal straight-edge. Any depression greater than one-eighth inch (1/8") shall be corrected before the placing of the top course.

Tack Coat: All contact surfaces, including binder and intermediate, shall be applied with hot asphaltic cement, RC-70 or MC-70 before the surface mixture(s) are laid.

Spreading of Top Course: The top course mixture shall be furnished and laid by means of a mechanical spreader of approved design to a depth which after final compaction shall be equal to the specified depth. In areas where the use of a mechanical spreader is impractical, as determined by the Engineer, other means of spreading and compacting may be permitted. The use of hand rakes will not be permitted. The Contractor shall use lutes where necessary.

Where suitable abutting curb or headers are not available, grade control forms satisfactory to the Engineer shall be provided for screening. No extra payment will be made for these forms, but the cost of these shall be deemed included in the price bid for this item. The forms shall be removed, or with the approval of the Engineer, may be left in place.

Mixture shall be laid only where the surface to be covered is free from loose or foreign material, dry, and only when weather conditions, in the opinion of the Engineer, are suitable.

The Contractor shall provide suitable means for keeping all small tools clean and free from bituminous accumulations.

Rolling and Compacting: Upon completion of the spreading of the top course mixture, the material shall be consolidated thoroughly and uniformly with self-propelled tandem rollers. The top course shall be free from roller marks.

Rollers used for compacting the top course shall be well balanced, self-propelled, tandem rollers, weighing between seven (7) and eight (8) tons or approved vibratory roller. The roller shall have a compression under the rear wheel of between 200 and 300 pounds per linear inch of roll at a rate not exceeding 800 square yards per hour per roller. After compaction, the surface course shall have a density not less than 97% theoretical maximum density as determined by Appendix B of The Asphalt Institute Manual MS-2.

In locations inaccessible to the roller, the compression shall be effected with vibratory plate compactors or iron hand tampers weighing not less than twenty-five (25) pounds and having a bearing area not exceeding forty-eight (48) square inches, or other impact type equipment.

Joints: Construction shall be as nearly continuous as is possible. The roller shall pass over the end of the laid mixture only when a practical necessity. When the operation of laying is interrupted, the end of the laid material shall be left unrolled until such time as work is resumed, in order that there be no joints throughout the project. If it is necessary to roll the end of the laid mixture during construction, or permit traffic to pass over such temporary end, thus consolidating it, the joint so made shall be cut back before re-commencing the operation of laying, in order to present a fresh, clean surface for contact with the newly placed material. The edges of such joints shall be painted with liquid asphalt (RC-70 or MC-70) and the use of hot smoothing irons in finishing such joints, shall not be permitted.

Spreading of Top Course for Tennis Courts Only: The top course shall be installed in two (2) lifts and laid by means of a laser spreader of approved design. After the first lift the courts shall be flooded with water and allowed to drain. Any ponding or "bird baths" remaining after 45 minutes which cover a nickel shall be filled and leveled prior to applying the second lift. Depressions greater than one-eighth inch (1/8") shall be corrected.

Finished Surface: The surface of the top course of the pavement after compression shall be smooth and true to crown and grade, free from depressions, waves, bunches, overlapping seams and unevenness in surface.

After the compaction of the top course the Contractor shall check the entire paved area for depressions, using a ten foot (10') wood or metal straight-edge. Any depressions greater than three-sixteenths of an inch (3/16") shall be corrected by removing the top course of the affected areas, and replacing with new material to form a true and even surface.

DEFECTS: Where defects in composition, compression or finish appear in the completed work, such finished areas shall be removed to the full depth of the course and the defective material replaced with the required thickness of pavement at the expense of the Contractor for such removing and replacing.

COLD WEATHER: Asphaltic pavement shall be mixed and placed in accordance with minimum placement temperature as specified in the following table:

MINIMUM PLACEMENT TEMPERATURES

MAT THICKNESS IN INCHES

SURFACE TEMP. (F)	1/2"	3/4"	1"	1 1/2"	2"	3"
			TEMPERATURE OF THE MIX			
+32-40	--	--	--	305	295	280
+40-50	--	--	310	300	285	275
+50-60	--	310	300	295	280	270
+60-70	310	300	290	285	275	265
+70-80	300	290	285	280	270	265
+80-90	290	280	275	270	265	260
+90	280	275	270	265	260	255
ROLLING TIME MINUTES	4	6	8	12	15	15

Unless notified by the Engineer in writing, no material shall be mixed or placed when the temperature is at, or lower than 50 degrees °F. Where paving between the temperatures of 33 and 50 degrees °F is approved in writing by the Engineer, paving shall be permitted under condition that the Engineer shall verify compliance with the minimum temperatures for both the temperature of the surface and temperature of the mix as shown in the chart above. The Contractor shall provide thermometers to verify compliance with the minimum requirements. No material shall be mixed or placed at temperatures of 32 degrees and below.

PRECIPITATION PROBABILITY: Placement of bituminous paving materials shall not be scheduled when the Precipitation Probability, obtained by the Contractor from the U.S. Weather Bureau within three (3) hours prior to the start of such operations, equals or exceeds fifty percent (50%). The Contractor shall notify the Engineer of the exact time at which the above information was obtained.

MEASUREMENT AND PAYMENT: The quantity of **FULL DEPTH ASPHALT PAVEMENT** and **ASPHALT PAVEMENT FOR TENNIS COURTS** to be paid for shall be the number of **SQUARE YARDS** of full depth asphalt pavement or asphalt pavement for tennis courts furnished and placed to the lines and grades shown on the plans or as directed by the Engineer.

The price bid shall be a unit price per **SQUARE YARD** of Full Depth Asphalt Pavement or Asphalt Pavement For Tennis Courts, and shall include the cost of furnishing all labor, materials, and equipment, including inspection services, and other incidental expenses to complete the work in accordance with the plans and specifications and to the satisfaction of the Engineer.

All costs associated with plant inspections and laboratory tests shall be borne by the Contractor and shall be deemed included in the price bid for full depth asphalt pavement.

Excavation and foundation material, if required, shall be paid for separately under their respective contract items.

Item No.	Item	Pay Unit
PK-ESCR 747A	FULL DEPTH ASPHALT PAVEMENT	S.Y.
PK-ESCR 747B	ASPHALT PAVEMENT FOR TENNIS COURTS	S.Y.

END OF SECTION

SECTION PK-ESCR 749 – Foundation Material for Asphalt (Truck Measure)

WORK: Under this item the Contractor shall furnish and place **FOUNDATION MATERIAL FOR ASPHALT (TRUCK MEASURE)** in accordance with the plans, specifications, and directions of the Engineer.

INTENT: The intent of this item is to provide sound foundation/base material for installation of asphalt pavement on poor subgrade or for certain sports pavement including, but not limited to, tennis, running track, and roller hockey. See Standard Detail, Pavement Details No. 1 for all applications.

MATERIALS: Unless otherwise herein specified, all materials and methods of construction shall comply with General Conditions, "Materials and Methods of Construction".

Material for foundation shall consist of coarse aggregate per ASTM C33, free from organic or other deleterious material. Coarse aggregate shall be graded within the following limits:

Passing Sieve (Dry Analysis)	Percent by Weight
2"	100
1/4"	30-65
No. 40	5-40
No. 200	0-10

The Magnesium Sulfate Soundness loss after four (4) cycles shall be twenty percent (20%) or less per ASTM C88.

Coarse aggregate shall be Broken Stone or Gravel of approved quality conforming to the requirements of the NYCDOT Standard Highway Specifications. **No recycled material shall be permitted**.

LABORATORY TESTING: The Contractor shall at the direction and discretion of the Engineer, or when quantities exceed (30) cubic yards , furnish a certified report by an approved Materials Testing Laboratory showing the materials composition, sieve analysis, plasticity index, and soundness of the representative samples of material they proposes to use.

The Engineer will deliver the samples to an independent testing laboratory and the Contractor shall bear the responsibility for all costs associated with laboratory testing. The Engineer reserves the right to reject on or after delivery any material, which does not, in their opinion, meet these specifications.

INSTALLATION:

PREPARATION OF FINE GRADES FOR NEW CONSTRUCTION: Before any aggregate is placed upon fine grade, the fine grade shall be prepared to line and grade and compacted where practical with an approved self propelled roller weighing not less than ten (10) tons. All hollows and depressions developed under rolling shall be filled with acceptable material and shall again be rolled. This process of shaping, filling, and rolling shall be repeated until no depressions develop.

The Contractor shall remove from the subgrade all debris, foreign material, and all other undesirable material designated by the Engineer. The fine grade shall not be muddy or otherwise unsatisfactory when the pavement is placed upon it. If the fine grade becomes rutted or displaced, due to any cause whatsoever, the Contractor shall regrade same without additional payment.

SPREADING: Foundation material shall be evenly spread on prepared sub-grade in the position and to the depths shown on the plans or as directed by the Engineer. Foundation material shall

be laid in four inch (4") layers (maximum) and rolled while wet with a seven (7) to twelve (12) ton tandem roller (or other approved method satisfactory to the Engineer) to the thickness shown on the plans or as directed by the Engineer.

SUBMITTALS: All submittals shall be submitted prior to installation and in accordance with the requirements of the S-Pages.

A three (3) pound bag of stone aggregate shall be submitted for approval with a sieve analysis and the name of the supplier.

MEASUREMENT AND PAYMENT: The quantity of **FOUNDATION MATERIAL FOR ASPHALT (TRUCK MEASURE)** to be paid for under this item shall be the number of **CUBIC YARDS** of material installed, measured in trucks used for delivery, at the site of the work, in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be a unit price per **CUBIC YARD** of Foundation Material for Asphalt furnished and placed and shall include the cost of all labor, materials, equipment, and incidental expenses necessary to complete the work, including laboratory testing (if necessary) and preparation of fine grades, all in accordance with the plans and specifications, to the satisfaction of the Engineer.

Excavation shall be paid for under its own contract item.

Item No.	Item	Pay Unit
PK-ESCR 749	FOUNDATION MATERIAL FOR ASPHALT (TRUCK MEASURE)	C.Y.

END OF SECTION

SECTION PK-ESCR 753 – TOPSOIL FOR PLANTING PITS AND BEDS

PK-ESCR 753.1. DESCRIPTION

A. This section describes the furnishing and installation of **TOPSOIL FOR PLANTING PITS AND BEDS** in accordance with the plans, specifications and directions of the Engineer.

PK-ESCR 753.2. MATERIALS

A. Topsoil: Shall be a sandy/ loam, friable soil that has been removed to a depth of one foot (1') or less, if subsoil is encountered. Topsoil shall be of uniform quality, free from hard clods, stiff clay, hard pan, sods, partially disintegrated stone, lime, cement, ashes, slag, concrete, tar residues, tarred paper, boards, chips, sticks, or any other undesirable material. No topsoil shall be delivered in a frozen or muddy condition.

a. Organic Content: Topsoil shall contain at least three percent (3%) organic matter determined by loss on ignition, of moisture-free samples dried in accordance with the current method of the Association of Official Agricultural Chemists. The organic matter shall not exceed twelve (12%).

b. The acidity range shall be pH 6.0 to pH 7.5 inclusive.

c. Topsoil shall consist of the following percentages of sand, silt and clay. Any soil that does not meet the requirements below will be rejected and removed from the site.

Sand (0.05 to 2 mm)	40% to 75%
Silt (0.002 to 0.05 mm)	15% to 65%
Clay (<0.002 mm)	20% maximum

d. Nutrients: Topsoil test results shall show recommendations for soil additives or fertilizers to correct nutrient deficiencies as necessary. Soil additives and fertilizers shall be incorporated as necessary at the Contractor's expense. Follow the fertilizer recommendation as provided by the required laboratory.

e. Electrical Conductivity: maximum of 1.0 mmhos/cm. A higher level would indicate excessive salt content and material will be rejected and removed from the site.

f. Testing Frequency: The Contractor shall at the direction and discretion of the Engineer, or when quantities exceed one hundred (100) cubic yards, furnish a certified report of the approved Testing Laboratory showing the analysis of representative samples of the topsoil which they propose to use. All samples are to be received by the Engineer and delivered to the laboratory, and the price bid shall include inspection and laboratory charges. Samples shall be submitted 48 hours prior to the delivery of topsoil.

g. No topsoil shall be delivered until the approval of samples by the Engineer, but such approval shall not constitute final acceptance. The Engineer reserves the right to reject on or after delivery any material that does not, in their opinion, meet these specifications.

B. Compost: As defined under the item "Compost."

PK-ESCR 753.2.1. SUBMITTALS

A. Testing Laboratory Qualifications: Submit qualifications of Soil Testing Laboratory to be utilized for soil testing, including the resume of the staff anticipated to perform the required

work of the project. Once approved, the contractor shall use the same soil testing laboratory for all testing, unless otherwise approved in writing by the Engineer.

B. Proposed Samples and Test Results: Submit two (2) five pound (5 lb.) bags to the Engineer, with the testing report attached, for approval prior to delivering material to the site.

C. The Contractor shall at the direction and discretion of the Engineer, or when quantities exceed one hundred (100) cubic yards, furnish a certified report showing the analysis of representative samples of the topsoil which they propose to use. Testing shall be performed by the laboratory as approved in writing by the Engineer. Laboratory testing performed more than six months prior to the Contractor's submittal date will be rejected. The testing shall include: pH, organic matter content (loss on ignition method), soluble salt level and soil textural analysis. Price bid shall include all inspection and laboratory fees.

D. No topsoil shall be delivered to the site until the approval of samples by the Engineer, but such approval shall not constitute final acceptance.

E. Delivery ticket with name and address of vendor, date, and estimated volume must be supplied to the Engineer prior to truck measurement.

PK-ESCR 753.2.2. QUALITY CONTROL

A. Soil Testing Laboratory: An independent soil testing laboratory with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed and capable of making soil recommendations, and issuing reports as specified herein, including the ability to make recommendations about soil blending ratios and methods, amendment recommendations, and issuing reports as specified herein.

   a. Verify Testing Laboratories have the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed and capable of making soil recommendations, and issuing reports as specified herein.

   b. Subject to meeting the requirements, the following are acceptable testing laboratories:

      i. Physical and Chemical Testing of Soils:

         1. Rutgers Cooperative Research & Extension Testing Laboratories, New Brunswick, NJ, (848) 932-9295.
         2. Penn State Analytical Services Lab, University Park, PA, (814) 863-0841
         3. McNitt & SerenSoil Testing, LLC, State College, PA, (610) 360-5985.
         4. Turf & Soil Diagnostics – NY, Trumansburg, NY, (855) 769-4231.

PK-ESCR 753.2.3. DELIVERY, STORAGE, AND HANDLING

A. Accessory and Packaged Materials:

   a. Store and handle packaged materials in strict compliance with manufacturer's instructions and recommendations. Protect all materials from weather, damage, injury and theft.

B. Bulk Materials:

   a. Sequence deliveries to avoid delay. On-site storage space is permissible only with written notice from the Engineer. Coordinate material deliveries only after preparations for placement of planting soil have been completed.

b. Stockpile Topsoil without intermixing with other materials.

c. Stockpiled topsoil shall not be placed in mounds greater than six feet high. Provide all means and methods required to prevent anaerobic conditions within stockpiles at no additional cost to the Owner.

d. Place, grade, and shape stockpiles to drain surface water. Cover stockpiles to prevent windblown dust and protect from erosion.

e. Topsoil that is stockpiled on site for more than 24 hours shall be covered with tarpaulin or other soil erosion system acceptable to Engineer. Protect stockpiles from contamination from other materials, from erosion and deposition of water and wind borne materials of any kind.

f. Prohibit vehicular and pedestrian traffic on stockpiled topsoil.

C. Environmental Requirements:

a. Do not deliver handle, mix, haul, or deliver topsoil when excessively dry, wet, or frozen. Topsoil shall not be handled, mixed or hauled when wet, during or immediately after a heavy rainfall. Topsoil should be handled only when the moisture content is less than or equal to the optimum water content. If the topsoil glistens or free water is observed when the topsoil is patted in the palm of hand, the topsoil is too wet and shall not be worked. The Engineer shall determine if the topsoil is too wet to handle.

D. Delivery and Approval:

a. The Contractor shall notify the Engineer a minimum of 48 hours prior to the intended topsoil delivery date. All imported topsoil shall be delivered in trucks and will be subject to visual inspection and additional testing. The topsoil shall NOT be spread until the Engineers' sampling and testing is completed, unless otherwise directed. The Engineer reserves the right to reject any topsoil which does not fall within acceptable limitations of this specification and the initial submittal to design including the approved sample and the approved test report. Where the topsoil is rejected, it shall be immediately removed from the site. Where it has been determined by the Engineer that soil amendments are allowable, the correction shall be made at the Contractor's expense, except as outlined below. Additional testing after amending shall also be at the Contractor's expense. All testing shall be performed by the approved testing laboratory.

b. Engineer's determination based on test results of delivered material: Under no circumstances shall the organic content exceed twelve percent (12%). Should Agency test results of delivered material show organic content greater than twelve percent (12%), the soil shall be rejected and removed from the site. Should test results show pH between pH 5.0 and 6.0, and where directed by the Engineer, limestone may be added at the Contractor's expense to bring the soil to the required minimum pH 6.0. The Contractor will be required to re-test after incorporation of limestone to assure a minimum pH 6.0. Should Engineer's test results of delivered material show a pH greater than 7.5 the soil shall be rejected and removed from the site.

c. The Engineer reserves the right to reject on or after delivery any material that does not, in their opinion, meet these specifications.

d. APPEAL PROCESS: The Engineer shall visually check for discrepancies between the delivered soil and the approved submittal and sample. If the Engineer suspects

that the topsoil delivered to the site has excessively high levels of organic matter, clay, etc. that would not be within the allowable levels listed in this specification, the soil will be rejected until additional testing proves otherwise. Should the Contractor contest the Engineer's determination, the Engineer will take samples so additional tests may be performed at Contractor's expense. Testing shall be performed by the approved testing laboratory. These results shall be considered final.

PK-ESCR 753.2.4. SUPPLIERS

A. Subject to meeting the requirements, the Topsoil material is available from the following suppliers:

   a. Island Topsoil, Syosset, NY
   b. Long Island Compost, Yaphank, NY
   c. Natures Choice, Jersey City, NJ
   d. New York Recycling and Materials, Inwood, NY
   e. Approved equal.

PK-ESCR 753.3. METHODS

A. Preparation of Subgrade: Hollows, depressions, and gullies shall be filled with acceptable material free from stones over two inches (2") in diameter, cinders, rubbish, and other unsuitable material. All surplus material and debris shall be removed and disposed of as directed by the Engineer. Loosen subsoil by scarifying, ripping or tilling using disks, harrows or other suitable equipment to a depth of (4"- 6") immediately before placing any topsoil. Repeat cultivation in areas where equipment used for hauling and spreading topsoil has compacted subsoil.

B. Placement and Spreading of Topsoil: No topsoil shall be handled when, in the opinion of the Engineer, it is too wet. Place and spread approved topsoil in dry weather on dry unfrozen grade. Topsoil for groundcover and herbaceous plant areas shall be mixed with compost in the proportions of seven (7) cubic yards of topsoil to two (2) cubic yards of compost and spread to a compacted depth of nine (9"), or as indicated on the drawings. No deduction shall be made for the volume of compost in the measurement of topsoil quantities.

C. Preparation of Final Grade: Thoroughly cultivate topsoil to minimum depth of (4") by rototilling or hand methods where compaction has occurred and to break up all soil lumps. Hand rake until surface is smooth.

PK-ESCR 753.4. MEASUREMENT

A. The quantity of TOPSOIL FOR PLANTING PITS & BEDS to be paid for under this Item shall be the number of CUBIC YARDS of topsoil furnished, mixed with compost and, placed and incorporated in the completed work in accordance with the plans, specifications, and directions of the Engineer, measured in trucks used for delivery, at the site of the work. No topsoil shall be furnished until ordered by the Engineer.

PK-ESCR 753.5. PRICES TO COVER

A. The contact prices per cubic yard (CY) for Item No. PK-ESCR 753 TOPSOIL FOR PLANTING PITS & BEDS shall cover the cost of all labor, materials, and equipment necessary to prepare topsoil areas, test, furnish, place, and incorporate compost and all other work incidental thereto, in accordance with the plans and specifications, to the satisfaction of the Engineer.

Payment will be made under:

Item No.	Item	Pay Unit
PK-ESCR 753	Topsoil for Planting Pits and Beds	CY

END OF SECTION

SECTION PK-ESCR 764 – TREE AND PLANTING PROTECTION

PK-ESCR 764.1. INTENT

This section describes the work of providing a Tree and Planting Protection around existing trees and planting beds during construction.

PK-ESCR764.2. DESCRIPTION

The work shall consist of the fabrication, furnishing, installation, erection, maintenance, and subsequent removal and disposal of Tree and Planting Protection around existing trees which are designated to remain.

PK-ESCR 764.3. MATERIALS

All timber shall be Douglas Fir Grade No. 1. Fasteners, such as nails, shall meet the standard industrial fastener specifications for the intended application, and be galvanized in conformance with ASTM Designation A 123.

Plastic Barricade Construction fencing fabric - Color Orange. Manufactured by Allied Products Group, 751 North Bolingbrook Drive, Bldg.16, Bolingbrook, Illinois 60440, or approved equal. Fabric is 5'-0" wide with nominal mesh openings of 1/4"-2" and shall conform to the following requirements:

1. Tensile strength range of 2000 - 2310 P.S.
2. Impact load of 4 to 4.5 foot pounds.
3. Service temperature range between -40 to +200 degrees F.
4. Elongation at break % to be 500%.
5. Weigh per 100' roll to be 30lbs.

PK-ESCR 764.4. METHODS

The Contractor shall construct and install Tree and Planting Protection as shown on the Drawings. All work shall conform with National Design Specifications for Stress Grade Lumber and its fastenings.

All timber at the site of the work shall be stored in piles on supports at least twelve (12") inches above the ground surface, and so piled as to prevent warping and to shed water. When required by the Engineer, it shall be protected from the weather by suitable covering. The timber shall be close-stacked. The ground under and in the vicinity of all stacks shall be cleared of weeds and rubbish and shall be drained to prevent accumulation of water.

Workmanship shall be first class and only competent carpenters shall be employed. All timber shall be accurately cut and framed to a close fit in such manner that the joints will have even bearing over the entire contact surfaces. No blocking or shimming will be allowed in joints. Timber shall be cut off with a saw; no axe is to be used. Unless otherwise specified, heads of nails and spikes shall be driven with just sufficient force to set the heads flush with the surface of the wood. Deep hammer marks in wood surfaces shall be considered evidence of poor workmanship and sufficient cause for rejection of the pieces affected.

The timber shall be carefully handled, without sudden dropping, breaking of outer fibers, bruising, or penetrating the surface with tools. The timber may be handled with rope slings.

Protective Tree Barriers shall be maintained for the duration of the contract in a condition safe to the public and satisfactory to the Engineer. Upon completion of construction work around the

area, all Protective Tree Barriers shall be disassembled, removed and disposed of away from the site.

PK-ESCR 764.5. MEASUREMENT

The quantity of Tree and Planting Protection to be measured for payment shall be the linear feet of Protective Tree Barriers actually constructed according to the Contract Drawings, around tree and planting which is to remain, and subsequently removed at each location as directed by the Engineer.

PK-ESCR 764.6. PRICES TO COVER

The contract price bid per each type of Temporary Wooden Tree Guard shall cover the cost of furnishing all labor, materials, plant, equipment, insurance, and incidentals required to construct, maintain and subsequent removal of the barrier in the locations as directed by the Engineer, in accordance with the Contract Drawings, the specifications, and the directions of the Engineer.

The contract price bid per linear foot of Temporary Wooden Tree Guard for Groves shall cover the cost of furnishing all labor, materials, plant, equipment, insurance, and incidentals required to construct, maintain and subsequent removal of the barrier in the locations as directed by the Engineer, in accordance with the Contract Drawings, the specifications, and the directions of the Engineer.

Payment will be made under:

Item No.	Item	Pay Unit
PK-ESCR 764A	TEMPORARY WOODEN TREE GUARD	EA
PK-ESCR 764B	TEMPORARY WOODEN TREE GUARD FOR GROVES	L.F.

END OF SECTION

SECTION PK-ESCR 928 – RECONSTRUCT HANDBALL BACKSTOP

WORK: Under these Items, the Contractor shall **RECONSTRUCT CONCRETE WALL** and/or **RECONSTRUCT HANDBALL BACKSTOP** in accordance with the plans, specifications, and directions of the Engineer.

The Work includes, but is not limited to, surface preparation, such as chipping of deteriorated concrete and cleaning, priming of reinforcement, filling of cracks, holes, defects, and all depressions up to four and one-half (4 ½") inch in depth with repair mortar; cleaning of wall surface, applying cementitious surface coating, and application of paint color system (including court lines and park leaf on handball backstop wall), as directed by the Engineer and in accordance with this specification and the manufacturer's directions.

QUALIFICATION TRAINING AND EXPERIENCE: All concrete reconstruction must be performed by a qualified mason, experienced in proper masonry techniques. The Contractor shall provide evidence the masonry sub/contractor has a minimum of three (3) years relevant experience. Project names and address of the person(s) for whom the work was performed shall be submitted. In addition, a letter from the manufacturer documenting Contractor's installation training and/or experience in the use of the product specified for this project shall be submitted.

Vertical Repair Mortar: Latex modified cementitious priming and repair mortars shall be selected based on the application:

- Handball Backstop Repair:
    - Repairs shall be made in the lifts of three-quarter (3/4") inch and shall be Strongcrete SW-82 with Corrogard corrosion inhibitor additives and Styrene Butadiene Rubber (SBR) rubber modifier as manufactured by Strongwall Industries, Inc., Ridgewood, NJ, or approved equal.
- Concrete Wall Repair:
    - Repairs shall be made in lifts of one and one-half (1-1/2") inch shall be Strongcrete SW-88 with Corrogard corrosion inhibitor additives and Styrene Butadiene Rubber (SBR) rubber modifier as manufactured by Strongwall Industries, Inc., Ridgewood, NJ, or approved equal.

Resurfacing Material: Latex modified two (2) component, 90 mil, cementitious surface coating shall be Strongwall SWS-213 Court Wall System including Bond Coat (30ml), Base Coat (50ml), and Finishing Coat (10ml); or approved equal.

- Bond Coat and Base Coat: Both the Bond and Base Coats shal consist of SC #3 Liquid mixed with SC #3 powder, mixing ratio shall be in accordance with Strongwall 213 System installation instructions as manufactured by Strongwall Industries, Inc., or approved equal.
- Finishing Coat: Paint shall be Resicolor #4 homopolymer topping, as manufactured by Strongwall Industries, Inc., or approved equal.

Mixing Ratios for Bond Coat, Base Coat, and Finishing Coat shall be as per manufacturer's recommendations and installation instructions. Apply primer with mason's brush to all concrete and steel surfaces that will receive mortar mix.

Expansion Joints: Expansion joints shall be replaced to match those existing, DPR Standard, or as directed by Engineer.

EXECUTION:

Surface Preparation: The Contractor shall remove all layers of paint, clean and prepare the concrete surfaces as per recommendations of the manufacturer of the product to be applied. All loose or unsound concrete shall be chipped out with a lightweight (7-12 oz.) chipping hammer to remove all spalled concrete as well as visible active galvanic cells. Where reinforcement is exposed, chip and wire brush off scale and loose rust down to a sound, rust-free substrate. Where rust is leaching into the concrete behind the exposed portion of the rebar, wirebrush to remove loose scale and other contaminants from the exposed portion of the rebar down to clean metal, all rust must be completely removed from the substrate. All cracks one-eighth (1/8") inch and wider shall be routed out to sound concrete to a minimum width of one-half inch (1/2") over the entire length of the crack. This opening shall extend beyond the cracks until sound concrete is reached. Blow out to remove all dust and other debris. All other cracks smaller than one-eighth (1/8") inch shall be detailed with crack treatment component EM-100N as manufactured by Strongwall Industries Inc, or approved equal.

Cleaning: Thoroughly clean all surfaces to be reconstructed by wet sandblasting, high pressure water blasting, steam cleaning, heavy duty paint remover, or other approved means to remove dirt, oil, asphalt patches, algae, paint, graffiti, concrete sealers, or curing compounds, as directed by the Engineer. Sandblasting may be the method if approved in writing by the Agency.

Priming of Reinforcement: Wherever concrete deterioration has resulted in exposure of reinforcing steel, the steel must first be properly cleaned free of all rust, dirt and debris, down to a completely rust free substrate prior to being primed with application of Bond Coat. Apply Bond Coat using a mason's brush.

Priming of Substrate: The substrate of areas to be patched shall be soaked with clean water with no standing water (saturated surface dry, SSD). The damp surface shall be primed with the specified Bond Coat mix scrubbed in using a mason's brush, filling all voids and pores. Bond Coat shall only be applied to the clean substrate after reinforcement has also been cleaned down to rust free, clean metal.

Repair Material: Mix bag size batches of repair mortar materials using a paddle attached to a heavy-duty high-speed drill. Add powder to the liquid while mixing continuously for two (2) minutes maximum. Apply materials immediately after mixing. Use the specified vertical repair material based on substrate. Apply successive lifts within fifteen (15) minutes of mortar mix placement, between coats preparation is not necessary. The Contractor shall use the specified repair mortar to fill and resurface minor holes, cracks, shallow depressions, imperfections, honeycombs, and rough or otherwise defective areas in concrete substrate. Repair mortar shall be used to form a crown over the top surface of the court backstops, pitched at approximately ten degrees (10°) to aid drainage.

Bond Coat: All holes and spalled areas shall be patched with the specified mortar mix. The Bond Coat shall be applied only when the substrate and air temperature are forty-five degrees F. (45°) and rising or above or when rain is not anticipated for at least three hours from final application.

Base Coat: Areas to be resurfaced shall be clean and free of contaminants and other coating materials, graffiti, loose particles and other bond inhibiting materials. Before application of the Base Coat, the walls shall be well dampened with clean water to attain moisture saturated, surface dry substrate. Base Coat material shall be applied in a single coat by hawk and trowel or an air powered hopper gun and finished with a steel trowel to achieve a smooth surface. The desired finish is a uniform, level, and fine textured surface.

Mixing and placement shall be done in accordance with the manufacturer's directions. The Contractor shall mix only enough two (2) part Base Coat material that can be completely applied

within the time allowed by the pot life of the product. Material that started to cure before installation shall be disposed of and fresh material shall be batched.

Unless otherwise directed by the Engineer, the Contractor shall assume that the Base Coat will be applied over the entire area to be reconstructed. Actual area to receive the Base Coat shall be determined by the Engineer, depending upon the uniformity of the existing surfaces.

Curing: Allow the Base Coat to fully cure overnight and finish with the specified Finishing Coat.

Application of Finish Coat: Apply paint when ambient air temperatures are between 45° degrees and 95° degrees Fahrenheit and when surfaces to be painted are free of moisture, dampness, and other foreign particles. Painting will not be allowed below the minimum ambient air temperature, nor before the surface is approved by the Engineer as being sufficiently clean. After all repair and resurfacing of concrete has cured and curing compounds removed for approximately eight (8) hours, apply two (2) coats of the Finish Coat on all wall surfaces.

All coating applications shall be done in a neat and workmanlike manner. The Contractor shall protect all portions of the site against disfigurement by spatters, splashes and smirches of coating materials. The Contractor shall provide and lay drop cloths where necessary to protect the base and site, and shall keep the site of the Work clean at all times. The paint shall be applied thoroughly and evenly using either brush or roller, leaving no skips or inadequately covered areas on the wall surfaces. Applications shall fill all cracks and fissures leaving no fins or runs. Clean any drips or spills immediately with lacquer thinner before it cures. Allow the first coat to dry per manufacturer's instructions before application of topcoat. Unless otherwise shown on Contract Drawings, colors shall be designated as described below:

Painting Walls and Backstop: Concrete walls and backstop shall receive two (2) coats of Strongwall Resicolor #4 as manufactured by Strongwall Industries, Inc., or approved equal. The color shall be light gray, Federal Standard Color # 37150, with lusterless finish, unless otherwise shown on contract drawings. Drying time to recoat is a minimum of two (2) hours at ambient temperature and dry mil thickness is four (4) mils.

Painting Court Lines on Backstop: Paint for court lines on handball backstop shall be two (2) coats of Resicolor #4, or approved equal. All Court Lines shall be carefully laid out and defined on the wall surface by chalk markings or stencils before being color coated, and shall be accurately coated within the limits shown on the Plans. All lines shall be clear and distinct, with sharply defined edges. Color shall be white.

Painting Park's Leaf: Paint shall be Resilience® Exterior Latex Flat as manufactured by Sherwin-Williams, Woodside, NY, or approved equal. Park's leaf shall receive two (2) coats paint. Color of paint shall be Electric Lime SW6921 or approved equal to match PMS 368C. The Contractor shall contact the Engineer to obtain the Park's leaf stencil. Dimensions and location shall be in accordance with the Appendix A NYC Parks Standard Details. The Stencil shall be used in such a manner that the painted leaf shall have sharp, defined edges. Any drips, runs or bleeding of paint shall be removed.

PRODUCT DELIVERY, STORAGE, AND HANDLING: The Contractor shall supply sufficient quantities of material necessary to complete the work. All material shall be used and disposed of in accordance with the Manufacturer's instructions and all relevant local, state and federal regulations. Workers and handlers shall use necessary safety equipment in accordance with O.S.H.A. guidelines. Contractor shall deliver all surplus paint supplies from the originally purchased 5 (five) gallon container of Finish Coat to the Engineer.

SUBMITTALS: All submissions shall be per S-Pages.

Mason's Qualifications: The Contractor shall submit for approval, the name and qualifications of the proposed Sub/Contractor. The Contractor shall submit the following:

1. Proof of three (3) years of experience.
2. Documentation from manufacturer of required combination of training and experience.

The masonry sub/contractor shall meet the qualifications listed on this page of this item under the heading "QUALIFICATION TRAINING AND EXPERIENCE. "
Sample: Paint chip color samples shall be submitted for approval prior to application of paint.

Mock-up: A sample four foot by four foot (4' x 4') area shall be resurfaced on the existing wall surface at the direction and discretion of the Engineer, to be approved by the Agency. If sample is found unacceptable, it shall be redone at no additional cost to the City until it is approved and accepted in writing. Once sample is approved by the Agency, it shall be the standard to which all Work is judged.

MEASUREMENT AND PAYMENT: The quantity of **RECONSTRUCT CONCRETE WALL** or **RECONSTRUCT HANDBALL BACKSTOP** to be paid for under this Item shall be the number of **SQUARE FEET** of wall or backstop cleaned, patched, and resurfaced in accordance with the plans, specifications, and directions of the Engineer.

The prices bid shall be a unit price per **SQUARE FOOT** of wall or backstop reconstructed and shall include the cost of all labor, materials, equipment and incidental expenses necessary to complete the reconstruction, including surface preparation, expansion joint reconstruction, application of repair mortar, application of resurfacing material, and application of paint system (including court lines and Park's leaf for the handball backstop wall), all in accordance with the plans and specifications, to the satisfaction of the Engineer.

Painted lines on pavement/horizontal surfaces shall be specified and paid for separately. Repair of areas greater than four and one-half (4 ½") inch in depth shall be paid for separately under " Concrete for park structures ESCR 4.06 PF" and "Steel Bar Reinforcement ESCR 4.14", if required.

Item No.	Item	Pay Unit
PK-ESCR 928	RECONSTRUCT HANDBALL BACKSTOP	SF

END OF SECTION

SECTION PK-ESCR 930 – REMOVE, SALVAGE, PROTECT AND REINSTALL – PARK ARTIFACTS

PK-ESCR 930.1. INTENT

This section describes work related to the removal, salvage, storage and relocation of items currently located in the Stuyvesant Cove Park in accordance with the plans, specifications and directions of the Engineer.

PK-ESCR 930.2. DESCRIPTION

A. Work in this section is related to the removal, salvage, storage and relocation of stones currently located inStuyvesant Cove Park. Included are:

Stuyvesant Cove Items

1. Unmortared Stones

B. Documentation of existing conditions of artifact or items.

1. The Contractor shall engage an experienced photographer to provide photographic documentation of each Item on three occasions - prior to start of work, at the storage facility, and upon delivery of the items to the site (after storage).
2. Contractor shall prepare a written document (Site Items Relocation Report) describing in detail methods for dismantling, lifting, moving, and protecting all elements.

C. Protect, dismantle, and number Items.

1. After photographic documentation and careful evaluation of current condition, Contractor shall dismantle items for removal and storage.
2. The individual elements of each items are to be numbered. Contractor shall provide reproducible record drawings of each items documenting location of numbered elements.
3. Following dismantling and numbering, Contractor shall provide protective covering for all items. Protective covering shall remain in place during transportation, storage and through return of items to the site.

D. Transport and storage of items to storage facility.

1. Contractor shall transport all protected items to approved facility by Engineer. Prior to moving the items, the Contractor shall inspect the facility with the Engineer to ensure that Items are placed to the Owner's satisfaction.

E. Transport of Items from storage facility to East River Park site.

1. Prior to Substantial Completion, the Contractor shall transport all protected Items from their place of storage to specified locations in the East River Park, New York. Prior to transport, Contractor shall provide a schedule of delivery dates for approval by Engineer.

PK-ESCR 930.3. MATERIALS

A. PROTECTIVE COVERINGS

1. The contractor is responsible for designing, customizing, and constructing protective coverings for each numbered element of a item. Materials may include, but are not limited to wooden crates and padded or insulated materials. Types of materials used shall not have any adverse impact on item materials (e.g., moisture damage).

PK-ESCR 930.3.1. REFERENCES

A. For granite, comply with recommendations of the National Building Granite Quarries Association Inc. (NBGQA).
B. For unit masonry, comply with standards established by the American Society of Testing and Materials (ASTM).
C. For bronze work, comply with standards established by the American National Standards Institute (ANSI).

PK-ESCR 930.3.2. SUBMITTALS

A. Schedule of work: For the record, submit proposed schedule for on-site work and for transport of Items to off-site facility. Prior to return of Items to the site, provide schedule of delivery dates to Owner' Representative for approval.

B. ITEM Relocation Report: Contractor shall prepare a written document describing, in detail, methods for dismantling, lifting, moving, and protecting all elements of each item. No work described in this report shall commence until this document has been reviewed and approved by the Engineer.

C. Record photographs: The Contractor shall engage an photographer to provide photographic documentation of each item on three occasions - prior to start of work, at the storage facility, and upon delivery of the Items to the site (after storage). The Photographs will be paid for under Item 6.40 D.For the record, provide written documentation of any and all deficiencies or damage that may exist at Items prior to start of work. If such conditions exist, they must be clearly represented in the record photographs.

D. Record drawings: Prepare record drawing(s) which document numbered elements comprising each item. The purpose of these drawings is to enable reconstruction of Items under a separate contract. Drawings(s) shall list and quantify all means and methods of construction observed at time of dismantling including but not limited to all means of connection (joints, dowels, etc.) and type and color of grout, sealant and other materials associated with Items construction. Record drawings shall also indicate remaining existing features related to individual Items (such as unit pavers, masonry units, benches, and flagpoles), their dimensional relationships to each other and to existing grades.

PK-ESCR 930.3.3. QUALITY CONTROL

A. Contractor qualifications: Contractor shall present evidence of prior experience in the installation and removal of Items and/or large scale works of art or artifacts. Contractor is required to have relevant experience in stone masonry work and/or item conservation. Contractor shall provide a list of similar projects and references. Contractor's qualifications will be subject to review by the Engineer.

PK-ESCR 930.3.4. DELIVERY, STORAGE, AND HANDLING

A. Items shall be delivered in undamaged condition.

B. Store and handle Items to prevent deterioration or damage due to moisture, temperature changes, contaminants, corrosion, breaking, chipping, or other causes. Engineer shall approve the use of any type of cleaner prior to use.

PK-ESCR 930.3.5. WARRANTY

A. Contractor is fully responsible for condition of, and protection of Items throughout project including, but not limited to, damage, vandalism and theft.

PK-ESCR 930 .4. METHODS

A. SITE CONDITIONS

1. Contractor shall protect all site elements to remain as indicated on the drawings including, but not limited to, trees and soil areas.
2. Contractor is not required to protect foundations of Items, unless such elements are indicated to remain as part of the item on the drawings.

B. EXAMINATION

1. Contractor shall examine site conditions with Engineer present. For the record, provide photographic documentation and written description of any and all deficiencies or damage which may exist at Items prior to start of work.
2. It shall be the Contractor's responsibility to document any condition which may affect the ability to reinstall Items in their condition as documented at the start of work.

C. DISMANTLING AND REMOVAL OF ITEMS

1. Contractor shall dismantle Items in accordance with highest industry standards. No element of the ITEM may be cut or reduced in size. Separation of item from foundation shall be accomplished with great care and consideration of material(s). Saw cutting of foundations is permissible. Procedures for numbering dismantled units and lifting shall be as stated in the approved ITEM Relocation Report.
2. Each element of the ITEM shall be numbered with non-permanent markings according to the approved procedures.

D. PROTECTION OF ITEMS

1. Contractor shall construct protective covering for each element of a ITEM. Numbering system shall be shown on the outside of protective coverings as well as on individual pieces. Covering shall ensure that no damage occurs during transport, handling, storage and return transport to site.

E. TRANSPORT AND STORAGE OF ITEMS

1. Contractor shall transport Items by means required to ensure safety of ITEM giving consideration to weight, height, freeze-thaw resistance of materials, and temperature. Items shall be placed on elevated wood pallets in storage facility as directed by Engineer.

F. RETURN TRANSPORT OF ITEMS

1. Upon written approval of transport schedule, Contractor shall return Items to site for re-installation under separate contract SANDRESM1. Contractor shall remove and dispose of all protective coverings. Engineer will perform assessment of item condition prior to reinstallation.

PK-ESCR 930 .5. MEASUREMENT

Payment for Remove, Salvage, Protect and Reinstall Park Artifacts will be made on a Lump Sum basis for work satisfactorily completed. Monthly payments will be made in proportion to the amount of work done as determined by the Engineer.

PK-ESCR 930 .6. PRICES TO COVER

Payment will be made under:

Item No.	Item	Pay Unit
PK-ESCR 930C	Remove, Salvage, Protect and Reinstall - Stuyvesant Cove Artifacts	L.S.

END OF SECTION

SECTION PK-ESCR 937 – HORTICULTURAL SOIL SOURCING AND SUPPLY

PK-ESCR 937.1. DESCRIPTION. This section describes the sourcing, mixing, testing, stockpiling, furnishing, and installation of HORTICULTURAL DRAINAGE LAYER, HORTICULTURAL SUBSOIL, PLANTING SOIL FOR BEDS & PITS, and **PLANTING SOIL FOR SEEDED & SODDED LAWN AREAS** in accordance with the plans, specifications and directions of the Engineer.

PK-ESCR 937.2. MATERIALS.

A. General: Horticultural Soils are made up of a mix of three soil component materials: Sand, loam, and Compost as specified herein. The quality of the horticultural soil mixes depends on the quality of the original soil component materials. Soil component specifications and component ratios are provided for bidding purposes only. They require confirmation and adjustment by the Contractors' Soil Testing Laboratory, depending on availability of component materials, and with the approval of the Engineer, in order to meet Specification requirements. The Contractor is responsible for the time and cost associated with locating, testing and obtaining approval by the Engineer of sand, loam and compost materials as well as the final component soil mixes that meet the Specification requirements, regardless of the time for, or number of tests required to meet the requirements of this Specification.

B. Environmental Requirements: Prior to delivery to the site, soil component materials and soil mixes must be sampled and analyzed by a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) - certified laboratory in accordance with the New York State Department of Environmental Conservation (NYSDEC) DER-10 protocols for the full list of parameters in Title 6 of the Official Compilation of the New York Codes, Rules and Regulations (NYCRR) Part 375-6.8; see analytical methods in the "Appeal Process" **DELIVERY, STORAGE, AND HANDLING.**

   a. Results of the analytical testing must meet 6 NYCRR Part 375 Restricted Use – Restricted Residential (RURR) Soil Cleanup Objectives (SCOs). The soil component materials and soil mixes must not have any physical evidence of contamination, including but not limited to petroleum or unnatural/toxic odors, visual signs of staining, or elevated photoionization detector (PID) readings.

C. Soil Component Materials:

   a. SAND: A USDA Texture of coarse sand, naturally occurring siliciclastic material, consisting of clean, inert, rounded to sub-angular grains of quartz or other durable rock free from loam or clay, surface coatings and deleterious materials. Limestone-based or carbonate-based sands are not acceptable for use on the project. Sand manufactured from crushed or processed rock is not acceptable for use on the project. Meet the following criteria as confirmed by laboratory testing:

      i. pH: 6.5 - 7.3.
      ii. Salinity: Electrical conductivity of a 1:2 soil to water extract, ≤ 1.50 mmos/cm (dS/m).
      iii. Saturated hydraulic conductivity of the sand: ≥ 8 inches per hour, according to ASTM D5856, when compacted to a minimum of 90% Standard Proctor, ASTM 698.
      iv. Organic Matter: < 0.25% with no visible organic material present in this material.

v. Particle size distribution shall be:

Particle Size Class	Passing Sieve No.	Range in % Passing (ASTM F 1632)
Fine Gravel	10	95 - 100
Very Coarse Sand	18	90 - 95
Coarse Sand	35	60 - 80
Medium Sand	60	10 - 40
Fine Sand	140	8 - 15
Very Fine Sand	270	1 - 10
		Determined by hydrometer method (ASTM F 1632)
Silt		1 - 6
Clay		0 - 4

b. LOAM: A USDA Texture of Sandy Loam, Sandy clay Loam or Loam, naturally occurring soil with a developed stable crumb structure formed from geologic soil forming processes without admixtures of sand or organic matter sources (composts). Loam shall be free of subsoil, stones over one inch in diameter, earth clods, sticks, stumps, clay lumps, roots or other objectionable, extraneous matter or debris. Loam shall also be free of quack-grass rhizomes, Agropyron repens, and the nut-like tubers of nutgrass, Cyperus esculentus, and all other primary noxious weeds. Meet the following criteria as confirmed by laboratory testing:

i. Organic Content: between 3.0 and 8.0 percent on a dry weight basis.
ii. pH: ≤ 7.2 and shall be conducive to achieving pH requirements for soil blends specified herein.
iii. Salinity: Electrical conductivity of a one to two soil to water extract, ≤ 1.50 mmos/cm (dS/m).
iv. Allowable USDA Sandy Loam Texture
    1. Sand: >52% sand
    2. Silt + 2x Clay Content ≥ 30%
    3. Clay: 7-20%
v. Allowable USDA Sandy Clay Loam Texture
    1. Sand: >45%
    2. Silt: <28%
    3. Clay: 20-35%
vi. Allowable Loam Texture
    1. Sand: <52% Sand
    2. Silt: 28-52%
    3. Clay: 7-28%

D. Compost: A stable, humus-like material produced from the aerobic decomposition of organic residues which shall have been composted for a minimum of one year (12 months). The use of biosolids as feedstock for compost production is prohibited. Compost shall be a dark brown to black color and be capable of supporting plant growth with appropriate management applicable, with no visible free water or dust, with no rank or unpleasant odor, and meeting the following criteria as confirmed by laboratory tests:

Criteria	Test Method	Acceptable Range
Feed stock		Brewer's waste, or leaf mulches are acceptable. Composted municipal waste (chipped, shredded and screened wood, leaves, bark, etc.) alone is not acceptable unless it meets all of the criteria noted
Carbon/Nitrogen Ratio		10:1 - 25:1
Degree of Maturity	Dewer Self Heating or	VI-V
	Solvita Maturity Index or	6-8
	CO^2 Evolution	1.2%C/day
Texture	Dry Sieve and Hydrometer	Screened to 1/2 inch maximum particle size, and not more that 3 percent material finer than 0.002mm as determined by hydrometer test on ashed material.
Foreign Material	Dry Weight	Debris such as metal, glass, plastic, wood (other than residual chips), asphalt or masonry shall not be visible and shall not exceed 1% dry weight.
Organic Matter %	Dry Weight	≥25 percent
pH	1:1 soil-distilled water suspension using a glass electrode pH meter American Society of Agronomy Methods of Soil Analysis, Part 2, 1986.	6.5 to 7.3
Ammonium	Extract	<200 PPM
Salinity	1:5 soil to water ratio extract	2.0 mmhos/cm (dS/m).
Nutrient Content	Extract	Total Nitrogen, Ammonium Nitrogen, Phosphorus, Potassium, Calcium, Magnesium, Sulfur, Calcium, Magnesium, Sodium, Iron, Aluminum, Manganese, Copper, Zinc.
Pathogens/Metals/ Vector Attraction	Extract	Meet all Federal and State of New York requirements for applications to soils with human activity.

Biological Organisms	Soil FoodWeb Analysis	Organism Biomass Data: Dry weight: 0.20 to 0.80 Active Fungi: > 3.00 µg/g Total Fungi: >300.00 µg/g Hyphal Diameter: > 2.50 µg/m Active Bacteria: > 3.00 µg/g Total Bacteria: > 300.00 µg/g Organism Biomass Ratios: AF:TB 0.01 to 10 AF:TF < 0.10 AB:TB < 0.10 AF:AB 0.01 to 10 Protozoa (Protists): # Flagellates: >10,000/g Nematodes: # Nematodes: >10.00/g

E. Soil Mixes:

a. General: Create soil mixes by blending sand, loam and compost component materials to achieve specification requirements. The Contractor is responsible for the time and cost associated with mixing the components, testing the mixes to meet the requirements of the final mix designs, and obtaining approval by the Engineer regardless of the time for, number of test mixes, or tests required to meet the requirements of this Specification. Approximate mixing ratios are provided for bidding purposes, will require adjustment by the Contractors' Soil Testing Laboratory, depending on the final component soil materials, and with the approval of the Engineer, in order to meet Specification requirements.

b. Horticultural Drainage Layer: Comply with requirements for sand as specified herein.

c. Horticultural Subsoil: Combine sand and Loam to create a uniform blend. Approximate mix ratios, based on the approved loam USDAS classification, are 3 : 1 Sand : Sandy Loam, 4 : 1 Sand : Loam or 5 : 1 Sand : Sandy Clay Loam. Adjust the blended soil mix to meet the following requirements:

i. Comply with environmental requirements of Environmental Remediation Programs, 6 NYCRR Part 375.
ii. pH: 6.5 - 7.3.
iii. Salinity: Electrical conductivity of a 1:2 soil to water extract, ≤ 1.50 mmos/cm (dS/m).
iv. Saturated hydraulic conductivity of the sand: ≥ 4 inches per hour, according to ASTM D5856, when compacted to a minimum of 90% Standard Proctor, ASTM 698.
v. Organic Matter (ASTM F 1647): 2-3%.
vi. Compaction (as measured by Penetrometer): Uniformly increasing with depth, penetration < 220 PSI (lbs./in$^{2)}$ after installation.
vii. No stones or coarse fragments over 1" in size.
viii. Particle size distribution shall be:

Particle Size Class	Passing Sieve No.	Range in % Passing (ASTM F 1632)
Fine Gravel	10	95 - 100
Very Coarse Sand	18	80 - 95
Coarse Sand	35	65 - 85
Medium Sand	60	30 - 40
Fine Sand	140	15- 25
Very Fine Sand	270	9 - 18
		Determined by hydrometer method (ASTM F 1632)
Silt		6 - 12
Clay		3 - 6

d. Planting Soil for Beds & Pits: Combine horticultural Subsoil and Compost to create a uniform blend. Approximate mix ratios which meets the following requirements are 3.5 : 1 Horticultural Subsoil : Compost. Adjust the blended soil mix to meet the following requirements:

i. Comply with environmental requirements of Environmental Remediation Programs, 6 NYCRR Part 375.
ii. pH: 6.5 - 7.3.
iii. Salinity: Electrical conductivity of a 1:2 soil to water extract, ≤ 1.50 mmos/cm (dS/m).
iv. Saturated hydraulic conductivity of the sand: ≥ 2 inches per hour, according to ASTM D5856, when compacted to a minimum of 90% Standard Proctor, ASTM 698.
v. Organic Matter ASTM F 1647): 6-8%.
vi. Compaction (as measured by Penetrometer): Uniformly increasing with depth, penetration < 140 PSI ($lbs./in^{2)}$ after installation.
vii. No stones or coarse fragments over 1" in size.
viii. Particle size distribution shall be:

Particle Size Class	Passing Sieve No.	Range in % Passing (ASTM F 1632)
Fine Gravel	10	95 - 100
Very Coarse Sand	18	90 - 95
Coarse Sand	35	65 - 85
Medium Sand	60	30 - 40
Fine Sand	140	15- 25
Very Fine Sand	270	9 - 18
		Determined by hydrometer method (ASTM F 1632)
Silt		6 - 12
Clay		3 - 6
Phosphorous (P)	Extract	20-100 PPM
Potassium (K)	Extract	200-600 PPM
Cation Exchange (CEC)	Extract	>8 Meq/100g

e. Planting Soil for Seeded and Sodded Lawns: Combine Horticultural Subsoil and Compost to create a uniform blend. Approximate mix ratios which meets the following requirements are 4 : 1 Horticultural Subsoil : Compost. Adjust the blended soil mix shall to meet the following requirements:

i. Comply with environmental requirements of Environmental Remediation Programs, 6 NYCRR Part 375.
ii. pH: 6.5 - 7.3.

iii. Salinity: Electrical conductivity of a 1:2 soil to water extract, ≤ 1.50 mmos/cm (dS/m).
iv. Saturated hydraulic conductivity of the sand: ≥ 2 inches per hour, according to ASTM D5856, when compacted to a minimum of 90% Standard Proctor, ASTM 698.
v. Organic Matter (ASTM F 1647): 3-5%.
vi. Compaction (as measured by Penetrometer): Uniformly increasing with depth, penetration < 140 PSI (lbs./in$^{2)}$ after installation.
vii. No stones or coarse fragments over 1" in size.
viii. Particle size distribution shall be:

Particle Size Class	Passing Sieve No.	Range in % Passing (ASTM F 1632)
Fine Gravel	10	95 - 100
Very Coarse Sand	18	90 - 95
Coarse Sand	35	65 - 85
Medium Sand	60	30 - 40
Fine Sand	140	15- 25
Very Fine Sand	270	9 - 18
		Determined by hydrometer method (ASTM F 1632)
Silt		6 - 12
Clay		3 - 6
Phosphorous (P)	Extract	20-100 PPM
Potassium (K)	Extract	200-600 PPM
Cation Exchange (CEC)	Extract	>8 Meq/100g

F. Soil Amendment Materials:

a. Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in amounts recommended to eliminate deficiencies of proposed planting soil mixes as indicated in test reports from the approved testing laboratory.

b. Lime: ASTM C 602, agricultural limestone containing a minimum 80 percent calcium carbonate equivalent and as follows:

i. Class: Class O, with a minimum 95 percent passing through No. 8 (2.36-mm) sieve and a minimum 55 percent passing through No. 60 (0.25-mm) sieve.

c. Sulfur: Granular, biodegradable, containing a minimum of 90 percent sulfur, with a minimum 99 percent passing through No. 6 (3.35-mm) sieve and a maximum 10 percent passing through No. 40 (0.425-mm) sieve.

d. Iron Sulfate: Granulated ferrous sulfate containing a minimum of 20 percent iron and 10 percent sulfur.

e. Aluminum Sulfate: Commercial grade, unadulterated.

G. Penetrometer:

a. Complete penetrometer testing with a penetrometer that complies with American Society of Agricultural Engineers (ASAE), S313.3 1999 (R 2018) Soil Cone Penetrometer standard. Subject to meeting this requirement, the following are acceptable penetrometer manufacturers:

i. Dickey-John Soil Compaction Tester, Dickey-John, Auburn, IL 62615, (217) 438-3371.

ii. Agratronix Soil Compaction Tester, Model 08180, Agratronix, Streetsboro, Ohio 44241, (800) 821-9542

iii. Turf-Tec, Model PN-Compi-S. Turf-Tec International, Tallahassee, FL 32303, 850-580-4026

iv. Agriculture Solutions Penetrometer, Agriculture Solutions, LLC, Strong ME,04983, (888) 683-8291

PK-ESCR 937.2.1. REFERENCES.

A. American Society for Testing and Materials (ASTM) Standards, Methods:

a. ASTM C 136-01: "Standard Test Method for Sieve Analysis of Fine and Course Aggregates" (Dry Sieving).

b. ASTM D 422-63 (2002): "Standard Test Method for Particle-Size Analysis of Soils" (Hydrometer).

c. ASTM D 698: "Standard Test Methods For Laboratory Compaction Characteristics of Soil Using Standard Effort" (Standard Proctor).

d. ASTM D 1556 Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method

e. ASTM D 3385 - 09 Standard Test Method for Infiltration Rate of Soils in Field Using Double-Ring Infiltrometer.

f. ASTM D 4972-01: "Standard Test Method For pH of Soils" using distilled water.

g. ASTM D 5856-15: "Standard Test Method for Measurement of Hydraulic Conductivity of Porous Material Using a Rigid-Wall, Compaction-Mold Permeameter.

h. ASTM D6938 - 08a "Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)"

i. ASTM F 1647-02a: "Standard Test Method For Organic Matter Content of Putting Green and Sports Turf Zone Mixes.

B. Soil Moisture Content shall be performed using Speedy Moisture Tester, Model 2000D.

C. Woods End Research Laboratory, Mt. Vernon, Maine: Solvita Manual, Version 4.

D. Recommended Soil Testing Procedures for the Northeastern United States, 3rd Edition, Northeastern Regional Publication No. 493, Agricultural Experiment Stations of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont and West Virginia, Revised, July 1, 2011 (NRP 493). Referenced document may be obtained on the web at:

http://extension.udel.edu/lawngarden/soil-health-composting/recommended-soil-testing-procedures-for-the-northeastern-united-states/

Tests include the following:

a. Test for soil Organic Matter by loss of weight on ignition, as described in NRP 493, pp. 63-74.
b. Test for soil CEC by exchangeable acidity method as described in NRP 493, pp. 75-86.
c. Test for soil Soluble Salts shall be by the 1:2 (v:v) Soil:Water Extract Method as described in NRP 493, pp.87-94.
d. Test for Buffer pH by the SMP method as described in NRP No. 493, pp. 19-25.

E. New York State Department of Environmental Conservation, Division of Solid and Hazardous Waste Materials:

a. Recycling of Organic Waste Through Composting, Land Application, and Other Means, 6 NYCRR Subparts 360-1 through 360-5.
b. Environmental Remediation Programs, 6 NYCRR Part 375

F. Code of Federal Regulations Title 40, Chapter I-Environmental Protection Agency:

a. 40 CFR Part 261 - Identification And Listing Of Hazardous Waste
b. 40 CFR Part 503 rule, Table 3, page 9392, Vol. 58 No. 32.

G. American Society of Agronomy

H. American Society of Agricultural Engineers (ASAE), S313.3 1999 (R 2018) Soil Cone Penetrometer standard.

I. U.S. Compost Council, Test Methods for the Examination of Composting and Composts.

PK-ESCR 937.2.2. SUBMITTALS.

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

a. Submit most recent printed information from manufacturer.

i. Sand: identify the source area and prior land use.
ii. Loam: identify the source area and prior land use.
iii. Compost: identify the material(s) from of which is it composed and identify the location where material was composted.
iv. Soil Amendments:

1. Ground Limestone:
2. Agricultural limestone:
3. Agricultural Elemental Sulfur:
4. Agricultural Aluminum Sulfate

b. Data for the sand, loam and compost shall be no older than 30 days from date of the submittal submission.

c. Data for the Penetrometer to be used for in-place soil compaction testing.

d. Horticultural Soil Installation Equipment Specification Data showing low-ground pressure compliance of installation equipment.

B. Qualification Data:

a. Soil material supplier, including:

i. Provide soil material supplier number of years of experience, list of previous projects including project name, a contact name, phone number, and the number of cubic yards per each installation and a brief description of the project.

ii. Location where the planting soil mixes and component materials will be mixed and stockpiled including available soil mixing and stockpiling area.

b. Submit qualifications of Soil Testing Laboratory to be utilized for soil testing, including the resume of the staff anticipated to perform the required work of the project.

c. Submit qualifications of Field Quality Control Testing Laboratory and laboratory staff to be utilized for in-place soil compaction testing, including the resume of the staff anticipated to perform the required work of the project.

C. Material Test Reports:

a. General: Submit written reports of each sample tested. Include with each test report the following as a minimum and such other information required specific to material tested:

i. Date issued.

ii. Project Title, names of Contractor and supplier.

iii. Testing laboratory name, address and telephone number, and name(s), as applicable, of each field and laboratory inspector.

iv. Date, place, and time of sampling or test, with record of temperature and weather conditions.

v. Location of material source.

vi. Name and protocol of test performed.

1. Sand and Loam Test Reports: Results of tests including identification of deviations from specified ranges. Identify any toxic substance(s) harmful to plant growth or life. Recommendations for soil amendments, mix proportions, and methods of preparation, as applicable to specifications herein.

2. Compost Test Reports: Results of tests including identification of deviations from specified ranges. Identify any toxic substance(s) harmful to plant growth or life.

b. Provide resubmissions of material samples with a matching material test report.

c. Missing information, failure to use the specified testing protocol, or failure to supply a material sample as specified with the test report shall be grounds for rejection.

d. Complete lab test reports submitted for approval by the Engineer no more than four (4) weeks (28 days) from date of sample collection and submittal for approval.

e. Contractor is responsible for all costs associated with laboratory testing.

f. Component Material Test Reports: Submit test reports with each sample of sand, topsoil, and compost for approval. Resubmissions of test reports shall be accompanied by a matching material sample.

i. Provide the following testing for Sand:

1. Sieve and Hydrometer Analysis and Evaluation
2. pH
3. Saturated hydraulic conductivity
4. Salinity
5. Environmental Testing Compliance
6. Test Frequency: As required to receive approval from Engineer

ii. Provide the following testing for Loam:

1. Sieve and Hydrometer Analysis and Evaluation
2. pH
3. Buffer pH
4. Cation Exchange Capacity
5. Soluble Salts
6. Nutrient Content (Total Nitrogen, Ammonium Nitrogen, Phosphorus, Potassium, Calcium, Magnesium, Sulfur, Calcium, Magnesium, Sodium, Iron, Aluminum, Manganese, Copper, Zinc)
7. Organic Content
8. Saturated hydraulic conductivity
9. Salinity
10. Nutrient Content
11. Environmental Testing Compliance
12. Test Frequency: As required to receive approval from Engineer

iii. Provide the following Testing for Compost:

1. Feedstock
2. Carbon/Nitrogen Ration (C/N)
3. Degree of Maturity
4. Texture (Particle Size)
5. Organic Content (%)
6. pH
7. Buffer pH
8. Cation Exchange Capacity
9. Soluble Salts
10. Nutrient Content (Total Nitrogen, Ammonium Nitrogen, Phosphorus, Potassium, Calcium, Magnesium, Sulfur, Calcium, Magnesium, Sodium, Iron, Aluminum, Manganese, Copper, Zinc)
11. Moisture Content
12. Pathogens/Metals/Vector Attraction
13. Biological Organisms
14. Test Frequency: As required to receive approval from Engineer

g. Soil Mix Test Reports: Submit soil mix test reports with each sample of horticultural drainage material, horticultural subsoil, planting soil for bed & pits, and planting soil for seeded and sodded lawns for approval. Provide resubmissions of test reports with a matching material sample.

i. Provide the following testing for each soil mix:

1. Sieve and Hydrometer Analysis and Evaluation
2. pH
3. Organic Content
4. Salinity

5. Nutrient Content
6. Environmental Testing Compliance
7. Test Frequency: As required to receive approval from Engineer.

h. Off-Site Stockpile Environmental Test Reports:

i. Provide the following Off-Site Stockpile Environmental testing:

1. Environmental chemical analysis of all proposed horticultural soil mixes shall include USEPA Standard Test Methods for determination of total contaminant concentrations for the complete list of 6 NYCRR Part 375-6.8b parameters for Restricted Use Soil Cleanup Objectives - Residential category. Perform analysis of the horticultural soil mixes in accordance with USEPA Methods SW846; 8260 for Volatile Organics, 8270 for Semi-Volatile Organics, 8081 for Pesticides, and 8082 for Polychlorinated Biphenyls (PCBs), and 6010 for Metals.
2. Demonstrate materials meet NYSDEC Part 375 RURR SCOs and do not exceed hazardous waste characteristic criteria (40 CFR Part 261).
3. Provide a PDF of the lab report and an excel table comparing the fill material to the NYSDEC Part 375 RURR SCOs. Should the horticultural mixes possess hazardous or contaminated characteristics, refer to the APPEAL PROCESS section below.
4. Test Frequency:
    a. Every 400 Cubic Yards for the first 5,000 yards of each soil mix produced.
    b. Every 1,000 Cubic Yards of each soil mix produced thereafter.

i. Off-Site Stockpile QA/QC Test Reports: Once the planting soil mixes are approved, the supplier may begin stockpiling soil mixes. Ensure consistency (QA/QC) of mixes in stock-piles by periodic testing. Provide stockpile tests as indicated or as additionally requested by the Engineer. Provide test reports with a matching soil mix sample. The Engineer reserves the right for Engineer to reject, on or after delivery, any material which does not, in the Engineer's opinion, meet these specifications.

i. Provide the following testing for Off-Site Stockpile QA/QC Testing:

1. Sieve and Hydrometer Analysis and Evaluation
2. pH
3. Organic Content
4. Salinity
5. Test Frequency: One test per 2,000 cubic yards of each mix produced for off-site stockpiling.

j. In-Place Soil Compaction Test Reports: Scale plan showing test locations and results for each test at horticultural subsoil and planting soil installation. Indicate test results showing compliance at each testing location.

D. Samples:

a. Verification of Soil Components: Submit to the Engineer for distribution with complete soil testing results showing compliance with requirements:

i. Sand: Three (3) 1 quart samples in sealed labeled bags.
ii. Topsoil: Three (3) 1 quart samples in sealed labeled bags.
iii. Compost: Three (3) 1 quart samples in sealed labeled bags.
iv. Resubmissions of soil component samples shall be accompanied by a matching material test report.

b. Verification of Soil Mixes: Submit to the Engineer for distribution with complete soil testing results showing compliance with requirements:

i. Horticultural Drainage Material: Three (3) 1 quart samples in sealed labeled bags.
ii. Horticultural Subsoil: Three (3) 1 quart samples in sealed labeled bags.
iii. Planting Soil for Beds & Pits: Three (3) 1 quart samples in sealed labeled bags.
iv. Planting Soil for Seeded and Sodded Lawns: Three (3) 1 quart samples in sealed labeled bags.
v. Resubmissions of verification of soil mix samples shall be accompanied by a matching material test report.

c. Stockpile QA/QC Samples: Submit to the Engineer with complete soil testing results showing compliance with requirements. Demonstrate consistency of soil mixes with the corresponding approved mix soil test. If, in the opinion of the Engineer, off-site stock-pile testing is not consistent with the approved mix, Contractor shall abandon the stockpile and remix soils for a new stockpile, making adjustments as recommended by Contractor's testing lab and as approved by the Engineer.

i. Horticultural Drainage Material: Three (3) 1 quart samples in sealed labeled bags submitted to the Engineer for distribution.
ii. Horticultural Subsoil: Three (3) 1 quart samples in sealed labeled bags submitted to the Engineer for distribution.
iii. Planting Soil for Beds & Pits: Three (3) 1 quart samples in sealed labeled bags submitted to the Engineer for distribution.
iv. Planting Soil for Seeded and Sodded Lawns: Three (3) 1 quart samples in sealed labeled bags.
v. The Contractor, as often as requested by the Engineer, shall submit three (3) quart bags of each planting soil mix material with the matching material test report for each stockpile sample taken.
vi. Resubmissions of stockpile samples shall be accompanied by a matching material test report.

d. Site-Delivered QA/QC Samples: Submit as often as requested by the Engineer three (3) quart bags of each planting soil mix or material delivered to the site with the matching material test report for each stockpile sample taken. Provide resubmissions of samples with a matching material test report.

E. Planting Soil Quality Assurance Plan: Prepare a Planting Soil Quality Assurance Plan demonstrating Contractor's approach to sourcing planting soil, mixing, stockpiling, testing, tracking and delivery. Submit to Engineer for Approval prior to the start of soil sourcing work.

F. Material Delivery Tickets: Each barge or truck load of Horticultural Soil Material must be accompanied by a delivery ticket indicating the date of loading, volume of material, horticultural soil type and off-site stockpile source number it has been taken from. Provide

a copy of each delivery ticket to the Engineer prior to unloading.

PK-ESCR 937.2.3. QUALITY ASSURANCE.

A. Horticultural Soil Supplier: A supplier with sufficient experience in the supply and custom blending of soil components and mixes of similar types and volumes specified and indicated on the Drawings including, the creation of custom sand-based manufactured soils for similar landscape applications or golf course applications whose work has resulted in successful establishment of plants.

   a. Subject to meeting the requirements, the following are acceptable horticultural soil suppliers:

      i. Advanced Soil Technologies, Brick, NJ 08723, (732) 840-1700 www.advancedsoiltechnologies.com
      ii. GreenPro Materials, Div. of Tri-State Materials LLC, Bound Brook, NJ 08805, (908) 647-0159 www.greenpromaterials.com
      iii. Braen Supply, Haledon, NJ 07508, (973) 556-2698 www.braensupply.com
      iv. Cedar Hill Landscaping, Somerset, NJ 08873, (732) 469-1400 www.cedarhilllandscaping.com

B. Soil Testing Laboratories: An independent soil testing laboratory with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed and capable of making soil recommendations, and issuing reports as specified herein, including the ability to make recommendations about soil blending ratios and methods, amendment recommendations, and issuing reports as specified herein.

   a. Verify Testing Laboratories have the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed and capable of making soil recommendations, and issuing reports as specified herein.

   b. Horticultural Testing Laboratories: Subject to meeting the requirements, the following are acceptable horticultural testing laboratories:

      i. Physical and Chemical Testing of Soils:

         1. McNitt & SerenSoil Testing, LLC, State College, PA, (610) 360-5985.
         2. Turf & Soil Diagnostics – NY, Trumansburg, NY, (855) 769-4231.
         3. University of Massachusetts Soil and Plant Tissue Testing Lab, Amherst, MA, (413) 545-2311.
         4. Approved Equal.

      ii. Compost Testing:

         1. Soil FoodWeb New York, Center Moriches, NY 11716, (631) 750-1553.
         2. Penn State Analytical Services Lab, University Park, PA, (814) 863-0841.
         3. Woods End Research Laboratory, Mt. Vernon, ME, (207) 293-2457.
         4. AgroLab Harrington, DE 19952, (302) 566-6094.
         5. A&L Great Lakes Lab, Fort Wayne, IN 46080, (260) 483-4759.

iii. Biological Testing:

1. Soil Food Web New York, Center Moriches, NY 11716, (631) 750-1553.
2. Harrington Organics, Bloomfield, CT 06021, (800) 675-8733.
3. Foothill Biological Soil Health Services, Grass Valley, CA 95945, (530) 648-0694.
4. Earthfort, Corvallis, OR 97333, (541) 257-2612.

c. Environmental Testing Laboratories: a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified laboratory

i. For a list of NYSDOH ELAP-certified laboratories see: https://www.wadsworth.org/regulatory/elap/certified-labs

C. Monthly Inspections of Off-Site Stock Piles:

a. The Engineer will inspect off-site stock piles monthly for compliance with these specification. Provide and pay for transportation for the Engineer or the Engineer's representatives to and from off-site stock pile facility locations and access to stock piles as required.

D. Horticultural Soil Installation Equipment:

a. Utilize light-weight, low-ground pressure equipment that makes us of wide tracks or low inflation tires that will not exert a ground pressure greater than four (4) PSI.

E. Horticultural Soil Profile Mock-Ups:

a. Prior to the start of horticultural soil installation, complete an on-site mock-up of each planting soil profile with all required layers.
b. Mock-up size: a minimum of 15' x 15' fully installed and tested, indicating compliance with requirements to the satisfaction of the Engineer.
c. Install mock-ups with the actual crews intended for the installation using the actual equipment to be used for the installation, as approved by submittals.
d. Successful mock-ups may remain in place as part of finished work as permitted by the Engineer.

F. In-place Soil Testing: Test in-place Horticultural Soils with a third party testing lab employed by and paid for by the Contractor. Complete penetrometer testing frequency in accordance with "Field Quality Control" herein.

a. Comply with the following instructions when using a penetrometer:

i. Avoid taking measurements when soil is too wet or too dry. Soil moisture at or slightly drier than field capacity is best.
ii. The penetrometer should be inserted at a constant rate of 1.2 inches/sec (3 cm/sec). Small variations will not affect the reading. Starting and stopping also will not affect the reading.
iii. Insert the soil penetrometer smoothly without jerking motions. A jerking motion will result in erroneous measurements.
iv. Measure subsoil to the depth shown on the Drawings less 3 inches.
v. Measure planting soil to the full depth shown on the Drawings.
vi. Stop insertion if soil readings exceed specified resistance and record measurement.

vii. Continue penetration to depth required and record final penetration reading.

PK-ESCR 937.2.4. DELIVERY, STORAGE, AND HANDLING.

A. Offsite Stockpile Maintenance:

a. Stockpile horticultural soil component materials and planting soil mixes without intermixing.
b. Do not store off-site stockpiled materials in mounds greater than six (6) feet high. Turn stockpiles at a minimum every two (2) weeks to prevent anaerobic conditions. Place, grade, and shape stockpiles to drain surface water.
c. Cover stockpiles with a breathable fabric to prevent windblown dust and protect from erosion. Do not cover stockpiles with plastic.
d. Protect stockpiles from contamination from other materials, from erosion and deposition of water and wind borne materials of any kind.
e. Prohibit vehicular and pedestrian traffic on stockpiled materials.

B. Accessory and Packaged Materials:

a. Store and handle packaged materials in strict compliance with manufacturer's instructions and recommendations. Protect all materials from weather, damage, injury and theft.

C. Bulk Materials:

a. Sequence deliveries to avoid delay. On-site storage space is permissible only with written notice from the Engineer. Coordinate material deliveries only after preparations for placement of planting soil have been completed.

b. Stockpile on-site horticultural soil component materials and planting soil mixes without intermixing.

c. Do not store on-site stockpiled materials in mounds greater than six (6) feet high. Turn stockpiles at a minimum every two (2) weeks to prevent anaerobic conditions. Place, grade, and shape stockpiles to drain surface water.

d. Cover stockpiles with a breathable fabric to prevent windblown dust and protect from erosion. Do not cover stockpiles with plastic.

e. Protect stockpiles from contamination from other materials, from erosion and deposition of water and wind borne materials of any kind.

f. Prohibit vehicular and pedestrian traffic on stockpiled materials.

D. Environmental Requirements:

a. Do not handle, mix, haul, or deliver Horticultural Soils or component materials when excessively dry, wet, or frozen, or during or immediately after a heavy rainfall. Handle soil materials and components only when the moisture content is less than or equal to the optimum water content as determined for the Standard Proctor test. If the soil glistens or free water is observed when the sample is patted in the palm of hand, the soil is too wet and shall not be worked. The Engineer shall determine if the soil is too wet to handle.

b. Apply water to Horticultural soils, if necessary, or allow Horticultural Soils to dry to bring soil moisture between 60% of optimum moisture content on the dry side of optimum and optimum moisture content as determined by ASTM D698 for mixing. The Speedy Moisture Tester can be used to determine soil moisture on stockpiled

soils. The Contractor shall coordinate procedures to allow for drying and mixing of planting soils that exceed maximum allowable moisture contents.

E. Delivery And Approval:

a. Notify the Engineer a minimum of 48 hours prior to the intended horticultural soil delivery dates.

b. Provide a delivery ticket for each truck or barge delivery of horticultural soils indicating the date of loading, volume of material, horticultural soil type and off-site stockpile source number it has been taken from.

c. Horticultural soil materials delivered by barge or in trucks will be subject to visual inspection and additional testing as deemed necessary by the Engineer. The Engineer reserves the right to reject on or after delivery any material that does not, in their opinion, meet the limitations of this specification and approved samples, test reports and off-site stock pile inspections. Do not install horticultural soil materials until the Engineers' inspection, sampling and/or testing is completed, unless otherwise directed by the Engineer.

d. Where horticultural soil is rejected, immediately remove rejected materials from the site. Where it has been determined by the Engineer that soil amendments are allowable, the correction shall be made at the Contractor's expense. Additional testing after amending shall also be at the Contractor's expense.

e. Perform on-site horticultural soil testing with the original testing laboratories used to achieve the initial component and soil mix approvals, unless otherwise noted by the Engineer.

F. Appeal Process:

a. Horticultural Soil Testing: The Engineer shall visually check for discrepancies between the delivered soil and the approved submittal and sample. If the Engineer suspects that the topsoil delivered to the site has excessively high levels of organic matter, clay, etc. that would not be within the allowable levels listed in this specification, the soil will be rejected until additional testing proves otherwise. Should the Contractor contest the Engineer's determination, the Engineer will take samples so additional tests may be performed at Contractor's expense. These results shall be considered final.

b. Environmental Testing: The Engineer shall check for discoloration and evidence of unacceptable contents or signs of potential contamination. If the Engineer suspects that the fill possesses hazardous or contaminated characteristics, it will be rejected. Should the Contractor contest the Engineer's determination, the Engineer will take samples so additional tests may be performed at Contractor's expense at a laboratory certified by the NYSDOH ELAP for the selected analytical method.

i. Environmental testing of all horticultural soil mixes shall include, but not be limited to, USEPA Standard Test Methods for determination of total contaminant concentrations for the complete list of 6 NYCRR Part 375-6.8 parameters. Analysis of the horticultural soil mixes shall be performed by USEPA Methods SW846; 8260 for Volatile Organics, 8270 for Semi-Volatile Organics, 8081 for Pesticides, and 8082 for Polychlorinated Biphenyls (PCBs), and 6010 for Metals. Other hazardous waste characteristic tests may include those for ignitability, corrosivity, and

reactivity, as deemed required by the Engineer.

ii. As specified in MATERIALS above, clean fill shall meet NYSDEC Part 375 RURR SCOs and not exceed hazardous waste characteristic criteria (40 CFR Part 261). If the clean fill fails, then the Contractor shall be responsible for:

1. Payment of fees for services of the NYSDOH ELAP certified lab;
2. Removal and legal disposal of unacceptable fill;
3. Replacement with acceptable clean fill; and,
4. All other expenses, as well as potential fines that may be incurred.

PK-ESCR 937.2.5. COORDINATION, SEQUENCING AND SCHEDULING.

A. General: Coordinate the production, stockpiling, and delivery of horticultural soils to the project site in accordance with the Project Schedule as provided and regularly updated by the Engineer.

B. Coordinate horticultural soil installation with subsequent biochar and planting operations so as to not compact horticultural soils by planting operations.

C. Project Schedule: Coordinate with the soil supplier in order for the delivery schedules to be in sync with phased and sequenced site construction and planting schedules. Coordination shall include but not be limited to:

a. Provide Engineer monthly access for inspection at the off-site soil mixing and stockpile locations.

b. Testing and approval of soil component and planting mix materials at the indicated frequency.

c. Availability of stockpiled horticultural soils in sufficient quantities to keep pace with installation schedules

d. Delivery times, including overtime and night time deliveries occurring outside the Soil Supplier's regularly scheduled work week.

e. Project site delivery methods by either barge or truck.

f. Installation and protection of Horticultural Planting Soils in a manner that prevents compaction during subsequent planting operations.

D. Estimated Soil Sourcing and Mix Design Approvals: Plan for adequate time for the sourcing, testing and approval of planting soil component materials and mixes. **The sourcing, testing and approval of soil mix components as well as the design, approval and stockpiling of soil mixes can take six months or more depending upon seasonal conditions and quality of materials sourced.** Do not deliver Horticultural Soil materials and Mixes to the site without prior approval by the Engineer.

E. Estimated Soil Testing Durations: The following soil testing durations are provided as a guide for the contractor to be able to bid the project based on a realistic schedule. Actual testing durations may vary depending upon the contractors' ability to send materials to their approved testing lab, the testing labs' ability to complete multiple testing protocols simultaneously, the testing lab's ability to manage high seasonal demands for soil testing, and the ability of the contractor to deliver test reports as required.

a. Soil component materials: Sand, Topsoil, and batch quantities of Planting Soil Mixes testing and reporting is estimated to take five (5) to ten (10) business days per sample including the following tests:

   i. dry and wet sieving
   ii. Hydrometer
   iii. nutrient content
   iv. Ph
   v. organic matter content
   vi. soluble salts
   vii. saturated hydraulic conductivity

b. Final Planting Soil Mixes, in stockpile quantities after initial soil mix approvals, testing and reporting is estimated to take five (5) to ten (10) business days per sample including the following tests:

   i. dry and wet sieving
   ii. Hydrometer
   iii. nutrient content
   iv. pH
   v. organic matter content
   vi. soluble salts
   vii. saturated hydraulic conductivity

c. Compost testing is estimated to take 21 to 28 business days per sample including the following tests:

   i. C:N ratio
   ii. Maturation test
   iii. pH
   iv. Organic matter content
   v. Salinity
   vi. Pathogens/Metals/Vector Attraction
   vii. Nutrient content
   viii. Biological Organisms

d. Biological testing of final approved Planting Soil Stockpiles is estimated to take 14-18 business days.

e. Environmental testing is estimated to take 18-24 business days.

PK-ESCR 937.3. METHODS

A. Examination and Preparation:

   a. Notify the Engineer of soil placement operations at least seven calendar days prior to the beginning of work.
   b. Verify that the locations of utilities, structures and other underground items have been clearly marked.
   c. Verify that the plumbing for the irrigation system main lines have been installed and accepted by the Engineer.
   d. Verify that the underdrainage system has been installed and accepted by the Engineer.
   e. Verify that the subgrade elevations meet required elevations and have been accepted by the Engineer.

f. Before proceeding with work, notify the Engineer in writing of unsuitable conditions and conflicts.

B. Installation – General

a. Do not move or work planting soils when it is a wet or frozen condition. In all cases, the soil being placed shall be in a dry to damp condition with a moisture content not greater than optimum as determined by the Standard Proctor test. No wet soils shall be placed.
b. Place Horticultural Drainage Material, Horticultural Subsoil, Planting Soil for Beds and Pits and Planting Soil for Seeded and Sodded Lawn Areas in lifts compacted to meet profiles indicated on the Drawings.
c. Form transition layers between soil types and lifts with a light scarification of the horticultural soil surface prior the installation of each subsequent lift is required to break up any compacted surface and eliminate a compaction interface.
d. Prevent over compacted soils by beginning the work against walls or pavement edges, or in the center of planting beds or lawn area, and progressing outwards towards the borders. Place barricades as required to prevent any unnecessary compaction of planting soil from vehicles, equipment, or pedestrian traffic. Remove or restore to compliant conditions placed planting soils exhibiting noncompliant compaction values.

C. Planting Soil Mock-Up:

a. Prior to the start of horticultural soil installation, comply with mock-up requirements for each indicated soil profile as described in Quality Assurance section of this specification.

D. Subgrade Preparation:

a. After subgrade levels have been inspected and tested, and immediately prior to placing Horticultural Soils, scarify subgrade that the planting soil is placed upon to a minimum depth of four inches utilizing a toothed bucket of a backhoe or equivalent equipment.

E. Horticultural Drainage Layer Installation:

a. Install Drainage layer over the scarified existing or prepared subgrade where indicated on the Drawings.

b. Install Horticultural Subsoil with approved low-ground pressure equipment.

c. Install Drainage layer in one six (6) inch lift. Compaction the drainage layer with light tamping by installers foot traffic. Do not mechanically compact the drainage layer.

F. Horticultural Subsoil Installation:

a. Place and spread Horticultural Subsoil over the Drainage Layer or on the scarified subgrade as indicated on the Drawings.
b. Install Horticultural Subsoil with approved low-ground pressure equipment.
c. Do not back-blade Horticultural Subsoil as it will contribute to over compaction.
d. Light foot traffic and low-ground pressure equipment is allowable for placing subsequent lifts and is needed to seat the soil layers within the profile, reducing overall subsidence.

e. Lightly scarify of the surface of each lift with hand tools to break up any compacted surface and eliminate any compaction interface. Higher trafficked areas will require greater amounts of scarification as determined by the Engineer.

f. Reducing the amount of compaction to the soils can be accomplished by beginning the work in corners, against walls or at the center of isolated beds and progressing outwards. This approach limits the amount of traffic needed for installation on the placed soil.

g. Penetration resistance of installed Horticultural Subsoil as measured by the Engineer shall not exceed 220 PSI. Horticultural subsoil shall be uniformly increasing in density with depth. There shall not be any compacted layers (readings exceeding 290 PSI) within the soil profile. If readings of over 220 PSI are discovered, the Engineer shall take additional readings as required to determine if the soil is overly compacted.

h. Decompact Horticultural Subsoil tested at 2200 PSI or higher as directed by the Engineer to obtain an installation that does not exceed readings of 220 PSI.

i. Place and spread Horticultural Planting Soil to a depth greater than required such that after settlement, finished grade conforming to the lines, grades and elevations shown on the Drawings. Ensure proper drainage in an uninterrupted pattern free of hollows and pockets.

j. Remove stiff clods, lumps, brush, roots, stumps, litter and other foreign material and stones over one inch in diameter as discovered during operations and dispose of legally off site.

G. Seeded and Sodded Lawn Area Soil Mix Installation:

a. Lightly scarify of the surface of the Horticultural Subsoil with hand tools to break up any compacted surface and eliminate any compaction interface. Higher trafficked areas will require greater amounts of scarification as determined by the Engineer.

b. Install Planting Soil over the prepared Horticultural Subsoil to the depths indicated on the Drawings.

c. Install Planting Soil with approved low-ground pressure equipment.

d. Do not back-blade Horticultural Subsoil as it will contribute to over compaction.

e. Light foot traffic and low-ground pressure equipment is allowable for placing subsequent lifts and is needed to seat the soil layers within the profile, reducing overall subsidence.

f. Lightly scarify of the surface of each lift with hand tools to break up any compacted surface and eliminate any compaction interface. Higher trafficked areas will require greater amounts of scarification as determined by the Engineer.

g. Penetration resistance of installed Horticultural Subsoil as measured by the Engineer shall not exceed 140 PSI. Horticultural subsoil shall be uniformly increasing in density with depth. There shall not be any compacted layers (readings exceeding 290 PSI) within the soil profile. If readings of over 140 PSI are discovered, the Engineer shall take additional readings as required to determine if the soil is overly compacted.

h. Decompact Horticultural Subsoil as directed by the Engineer to obtain an installation that does not exceed readings of 140 PSI.

i. Place and spread Horticultural Planting Soil to a depth greater than required such that after settlement, finished grade conforming to the lines, grades and elevations shown on the Drawings. Ensure proper drainage in an uninterrupted pattern free of hollows and pockets.

j. Remove stiff clods, lumps, brush, roots, stumps, litter and other foreign material and stones over one inch in diameter as discovered during operations and dispose of legally off site.

H. Planting Bed Soil Mix Installation:

a. Lightly scarify of the surface of the Horticultural Subsoil with hand tools to break up any compacted surface and eliminate any compaction interface. Higher trafficked areas will require greater amounts of scarification as determined by the Engineer.

b. Install Planting Soil over the prepared Horticultural Subsoil to the depths indicated on the Drawings.

c. Install Planting Soil with approved low-ground pressure equipment.

d. Do not back-blade Horticultural Subsoil as it will contribute to over compaction.

e. Light foot traffic and low-ground pressure equipment is allowable for placing subsequent lifts and is needed to seat the soil layers within the profile, reducing overall subsidence.

f. Lightly scarify of the surface of each lift with hand tools to break up any compacted surface and eliminate any compaction interface. Higher trafficked areas will require greater amounts of scarification as determined by the Engineer.

g. Penetration resistance of installed Horticultural Subsoil as measured by the Engineer shall not exceed 140 PSI. Horticultural subsoil shall be uniformly increasing in density with depth. There shall not be any compacted layers (readings exceeding 290 PSI) within the soil profile. If readings of over 140 PSI are discovered, the Engineer shall take additional readings as required to determine if the soil is overly compacted.

h. Decompact Horticultural Subsoil as directed by the Engineer to obtain an installation that does not exceed readings of 140 PSI.

i. Place and spread Horticultural Planting Soil to a depth greater than required such that after settlement, finished grade conforming to the lines, grades and elevations shown on the Drawings. Ensure proper drainage in an uninterrupted pattern free of hollows and pockets.

j. Remove stiff clods, lumps, brush, roots, stumps, litter and other foreign material and stones over one inch in diameter as discovered during operations and dispose of legally off site.

I. Finished Grading: Grade to finished grades indicated within 0.10 foot. Grade areas to drain water away from buildings or walls or other vertical structures and to provide suitable surfaces for mowing machines. Existing grades which are to remain but are disturbed by the Contractor's operations shall be restored.

J. Protection:

a. Select equipment and otherwise phase the installation of the planting to ensure that wheeled equipment does not travel over prepared horticultural subsoil or planting soil. Movement of tracked equipment over said soils will be reviewed and considered for approval by the Engineer. If it is determined by the Engineer that wheeled equipment must travel over already installed planting soil, provide a written description of sequencing of work that ensures that compacted soil is loosened and un-compacted as the work progresses or place 3/4" plywood over the length and width of any travel way to cover planting soil to protect it from compaction.

b. Disturbed areas outside the limit of work shall be protected and as required, graded smooth and spread with planting soil to meet finished grades.

c. Protect installed Horticultural Soils from wind and water erosion. Comply with soil and erosion control requirements specified under separate items.

d. Repair soil profiles where wind or water erosion has occurred to the satisfaction of the Engineer.

K. Final Acceptance:

a. Confirm that the final grades of the Soils are at the proper finish grade elevations. Adjust grade with approved materials as required to meet the contours and spot elevations noted on the Plans. Request the presence of the Engineer to inspect final grade. Do not proceed with the remaining work of this Contract until the Engineer has given written approval of the final grade.

b. Protect areas of in-place soil from additional compaction, disturbance, and contamination. Prohibit the following practices within these areas except as required to perform planting operations:

i. Storage of construction materials, debris, or excavated material.
ii. Parking vehicles or equipment.
iii. Vehicle traffic.
iv. Foot traffic.
v. Erection of sheds or structures.
vi. Impoundment of water.
vii. Excavation or other digging unless otherwise indicated.

c. If planting soil or subgrade is over compacted, disturbed, or contaminated by foreign or deleterious materials or liquids, remove the planting soil and contamination; restore the subgrade as directed by Engineer and replace contaminated planting soil with new planting soil.

L. Cleaning:

a. Protect areas adjacent to planting-soil preparation and placement areas from contamination.
b. Keep adjacent paving and construction clean and work area in an orderly condition.
c. Remove surplus soil and waste material including excess subsoil, unsuitable materials, trash, and debris and legally dispose of them off Owner's property unless otherwise indicated.

M. Post-Installation Biochar amendment: In accordance with Bid Item PK-ESCR – 945 BIOCHAR.

N. Post-Installation Compost Tea Applications: In accordance with Bid Item PK-ESCR – 951 COMPOST TEA.

PK-ESCR 937.4. FIELD QUALITY CONTROL

A. Field Quality Control:

a. Testing Agency: Engage a qualified testing agency to perform field quality control tests and inspections.

b. Perform the following tests and inspections:

i. In-place Compaction Testing with Penetrometer: As indicated under "Quality Assurance" herein. Complete in-place soil testing using a hand held penetrometer at a rate of one point every 1,000 square feet for installed horticultural soil prior to covering with planting soil and one point every 1,000 square feet for installed planting soil for beds and pits or seeded & sodded lawn areas.

ii. Compaction Testing: In addition to penetrometer testing, test in-place density for horticultural soil materials shall be made according to ASTM D1556 or ASTM D6938-08a. Compaction tests shall be conducted each 20,000 square feet for each soil type layer after each soil type has been placed, as directed by the Engineer. The engineer may direct additional testing in locations subject to compaction or adverse Contractor operations.

iii. Percolation testing: Test percolation of all Planting Soils using Turf-Tec IN2-W Infiltrometer utilizing manufacturer's operating instructions. Percolation tests shall be conducted each 20,000 square feet for each soil type after each soil type has been placed, as directed by the Engineer. The engineer may direct additional testing in locations subject to compaction or adverse Contractor operations. Remove or restore to compliant conditions placed planting soils exhibiting noncompliant percolation values.

c. Prepare test and inspection reports.

d. Label each test report with the date, location keyed to a site plan or other location system, visible conditions when and where sample was taken, and sampling depth.

e. Soil installation will be considered defective if it does not pass tests and inspections.

f. Make corrections as directed by the Engineer and re-test until compliance with the requirements is achieved.

PK-ESCR 937.5. MEASUREMENT.

A. PER LUMP SUM

Payment for SOURCING AND APPROVAL OF COMPONENT MATERIALS, APPROVAL OF PLANT SOIL MIXES, and FIRST PHASE STOCKPILING OF SOIL MATERIALS will be made on a Lump Sum basis for work satisfactorily completed. Monthly payments will be made in proportion to the amount of work done as determined by the Engineer.

B. PER CUBIC YARD

Payment for the quantity of HORTICULTURAL DRAINAGE LAYER, HORTICULTURAL SUBSOIL, PLANTING SOIL FOR BEDS & PITS, or PLANTING SOIL FOR SEEDED & SODDED LAWN AREAS, TOPDRESSING to be paid for shall be the number of cubic yards delivered to the project site by barge or truck as verified by the Engineer prior to unloading. No payment will be made for HORTICULTURAL DRAINAGE LAYER, HORTICULTURAL SUBSOIL, PLANTING SOIL FOR BEDS & PITS, or PLANTING SOIL FOR SEEDED & SODDED LAWN AREAS not delivered to the project site.

PK-ESCR 937.6. PRICES TO COVER

A. The Lump Sum (LS) contract price for

Item No. PK-ESCR 937 CM SOURCING AND APPROVAL OF COMPONENT MATERIALS

covers the cost of all labor, materials, equipment, insurance, and incidentals required for the sourcing horticultural soil component materials including Engineer approved submittal of qualified soil testing lab, and submittal of each component material showing compliance with the specifications, and a 50 CY stockpile of each soil component properly stored and stockpiled and inspected and approved by the Engineer.

B. The Lump Sum (LS) contract price for

Item No. PK-ESCR 937 PM APPROVAL OF PLANT SOIL MIXES

covers the cost of all labor, materials, equipment, insurance, and incidentals required for the sourcing, blending, testing, and stockpiling of Including a 500 CY stockpile of each soil material properly stored and stockpiled and approved by the Engineer including Engineer approved submittal documentation of mix design and batch testing showing compliance with the approved mix design at the first 250 CY and final 250 CY of each stockpiled soil material.

C. The Lump Sum (LS) contract price for

Item No. PK-ESCR 937 SP FIRST PHASE STOCKPILING OF SOIL MATERIALS

covers the cost of all labor, materials, equipment, insurance, and incidentals required for the sourcing, blending, testing, and off-site stockpiling of 1,000 CY each material properly piled and protected, and as inspected and approved by the Engineer, including Engineer approved submittal documentation showing batch testing showing compliance with each of the material requirements for each 1,000 CY of stockpiled material.

D. The contact prices per cubic yard (CY) for

Item No. PK-ESCR 937 A HORTICULTURAL DRAINAGE LAYER

Item No. PK-ESCR 937 B HORTICULTURAL SUBSOIL

Item No. PK-ESCR 937 C PLANTING SOIL FOR BEDS & PITS

Item No. PK-ESCR 937 D PLANTING SOIL FOR SEEDED & SODDED LAWN AREAS

Item No. PK-ESCR 942 TOPDRESSING

covers the cost of all labor, materials, equipment, insurance, and incidentals required for the component material sourcing, blending, testing, off-site stockpiling, coordination, sequencing and scheduling, delivery to the project site by truck or barge, on-site

stockpiling and handling, mock-ups, installation, compaction, de-compaction, in-place testing and post-installation maintenance and protection. Installation of Biochar and Compost Tea shall be paid for under separate items.

Payment will be made under:

Item No.	Item	Pay Unit
PK-ESCR 937 CM	SOURCING AND APPROVAL OF COMPONENT MATERIALS	LS
PK-ESCR 937 PM	APPROVAL OF PLANT SOIL MIXES	LS
PK-ESCR 937 SP	FIRST PHASE STOCKPILING OF SOIL MATERIALS	LS
PK-ESCR 937 A	HORTICULTURAL DRAINAGE LAYER	CY
PK-ESCR 937 B	HORTICULTURAL SUBSOIL	CY
PK-ESCR 937 C	PLANTING SOIL FOR BEDS & PITS	CY
PK-ESCR 937 D	PLANTING SOIL FOR SEEDED & SODDED LAWN AREAS	CY
PK-ESCR 942	TOPDRESSING	CY

END OF SECTION

SECTION PK-ESCR 943 – PARK SECURITY MEASURES

WORK: Under this item, the Contractor shall furnish, erect, and powder coat **PARK SECURITY MEASURES**, in accordance with the plans, specifications, and directions of the Engineer.

MATERIALS:

Unless otherwise herein specified, all materials of construction shall comply with General Conditions, "Materials and Methods of Construction".

PRODUCTS:

Fixed Bollard Type 1: K8 Rated Fixed Bollard with shallow mounted footing (Truckstopper 7 by Tymetal or equal) Address: SafetyFlex Anti Terrorist Barriers and distributed by Tymetal Corp., 678 Wilbur Avenue, Greenwich, NY 12834 – (800) 328 – 4283.

Fixed Bollard Type 2: K4 Rated Fixed Bollard with shallow mounted footing (Truckstopper 6 by Tymetal or equal) Address: SafetyFlex Anti Terrorist Barriers and distributed by Tymetal Corp., 678 Wilbur Avenue, Greenwich, NY 12834 – (800) 328 – 4283.

Security Gate: K8 Rated Gate, Terra Ultimate 180 Swing Barrier by Frontier Pitts or Equal Address: Crompton House,Crompton Way,Manor Royal Industrial Estate,Crawley,West Sussex RH10 9QZ

Removable Bollard: K8 Rated Bollard with shallow mounted footing (Truckstopper 7 by Tymetal or equal) Address: SafetyFlex Anti Terrorist Barriers and distributed by Tymetal Corp., 678 Wilbur Avenue, Greenwich, NY 12834 – (800) 328 – 4283.

SUBMITTALS: All submittals shall be submitted and approved prior to manufacture and in accordance with the requirements of the S-Pages.

Shop Drawings: The Contractor shall submit shop drawings no later than four (4) months prior to the scheduled completion of the project. The Contractor shall submit the following information if required by the Engineer : materials, finishes, supports, hardware, fastener fittings and accessories.

Deviations From Layout: Any deviations from the contract drawings must be submitted for review and approval by the Engineer.

ERECTION: The posts for bollards and gateshall be set in concrete footings as shown on the plans or as directed by the Engineer. The sleeves for removable bollards shall be set in concrete footings, as shown on the plans or as directed by the Engineer.

All posts and sleeves shall be set plumb and true to line and grade. Any post and sleeve not set true to line and grade shall be removed and replaced at the Contractor's expense. Bending posts to make them plumb will not be permitted.

POWDER COATING: All security measures items shall be powder coated with TGICPolyester. Color shall be black.

SUBMITTALS: All submittals shall be in accordance with the requirements of the S-Pages.

Shop Drawings: Before the work is started, the Contractor shall submit shop drawings for approval for all security measure items.

Design Mix report: The Contractor shall submit a concrete design mix report per the requirements of the Concrete for Structures Section 4.06.

MEASUREMENT AND PAYMENT: The quantity of **FIXED BOLLARD TYPE 1, FIXED BOLLARD TYPE 2, SECURITY GATE** and **REMOVABLE BOLLARD** to be paid for under these items shall be the number furnished and installed in accordance with the plans, specifications, and directions of the Engineer.

The price bid shall be separate unit price for **EACH** Fixed Bollard Type 1, furnished and erected, and shall include the cost for all labor, material, equipment, and incidental expenses necessary to complete the work, including excavation, concrete for structure and footing, steel reinforcement, and powder coating, where required, all in accordance with the plans and specifications, to the satisfaction of the Engineer.

The price bid shall be separate unit price for **EACH** Fixed Bollard Type 2, furnished and erected, and shall include the cost for all labor, material, equipment, and incidental expenses necessary to complete the work, including excavation, concrete for structure and footing, steel reinforcement, and powder coating, where required, all in accordance with the plans and specifications, to the satisfaction of the Engineer.

The price bid shall be separate unit price for **EACH** Security Gate, furnished and erected, and shall include the cost for all labor, material, equipment, and incidental expenses necessary to complete the work, including excavation, concrete for structure and footing, steel reinforcement, and powder coating, where required, all in accordance with the plans and specifications, to the satisfaction of the Engineer.

The price bid shall be separate unit price for **EACH** Removable Bollard, furnished and erected, and shall include the cost for all labor, material, equipment, and incidental expenses necessary to complete the work, including excavation concrete for park structures, powder coating, and padlock, where required, all in accordance with the plans and specifications, to the satisfaction of the Engineer.

Item No.	Item	Pay Unit
PK-ESCR 943 A	FIXED BOLLARD TYPE 1	EA
PK-ESCR 943 B	FIXED BOLLARD TYPE 2	EA
PK-ESCR 943 C	SECURITY GATE	EA
PK-ESCR 943 D	REMOVABLE BOLLARD	EA

END OF SECTION

SECTION PK-ESCR 944 – COMPOST

PK-ESCR 944.1. DESCRIPTION

A. Under this Item, the Contractor shall furnish, spread, and incorporate COMPOST —in existing or new soil, in accordance with the plans and specifications, to the satisfaction of the Engineer.

PK-ESCR 944.2. MATERIALS

A. Compost: A stable, humus-like material produced from the aerobic decomposition of organic residues which shall have been composted for a minimum of one year (12 months). The use of biosolids as feedstock for compost production is prohibited. Compost shall be a dark brown to black color and be capable of supporting plant growth with appropriate management applicable, with no visible free water or dust, with no unpleasant odor, and meeting the following criteria as reported by laboratory tests:

Criteria	Test Method	Acceptable Range
Feed stock		Brewer's waste, or leaf mulches are acceptable. Composted municipal waste (chipped, shredded and screened wood, leaves, bark, etc.) alone is not acceptable unless it meets all of the criteria noted
Carbon/Nitrogen Ratio		10:1 - 25:1
Degree of Maturity	Dewer Self Heating or	VI-V
	Solvita Maturity Index or	6-8
	CO^2 Evolution	1.2%C/day
Texture	Dry Sieve and Hydrometer	Screened to 1/2 inch maximum particle size, and not more that 3 percent material finer than 0.002mm as determined by hydrometer test on ashed material.
Foreign Material	Dry Weight	Debris such as metal, glass, plastic, wood (other than residual chips), asphalt or masonry shall not be visible and shall not exceed 1% dry weight.
Organic Matter %	Dry Weight	≥20 percent
pH	1:1 soil-distilled water suspension using a glass electrode pH meter American Society of Agronomy Methods of Soil Analysis, Part 2, 1986.	6.5 to 7.3
Ammonium	Extract	<200 PPM

Salinity	1:5 soil to water ratio extract	2.0 mmhos/cm (dS/m).
Nutrient Content	Extract	Total Nitrogen, Ammonium Nitrogen, Phosphorus, Potassium, Calcium, Magnesium, Sulfur, Calcium, Magnesium, Sodium, Iron, Aluminum, Manganese, Copper, Zinc.
Pathogens/Metals/Vector Attraction	Extract	Meet all Federal and State of New York requirements for applications to soils with human activity.

PK-ESCR 944.2.1. REFERENCES.

A. U.S. Compost Council's Test Methods for the Examination of Composting and Composts.

PK-ESCR 944.2.2. QUALITY ASSURANCE.

A. Compost Testing Laboratory: An independent soil testing laboratory with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed and capable of making soil recommendations, and issuing reports as specified herein, including the ability to make recommendations about soil blending ratios and methods, amendment recommendations, and issuing reports as specified herein.

   a. Verify Testing Laboratories have the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed and capable of making soil recommendations, and issuing reports as specified herein.

   b. Subject to meeting the requirements, the following are acceptable testing laboratories:

      i. Compost Testing:

         1. Penn State Analytical Services Lab, University Park, PA, (814) 863-0841
         2. Woods End Research Laboratory, Mt. Vernon, ME, (207) 293-2457.
         3. Soil FoodWeb New York, Center Moriches, NY 11716, (631) 750-1553
         4. AgroLab Harrington, DE 19952, (302) 566-6094
         5. A&L Great Lakes Lab, Fort Wayne, IN 46080, (260) 483-4759

PK-ESCR 944.2.3. SUBMITTALS

A. Certified third party test reports for Compost material showing compliance with requirements dated no earlier than 60 days from time of submittal.

B. No Compost shall be delivered until the approval of test repots by the Engineer, but such approval does not constitute final acceptance. The Engineer reserves the right to reject, on or after delivery, any material which does not, in their opinion, meet these specifications.

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

a. Submit most recent printed information from manufacturer.

i. Compost: identify the material(s) from of which is it composed and identify the location where material was composted.

b. Data for the compost shall be no older than 30 days from date of the submittal submission.

D. Qualification Data:

a. Soil material supplier, including:

i. List of previous projects including project name, a contact name, phone number, and the number of cubic yards per each installation and a brief description of the project.

ii. Location where the planting soil mixes and component materials will be mixed and stockpiled including available soil mixing and stockpiling area.

b. Submit qualifications of Soil Testing Laboratory to be utilized for soil testing, including the resume of the staff anticipated to perform the required work of the project.

E. Material Test Reports:

a. General: Submit written reports of each sample tested. Each report to include the following as a minimum and such other information required specific to material tested:

i. Date issued.
ii. Project Title names of Contractor and supplier.
iii. Testing laboratory name, address and telephone number, and name(s), as applicable, of each field and laboratory inspector.
iv. Date, place, and time of sampling or test, with record of temperature and weather conditions.
v. Location of material source.
vi. Name and protocol of test performed.

b. Resubmissions of material samples shall be accompanied by a matching material test report.

c. Missing information, failure to use the specified testing protocol, or failure to supply a material sample as specified with the test report shall be grounds for rejection.

d. Lab test reports submitted for approval by the Engineer shall be dated no more than thirty (30) days from date of sample collection.

e. Contractor to bear responsibility for all costs associated with laboratory testing.

f. Test Reports: The Contractor shall submit test reports with each sample of compost for approval. Resubmissions of test reports shall be accompanied by a matching material sample.

i. Provide the following Testing for Compost:

1. Feedstock
2. Carbon/Nitrogen Ration (C/N)
3. Degree of Maturity

4. Texture (Particle Size)
5. Organic Content (%)
6. pH
7. Buffer pH
8. Cation Exchange Capacity
9. Soluble Salts
10. Nutrient Content (Total Nitrogen, Ammonium Nitrogen, Phosphorus, Potassium, Calcium, Magnesium, Sulfur, Calcium, Magnesium, Sodium, Iron, Aluminum, Manganese, Copper, Zinc)
11. Moisture Content
12. Pathogens/Metals/Vector Attraction
13. Test Frequency: One for each 100 CY of compost supplied, unless otherwise directed by the Engineer.

PK-ESCR 944.2.4. DELIVERY, STORAGE, AND HANDLING

A. Packaged Materials: Deliver packaged Compost materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and compliance with local, state and Federal laws if applicable.

   a. Accompany each packaged delivery of Compost with delivery tickets.

B. Bulk Materials:

   a. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.

   b. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.

   c. Do not move or handle materials when they are wet or frozen.

   d. Accompany each bulk delivery of biochar with delivery tickets.

   e. When compost is stored on the job site, it shall be done as directed by the Engineer.

C. Weather Limitations: Proceed with Compost installation only when existing and forecasted weather conditions permit application to the soil when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

   a. Do not apply Compost during windy or rainy conditions.

PK-ESCR 944.2.5. COMPOST PRODUCERS

A. Subject to meeting the requirements, compost material is available from the following producers:

   a. Long Island Compost, Islip, NY

   b. "Nature's Choice Compost" by Nature's Choice Corp., Union, NJ,

   c. Agresoil Compost by Agresource, Inc. Amesbury, MA,

   d. Organic Recycling Inc. Orangeburg, NY

   e. Approved Equal.

PK-ESCR 944.3. METHODS

A. After all areas to be seeded, sodded or planted have been fine graded to their compacted depth as per the Drawings, compost shall be spread over the surface of the planting soil a rate of 1 cubic yard of Compost per 1,000 feet of planting soil surface, unless otherwise directed by the Engineer.

B. Thoroughly incorporate the biochar into the top five (5) inches of the planting soil by hand with a rototiller.

PK-ESCR 944.4. MEASUREMENT

A. The quantity of Compost to be paid for shall be the number of cubic yards furnished in accordance with the plans and specifications, to the satisfaction of the Engineer. The Compost shall be measured as delivered in bulk containers, bags or trucks at point of delivery and as documented by delivery tickets.

PK-ESCR 944.5. PRICES TO COVER

A. The contact prices per cubic yard (CY) for Item No. PK-ESCR 944 COMPOST shall cover the cost of all labor, materials, equipment, insurance, testing and incidentals required furnish, spread, and incorporate COMPOST in planting soil to the satisfaction of the Engineer.

Payment will be made under:

Item No.	Item	Pay Unit
PK-ESCR 944	COMPOST	CY

END OF SECTION

SECTION PK-ESCR 945 – BIOCHAR

PK-ESCR 945.1. DESCRIPTION

A. Under this Item, the Contractor shall furnish, spread, and incorporate BIOCHAR in existing soil, in accordance with the plans and specifications, to the satisfaction of the Engineer.

PK-ESCR 945.2. MATERIALS

A. Biochar: Class I Material, screened to ≤ 1/4" (6.35 mm). Biochar shall meet the requirements of the International Biochar Initiative (IBI 0STD. 2.1) for Categories A and B. Biochar shall be a solid material obtained from thermochemical conversion of biomass in an oxygen-limited environment (pyrolysis) containing at least 60% carbon. Feedstocks may be composed of crop residue, wood or other forest waste. Biosolids, sewer sludge, animal wastes and other feedstocks may not be used in biochar material supplied. Biochar shall not include other soil conditioners, fertilizers or amendments.

PK-ESCR 945.3.1. REFERENCES

A. International Biochar Initiative (IBI 0STD. 2.1), Standardized Product Definition and Product Testing Guidelines for Biochar That Is Used in Soil, November 2015.

PK-ESCR 945.3.2. SUBMITTALS

A. Certified third party test reports for Biochar material showing compliance with requirements dated no earlier than 60 days from time of submittal.

B. No Biochar shall be delivered until the approval of test repots by the Engineer, but such approval does not constitute final acceptance. The Engineer reserves the right to reject, on or after delivery, any material which does not, in their opinion, meet these specifications.

PK-ESCR 945.3.3. DELIVERY, STORAGE, AND HANDLING

A. Packaged Materials: Deliver packaged biochar materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and compliance with state and Federal laws if applicable.

   a. Accompany each packaged delivery of biochar with delivery tickets.

B. Bulk Materials:

   a. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.

   b. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.

   c. Do not move or handle materials when they are wet or frozen.

   d. Accompany each bulk delivery of biochar with delivery tickets.

   e. When compost is stored on the job site, it shall be done as directed by the Engineer.

C. Weather Limitations: Proceed with biochar installation only when existing and forecasted weather conditions permit application to the soil when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

a. Do not apply biochar during windy or rainy conditions.

PK-ESCR 945.3.4. MANUFACTURER

A. Subject to meeting the requirements, the Biochar material is available from the following producers:

a. Biochar Solutions, Carbondale, CO

b. Char-Grow, Asheville, NC

c. Wakefield Biochar, Columbia, MO

d. Biochar Supreme, LLC, Everson, WA

e. Approved Equal.

PK-ESCR 945.4. METHODS

A. After all areas to be sodded or planted have been fine graded to their compacted depth as per the Drawings, biochar shall be spread over the surface of the planting soil a rate of one half (1/2) inch depth of biochar material to the surface of planting soil. (1.5 cubic yards of biochar per 1,000 feet of planting soil surface.)

B. Thoroughly incorporate the biochar into the top five (5) inches of the planting soil by hand with a rototiller.

PK-ESCR 945.5. MEASUREMENT

A. The quantity of BIOCHAR to be paid for shall be the number of cubic yards furnished in accordance with the plans and specifications, to the satisfaction of the Engineer. The biochar shall be measured as delivered in bulk containers, bags or trucks at point of delivery and as documented by delivery tickets.

PK-ESCR 945.6. PRICES TO COVER

A. The contact prices per cubic yard (CY) for Item No. PK-ESCR 945 BIOCHAR shall cover the cost of all labor, materials, equipment, insurance, testing and incidentals required furnish, spread, and incorporate BIOCHAR in planting soil to the satisfaction of the Engineer.

Payment will be made under:

Item No.	Item	Pay Unit
PK-ESCR 945	Biochar	CY

END OF SECTION

SECTION PK-ESCR 946 – GEOCOMPOSITE DRAINAGE BOARD

PK-ESCR 946.1. DESCRIPTION

i. This section describes the furnishing and installation of GEOCOMPOSITE DRAINAGE BOARD in accordance with the plans, specifications and directions of the Engineer.

PK-ESCR 946.2. MATERIALS

A. Geocomposite Drainage Board: An impermeable dimpled polypropylene sheet drainage core bonded to a layer of nonwoven filter fabric complying with the following properties:

a. System Thickness (ASTM D-1777) ≥ 0.38 in

b. Flow (Hydraulic gradinent = 1) (ASTM D4716); 21 gal/min/ ft^2

c. Compressive strength (ASTM D-1621) ≥ 15,000 lb/ft^2

d. Fabric:

i. Flow (ASTM D-4491): 140 $gal/min/ft^2$

ii. Puncture (ASTM-D6241) ≥ 250 lbs.

iii. Grab Tensile (ASTM D-4632) ≥ 90 lbs.

iv. AOS: 70 U.S. Sieve (0.212 mm)

PK-ESCR 946.2.1. REFERENCES

A. American Society of Testing and Materials (ASTM):

a. ASTM D 1777 Standard Test Method for Thickness of Textile Materials

b. ASTM D 4491 Standard Test Methods for Water Permeability of Geotextiles by Permittivity

c. ASTM D 4632 Standard Test Method for Grab Breaking Load and Elongation of Geotextiles

d. ASTM D 4716 Standard Test Method for Determining the (In-plane) Flow Rate per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head

e. ASTM D 6241 Standard Test Method for Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe

PK-ESCR 946.2.2. SUBMITTALS

A. Product data: Manufacturer's product data; indicate product supplied. Provide complete installation instructions proposed for use.

B. No Geocomposite Drainage Board shall be delivered until the approval of test repots by the Engineer, but such approval does not constitute final acceptance. The Engineer reserves the right to reject, on or after delivery, any material which does not, in their opinion, meet these specifications.

PK-ESCR 946.2.3. DELIVERY, STORAGE, AND HANDLING

A. Packing and shipping: Provide materials in original unopened containers with manufacturer's labels intact and legible.

B. Acceptance at site:

a. Unload materials: check for damage.

b. Check the geocomposite drainage board upon delivery to ensure that the proper material `has been received.

c. Damaged materials determined by visual inspection will not be accepted.

d. Remove rejected materials from site immediately.

C. Storage and protection:

a. Protect the geocomposite drainage board during shipment and storage at the construction site from temperatures greater than 160° F, mud, dirt, debris, and any other environmental condition that may damage the material's physical property values.

b. Store materials in dry area in manufacturer's protective packaging in original containers with labels and installation instructions intact.

c. Store materials under cover, off ground; protect from sunlight.

d. Do not expose to aromatic hydrocarbons.

D. The geocomposite drain board will be rejected at the time of installation if it has defects, tears, punctures, flaws, deterioration, or damage incurred during manufacture, shipment, or storage. Remove or repair torn or punctured sections as directed by the Engineer.

E. Replace any geocomposite drain board damaged during manufacture, shipment, or storage at no additional cost to the Owner.

PK-ESCR 946.3. METHODS

A. Sequencing and Scheduling: Schedule installation just prior to installation of soil backfilling operations.

B. Install the geocomposite drainage board in accordance with the plans and specifications.

C. If at any time the Engineer determines that the method of installation does not produce a satisfactory wall drainage system, alter either the method and/or equipment as necessary to comply with the Engineer's direction.

D. Vertical (Wall) Installation: Ensure that the surface that the geocomposite drainage board will be placed against is cleaned by removing all soil, debris, and irregularities that will prevent intimate contact between the surface and the geocomposite drain. Place the drainage core against the wall with the geotextile fabric side of the board facing the soil. Secure the geocomposite drainage board to the wall using metal stick clips, adhesives, or as recommended by the manufacturer. Install the geocomposite wall drain to allow weep holes, as shown in the plans, to drain water from the drainage core and to underdrain pipes.

E. Horizontal (Deck) Installation: Ensure that the surface that the geocomposite drainage board will be placed against is cleaned by removing all soil, debris, and irregularities that will prevent intimate contact between the surface and the geocomposite drain. Place the drainage core against the horizontal deck surface with the geotextile fabric side of the board facing the up. Secure the geocomposite drainage board to the deck using metal stick clips, adhesives, or as recommended by the manufacturer. Install the

geocomposite to allow deck drains, as shown in the plans, to drain water from the drainage core.

F. Form all joints by peeling or trimming the geotextile off the attached section to expose 3 inches of the drainage core. Overlap the drainage core of the second section over the first drainage core by 2 inches. Cover the joint by reattaching the geotextile flap and securely fastening it to the lower geotextile by means of a continuous strip of 3 inch wide waterproof plastic tape. Ensure that each overlapping course is shingled in the direction of water flow. If joints cannot be formed by interlocking the drainage grooves, then butt the drainage core together and cover with continuous, 6 inch wide geotextile. Center the geotextile fabric over the joint and securely fasten to the two geocomposite drainage board sheets with 3 inch wide waterproof plastic tape.

G. Ensure that the nonwoven geotextile used to repair or replace damaged drainage core jacket material or used to cover joints in the geocomposite wall drain or to overlap the edges of the geocomposite wall drain shall meet the same criteria as the geotextile fabric specified for the geocomposite drainage board assembly.

H. Cover all exposed edges of the geocomposite drainage board with geotextile by tucking and securing a minimum of 4 inches of geotextile behind the drainage core. This may be done by using the geotextile flaps at the edges or using a 12 inch wide continuous strip in the same manner, taping it to the exposed fabric 4 inches in from the edge with a continuous strip of 3 inch wide waterproof plastic tape, and folding the remaining geotextile and tucking it behind the drainage core edge.

I. If the geotextile is torn, perforated, or ripped during installation, patch or replace as directed by the Engineer. Cut out the damaged section and replace it completely or repair it by placing a piece of geotextile over the damaged area and providing a minimum of 4 inches of overlap on all sides over the damaged area and secure the repair patch with 3 inch wide waterproof plastic tape. Discard and replace damaged drainage core sections. Replace or repair any geocomposite drainage board damaged during installation at no additional cost to the Owner.

J. Place the underdrain pipes and free draining aggregate or drainage layer material as shown in the plans or as directed by the Engineer. Provide and maintain a positive outlet for the water in the geocomposite wall drain at all locations. Ensure that weep holes or deck drains are not sealed or made ineffective by the geocomposite drainage board material.

K. Place backfill immediately over the geocomposite drainage board in a manner that does not crush or damage the geocomposite drainage board function. Take care to avoid excessive settlement of the backfill material. Do not expose the geocomposite drainage board for more than 7 days prior to backfilling. Replace and repair any geocomposite drainage board component that is damaged during the backfilling operation as directed by the Engineer.

PK-ESCR 946.4. MEASUREMENT

A. The quantity of GEOCOMPOSITE DRAINAGE BOARD to be paid for shall be the square feet furnished in accordance with the plans and specifications, to the satisfaction of the Engineer.

PK-ESCR 946.5. PRICES TO COVER

A. The contact prices per square foot (SF) for

Item No. PK-ESCR 946 GEOCOMPOSITE DRAINAGE BOARD

shall cover the cost of all labor, materials, equipment, and incidentals required furnish and install the geocomposite drainage board to the satisfaction of the Engineer.

Payment will be made under:

Item No.	Item	Pay Unit
PK-ESCR 946	GEOCOMPOSITE DRAINAGE BOARD	SF

END OF SECTION

SECTION PK-ESCR 948 – Dog Run Steel Storage Box

WORK: Under this Item, the Contactor shall furnish and install **DOG RUN STEEL STORAGE BOX** in accordance with the plans, specifications, and directions of the Engineer.

MATERIALS: Unless otherwise herein specified, all materials and methods of construction shall comply with General Conditions 'Materials and Methods of Construction.'

Storage Box: Box shall be "Knaack Model 2472 JOBMASTER® Chest" as manufactured by Knaack LLC., Crystal Lake, IL, or approved equal. Steel Storage Box shall be 24" wide x 28 ¼" high x 72" long with 14-gauge caster-ready skids, 16-gauge steel construction and recessed handles. The steel storage box shall be lockable and shall weigh a minimum of 216 pounds. After installation, the box shall be painted, color shall be as indicated on the drawings.

Expansion Anchors: Shall be Hilti Kwik Bolt, KB II 38-5, 3/8" x 5" long, or approved equal.

Padlock: The Contractor shall furnish one (1) padlock for the storage box. The padlocks shall be Master Lock No. 5, one (1") inch shackle as manufactured by Master Lock Company LLC, Oak Creek, WI or approved equal. All padlocks for the same park facility shall be keyed alike, with two (2") inch wide by three-quarter (3/4") inch thick brass body, maximum security, five (5) pin tumblers with hardened alloy steel chrome plated shackle no less than three-eighth (3/8") inch diameter and two (2") inches clearance (elongated shackle). The Contractor shall furnish two (2) keys for each padlock.

PAINTING: The entire storage box shall receive three (3) coats of paint as specified below. Immediately prior to painting, all exterior surfaces of the storage box shall be thoroughly cleaned in accordance with SP-1, Solvent Cleaning. Cleaning shall be performed with a solvent such as mineral spirits, xylol or turpentine to remove all dirt, grease and foreign matter. Surfaces that show evidence of loose mill scale, non-adherent rust, peeling paint and other deleterious matter shall be cleaned in accordance with SP-2, Hand Tool cleaning, a method generally confined to wirebrushing, sandpaper, hand scrapers or hand impact tools or SP-3, Power Tool cleaning, method generally confined to power wirebrushes, impact tools, power sanders and grinders in order to achieve a sound substrate. Paint shall be applied immediately after a final SP-1 solvent cleaning and drying.

After the storage box has been cleaned and prepared, it shall be painted as follows:

> First Coat (Field Applied): Sherwin Williams Kem Bond® HS Metal Primer, B5ONZ3, red oxide, as manufactured by Sherwin Williams Company, Woodside, New York or approved equal. Primer is a fast drying 79% + 2% weight solids, low VOC, rust inhibiting, modified alkyd metal primer with a dry film thickness of 3-4 mils. Paint requires two and a half (2 ½) hours drying time before recoating (with alkyds). Performance shall meet or exceed the standards of Federal Specification TT-P-86H, Type III and IV, and TT-P-664D.
>
> Second and Third Coat (Field Applied): Sherwin Williams Steel Master 9500 Silicone Alkyd No. B56T304 Clear Tint Base, color shall be Evergreen, SW6447, unless otherwise indicated on contract drawings, or approved equal. Topcoat is a VOC compliant silicone alkyd high glass coating having a dry film thickness of 2-4 mils (each coat). Paint requires eighteen (18) hours drying time @ 77° (degrees) F.

Paint shall perform in accordance with ASTM G-53. All paint shall be applied when ambient air temperature 50° (degrees) F. and rising and surfaces to be painted are moisture free. No painting will be allowed below the minimum ambient air temperature.

Application of Paint: All painting shall be done in a neat and workmanlike manner. The paint

shall be applied by brush, and thoroughly worked in to the surface and into all cracks and fissures without leaving fins or runs. Drop cloths shall be used to protect existing ground surfaces and adjacent appurtenances.

INSTALLATION: Storage box shall be installed on cement concrete pavement as shown on the drawings. The box shall be bolted to the pavement with expansion anchors set in the pavement.

SUBMITTALS: All submittals shall be in accordance with the requirements of the S Pages.

Product Data: The Contractor shall submit manufacturer's product data and mounting details of the storage box for approval prior to purchase.

Sample: A 6" x 6" painted sample shall be submitted in the specified color for approval.

MEASUREMENT AND PAYMENT: For furnishing and installing the **DOG RUN STEEL STORAGE BOX** in accordance with the plans, specifications, and directions of the Engineer, the Contactor shall receive a unit price bid.

The price bid for **EACH** Storage Box shall include the cost of all labor, materials equipment and incidentals necessary to complete the work, including painting, padlock, padlock keys and anchor bolts, all in accordance with the plans, specifications, and to the satisfaction of the Engineer.

Excavation and concrete shall be paid for separately under their respective contract items.

Item No.	Item	Pay Unit
PK-ESCR 948	DOG RUN STEEL STORAGE BOX	EA

END OF SECTION

SECTION PK-ESCR 950 – SITE PROTECTION FOR PARK AREAS

PK-ESCR 950.1. DESCRIPTION

A. Under this Item, the Contractor shall provide temporary SITE PROTECTION FOR PARK AREAS at designated park areas in accordance with the Drawings and specifications, to the satisfaction of the Engineer.

PK-ESCR 950.2. MATERIALS

A. Chain-Link Fencing: Minimum 2-inch, 0.148-inch thick, galvanized-steel, chain-link fabric fencing; minimum 4 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top rails with galvanized bottom tension wire.

B. Portable Chain-Link Fencing: Minimum 2-inch 0.148-inch- thick, galvanized-steel, chain-link fabric fencing; minimum 4 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top and bottom rails. Provide concrete or galvanized-steel bases for supporting posts.

C. Fencing Windscreen Privacy Screen: Polyester fabric scrim with grommets for attachment to chain-link fence, sized to height of fence, in color selected by Engineer from manufacturer's standard colors.

D. Wood Enclosure Fence: Plywood, 4 feet high, framed with four 2-by-4-inch rails, with wood posts spaced not more than 8 feet apart.

E. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10-mil minimum thickness, with flame-spread rating of 15 or less in accordance with ASTM E84 and passing NFPA 701 Test Method 2.

PK-ESCR 950.2.1. COORDINATION, SEQUENCING AND SCHEDULING.

A. Install site protection prior to the start of demolition or removals work.

PK-ESCR 951.3. METHODS

A. General: Protection of Existing Facilities: Protect existing equipment, curbs, walls, structures, utilities, fencing, pavements, site furnishings, and other improvements at Project site and adjacent property, except those indicated to be removed or altered, as shown on the Drawings and to the satisfaction of the Engineer.

   a. Repair damage to existing facilities to remain.

   b. Where access to adjacent properties is required in order to affect protection of existing facilities, obtain written permission from adjacent property owner to access property for that purpose.

   c. Tree and Plant Protection: Comply with requirements specified in "Tree and Plant Protection," and bid items "Temporary Wood Tree Guard" and "Temporary Wood Tree Guard for Groves".

   d. Operation, Termination, and Removal:

      i. Maintenance: Maintain facilities in good operating condition until removal.
      ii. Maintain site protection devices as required throughout construction period.
      iii. Temporary Facility Changeover: Do not change over from using protection

facilities to permanent facilities until Substantial Completion.

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

v. Materials and facilities that constitute site protection are property of Contractor.

vi. At Substantial Completion, repair, renovate, and clean protected site features as directed by the Engineer.

B. Murphy Brothers Park: Protect baseball back stops and chain link fence adjacent to the Con Edison lot wall and other site furnishings and features as indicated on the Drawings and to the satisfaction of the Engineer.

C. Stuyvesant Cove Park: Protect the Solar One Building, including building walls, windows, doors, lights, intake and exhaust vents and adjacent building utilities not designated to be removed, the Ferry Landing, including, access ramps, railings, guard rails and signage, and other site furnishings and features as indicated on the Drawings and to the satisfaction of the Engineer. Relocate and reestablish site protection as required to maintain Solar One staff and building contractor access to and from the building and other site areas and as directed by the Engineer.

D. Asser Levy Park: Protect the handball court pavement, wall and fencing, the track and field area, and other site furnishings and features as indicated on the Drawings and to the satisfaction of the Engineer.

PK-ESCR 951.4. MEASUREMENT

A. PER LUMP SUM: Payment for Site Protection will be made on a Lump Sum basis for work satisfactorily completed. Monthly payments will be made in proportion to the amount of work done as determined by the Engineer.

PK-ESCR 951.5. PRICES TO COVER

A. The Lump Sum (LS) contract price for
Item No. PK-ESCR 950 A SITE PROTECTION MURPHY BROTHERS PARK
Item No. PK-ESCR 950 B SITE PROTECTION STUYVESANT COVE PARK
Item No. PK-ESCR 950 C SITE PROTECTION ASSER LEVY PARK
shall cover the cost of all labor, materials, equipment, insurance, and incidentals required to furnish, maintain, remove and complete the work, together with all other work in connection therewith and incidental thereto, in full compliance with the Contract Drawings, the specifications and the directions of the Engineer. Bid Items for "Temporary Wood Tree Guard" and "Temporary Wood Tree Guard for Groves" shall be paid for separately. Bid Item for Construction Fence shall be paid for separately.

Payment will be made under:

Item No.	Item	Pay Unit
PK-ESCR 950 A	**SITE PROTECTION MURPHY BROTHERS PARK**	**Lump Sum**
PK-ESCR 950 B	**SITE PROTECTION STUYVESANT COVE PARK**	**Lump Sum**
PK-ESCR 950 C	**SITE PROTECTION ASSER LEVY PARK**	**Lump Sum**

END OF SECTION

SECTION PK-ESCR 951 – COMPOST TEA

PK-ESCR 951.1. DESCRIPTION

A. Under this Item, the Contractor shall complete soil and compost tea testing, furnish and apply COMPOST TEA in four (4) separate applications at lawn areas, planting beds and pits, in accordance with the plans and specifications, to the satisfaction of the Engineer.

PK-ESCR 951.2. MATERIALS

A. Compost Tea: A concentrated organic liquid fertilizer that is made from steeping biologically active compost in aerated water. Compost Tea shall meet the following minimum standard as demonstrated by testing:

Criteria	Test Method	Minimum Levels per milliliter of compost Tea
Biological Organisms	Soil FoodWeb Analysis	10-150 µg active bacteria 150-300 µg total bacteria 2-0 µg active fungi 5-20 µg total fungi 1,000 flagellates 1,000 amoeba 20-50 ciliates 2-10 beneficial nematodes

B. Adjust Compost Tea ingredients as recommended by the Testing Laboratory to achieve biological levels required as determined by Soil Biological Testing.

PK-ESCR 951.2.2. SUBMITTALS

A. Qualification Data:

a. Compost Tea Producer/Applicator, including:

i. List of previous projects including project name, a contact name, phone number, and the number of square feet or acre per each application and a brief description of the project.

ii. Location where the compost tea will be produced.

b. Soil Biological Testing Laboratory: Name and address of testing laboratory, including the resume of the staff anticipated to perform tests and make recommendations for the project.

B. Material Test Reports:

a. General: Submit written reports of each soil sample tested. Each report shall include the following as a minimum and such other information required specific to material tested:

i. Date issued.
ii. Project Title, name of Contractor.
iii. Testing laboratory name, address and telephone number, and

name(s), as applicable, of each field and/or laboratory inspector.

iv. Date, place, and time of sampling or test, with record of temperature and weather conditions.

v. Location of material source.

vi. Name and protocol of test performed.

1. Soil Biological Test Reports: Results of tests including identification of deviations from specified ranges.
2. Compost Tea Test Reports: Results of tests including identification of deviations from specified ranges.

b. Missing information, failure to use the specified testing protocol, or failure to supply a material sample as specified with the test report shall be grounds for rejection.

c. Lab test reports submitted for approval by the Engineer shall be dated no more than three weeks from date of sample collection.

d. Contractor to bear responsibility for all costs associated with laboratory testing.

e. Soil Biological Test Reports: Test for the following:

Criteria	Test Method	Acceptable Range
Biological Organisms	Soil FoodWeb Analysis	Organism Biomass Data: Dry weight: 0.45 to 0.85 Active Fungi: > 30.0 µg/g Total Fungi: >300.00 µg/g Hyphal Diameter: > 2.50 µg/m Active Bacteria: > 30.0 µg/g Total Bacteria: > 300.00 µg/g Organism Biomass Ratios: AF:TB 1.00 to 2.00 AF:TF > 0.10 AB:TB > 0.10 AF:AB 1.00 to 2.00 Protozoa (Protists): # Flagellates: >10,000/g # Amoebae: >10,000/g # Ciliates: < 470 Nematodes: # Nematodes: >10.00/g # Bacterial: > 4.0 # Fungal: > 4.0 # Fungal/Root: < 1.0 # Predatory: > 2.0 # Root: < 1.0 Mycorrhizal Fungi Endo % > 10 Ecto % > 10 Ericoid % > 10

i. Include written recommendations from soil biological testing lab for compost tea brewing and applications to achieve recommended levels of biological organisms for lawn area, planting bed, and plant pit soils.

f. Compost Tea Test Reports: Test for the following:

Criteria	Test Method	Test results per milliliter of compost Tea
Biological Organisms	Soil FoodWeb Analysis	µg active bacteria µg total bacteria µg active fungi µg total fungi # flagellates # amoeba # ciliates # beneficial nematodes

PK-ESCR 951.2.3. DELIVERY, STORAGE, AND HANDLING

A. Bulk Materials: Deliver compost materials in containers showing volume, name and address of manufacturer, and compliance with state and Federal laws if applicable.

a. Accompany each delivery of compost tea with delivery tickets.

b. When compost is stored on the job site, it shall be done as directed by the Engineer.

B. Weather Limitations: Proceed with compost tea installation only when existing and forecasted weather conditions permit application to the soil when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

a. Do not apply compost tea during windy or rainy conditions.

PK-ESCR 951.2.4. COMPOST TEA PRODUCERS/APPLICATORS

A. Subject to meeting the requirements, the Compost Tea applications can be performed with approved materials from the following producers/applicators:

a. Kelco Construction, Hauppauge, NY (631) 462-2952

b. Almstead Tree Company, New Rochelle, NY 10801, (914) 576-0193

c. Alternative Earthcare, Bay Shore, NY 11706, (631) 862-5281

d. Ecological Landscape Management, Smithtown, NY 11787, (631) 484-1979

e. Organic Solutions Inc., Port Washington, NY (516) 883-6660

PK-ESCR 951.2.5. QUALITY ASSURANCE.

A. Soil Biological and Compost Tea Testing Laboratory: An independent soil testing laboratory with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed and capable of making soil recommendations, and issuing reports as specified herein, including the ability to make recommendations

about soil blending ratios and methods, amendment recommendations, and issuing reports as specified herein.

a. Verify Testing Laboratories have the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed and capable of making soil recommendations, and issuing reports as specified herein.

b. Soil Biological Testing Laboratories: Subject to meeting the requirements, the following are acceptable horticultural testing laboratories:

i. Soil Food Web New York, Center Moriches, NY 11716, (631) 750-1553

ii. Harrington Organics, Bloomfield, CT 06021, (800) 675-8733

iii. Foothill Biological Soil Health Services, Grass Valley, CA 95945, (530) 648-0694

iv. Earthfort, Corvallis, OR 97333, (541) 257,2612

B. Soil Biological Testing: As indicated in "Methods" of this specification.

C. Compost Testing Frequency: One (1) test per each 500 gallons of compost tea utilized.

PK-ESCR 951.2.6. COORDINATION, SEQUENCING AND SCHEDULING.

A. General: Coordinate the collection of soil samples well in advance of compost tea production and applications so as to be able to make applications in accordance with the require seasons.

B. Estimated Soil Biological and Compost Tea Testing Durations: The following soil testing durations are provided as a guide for the contractor to be able to bid the project based on a realistic schedule. Actual testing durations may vary depending upon the contractors' ability to send materials to their approved testing lab, the testing labs' ability to complete multiple testing protocols simultaneously, the testing lab's ability to manage high seasonal demands for soil testing, and the ability of the contractor to deliver test reports as required.

a. Biological testing of soils and compost teas is estimated to take 10-14 business days.

PK-ESCR 951.3. METHODS

A. Prior to application of compost tea, take soil samples in a manner directed by the testing lab from representative lawn, planting bed and tree pit areas for biological analysis.

a. Sample Lawn Areas at six (6) tests per ten (10) acres where compost tea will be applied.

b. Sample planting beds at six (6) tests per ten (10) acres where compost tea will be applied.

c. Sample six (6) planting pits where compost tea will be applied.

B. Produce a compost tea in accordance with the recommendations of the biological testing laboratory based on soil biological testing.

C. Make four (4) separate applications of compost tea by spray methods to lawn areas, planting beds and planting pits a minimum rate of 25 gallons of compost tea concentrate per acre of surface area 0.57 gallons per 1,000 square feet. Compost tea may be diluted with water in a 4:1 ratio of four (4) parts water to one (1) part compost tea concentrate to facilitate application.

a. Springtime Applications: Apply compost tea over planting beds, tree pits and lawn areas two (2) times no closer than three weeks between applications between May 1 and June 30

b. Fall Applications: Apply compost tea over lawn areas, planting beds, and pits two (2) times no closer than three weeks between applications between September 1 and October 31.

D. Lawn Areas: Apply Compost Tea by spraying on the surface of lawn areas. Spray applications shall make use of low-ground pressure tractor equipment equipped with boom sprayers. After compost tea application, immediately water the compost tea into the lawn using the automatic irrigation system.

E. Planting Beds and Pits: Apply compost by ground injection method at a spacing of twenty four (24) inches on center at a depth of six (6) to eight (8) inches.

PK-ESCR 951.3. MEASUREMENT

A. The quantity of COMPOST TEA to be paid for shall be paid by acre sprayed on lawn area, planting bed, or plant pit surfaces in accordance with the plans and specifications, to the satisfaction of the Engineer. The Compost Tea shall be measured as delivered in bulk containers at point of delivery and as documented by delivery tickets.

PK-ESCR 951.4. PRICES TO COVER

A. The contact prices per acre

Item No. PK-ESCR 951 A COMPOST TEA – LAWN AREA

covers the cost of all labor, materials, equipment, insurance, testing and incidentals required furnish and make multiple spray applications of COMPOST TEA at lawn areas to the satisfaction of the Engineer. Payment for each of the four applications shall be made at a rate of 25% of the total unit price per acre.

B. The contact prices per acre

Item No. PK-ESCR 951 B COMPOST TEA – PLANTING BED AND PIT AREAS

covers the cost of all labor, materials, equipment, insurance, testing and incidentals required furnish and make ground injection applications of COMPOST TEA at planting beds and plant pits to the satisfaction of the Engineer. Payment for each of the four applications shall be made at a rate of 25% of the total unit price per acre.

Payment will be made under:

Item No.	Item	Pay Unit
PK-ESCR 951 A	**COMPOST TEA – SHRUBS AND PERENNIALS**	**Acre**
PK-ESCR 951 B	**COMPOST TEA – LAWN**	**Acre**

END OF SECTION

PK-ESCR 955 Dog Run Concrete

WORK: Under this item, the Contractor shall furnish and place **5" CONCRETE SIDEWALK AT DOG RUN** AND **CONCRETE MOUND AT DOG RUN** in accordance with the plans, specifications, and directions of the Engineer.

MATERIALS: Unless otherwise herein specified, all materials of construction shall comply with General Conditions, "Materials and Methods of Construction".

Concrete: Concrete shall consist of a single course, thickness and reinforcement as shown. Concrete shall conform Section 4.06 design mix for Concrete for Park Features.

Color Admixture System: Color admixture system shall consist of integrally colored pigments and curing compound as manufactured by a single, approved manufacturer. Colored pigments and curing compound not manufactured by the same approved manufacturer shall be rejected.

Pigment Admixture: The colored pigment admixture shall be a single component, pigmented, water reducing concrete admixture such as Chromix Admixture for color conditioned concrete, as manufactured by L.M. Scofield Co., Douglasville, GA, or Davis Color Inc., Beltsville, MD, or approved equal. Color shall be as noted on contract plan and as approved by the Engineer. Colored Concrete shall contain the number of pounds of color admixture per sack of concrete noted on the drawings. Admixture shall be thoroughly and uniformly mixed into the concrete.

Pigment admixture shall comply with ASTM designation C979 – "Standard Specification for Pigments for Integrally Colored Concrete".

Compound for Curing Concrete: Curing compound shall be a waterbased blend of pure waxes, polymers, and additives specifically designed for use with color conditioned concrete. Compound shall be a liquid membrane forming compound for curing concrete, in compliance with ASTM designation C309 – "Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete". Curing compound for use with color conditioned concrete shall be Lithocrome Colorwax, as manufactured by L.M. Scofield Co., W-1000 Clear Cure and Sealer, as manufactured by Davis Colors, or approved equal.

Foundation Material: Material for Foundation shall be a straight run of single size aggregate and shall consist of either all one and one-half (1 1/2") inch stone or all three-quarter (3/4") inch stone in accordance with ASTM C33, free from organic or other deleterious material. In addition, Foundation Material may contain no more than five (5%) percent of fines, defined as aggregates passing a No.4 sieve or smaller.

The Magnesium Sulfate Soundness loss after ten (10) cycles shall be eighteen (18%) percent or less, as per ASTM C88. Coarse aggregate may be one of the following:

A. Broken Stone or gravel of approved quality and conforming to the requirements of SecGeneral Conditions, "Materials of Construction".

B. Recycled Material consisting of at least ninety five (95%) percent by weight of the following:

1. Recycled Portland Cement Concrete Aggregate or
2. Recycled Portland Cement Concrete Aggregate mixed with Stone Gravel.

Expansion Joint: The expansion joint material shall be one of the following:

A premolded bituminous fiber joint filler, as specified in Section "B" (requires a bond breaker and sealant) or,

A premolded closed cell expanded polyethylene foam joint filler, such as MasterSeal 920 by BASF Inc., Shakopee, MN (requires only sealant) or,

an approved equal of any of the above.

Bond Breaker: If bituminous fiber material is used, a bond breaker such as one-half inch (1/2") width polyethylene tape or five-eighths inch (5/8") diameter expanded polyethylene foam backer rod shall be installed as recommended by manufacturer. A bond breaker will not be required for a premoulded foam joint or a shredded recycled rubber aggregate joint filler, but sealant is always required.

Sealant: Prepared expansion joints shall be coated with a primer followed by installation of a bond breaker and a self-leveling two-component polyurethane-based elastomeric sealant. The Contractor shall apply Sikaflex 429 primer with Sikaflex - 2C SL sealant, manufactured by Sika Corp., Lyndhurst, N.J; or BASF MasterSeal P 173 with MasterSeal SL 2 sealant, by BASF, Inc., Shakopee, MN, or approved equal. Color of sealant shall be concrete gray. Asphalt cement will not be approved as a sealant.

INSTALLATION:

Preparation of Sub Grade: Before any pavement is placed upon the sub grade, the sub grade shall be prepared to line and grade and compacted. This shall include borrowed fill that shall be gradually sloped to form mounds for the placement of concrete as shown on the drawings. All hollows and depressions, which develop under rolling, shall be filled with acceptable material and shall again be rolled. This process of shaping, filling, and rolling shall be repeated until no depressions develop. Where there are boulders, the Contractor shall compact fill around the boulders using any necessary equipment to ensure stability of concrete pavement to be placed. Borrowed fill used to form mounds shall be paid for under its own respective item.

The Contractor shall remove from the subgrade all debris, foreign material, and all other undesirable material designated by the Engineer. The sub grade shall not be muddy or otherwise unsatisfactory when the pavement is placed upon it. If the sub grade becomes rutted or displaced, due to any cause whatsoever, the Contractor shall regrade same without additional payment.

The subgrade shall be compacted with equipment that will yield the following density:

Cohesive Subgrade -	Minimum of 95% of AASHO T 180 Method D density
Cohesionless Subgrade -	Minimum 100% of AASHO T 180 Method D density

Spreading: Material for foundation base shall be evenly spread on compacted surface in the position shown on the plans or directed by the Engineer, in four inch (4") layers, each layer to be rolled while wet with a seven (7) to (12) ton tandem roller (or other approved method satisfactory to the Engineer) to the thickness shown on the plans or as directed by the Engineer.

Forms: Before placement of concrete, compacted mounds shall be approved by the Engineer and Engineer. Forms shall be made of substantial material (preferably steel), with suitable metal dividing plates and of sufficient strength to satisfactorily resist distortion when fastened together and secured in place. Forms and dividing plates shall be of a depth not less than that of the thickness of the concrete slab, be properly located with tops set to the designated concrete mound surface, and be left in place until the concrete is set.

Construction: Foundation course shall be wetted immediately before concrete is placed. The concrete shall be placed within the forms and thoroughly tamped until the surface is at the finished grade. The final finish of the pavement shall be an even, fine textured surface (not smooth or polished), with good slip resistance. In the event the surface has been overworked (polished), the surface shall be lightly brushed with a soft bristled broom to restore slip resistance.

Expansion Joint: After the concrete is placed, finished and set, and the bond breaker, if necessary, installed, the space, as shown in the drawings, shall be filled with a joint sealant. Thoroughly clean expansion joints of dirt, loose particles, asphalt, tar, paint, wax, waterproofing, and curing compounds. When dry, apply primer to the clean dry surfaces by brushing on a thin, uniform coat. Allow primer to dry, tack free. Fill joint with joint filler where necessary and compressible backer rod and leave a one-half inch (1/2") deep void for placement of sealant. Cover adjacent sides of joints with masking tape to prevent spillage onto pavement or on boulders.

Sealant: Fully mix the two component sealant and pour into joint slot in one direction and allow to flow and level out as necessary. Smaller joints can be filled from a bulk-loading gun. Fill joints from bottom to prevent air voids. Tool lightly to smooth out ripples and maximize adhesion to the sides of joints. If bubbles form, wait 5-10 minutes before tooling to break the bubbles. Remove excess sealant promptly as the work progresses and clean adjacent surfaces. Remove masking tape.

Install sealant in accordance with manufacturer's instructions including allowable minimum temperature of 40 degrees Fahrenheit.

PROTECTION AND CURING: Curing compound shall be installed as per manufacturer's installation instructions. Pavement shall be carefully protected from the drying effects of the sun and wind, traffic, or other causes by means of suitable guards and coverings, and shall be kept moist for a period of three (3) days. No dusting of cement or sprinkling or fogging with water shall be permitted. Do not cover with plastic.

SUBMITTALS: All submittals shall be in accordance with the requirements of S Pages

Catalog Cuts: The Contractor shall submit catalog cuts to the Engineer and Engineer for review and approval prior to ordering of admixture, sealant, and curing compound.

Manufacturer's Instructions: The Contractor shall submit manufacturer's application instructions to the Engineer and Engineer for review and approval prior to ordering of admixture, sealant and curing compound.

Sample: The Contractor shall submit a three (3") inch square color concrete sample to the Engineer for review and approval.

Shop Drawings: The Contractor shall submit detailed shop drawings showing the layout, elevations, all dimensions, and installation details. All work shall be executed in strict accordance with the approved drawings.

Design Mix report: The Contractor shall submit a design mix report prior to the production and delivery of concrete for review and approval. Design Mix Report dated more than one (1) year of the submittal date will be rejected. The Contractor shall submit the design mix report including but not limited to the following information: date of design mix report, name and address of concrete mixing company, name and address of laboratory, name of project, water/cement (w/c) ratio, type and sieve analysis of aggregates, type of cement, type and amount of fly ash or slag used, percentage of Portland cement replacement by fly ash or slag, types of admixture used,

amount of water used, air content and slump of design mix, three (3) day curing strength, seven (7) day curing strength, and twenty-eight (28) day curing strength.

Curing: The Contractor shall submit the method of curing they intend to use.

Laboratory Testing: If directed by the Engineer in writing, the Contractor shall furnish a certified report by an approved Materials Testing Laboratory showing the materials composition, plasticity index, and soundness of the representative samples of recycled material they propose to use.

The Contractor shall bear responsibility for all costs associated with laboratory testing. The Engineer reserves the right to reject, on or after delivery, any material, which does not, in their opinion, meet these specifications.

Mock – Up: After approval of the three (3") inch square color sample (see submittals: sample) a two foot (2') by two foot (2') size mock - up shall be cast at the job site using the approved specified materials and construction techniques, including finish, prior to placement of any color-conditioned concrete for review and approval by the Engineer and Engineer. Once the mock-up has been reviewed and approved, it shall be the contract standard to which all concrete mounds is judged. All concrete mounds shall match the approved two foot (2') square sample in every respect. The cost of the mock - up will be deemed included in the price bid for this item. If color concrete sample doesn't match mock-up, the agency reserves the right to reject the concrete design mix.

MEASUREMENT AND PAYMENT: For constructing **CONCRETE MOUNDS** in accordance with the plans, specifications, and directions of the Engineer, the Contractor shall receive the price.

The price bid shall be a for and shall include the cost of all labor, materials, and equipment including grading, foundation material, concrete, color admixture system, expansion joint material, sealant, bond breaker, laboratory testing (if necessary), and all incidental expenses necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer.

Item No.	Item	Pay Unit
PK-ESCR 955 A	**5 in. Concrete Sidewalk at Dog Run**	**SF**
PK-ESCR 955 B	**Concrete Mound at Dog Run**	**SF**

SECTION PK-ESCR 956 – DOG BAG DISPENSER

WORK: Under this Item, the Contractor shall furnish and install **DOG BAG DISPENSER** in accordance with the plans, specifications and directions of the Engineer.

MATERIALS: Unless otherwise specified herein, all materials and methods shall conform to applicable portions of General Conditions, "Materials and Methods of Construction".

Dog bag dispenser unit shall be the "Mutt Mitt® Mini Station", as manufactured by Mutt Mitt, San Diego, CA, or approved equal. The unit shall consist of one (1) dog bag dispenser, one (1) galvanized steel post, one (1) box of 400 Mutt Mitt® Singles, one (1) custom sign and all necessary hardware.

Dog Bag Dispenser: The dispenser shall be fabricated from commercial grade, 18 gauge aluminum sheet, with a powder coated finish and shall be lockable. All dispenser boxes shall be keyed alike with two (2) keys provided per dispenser. Color of dispenser shall be green, unless otherwise specified on the drawings.

Post: Post shall be square, telescoping, galvanized steel post adjustable to lengths between forty eight inches (48") to ninety three inches (93"). Mounting holes with a diameter of seventh-sixteens inch (7/16") shall run entire length of posts, spaced one inch (1") apart.

Sign: The sign shall be ten inches (10") by twelve inches (12"), fabricated from commercial grade, 14 gauge aluminum sheet with silk-screen appliqued signage graphics. Signage graphics shall be as indicated on the drawings and specification.

Single Pull Bags: The bags shall be the "Mutt Mitt® *Singles*", single-ply 1 mil bags, as manufactured by Mutt Mitt, San Diego, CA, or approved equal. One box of 400 single pull bags shall be furnished per dog bag dispenser.

Hardware: All hardware shall be stainless steel.

Concrete: Concrete shall be placed as shown in the drawings. Concrete shall conform to N.Y.C. Dept. Of Transportation class B-32.

INSTALLATION: Dog Bag Dispenser shall be set in concrete footings in accordance with the manufacturer's instructions. Dog bag dispenser shall be assembled to configuration as shown on the drawings. Post shall be set square, plumb, and to grade in concrete footings as shown on the approved shop drawings. Footings shall have the top surface finished so as to provide sheet drainage away from steel post.

SUBMITTALS: All submittals shall be in accordance with the requirements of the General Conditions, S Pages.

Shop Drawings: The Contractor shall submit shop drawings or catalog cuts showing all components and assembly details. Also submit installation manual and manufacturer's warranty.

Design Mix Report: The Contractor shall submit a design mix report prior to the production and delivery of concrete for review and approval. Design Mix Report dated more than one (1) year of the submittal date will be rejected. The Contractor shall submit the design mix report including but not limited to the following information: date of design mix report, name and address of concrete mixing company, name and address of laboratory, name of project, water/cement (w/c) ratio, type and sieve analysis of aggregates, type of cement, type and amount of fly ash or slag used, percentage of portland cement replacement by fly ash or slag, types of admixture used, amount of water used, air content and slump of design mix, three (3) day curing strength, seven (7) day curing strength, and twenty-eight (28) day curing strength.

MEASUREMENT AND PAYMENT: For furnishing and installing **DOG BAG DISPENSER** in accordance with the plans, specifications, and direction of the Engineer, the Contractor shall receive the unit price bid.

The price bid shall be a unit price for EACH Dog Bag Dispenser, furnished and installed and shall include the cost of all labor, materials, equipment and incidentals necessary to complete the work, including average concrete footing, excavation, steel post, dispenser boxes, signs and single pull bags, in accordance with the plans and specifications, to the satisfaction of the Engineer.

Item No.	Item	Pay Unit
PK-ESCR 956	DOG BAG DISPENSER	EA

END OF SECTION

SECTION PK-ESCR 968 – TREE SALVAGE

DESCRIPTION OF WORK: The work under this Section includes the removal and salvage of trees within the contract area for NYC Parks and for Nature Exploration elements.

Tree Salvage for Nature Exploration: The work under this Section includes the removal and salvage of trees within the contract area to be delivered to the Contractor's fabricator of Nature Exploration elements including Log Scramble, Tree Round Border, Tree Round Maze, and Tree Round Seat as shown in the contract documents. The trees salvaged for Nature Exploration must be 80-90% *Gleditsia* sp. and 10-20% *Quercus* sp. Salvage trees for Nature Exploration elements will be determined and tagged in the field by the Engineer prior to actual removal date.

Tree Salvage for NYCDPR: The work under this Section includes the removal and salvage of trees within the contract area for NYCDPR use. This will involve cutting trees to specific log lengths, itemizing and handling the logs as described below, and transporting the logs to a NYCDPR facility within the five Boroughs. The Contractor will be required to remove individual trees in a manner that will optimize reuse of each tree for millable lumber. It is the intent of this Section to enable the salvage of as many trees 12" DBH and above as possible for future reuse based on size, species, condition and stem shape. Salvage trees will be determined and tagged in the field by the Engineer prior to actual removal date.

All work shall be performed by skilled persons, directly employed and supervised by the Contractor. All work shall be performed in a professional manner consistent with International Society of Arboriculture (ISA) and the American National Standards for Arboricultural Safety Z133-2012, approved by the American National Standards Institute (ANSI). ANSI Standards A300 and Z133, as well as all Federal OSHA laws and regulations, Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD) Part 6 Temporary Traffic Control (TTC) standards are incorporated and are made part of this contract.

TREE CONTRACTOR'S QUALIFICATIONS / EQUIPMENT LIST:

Certification and Experience. The Tree Contractor must provide the following:

a. The Tree Contractor must have at least three (3) years of experience in pruning; removal and disposal of trees, hanging limbs, branches and stumps; and soil decompaction.

b. The Tree Contractor must employ a minimum of one supervisory employee who is an ISA Certified Arborist, or a recognized approved equivalent certification such as New Jersey Certified Tree Expert.

c. The Tree Contractor must prove to the Engineer by transcript or otherwise that they employ a minimum of one supervisory employee in the field at all times with no less than Two (2) years' experience in commercial logging. This supervisor must be capable of overseeing the felling of trees for salvage.

d. At least one employee on each crew working within ten (10) feet of energized conductors must be a qualified line clearance tree trimmer as trained by TCIA Electrical Hazards Awareness Program (EHAP) as evidenced by certificate and/or by the live list of EHAP certificate holders on TCIA's website.

e. The Tree Contractor must submit for approval the names of two (2) references with contact person's phone numbers where the Contractor has provided similar service and performed such work on contracts of comparable size.

Equipment List

1. The Contractor shall possess and make available all tools, equipment and instruments necessary to make repairs and/or upgrades on all required parts and equipment covered under this contract. This shall include, but not be limited to, trucks, air lifts, climbing equipment, chainsaws of various sizes, chippers, stump grinders, portable wire detectors, hand tools, and all equipment and supplies necessary to complete the work as directed by the Borough Forestry Manager. In particular, the contractor shall provide the equipment and staff able to cut, move, stack at height of up to 14 feet, and load sawlogs of up to 8,000 pounds and up to 12 feet in length. Such equipment shall include but not be limited to:

    a. Hand tools
        - PPE (personal protective equipment which includes chaps, hardhat, ear protection, eye protection, gloves, work boots);
        - Loggers tape or 30' tape measure for scaling and measuring logs;
        - Falling wedges, mallet/hammer;
        - Chainsaws with appropriate bar length to fell trees (such as 36" and 42"-length bar on Stihl 660 or Husky 395xp for bigger logs);
        - 3/8" or heavier chain or chokers to move logs as needed;
        - Paint marker such as Sakura Solid Paint Marker for marking cut logs on both ends.
    b. Heavy equipment (one of the following):
        - Full sized skid steer with forks or grapple attachment (such as Bobcat T180 capable of moving full sized logs 5,000-8,000 pound range); OR
        - Excavator that can lift or move logs with minimal damage to bark; OR
        - Front loader with forks capable of moving 5,000-8,000 pound logs.

TREE SALVAGE PREPARATION

In advance of the tree's salvage for Nature Exploration, the Engineer will perform a walkthrough with the Contractor's ISA Certified Arborist to select and tag those trees to be salvaged and delivered to the Contractor's Nature Exploration fabricator.

In advance of the trees' salvage for NYCDPR, The Engineer, in consultation with the NYCDPR Arborist, and the Contractors ISA Certified Arborist will perform a walkthrough to select and tag those trees to be salvaged and delivered to NYCDPR.

The tree removal walkthrough for Nature Exploration must occur in advance of the walkthrough for the NYCDPR salvage walkthrough. The Nature Exploration tree salvage walkthrough may not take place after the walkthrough for the NYC Parks Tree Salvage. At the discretion of the Engineer, these walkthroughs may be joined.

TREE REMOVAL AND SALVAGE METHOD:

Each tree shall be designated by the Engineer prior to removal for reuse ("remove and salvage"), and indicated as to log length (8-, 10-, or 12-feet), quantity (one or two) and any specific cutting notations. At each tree location, the Contractor will cut standing trees for sawlogs as specified on tree removal plan. Although salvaged logs will generally be 8-, 10- or 12-feet in length, alternative lengths may be specified prior to removal. Length and quantity of all log sections depend on the shape and size of the tree and will be designated by the Engineer on a per tree basis.

Length and quality of all log selections for Nature Exploration depend on the shape and size of the tree and the appropriateness for its intended use as shown in the contract drawings and specification **Section PK-ESCR 912 Nature Exploration Fabrication** and **Section PK-ESCR 913 Nature Exploration Installation**.

1. Felling Operation. Contractor shall use removal methods that reduce potential damage to salvaged logs. All shafts shall be cut as close to the root flare as possible, and all log lengths shall be measured from this stump cut upwards. The distance from the ground surface to the first cut at stump level shall be specified for each tree or shall be not more than six (6) inches off the ground. Contractor shall either use ropes to lower salvaged logs to ground or a crane if necessary. In either case, adequate protection shall be used to brace the log fall and maintain the physical integrity of logs specified for reuse. Adequate protection shall include a series of rubber tires or similar objects on ground surface to absorb the force of log impact so as to avoid cracking and splitting and or similar damage to the salvaged log.

2. Sealant Application. Apply clear wax end-sealer Anchor-Seal or approved equal to both cut ends of salvaged logs with a pump sprayer immediately after felling.

3. Labeling and Data Tracking. Contractor will be provided with a data tracking sheet template to be filled in for each log upon felling. The template will include a tree inventory code that corresponds to markings that shall be made on the log ends. Data to be recorded shall include the following information: tree removal date, tree inventory number, species, number of sections in each tree, diameter at both cut ends, and condition prior to and after felling. Codes shall be marked on both cut ends in a manner that codes are clearly visible.

4. Move cut logs to temporary on-site storage area. Maximum safety measures must be used by the Contractor during tree removal. The Contractor shall carefully protect against damage to all existing trees, plants, curbs, sidewalks, utilities, and other features to remain. During tree removal operations, SherrillTree TRI-GUARD SYSTEM, or Engineer approved alternative such as plywood and/or tarps, must be used to protect adjacent vehicles, real property, and pedestrians. If, when removing trees, existing sidewalks or curbs are disturbed, the Contractor shall restore and/or reset disturbed sidewalks and curbs, at no additional cost, to the satisfaction of the Engineer. All repairs should take place within three (3) days of the damage occurring or as directed by the Engineer.

DISPOSITION OF SALVAGED LOGS:

1. Log Disposition. NYCDPR Salvaged logs shall be transported by the Contractor using a self-loading log truck to a NYCDPR facility within the five boroughs. , Contractor will document log hauler/trucking company information on manifest including company name and address,

name of driver, and company contact information. Each log load will include tracking data on logs contained within as described above. Logs and manifests must be submitted to the Engineer.

2. Log Decking. An on-site log decking area with a minimum of at least 5,000 square feet for stacking logs must be designated in coordination with the Engineer. Areas should be accessible for ease of pickup by truck and should be kept secure and free from obstruction.

    a. Contractor shall deck all logs from salvaged trees in a manner to facilitate truck loading. Log decking and stacking shall be done so that log inventory codes are visible from one side. Logs should be organized by like species and length. Log stacks shall not exceed 14 feet in height.

3. Salvaged Log Chain of Custody For NYCDPR. The Contractor's custody of the salvaged logs ends at the time of delivery to the NYCDPR facility. At the time of delivery, NYCDPR must sign for logs and copies must be provided to the Engineer, Contractor, and NYCDPR.

4. Salvaged Log Chain of Custody For Nature Exploration. Salvaged Logs for Nature Exploration remain in the Contractor's custody until fabrication and installed on site are completed as per the specification Section PK-ESCR 912 Nature Exploration Fabrication and Section PK-ESCR 913 Nature Exploration Installation. The chain of custody must be included with the Nature Exploration delivery paperwork and submitted to the Engineer.

PLANT PEST AND DISEASE CONTROL REQUIREMENTS:

Contractors shall compiy with Federal and State Department of agriculture regulations for plant pest and disease control. New York State Department of Agriculture and New York State Department of Environmental Conservation regulations require contractors operating in infested areas to thoroughly clean all equipment units before moving equipment to non-infested areas.

QUARANTINE AREAS and ORDERS FOR THE ESTABLISHMENT OF PROTECTIVE ZONE PROVISIONS: The Contractor is required to abide by all existing and any new or revisions to legislation and orders regarding quarantines and protective zones while working on this contract. Full information can be obtained from Federal and State Pest and Disease Control agencies and personnel.

CREW CONFIGURATION

The Tree Contractor shall furnish a list showing each employee's identification number and title (classification). The Contractor shall advise of any and all changes in his/her roster of employees assigned to this contract. A Tree Removal Crew is defined for **tree removal** operations as at least five (5) crew members. One (1) aerial lift operator or climber aloft and engaged in tree cutting with a chainsaw and/or hand saw, two (2) ground workers engaged in assisting worker aloft in lowering limbs, clearing and chipping wood debris in a wood chipper attached to a truck for chip collection and two (2) worksite safety specialists exclusive of tree work operations and engaged in securing a safe work zone and directing vehicular and pedestrians around the active work zones.

MEASUREMENT AND PAYMENT:

This is an incremental cost item. All trees salvaged and paid for under this section will also be paid for removal under Section **PK-ESCR 0-05 – TREE REMOVAL.**

The quantity of **TREE SELECTION, STORAGE AND PREPARATION**, for Nature Exploration shall be a unit price for **EACH** tree between 12" and 36" DBH as specified in the drawings, and shall include the cost of all labor, materials and equipment necessary for salvage of trees with log disposition – delivery to site for Nature Play Fabrication as determined by the Contractor with approval from the Engineer, and all other incidental expenses necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer.

The quantity of **REMOVE-SALVAGE TREE, ANY CLASS** shall be a unit price for **EACH** tree of the over 12" DBH size group, and shall include the cost of all labor, materials, equipment, walkthrough and preparation necessary for salvage of trees with log disposition – delivery to NYCDPR as specified by the Engineer, and all other incidental expenses necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the Engineer.

ITEM #	CLASS SIZE	DIAMETER
PK-ESCR 968 A	2	12" to under 18"
PK-ESCR 968 B	3	18" to under 24"
PK-ESCR 968 C	4	24" to under 30"
PK-ESCR 968 D	5	over 30"

All trees marked for salvage shall be measured for their diameter at breast height (DBH), a height of four and a half (4 1/2) feet from the ground. On level surfaces, measurements shall be taken from any face of the tree. On slopes, measurements shall be taken at the highest grade elevation.

The price bid shall be a unit price per **EACH** and shall include the cost of all labor, materials, and equipment required, including transport, on site storage, limbing of trees, pruning, and all incidental expenses necessary to complete the work in accordance with the plans and specifications, to the satisfaction of the engineer.

Tree Removal, Clearing and Grubbing, Nature Exploration Fabrication, and Nature Exploration Installation shall be paid for under its respective contract items.

Payment will be made under:

Item No.	Item	Pay Unit
PK-ESCR 916	**TREE SELECTION, STORAGE AND PREPARATION**	**EA**
PK-ESCR 968 A	**REMOVE-SALVAGE TREE 12-18 CLASS 2**	**EA**
PK-ESCR 968 B	**REMOVE-SALVAGE TREE 18-24 CLASS 3**	**EA**
PK-ESCR 968 C	**REMOVE-SALVAGE TREE 24-30 CLASS 4**	**EA**
PK-ESCR 968 D	**REMOVE-SALVAGE TREE 30+ CLASS 5**	**EA**

END OF SECTION

FLOODWALL - PAGES

SPECIAL FLOODWALL SPECIFICATIONS

CONTRACT SANDRESM2

The specifications in the FLOODWALL-Pages cover the procurement, fabrication, and construction of the floodwalls, floodgate foundations, tide gate chambers, manhole flood proofing, construction methods and associated works.

The FLOODWALL-Pages supplement the specifications shown on the Specifications and Standards of New York City sheet at the beginning of this Volume 3, which apply to the work except as modified in these Contract Documents.

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SECTION ESCR-2 – JET GROUTING

2.01 INTENT.

This section describes the performance of the jet grouting that will be used in the flood protection system as a seepage barrier, gate foundation, and ground improvement. The Contractor shall be responsible for selecting jet grouting parameters, equipment, and construction methods to meet the specified requirements of the Engineer. Design, consisting of area replacement ratio and depth of the elements or structures created by jet grouting is to be by the Engineer. Detailing to construct the required elements or structures is by the Contractor.

2.02 DESCRIPTION.

Jet grouting consists of creating soil-cement in situ by jet grouting to increase the compressive strength of the subsurface soils over the depths and limits shown on the Contract Drawings.

The work shall consist of all labor, equipment, materials, testing, and supplies necessary to design and install the jet grouting to meet the specified performance requirements.

The Contractor shall use the jet grouting method to install soil-cement in areas indicated on the Contract Drawings to form complete and continuous soil-cement elements.

2.03 MATERIALS.

The grout slurry may consist of a homogeneous mixture of any of the following materials:

(A) Cement, Portland, Type II, ASTM C-150 or AASHTO M85

(B) Ground granulated blast furnace slag, ASTM C989 (Standard Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars)

(C) Fly ash Class C or F, ASTM C618 or AASHTO M295.

Fly ash class to be utilized depends upon the required end product. Calcium content and loss-on-ignition properties to be considered for the fly ash that is being proposed.

(D) Potable Water or approved other source shall be free of deleterious materials that may adversely affect the grout. If water is from sources other than recognized potable water suppliers, the water shall be analyzed, e.g., in accordance with AASHTO T26, to ensure that it will have no adverse effect on the setting, hardening or durability of the mix and, where applicable, will not promote corrosion of the reinforcement.

(E) Bentonite, if required, powdered bentonite per API Standard 13A.

(F) The ratios of the material components, by weight, shall be proposed by the Contractor, confirmed during the preconstruction test program, and reviewed by the Engineer. Once accepted, grout slurry composition shall not be changed unless requested in writing by the Contractor and accepted in writing by the Engineer.

2.04 EQUIPMENT.

(A) All equipment used for drilling boreholes; lowering, raising and rotating jet monitors; mixing grout; supplying pressurized grout and air-water to jet monitors; and jet monitors shall have proven performance records for use in jet grouting work, as demonstrated by the information to be submitted.

(B) Drilling Equipment

Use drilling equipment of a type and capacity suitable for drilling required hole diameters and depths, and lowering, raising, and rotating jet grout monitors to the depths and at the rates required to perform the work as shown on the Contract Drawings and as specified herein. The drill rig shall be equipped with automated controls to regulate and maintain consistent rod lift rate and rod RPM, and shall have pressure gauges and flow meters for all fluids injected.

The drilling equipment shall have specialty drilling bits capable of advancing through the site subsurface conditions including, but not limited to, concrete, brick, stones, timber piles, seawalls, cobbles, and boulders.

(C) Grout Mixing and Injection Equipment

Use grout mixers and holding tanks, water tanks, air compressors, and pumps of sufficient capacity to ensure adequate supply of grout, air, and water at required pressure to the jet grouting monitors during a full work shift to produce grout elements of the quality and dimensions necessary.

Grout mixers must be high shear type and equipped with load cells to accurately weigh and proportion each component of the grout mix. Paddle type mixers must be utilized.

For high grout volume demand, batch mixing may not produce sufficient supply and alternate mixing methods must be considered with evidence that quality is not compromised.

(D) Jet-Grouting Pump

Shall be capable, with the nozzles proposed, of providing the required pressure and flow rate adequate for the execution of the work.

(E) Compressor (for Double and Triple Fluid Jet-grouting)

Shall be capable of producing the pressure and flow rate values proposed by the Contractor depending on the parameters chosen.

Double fluid jet grouting refers to the jet grouting technique where one fluid, typically neat cement grout, is injected at high velocity through horizontal radial nozzle(s) and is assisted by a second fluid, typically air, delivered through a coaxial nozzle(s), to directly erode and mix with the in-situ soil.

Triple fluid jet grouting refers to the jet grouting technique where one fluid, typically water, is injected at high velocity through horizontal radial nozzle(s) and is assisted by a second fluid, typically air delivered through a coaxial nozzle(s), to erode the in-situ soil, while a separate nozzle placed lower on the monitor delivers a third fluid, typically neat cement grout, at lower velocity to simultaneously fill the soil zone eroded by the cutting fluids (air and water).

(G) Filling Grout Pump (for Triple Jet-Grouting)

Shall be capable of producing the pressure and flow rate required, and proposed by the Contractor depending on the parameter chosen.

(H) Jet Grout Tools

Contractor shall use jet grouting monitors with appropriate nozzles with the capacity suitable for producing jet grout elements in the soil types identified during

Subsurface Explorations performed at the site, and of the size and depth shown on the Contract Drawings and as specified herein. The drill hole diameter shall be sufficiently large to be a clear path for continuous spoil return during all jetting operations.

(I) Equipment Instrumentation

Contractor shall provide instrumentation that allows continuous monitoring and automatic recording of data throughout the jet grouting operations. As a minimum, the following shall be provided:

- Pressure gauges/devices at the drilling rig to automatically record pressures of cement grout, water, and air during the grouting process.
- Flow meter(s) to monitor and record the rate and total volume of grouting fluids through the grouting monitor at every element.
- Devices that automatically monitor and record the rate of monitor rotation and withdrawal.

2.05 CONTRACTOR QUALIFICATIONS

(A) The entity performing the jet grouting shall be experienced in jet grouting operations comparable to that described herein and have at least 5 years of experience in jet grouting methods. Jet grouting experience shall include at least 5 projects of similar magnitude and complexity to that required for the program specified herein.

(B) The jet grouting field superintendents shall each have at least 5 years of experience in jet grouting techniques similar to that required for the Work; including at least 2 projects, one of which within the past 5 years of similar magnitude and complexity to that required for the Work.

2.06 SUBMITTALS

(A) Contractor shall submit qualifications, and information regarding similar projects the Contractor has constructed, where jet grouting was utilized.

(B) Jet Grouting Equipment

Contractor shall provide catalog cuts, details of grout mixers, pumps, drill rigs, and a plan view of the jet grout equipment arrangement proposed for use on this project, noting any equipment that has been modified or is of unique construction.

Examples of field data collection forms, including a sample copy of daily field report.

(C) Grout Mix Design

Mix design for the project indicating sources and types of grout materials, including (if available) field test data from previous projects.

Method for verifying grout mix proportions.

(D) Field Demonstration Test Program

Details of proposed field demonstration test program for jet grouting. This shall include location of test columns, layout of test pattern, jet grouting parameters to be used and variables to be tested during test program, and details of proposed quality control/quality assurance testing to meet acceptance criteria specified.

Following performance of the field demonstration test program and prior to beginning production jet grouting operations, submit a summary of the test program including details regarding as-built layout of test area, drilling procedures, grout mixture, jet grouting parameters, quality control/quality assurance records and test results, and proposed jet grouting parameters for use in production grouting based on test program.

(E) Jet Grouting Procedure

General Work Procedures Plan outlining the spacing, location, depth and general sequence to achieve the specified criteria detailed in this specification. Jet Grout element locations shall be dimensionally referenced to the contract drawings and shown on layout plans of suitable scale to effectively indicate the details of the layout. If pre-drilling of jet grout holes is to be utilized, describe the methods and type of equipment to be used.

Contractor to provide a jet grout spoil return management plan outlining waste containment methods during jet grouting and treatment and removal plans for jet grout spoil return. Include estimated width of annulus for spoil return and corrective actions to be taken if spoil return is not free-flowing, interrupted or episodic.

Jet grout site specific safety plan or job hazard analysis.

(F) Quality assurance, quality control and verification procedures to be used for the field test and production work.

Details of the procedures to obtain soil-cement samples; and catalog cuts or shop fabrication drawings of the soil-cement sampling device and curing boxes.

Proposed details and formats of all required tabular and graphical data presentations that will be submitted to the Engineer during the course of the Work. This shall include submittal of a copy of the reports used for data monitoring and recording.

Details for hydraulic conductivity testing and/or water-tightness testing if specified.

Details of column diameter and overlap verification.

(G) Contingency Plan shall be established by the Contractor to remediate any condition where it is found that jet grout columns were not constructed to the required or planned dimensions, including diameter or length.

(H) Daily Reports

Within one business day after the end of a work shift, the daily reports shall be submitted to the Engineer.

2.07 TEST PROGRAM.

(A) Prior to production work, a test program shall be conducted by the Contractor in accordance with the accepted work plan, at an on-site location agreed upon with the Engineer. The test program shall resemble the production jet grouting that will be constructed for the project.

The test program shall be used to optimize/verify the various parameters including type of jet-grouting (single, double or triple), necessity of pre-jetting with water, grout mix composition, fluid(s) flows and pressures, rotational speed, lift rate, spoil

return, grout, and number and size of nozzles; and confirm that resultant in situ soil-cement properties and dimensions meet required design criteria.

(B) The test program will be observed, reviewed and verified for contract conformance by the Engineer. The test program shall be installed within the project site in areas near the planned production work at a location agreed upon between the Engineer and the Contractor and in representative soils and depths anticipated to be found during production work.

(C) Each test section shall consist of a plan of elements suitable to demonstrate feasibility and installed to the same elevations specified for the production jet grouting work.

(D) The test elements shall be exposed by excavation for the upper 8 ft and measured for geometric properties. Proper shoring shall be installed to ensure the safe sampling and testing of the jet grout column at no additional cost to the City.

Core samples or other testing method shall be used to demonstrate column size/geometry for the full length. Coring at the centroid of a group of three (3) elements shall be carried out, as a minimum.

Where coring is used to verify diameter for the full length, verticality shall be measured for each test column and the coreholes to verify the location of the elements at the final depth.

Three acceptable/representative specimens from each column shall be sent to an independent Laboratory for the tests required to satisfy the criteria specified in the Acceptance Criteria section. The costs for the coring, sampling, and testing and all associated work must be included in the Contractor's unit prices for jet grouting.

(E) Perform hydraulic conductivity testing when jet grouting is used as a seepage barrier. Hydraulic conductivity testing procedures shall be in accordance with ASTM D2434, or as approved by the Engineer.

(F) The results of the test program and the recommended jet grouting parameters for the production work shall be submitted in a report to the Engineer for review.

The Contractor, at their expense, may be required to repeat the construction of a test section if the results of the test program do not meet the project requirements. The test program shall confirm that the resultant soil-cement properties met the required design criteria prior to the Contractor proceeding with production work.

(G) Jet grout columns for production and the testing program shall be installed using the same make and model of; mixing machinery, cement grout mixing and pumping equipment, and the same materials and procedures implemented by the contractor. The production jet grout columns must follow the materials and procedures accepted in the test program.

2.08 INSTALLATION OF JET GROUT

(A) Contractor shall conduct all survey layout and utility clearance for the jet grouting operations and coordinate with all other Work on the site. Jet grouting shall be installed in a manner so as to not create obstructions or hindrances to subsequent aspects of the Work.

(B) Contractor shall take all precautions necessary to prevent movements and damage to any existing structure, roadways and utilities, and also prevent

settlement or heaving of the ground that could occur due to jet grouting operations in the vicinity of existing structures and utilities.

(C) Jet grouting around existing DEP sewers that are to remain in-service shall only commence after the sewer has been inspected using a CCTV system to verify and record the existing conditions of the sewer at no additional cost to the City. If the condition of the sewer is such that the jet grouting operations might cause further damage to the sewer and/or result in the leakage of jet grout into the sewer, the interior walls of the sewer shall first be lined in accordance with NYCDEP Standard Sewer and Water Main Specifications Section 50.71 Reconstruction of Existing Sewers Using DEP Approved Cured-in-Place-Pipe (CIPP) Lining Method.

(D) Jet grout columns shall be installed using the same make and model of; mixing machinery, cement grout mixing and pumping equipment, and the same materials and procedures implemented by the Contractor and accepted in the test program.

(E) Jet grout columns shall be installed in accordance with the patterns developed by the Contractor and accepted by the Engineer, to achieve the compressive strengths and unit weights provided below, and required plan area coverages over the depths and limits shown on the Contract Drawings. Where the jet grouting layout consists of overlapping jet grout columns, center-to-center spacing of jet grout elements shall at any elevation not be greater than 75% of the jet grout column diameter and shall include allowance for tolerable vertical alignment deviation.

Soil Type	Soilcrete UnitWeight (min.) PCF	Soilcrete Unconfined Compressive Strength (min.) PSI
Sand and Gravel	120	750
Silty Sand and Silt	120	750
Clay	115	400
Organic Silt	110	250

(F) After final jet grouting, the Contractor shall obtain samples of in-situ jet grout in accordance with the locations and frequencies specified in the Quality Assurance-Quality Control Program.

(G) Any jet grouted element, which exhibits partial or total instability, shall be remediated at no additional cost the City. Engineer will provide direction regarding jet grout columns that according to the records were not constructed to replicate test columns, and agreed upon production jet grouting procedure; additional measures shall be required for these jet grout columns.

(H) Once jet grouting is started at any location, the jet grouting operation shall continue until the soil-cement element is completed. If jet-grouting is interrupted during the execution of a column, the re-start of the jetting shall be undertaken at least 1 foot below the stopping point.

(I) Jet grout columns shall not be installed within 2 ft as measured between outside edges of soil-cement elements that are less than 48 hours old. The 48 hour delay may be shortened if the Contractor demonstrates to the satisfaction of the Engineer that the installation of any adjacent placements would not have a deleterious effect on any previously installed soil-cement elements or the ground.

(J) The following horizontal and vertical alignment tolerances shall apply for the jet grouting:

- The maximum horizontal deviation of the as-installed center of any jet grout column at the ground surface installation level shall not exceed 3 in. from the layout center coordinate, shown on the accepted Contractor's submittal.
- The vertical alignment of the jet grout column (ie. vertical columns) shall not deviate in any direction more than 2% from vertical.
- At the direction of the Engineer, any jet grout column which exceeds the allowable horizontal or vertical tolerances shall be re-mixed within two days of initial placement, or supplemented with one or more adjacent overlapping columns, at no additional cost to the City.

(I) Contractor shall follow the approved Contingency Plan for the remediation of any condition where it is found that jet grout columns were not constructed to the required or planned dimensions, including diameter or length. This could occur due to the clogging of the equipment by the generated spoils. For such conditions, it might be necessary to install additional jet grout columns, or regrout the locations and depths affected. All remediation work performed by the Contractor shall be at not additional cost to the City.

2.09 OBSTRUCTIONS

(A) Subsurface strata may contain rubble, concrete, reinforced concrete slabs, timber piles, steel, bricks, stones, seawalls, abandoned foundations, utilities and other materials that can obstruct jet grouting operations. Where unknown obstructions are encountered during the jet grouting, the Contractor shall remove the obstruction or install additional jet grout columns to encapsulate the obstruction, at the direction of the Engineer.

(B) Each situation shall be resolved on a case-by-case basis. Payment shall be based on an agreed upon unit rate for handling obstructions. If such conditions are encountered, the Contractor shall notify the Engineer in writing, and provide all pertinent information relating to the nature, depth, plan location coordinates, expected extent of the obstruction, and proposed procedures to overcome the obstruction.

(C) If drilling for jet grouting cannot proceed due to an obstruction, the Contractor may elect to remove the object or submit an alternate jet grouting layout pattern to avoid or encapsulate the object, subject to the acceptance of the Engineer. Alternately, the Contractor may drill through the obstruction. Removal of the obstruction, or drilling through the obstruction shall be paid at the obstruction rate, while offsetting the column location will be paid at the standard rate for jet grouting in subsurface soils.

2.10 CONTAINMENT, COLLECTION, AND DISPOSAL OF SPOIL RETURN.

(A) At all times during jet grouting operations, the site shall be maintained cleared of all debris and water. Spoil return shall be piped or channeled to tanks or other collections structures. The Contractor shall regularly dispose of all waste materials in accordance with the requirements of the DEP and all other agencies having jurisdiction.

(B) Contractor shall be aware that subsurface contamination is expected in Reaches L-M, and shall implement all necessary measures to prevent the spread of the contaminated material. The extent and content of the contaminated materials can be found in the Contract reference documents, but the Contractor shall perform their own testing for verification and disposal purposes.

(C) All jet grout collection, containment, and disposal methods shall be shown on the shop drawings in the Contractor's submittals to the Engineer prior to the start of jet grout operations. The Contractor shall be responsible for and incorporate all sedimentation and turbidity control measures required by applicable federal, state, and city regulations.

(D) The Contractor shall take all necessary precautions and implement measures to prevent any spoil return, other spoil material or stockpiles materials from entering the storm drain structures, drainage courses, and other utility lines or from leaving the site via surface runoff. The Contractor shall prevent the migration of spoil return, spoil material, or stockpiled materials into any surface water body, beyond the immediate limits of jet grouting operations.

2.11 QUALITY CONTROL / QUALITY ASSURANCE

(A) All jet grouting shall be performed in the presence of the City's QA Representative. City's QA representative shall be notified prior to initiating jet grouting. Monitoring and logging of jet grouting operations for both test areas and production work shall be performed by the jet grouting Contractor.

(B) The Contractor's equipment shall be configured to record and continuously show all fluid flows and pressures, rotational speed, depth and rod lift rates. The rod lift rate and rod RPM shall be set by the driller then automatically controlled by the drill rig and automatically recorded on the jet grout installation log during the entire jet grouting process. The City's QA representative shall be provided the means to monitor this information in real time on request.

(C) All the data monitored and recorded shall be made available within one working day to the Engineer in a format previously agreed on prior to the work. The Contractor shall supply the Engineer with the software used for this task. The software shall be capable of processing the recorded data and presenting the data graphically in a satisfactory manner.

(D) Grout mix proportions shall be measured and documented by the Contractor per the submittal requirements. Appropriate records shall be kept by the Contractor and submitted to the Engineer to verify that grout mixture(s) are as accepted. Include daily quantities of materials used in Daily Reports.

(E) Throughout the jet grouting operations, perform continuous coring to full depth on 5% of production columns to obtain drill cores of the jet grouted soil. The core will be evaluated by the Engineer for compliance with specific acceptance criteria defined in this specification. The Contractor shall be notified immediately if the soil-cement samples do not meet the acceptance criteria outlined herein.

(F) Perform hydraulic conductivity testing of production elements where the jet grouting is used as a seepage barrier at the rate of 5% of the installed columns.

(G) Perform borehole deviation measurements on 5% of the columns. Selection of columns for borehole deviation measurements must be approved by the Engineer.

2.12 DAILY REPORTS

(A) Within one business day of a work shift, submit summary daily reports during production jet grouting that provide the information listed below. A sample of the report form proposed for use by the Contractor shall be submitted to the Engineer for approval prior to the start of work.

(B) Daily reports shall include the following:

- Equipment and Personnel on site
- Work initiated and completed
- Production interruptions
- Grouting Records
  - Jet grout element number, size and location.
  - Time and date of beginning and completion of each grout element, including interruptions to the jetting process or material supply.
  - Grout mix data, including mix proportions and unit weight density measurements.
  - Injection pressure of all fluids used to construct each grout element.
  - Flow rates of all fluids used to construct each grout element.
  - Rotation rate and lift rate of jet rods for each grout element.
  - Total grout quantity used for each element.
  - Top and bottom elevations of the jet grout element.
  - Whether flow of spoils return was continuous.
- Total quantities of materials used for that day.
- Observations of any unusual, or unanticipated conditions including obstructions, stoppages, loss of circulation, etc., impacts on instrumentation or monitoring.
- Applicable verification testing done.

(C) Continuous recording of jet grouting parameters shall be provided for each production column to verify consistency with the test program results.

2.13 ACCEPTANCE CRITERIA

(A) Installation records, daily reports, and other project documentation shall demonstrate that the selected parameters from the test program were accurately repeated for the production work.

(B) Wet Grab Soil-Cement Samples

A minimum of one in-situ sampling round, consisting of 3 sampling depths with 4 samples from each depth, shall be performed at a frequency of once per day, at locations selected by the Engineer. The samples shall be obtained at the same element which shall consist of a non-cured soil-cement sample obtained at three depths selected by the Engineer. The contractor shall obtain up to an additional wet grab sampling test suite at the direction of the Engineer, if required.

Each retrieved soil-cement sample shall be of sufficient volume to produce a minimum of four full cylinders, 6" diameter by 12" height. Separate and retain all soil-cement retrieved from each depth.

Soil-cement samples shall be protected from freezing and extreme weather conditions which could have deleterious effect, at all times in accordance with AASHTO T 23.

Soil-cement cylinders from each sampling depth, shall be tested to determine 7 day and 28-day unconfined compressive strength in accordance with AASHTO T 208.

If the Contractor cannot obtain all of the required wet grab samples of the soil-cement, in the designated soil-cement element, the Contractor shall obtain a full suite of wet grab samples from the next soil-cement installed by that rig.

(C) Coring / Uniformity: Recovery minimum 90%; Rock Quality Designation (RQD) minimum 50%

Full-depth core samples retrieved by the contractor shall be used to evaluate uniformity. Coring shall be with PQ-size triple core barrel with side discharge.

Core recovery (expressed as a percentage) is equal to the total length of recovered core divided by the total core run length. Length of recovered core includes lengths of treated and untreated soil.

Percent treatment is calculated as the total length of recovered core minus the sum of the lengths of unmixed soil regions or lumps that extend across the entire diameter of the core divided by the total core run length expressed as a percentage.

Uniformity is acceptable if percent treatment is at least 90% for every 5-ft core run. If the minimum percent treatment cannot be confirmed by coring in coarse sandy or gravelly soil, downhole camera/video can be used to confirm uniformity.

If the Contractor uses core runs shorter than 5 ft (e.g., 3 ft), then the recovery and percent treatment can be calculated by adding equal amounts of core run length on either side of the short core run length to make up a total 5-ft run length for calculation purposes.

(D) Hydraulic conductivity: $1x10^{-7}$ cm/sec

(E) Unconfined Compressive Strength of Jet Grout Soil Cement Mix

At least 90 percent of all jet grout samples tested shall have a minimum 28-day unconfined compressive strength as specified Sub-section 2.08E.

(F) Minimum overlap thickness: Where the jet grouting layout consists of overlapping jet grout columns, spacing between jet grouting columns shall be a maximum of 0.75 x jet grout diameter

(G) Borehole deviation and horizontal tolerances:

The center of the elements shall not be more than 3 in. from the indicated plan location.

Deviations shall be less than required for adequate column overlap.

Contractor shall obtain vertical alignment profiles over the length of one soil-cement element per day, along two perpendicular axes as directed by the Engineer.

2.14 MEASUREMENT.

The quantity of jet grouting to be measured for payment shall be by the cubic yard, measured to the nearest cubic yard per column, within only the "neat" plan area of the proposed jet grout shown on the Contract Drawings or approved by the Engineer. The volume shall be determined by multiplying the "neat" area within this zone times the actual depth of the jet grout. Jet grouting installed to overcome unknown obstructions shall be included in the total measured quantity of jet grouting, as accepted by the Engineer. Additional quantities of jet grouting installed by the Contractor during remixing to achieve the performance requirements, or that are outside the limits of the jet grout shown on the Contract Drawings without the acceptance of the Engineer will not be measured for payment.

The quantity of sewer lining to be measured for payment shall be by the linear feet, measured to the nearest half foot as approved by the Engineer, and paid in accordance with NYCDEP Standard Sewer and Water Main Specifications Section 50.71 Reconstruction of Existing Sewers Using DEP Approved Cured-in-Place-Pipe (CIPP) Lining Method. The length of sewer lining shall cover the area affected by the jet grouting, as well as upstream and downstream to the nearest manhole.

2.15 PRICE TO COVER.

The contract unit price for jet grouting shall cover the cost of all labor, materials, plant, equipment, insurance, samples, testing, and incidentals required to furnish and install the jet grout within the plan area coverages over the depths and limits shown on the Contract Drawings, in full compliance with the requirements of the specifications. Jet grouting that does not meet the specific performance requirements shall be satisfactorily repaired or replaced by the Contractor at no cost to the City.

Payment will be made under:

Item No.	Item	Pay Unit
ESCR-2.A	JET GROUTING FOR UTILITY CROSSING SEEPAGE BARRIER – ANGLED	C.Y.
ESCR-2.AO	JET GROUTING FOR UTILITY CROSSINGS SEEPAGE BARRIER – ANGLED AND WITH OBSTRUCTION	C.Y.
ESCR-2.V	JET GROUTING FOR UTILITY CROSSING SEEPAGE BARRIER – VERTICAL	C.Y.
ESCR-2.VO	JET GROUTING FOR UTILITY CROSSING SEEPAGE BARRIER – VERTICAL AND WITH OBSTRUCTION	C.Y.
ESCR-2.GC	JET GROUTING FOR GATE CROSSING SEEPAGE BARRIER	C.Y.
ESCR-2.GCO	JET GROUTING FOR GATE CROSSING SEEPAGE BARRIER WITH OBSTRUCTION	C.Y.
ESCR-2.FD	JET GROUTING FOR GATE AND FLOODWALL FOUNDATION	C.Y.
ESCR-2.FD0	JET GROUTING FOR GATE AND FLOODWALL FOUNDATION WITH OBSTRUCTION	C.Y.
ESCR-2 TP	JET GROUT TEST PROGRAM	L.S.

END OF SECTION

SECTION ESCR-3.05 – CONCRETE

3.05.01 INTENT.

This section describes Concrete for use in the floodwall, floodgate foundations, tide gate chambers, retaining walls, retaining wall foundations, seatwall foundations, and other miscellaneous park structures.

3.05.02 CLASSES AND TYPES.

(A) Concrete shall be of the classes and types shown in Table 3.05-I.

Note: Based on dry-rodded volumetric measurement of ingredient materials:

High Early Strength Concrete is approximately equal to a 1 : 1-1/4 : 2-1/4 mix.

Class A-40 Concrete is approximately equal to a 1 : 1-3/4 : 2-3/4 mix.

Class B-32 Concrete is approximately equal to a 1 : 2 : 3-1/4 mix.

TABLE 3.05-I

Class		Concrete Type	Type of Portland Cement Concrete
Designation	Nominal Mix		
Flood Protection System (ESCR-4.06 HP FL)	-	Type IA Type IIA	Normal Air-entrained Moderate Sulphate Resistant Air-entrained
Marine/Esplanade Structures (ESCR-4.06 HP ES)	-	Type IA Type IIA	Normal Air-entrained Moderate Sulphate Resistant Air-entrained
High-Early	7-1/2 Bag Mix	Type IIIA	Moderate Sulphate Strength Resistant Air-entrained
Class A-40	7-Bag Mix	Type IA Type IIA	Normal Air-entrained Moderate Sulphate Resistant Air-entrained
Class B-32	6-Bag Mix	Type IA Type IIA	Normal Air-entrained Moderate Sulphate Resistant Air-entrained

Note: The above proportions shown for non-High-Early mixes shall be modified by pozzolan substitutes as per Subsection 3.05.4.

(B) Concrete shall be mixed by the following methods:

Method A -- Central Plant Mix

Method B -- Transit Mix

Method C -- Truck Mix

Method D -- Mixed by hand or in job mixers not exceeding one-half (1/2) cubic yard capacity when permitted by the Engineer.

Central Plant Mix Concrete is concrete produced at an approved plant, ready for use prior to discharge into a transporting vehicle.

Transit Mix Concrete is concrete whose constituent materials are proportioned at a central plant and mixed with water in transit to or at the point of deposition in a transporting vehicle.

Truck Mix Concrete is concrete whose constituent materials are proportioned at a central plant and transported to the point of deposition where water is added and mixed in a transporting vehicle.

Unless otherwise specified, concrete may be mixed by Method A, Method B or Method C.

(C) Class, type and method of mixing concrete shall be as specified.

Type, grade, size number and corresponding nominal size of coarse aggregate shall be as specified. Concrete shall be pigmented when specified.

3.05.03 MATERIALS.

Concrete shall be a homogeneous mixture consisting essentially of cement, fine aggregate, coarse aggregate, water, and admixtures and pozzolan (when used). It shall be proportion-strength concrete whose constituent materials are proportioned in accordance with specification requirements to produce a required strength. Air-entrained concrete shall be concrete which in addition to the above shall have a specified air content resulting from the use of an admixture in the concrete.

(A) CEMENT

Cement shall be dry, free from lumps and have a temperature less than 170^{o} Fahrenheit when used.

For concrete exposed to view, the Contractor shall not use more than one (1) brand, unless otherwise permitted.

Cement shall be measured by weight or in full bags of 94 pounds each for Portland cement.

When cement is measured by weight, it shall be weighed on a scale separate from those used for the other materials. After weighing, the entire contents of the hopper shall be completely discharged.

When the cement is measured in bags, no fractions of bags shall be used unless weighed. Bags of cement shall be taken from the place of storage and placed adjacent to the mixer, in separate piles containing the exact number of bags for each mixer charge. Each pile shall be emptied into the mixer for each charge.

(B) AGGREGATES

Aggregates shall be measured by weight. Batch weights shall be based on saturated surface-dry materials and shall be corrected to take into account the weight of surface moisture contained in the aggregate.

When volumetric measurements are permitted, the Engineer shall require such increase in the volumes of fine and coarse aggregates as will compensate for the bulking. Only approved measuring devices shall be used.

NOTE: When aggregates are measured in the damp-loose condition (for use in Mixing Method D), they will occupy greater volume than when dry-rodded and the percentage bulking shall be determined by test. Approximate average bulking value for sand is twenty-five (25) percent and for coarse aggregate six (6) percent. Volumes may also be determined from the Contractor's approved weight formula by dividing by the damp-loose weight of aggregates per cubic foot. Average weight of damp-loose sand is 85 pounds per cubic foot and average weight of damp-loose coarse aggregate is 95 pounds per cubic foot.

(C) WATER

Water shall be measured by volume or by weight. The device for the measurement of the water shall be readily adjustable and, under all operating conditions, shall be accurate within one (1.0%) percent of its maximum capacity.

Water shall be potable and drawn from municipal water mains.

(D) PIGMENTED ADMIXTURE

When pigmented concrete is specified, the concrete shall be colored with an approved pigment conforming to the requirements of Section 2.19. The final color of the concrete shall be as approved by the Engineer. Pigments used shall not vary the air content of the concrete by more than ±0.5%. The concrete mix shall be adjusted to provide that the air content of the concrete remains within the specified tolerances.

Pigmented admixture shall be measured by weight. Water present in pigment shall be taken into account in measuring the quantity of water required for each batch.

(E) POZZOLANS

Fly ash shall conform to the chemical and physical requirements for Mineral Admixture, Class F listed in AASHTO M 295 and shall meet the requirements of the NYS Department of Transportation, Standard Specifications, Section 711-10, FLY ASH, except that no alternate Class of fly ash will be acceptable. Any fly ash hardened by moisture will be rejected. Fly ash stored over the winter at the concrete producing plant will be retested for specification compliance by the Department or its agent.

Ground granulated blast-furnace slag (GGBFS) shall conform to the chemical and physical requirements for Grade 100 or 120 slag, as classified in AASHTO M 302, and shall meet the requirements of the NYS Department of Transportation, Standard Specifications, Section 711-12, GROUND GRANULATED BLAST-FURNACE SLAG. Any GGBFS hardened by moisture will be rejected. GGBFS stored over the winter at the concrete producing plant will be re-tested for specification compliance by the Department or its agent.

Microsilica (Silica fume) shall conform to the standard and optional physical and chemical requirements of AASHTO M 307 and shall meet the requirements of the NYS Department of Transportation, Standard Specifications, Section 711-11, MICROSILICA. Microsilica shall be used wherever increased early compressive strength, reduced permeability and increased abrasion resistance is required.

Maximum pozzolan limits shall be based on ACI 318-14, Exposure Class F3.

(F) ADMIXTURES

Admixtures shall comply with the requirements of Section 2.09, Admixtures.

All admixtures shall conform to ASTM C 494. They shall contain not more than 0.05% chloride ions, and shall be used in accordance with the manufacturer's recommendations. Submit dosage charts, including the effects of concrete temperatures from 50 deg F to 90 deg F, to the Engineer.

A corrosion inhibitor admixture shall be included in the mix design for the flood protection system and marine concretes. The concentration of calcium nitrite shall be 30% +/- 2% by weight of solids per gallon. Corrosion inhibitor admixture shall not accelerate the setting time of the concrete mixture. Use a retarder and/or other admixtures to ensure that acceleration of setting time does not occur, while maintaining the applicable performance criteria.

Corrosion inhibitor must be on the NYSDOT Approved List 711-1300 for Calcium Nitrite Based Corrosion Inhibitors.

3.05.04 CONTRACTORS FORMULA

All concrete mix designs shall be subject to approval by DDC's Quality Assurance and Construction Safety (QACS) Bureau and in accordance with their "MIX DESIGN, LABORATORY AND PLANT APPROVAL PROTOCOL". Copies of this protocol may be obtained at the pre-construction meeting or from the Engineer. Before the Contractor begins to manufacture concrete, the Contractor shall secure DDC's QACS approval of the mix design the Contractor proposes to use. The Contractor shall submit for this purpose a statement, in writing, of the sources of all ingredient materials, the type and brand of the cement, pozzolans and the number of pounds of each of the materials in a saturated surface-dry condition making up one (1) cubic yard of concrete. The calculated yield of the mix shall be within + 2% of the Theoretical one (1) cubic yard. The range of water-cement (W/C) ratios within which the concrete will be manufactured and the method of mixing to be employed shall also be stated. The mix design submittal shall include gradation of aggregates, specific gravities of ingredients, unit weight, mix proportion for each batch (a minimum of 4 batches except in case of precast plants where one specific mix may be proposed), compressive strength test results for each mix at 7 days, 28 days (high early strength mixes may require 6 hrs, 24 hrs, 3 days and shrinkage test as per the requirements), and graphical representation of strength vs. W/C projected in hours/days.

With the exception of high-early strength concrete, the Contractor shall be required to substitute Portland cement with pozzolans (Fly Ash and/or GGBFS) such that the maximum amount of Portland cement per cubic yard of concrete does not exceed 400 pounds, and with the use of an approved non-corrosive, non- chloride admixture as required to obtain a minimum compressive strength of 3,000 psi in seven (7) days. For high-early strength concrete the Contractor may substitute Portland cement with pozzolans (Fly Ash and/or GGBFS), pound for pound, up to 20% (or up to 25% for tidal/sea water spray areas) of the weight of cement specified for any concrete mixture provided the Contractor can obtain a minimum compressive strength of 3,000 p.s.i. in three (3) days. The Contractor, immediately following but not later than eight weeks after the date of the Contractor's Notice to Proceed, shall file with the Engineer, Age-Strength data of the job mix the Contractor proposes to use for the various ambient temperatures anticipated during the period of concrete placement. This data shall be presented in both tabular and graphical form for those various ambient temperatures with a maximum setting period of seven (7) days for Class B-32 concrete or seventy-two (72) hours for High-Early Strength Concrete.

Also, for high-early strength concrete, at no additional cost, the Contractor may be allowed to use a water reducing admixture to achieve an additional one (1") inch slump, for a maximum slump of

four (4") inches, to enhance workability and to help in surface finishing of the concrete. The admixture shall conform to the requirements of Section 2.09, Admixtures. If such an admixture is used the concrete shall have a minimum compressive strength of 3,200 psi at three (3) days as determined by the average compressive strength of one set of three (3) concrete cylinders for each day's work. The Contractor shall submit the mix design for approval by the Engineer; however, such approval by the Engineer shall not relieve the Contractor of their responsibility for meeting the minimum three (3) day strength requirements specified herein, when admixtures for slump and enhanced workability have been used.

The approved mix design shall not be changed without the written permission of the Engineer.

The approval of materials shall not preclude subsequent withdrawal of such approval in case of development of qualities objectionable to the Engineer.

On receipt of new deliveries of materials during the period of the contract, the Contractor shall inform the Engineer and the Contractor shall modify the mix design as directed by the Engineer. The order to modify the mix design shall be confirmed in writing.

The relative amounts of fine and coarse aggregates in any class of concrete may be changed within the limits given in Table 3.05-II by the Engineer at any time in order to secure maximum density and to promote workability, provided the sum of the absolute volumes of the aggregates is unchanged. Such changes shall be made when required without extra compensation, regardless of the quantity of concrete affected thereby.

3.05.05 MIX DESIGN.

(A) Unless otherwise specified elsewhere herein, concrete shall comply with the applicable requirements of Tables 3.05-II, 3.05-III, 3.05-IV, 3.05-V, and 3.05-VI.

(B) Concrete of Type IA, IIA and IIIA shall have an air-entrainment of 4 to 7 percent when the coarse aggregate is 1-1/2" stone and 5 to 7 percent when the coarse aggregate is 3/4" stone, with 6.5 percent desired in either case, except for the flood protection system and marine/esplanade structures class concrete, which shall meet the requirements in Paragraph (F).

(C) When an air-entraining admixture is added to the concrete it shall comply with the requirements of ASTM Designation C 260.

(D) Maximum water-cement ratio for concrete used in the flood protection system and marine/esplanade structures class concrete shall be 0.40.

(E) Chloride Ion Concentration by Weight of Cementitious Material (ASTM C 1152, ASTM C 1218, ASTM C 114, ACI 222R): The acid soluble chloride ions by weight of cementitious material in the concrete mix shall be less than or equal to 0.10% for reinforced concrete and 0.08% for prestressed concrete, as per ASTM C1202. The water-soluble chloride ions by weight of cementitious material in the concrete mix shall be less than or equal to 0.08% for reinforced concrete and 0.06% for prestressed concrete, as per ASTM C1218.

(F) Air entrainment in the flood protection system and marine/esplanade structures class concrete shall meet the requirements in Table 19.3.3.1 in ACI 318-14 for Exposure Class F3, as reproduced below.

Table 19.3.3.1—Total air content for concrete exposed to cycles of freezing and thawing

Nominal maximum aggregate size, in.	Target air content, percent	
	F1	F2 and F3
3/8	6	7.5
1/2	5.5	7
3/4	5	6
1	4.5	6
1-1/2	4.5	5.5
2	4	5
3	3.5	4.5

(G) The Upper Quality Limit, UQL, of concrete permeability for the flood protection system concrete and marine/esplanade structures concrete shall be 1,700 Coulombs when tested in accordance with ASTM C1202. Performance testing shall be performed at 28 days.

TABLE 3.05-II – PROPORTIONS

Class of Concrete	Nominal Size of Coarse Aggregate Used (in.)	Fine Aggregate Percentage by Weight of Total Aggregate (See Note 1)
Flood Protection System (ESCR-4.06 HP FP)	5/8 or 3/4	Note 2
Marine/Esplanade Structures (ESCR-4.06 HP ES)	5/8 or 3/4 1-1/2	Note 2
High-Early Strength	5/8 or 3/4 1-1/2	29 to 37 26 to 34
Class A-40	5/8 or 3/4 1-1/2	29 to 37 26 to 34
Class B-32	3/4	32 to 40

Note 1 – Quantity of fine aggregate may be varied within the limits indicated according to the type of coarse aggregate used, in order to obtain a smooth, dense, homogeneous and plastic mixture.

Note 2 – Fine aggregate shall conform to ASTM C33. Percentage by weight shall be selected by the Contractor to produce a workable and durable mix design.

TABLE 3.05-III - INGREDIENT MATERIALS

Applicable Sections							
Type of Concrete	Portland Cement	Pozzolans	Sand Fine Aggregates	Coarse Aggregate	Air-entraining Admixture	Pigment	Retarder
IA	2.10 Type I*	3.05.3.(E)	2.21 Type IA	2.02**	2.09	2.19	2.09
IIA	2.10 Type II*	3.05.3.(E)	2.21 Type IA	2.02**	2.09	2.19	2.09
IIIA	2.10 Type II* or III* Type IA	3.05.3.(E)	2.21	2.02**	2.09	2.19	2.09

* To be used with an approved air-entraining admixture, which shall be added at the time concrete ingredients are mixed with water.

** Coarse aggregate shall be Type 1, Grade A or Grade B, or Type 2, Size No. 357, Size No. 57 or Size No. 67 of ASTM Designation C 33, as specified.

TABLE 3.05-IV

COMPRESSIVE STRENGTH IN LBS. PER SQ. INCH, MIN. AVERAGE OF NOT LESS THAN THREE CYLINDERS OR CORES

Concrete – Type IA, Type IIA & Type IIIA at 28 Days	
Class of Concrete	Cylinders or Cores
Flood Protection System	5,000
Marine/Esplanade Structures	5,000
High-Early Strength	5,000***
Class A-40	4,000
Class B-32	3,200

***Concrete shall be required to obtain a minimum of 3,200 psi compressive strength at 3 days as determined by one set (3 cylinders) of concrete cylinders for each days work.

The above date limitations concerning cores refer to the date on which the concrete represented by the cores was deposited.

No reduction in minimum compressive strength will be allowed for concrete colored with pigment or any other additives.

TABLE 3.05-V

TIME STRENGTH TABLE PORTLAND CEMENT CONCRETE

When compressive strength tests are made after the standard 28-day period following placing of the concrete, the strength at 28 days shall be determined from the actual compressive strength in accordance with the following table:

Tested at Days	Divide by	Tested at Days	Divide by	Tested at Days	Divide by	Tested at Days	Divide by
28	1.000	44	1.071	60	1.120	76	1.157
29	1.005	45	1.075	61	1.122	77	1.159
30	1.010	46	1.078	62	1.125	78	1.161
31	1.014	47	1.081	63	1.127	79	1.163
32	1.019	48	1.084	64	1.129	80	1.165
33	1.023	49	1.087	65	1.132	81	1.167
34	1.027	50	1.090	66	1.134	82	1.169
35	1.032	51	1.093	67	1.136	83	1.171
36	1.036	52	1.096	68	1.139	84	1.173
37	1.040	53	1.099	69	1.141	85	1.175
38	1.045	54	1.102	70	1.143	86	1.177
39	1.049	55	1.105	71	1.146	87	1.179
40	1.053	56	1.108	72	1.148	88	1.181
41	1.058	57	1.111	73	1.150	89	1.183
42	1.062	58	1.114	74	1.152	90	1.185
43	1.066	59	1.117	75	1.155	Over 90	1.185

TABLE 3.05-VI - SLUMP VALUES

Concrete Placement	Design Slump Range, Inches	Maximum Slump, Inches
Sidewalks	1-1/2 to 3-1/2	3-1/2
Pavement Slipform Paving Form Paving	 1-1/2 to 2-1/2 1-1/2 to 2-1/2	 2-1/2 3
Pavement bases	1-1/2 to 4	4
Structural Slabs	3 to 4	4
Piers, Pedestals, Rigid Frames or Arches Box Culverts throughout, Footing and Headwalls, general purpose structural.	2-1/2 to 3-1/2	4
Cast-in-Place Piles	2-1/2 to 3-1/2	5
Underwater Concrete 6 inch minimum slump	6 to 7	8
High early strength pavement slabs or structural sections	2 to 3	3
Structural placement 3 inches thick or less	2-1/2 to 3-1/2	3-1/2
Slip formed median barriers, parapet walls, curbs	1/2 to 1-1/2	1-1/2
Floodwall and flood gate foundations	2-1/2 to 4	4
Esplanade and cut-off wall pile cap (Marine Structures)	2-1/2 to 4	4
Concrete Seawall Cap (Marine Structures)	2-1/2 to 4	4

NOTE: Maximum slump for pumping applications shall be 4 inches. When a slump test is conducted on concrete produced by a mobile mixing unit, the slump shall be measured 3 to 5 minutes after discharge from the unit.

The above slump requirements shall apply at the point of discharge.

The Contractor shall supply at each point of concrete delivery a slump cone and rod conforming to the requirements of ASTM Designation C143 for use by the Engineer.

3.05.06 CONCRETE BATCHING PLANT REQUIREMENTS.

The batching plant shall be so designed, operated and coordinated as to produce a sufficient quantity of concrete for the construction specified.

(A) ACCEPTANCE

Each Portland cement concrete batching plant shall be subject to approval by DDC's Quality Assurance and Construction Safety (QACS) Bureau and their "MIX DESIGN, LABORATORY AND PLANT APPROVAL PROTOCOL". The minimum requirement for approval is that the proposed Portland cement concrete batching plant must be on the New York State Department of Transportation (NYSDOT) approved list for the current construction season.

The minimum requirement for approval of a pre-cast concrete plant is that the proposed plant must be on the NYSDOT approved list. A waiver for this requirement may be granted by the DDC's Quality Assurance and Construction Safety (QACS) Director for special products that no NYSDOT approved plant is capable of producing.

Each Portland cement concrete batching plant shall also be subject to auditing and approval of the DDC's Director of Quality Assurance and Construction Safety (QACS). The Director of QACS may at any time discontinue the use of any previously approved equipment if non-conformance with the specifications result during the progress of the work. When the Director of QACS discontinues the use of the plant, production will not be acceptable for Department work until corrective measures satisfactory to the Director are carried out.

(B) BINS

The plant shall contain a sufficient number of aggregate storage or holding bins to produce the class of concrete specified. The bins shall have adequate separations for fine aggregate and for the various sizes of coarse aggregates.

Separate storage or holding bins shall be provided for cement of different types except that Type I or Type II may be combined in common storage. The bins shall protect the cement from rain and moisture.

Pozzolan shall be stored at the batch plant in a separate storage or holding bin and it shall be protected from rain and moisture.

(C) WEIGHT HOPPERS AND DISCHARGE CHUTES

The batching plant shall include separate weight hoppers for aggregate and cement. The cement weight hopper shall be enclosed to protect the cement against moisture and to reduce escaping dust.

All discharge chutes shall be arranged so that materials will not lodge or be lost on discharge. The chutes shall not be suspended from any part of the weighing system.

Vibrators arranged so that no significant vibrations are transmitted to the scales or other plant control equipment during the weighting process.

(D) SCALES

Each facility requires:

- Scales installed on or after January 2, 2003 for weighing materials shall be load cell type and shall indicate the load at all stages of the weighing operation from zero to full capacity.
- Scales shall meet the requirements of the National Institute of Standards and Technology, Handbook 44, with no less than 500 nor greater than 2000 scale divisions.
- Digital displays shall match the primary scale within one (1) division.
- The minimum resolution of digital displays shall be equivalent to or less than the minimum graduations on the primary scale.
- Digital displays shall be easily readable and located in direct sight from the operator's normal work station.

All plant scales shall be tested at the Contractor's expense by a competent scales technician as follows:

1. Annually, prior to use for Department work.
2. At intervals of not more than 90 calendar days.

3. Whenever a plant changes location.
4. At any time ordered by DDC's Director of Quality Assurance, or the Director's representative.

A cradle or test platform, approved by the Director of Quality Assurance and Construction Safety (QACS) or their representative, for each scale and at least 20 standard 25 pound test weights shall be provided for testing. The use of a set of tests weights for two or more plants will be permitted only when they can be made readily available within one (1) hour.

If directed by the Director of QACS or their representative, provisions shall be made for locking scales against tampering.

(E) PROPORTIONING CONTROL EQUIPMENT

The materials, including admixtures, shall be proportioned by automatic proportioning devices, approved by the Director of Quality Assurance and Construction Safety unless otherwise indicated on the plans or in the proposal.

The automatic proportioning equipment shall be installed in an area enclosed for protection against dust and inclement weather.

The requirements for these devices are specified under Subsection 3.05.7, Handling, Measuring and Batching Materials.

(F) INSPECTION FACILITIES

Each Portland cement concrete plant site supplying concrete for Department work shall have a building or room available for Department use as an office and testing facility. The facility shall be located such that the testing and inspection can be performed in a reasonable manner. The building or room shall be ventilated, lighted, and adequate heating and cooling equipment shall be provided to maintain an ambient air temperature of 70^0 F $\pm 5^0$. The facility shall contain tables, benches, shelves, running water and the necessary equipment required for testing concrete aggregates according to the Department's written instructions. A telephone or other approved means of communication shall be provided at the plant site for the Department's use. A toilet and a lavatory shall also be available at the plant site.

The following equipment is the required minimum and shall be properly installed and maintained in good operating condition:

1. A power driven coarse aggregate sieve shaker with a minimum clear sieve area of 324 Square inches and equipped with an automatic shut-off timing device. A dust cover shall be provided when the shaker is installed inside the facility. The shaker shall be anchored to a firm base.
2. A fine aggregate sieve shaker, power driven independently of the coarse aggregate shaker, for eight-inch diameter sieves and equipped with an automatic shut-off timing device.
3. An aggregate sample splitter adjustable for splitting samples ranging in maximum aggregate size from one-half inch to two inches.
4. A scale, fifty pounds minimum capacity, with maximum 0.02 pound graduations.
5. A scale, one thousand gram minimum capacity, with maximum 0.5 gram graduations.

6. A stove or hotplate suitable for sample drying.
7. A two drawer, legal size, file cabinet with lock and two keys for the exclusive use of the inspector.
8. Necessary accessory test equipment including sieves suitable for all types of aggregates to be used and sample containers.

When the testing facility is shared with others, the Department shall be given priority during production for Department use. The suitability of the inspection facility and the condition of the equipment shall meet the approval of DDC's Director of Quality Assurance and Construction Safety.

A laboratory, office and testing equipment will not be required for plants which are erected for the sole purpose of supplying one project with less than 500 cubic yards of structural and pavement concrete combined unless otherwise specified on the plans or in the proposal. The plant facilities for inspection personnel are the property of the Contractor or their supplier and they shall be provided and maintained in clean condition by the Contractor or their supplier during the course of the work.

3.05.07 HANDLING, MEASURING, AND BATCHING.

The batch plant site, layout and equipment shall be such as to assure a continuous supply of material to the work.

The aggregates shall be batched at the batch plant site according to these specifications. When approved by the Director of Quality Assurance and Construction Safety, bagged cement may be incorporated into the mixture. The batch size shall be adjusted to use whole bags of cement.

(A) STOCKPILES

Stockpiles shall be formed on bases approved by the Director of Quality Assurance and Construction Safety or their representative. The bases shall have adequate drainage and may consist of prepared aggregate bases, concrete, metal or wood surfaces, or barge floors. The stockpiles shall be built by methods which do not cause particle segregation. Aggregates from different sources and of different sizes shall be stockpiled separately in a manner such that the aggregates will not be contaminated by other sizes or aggregates from other sources. Department approved aggregates shall be stockpiled separately from the non-approved aggregates.

Aggregates shall be handled throughout the batching process in a manner such as to maintain uniform grading of the material. In case the aggregates contain a high or non-uniform moisture content, the aggregates shall be stockpiled a sufficient length of time to stabilize the moisture content.

Each plant shall be equipped with an approved moisture sensing device that will indicate on a readily visible scale or chart the moisture content of the fine aggregate as it is batched. The free moisture content of the fine aggregate at the time of batching shall not exceed 8 percent of its saturated-surface dry weight.

(B) HEATING MATERIALS FOR COLD WEATHER CONCRETING

The aggregates and/or water shall be heated prior to batching to obtain a plastic concrete temperature not less than 50^0F or more than 70^0F, at the time the mixture is placed in the forms. When the air temperature is 32^0F or above, and when the aggregates are free of ice and frozen lumps, the desired temperature of the plastic concrete may be obtained by heating the mixing water only, unless otherwise ordered by the Engineer or the Engineer's representative. When the air temperature is below 32^0F, or whenever ordered, both mixing water and aggregates shall be heated as herein specified.

For additional requirements to permit the placement of concrete base, curb and sidewalks during cold weather conditions, see Section 9.04 - Allowance for Anti-freeze Additive in Concrete.

All water used for mixing concrete shall be heated to a temperature of at least 70^0 Fahrenheit but not over 180^0 Fahrenheit. Aggregates shall be heated either by steam or by dry heat to a temperature of at least 40^0 Fahrenheit but not over 100^0 Fahrenheit. To avoid the possibility of flash set, when water is heated to a temperature in excess of 100^0 Fahrenheit, water and aggregate shall be mixed together in the mixer in such a way that the high temperature of the water is reduced before cement is added. The heating equipment shall be such as to heat the mass uniformly and preclude the possibility of the occurrence of hot spots which will overheat the material.

(C) BATCHING

All plants shall be equipped with an approved automatic weighing, cycling and monitoring system installed as part of the batching equipment, unless otherwise indicated in the specifications, on the plans or in the proposal. The system shall include equipment for accurately proportioning the various components of the mixture by weight, or by volume for admixtures and water, in the proper order and shall include equipment for controlling the cycle sequence. In addition, timing of the mixing operations for central mix plants shall be required. The automatic proportioning system shall be capable of consistently delivering each constituent within the tolerances indicated in Table 3.05—VII, Batching Tolerances. The system shall be designed so that the only manual operation(s) required to produce a preprogrammed batch within these specifications shall be a switch or button to initiate the batching sequence and discharge the completed batch.

There shall be auxiliary interlock cutoff circuits to interrupt and stop the automatic batching operations whenever an error exceeding the acceptable tolerance occurs in proportioning for all material components except water. DDC's Director of Quality Assurance and Construction Safety or the Director's representative may require the locking or sealing of any automated proportioning equipment that may be manually manipulated.

When the aggregate sizes are weighed cumulatively, the tolerance for each bin draw weight shall be based on the total aggregate batch weight. If aggregate sizes are weighed separately, the percentage shall apply to each scale weight. When a pozzolan is weighed cumulatively with the cement, the pozzolan shall be last in the weighing sequence and the tolerance for each material draw weight shall be based upon the total weight of cement plus pozzolan. The electrical circuits used to check delivery tolerances may be set at any span within the full allowable tolerance for

any approved batch size. For plants not equipped to automatically adjust tolerances, the tolerance span shall be set for the minimum approved batch size wherever varying batch sizes are being produced.

The system shall be interlocked during the batching of cement and aggregates so that:

1. No inlet gate can be opened while the weigh hopper discharge gate is open.
2. No weigh hopper discharge gate can be opened-
   (a) While the hopper is being filled.
   (b) Until the full batch weight is within the delivery tolerance.
3. No new batch can be weighed until the hopper is entirely empty of the previous batch and the scale has returned to zero.

When manual batching is permitted, the constituents shall be batched within the indicated delivery tolerances for the automatic proportioning system.

TABLE 3.05-VII
BATCHING TOLERANCES

Cement & Pozzolan	± 1% (by weight)
Aggregate	± 2% (by weight)
Water (Note 1)	± 1% (by weight or volume)
Admixtures	± 3% (by weight or volume or ± 1 oz.(Note 3), whichever is greater)
Zero Return (Aggregate)(Note 2)	± 2%
Zero Return (Cement & Pozzolan) (Note 2)	± 1%
Zero Return (Water)(Note 1, 2)	± 1%

NOTES: 1: Tolerance applies to water added at central mix plants only.
2: Zero Tolerance is based on the minimum allowable batch size.
3: Based on the preprogrammed target quantity.

(D) ADMIXTURE DISPENSING SYSTEMS

Plants shall be equipped with the number of dispensing systems necessary to incorporate the required admixtures into the concrete. At least two admixture dispensing systems shall be required for plants supplying structural concrete. These systems shall be capable of accurate measurement within the tolerance limits specified in Table 3.05-VII, Batching Tolerances. The measuring devices shall be equipped with a bypass valve suitable for obtaining a calibrated sample of admixture. Admixtures shall be dispensed in a manner that shall insure uniform distribution of the material throughout the mixture within the specified mixing period. When multiple admixtures are added to the concrete, they shall not come in direct contact with each other prior to mixing. Plants equipped with automatic proportioning systems shall include an approved automatic mechanical admixture dispensing system. The dispensing system shall consist of a volumetric measuring device, interlocked with the plant automated proportioning equipment in such a manner that will positively insure that the quantity of admixture preset into the

system has been actually measured and completely discharged. The admixture system shall be interlocked with the automated system so that:

1. Aggregate and/or cement weigh hopper discharge gates cannot be opened until the preset quantity of admixture has been satisfactorily batched or discharged.
2. The recordation of the presence of admixture shall be dependent upon the completion of the admixture discharge.

All plants shall provide at the operator's normal work station readable indication of the actual quantity of admixture batched.

(E) RECORDING OF BATCHING

All concrete batching plants equipped with automatic proportion systems shall have digital recording instruments approved by DDC's Director of Quality Assurance and Construction Safety (QACS) and shall be so located as to be readily accessible and readable to the operator from their normal work station. The recording instruments shall be designed to record the quantities of each aggregate component, cement, pozzolan (when used), water (at central mix plants) and the presence of admixture for each batch of concrete produced. All records of batches shall show the batch number, the day, the month, year, and time of day to the nearest minute for each batch and they shall be imprinted on the record so that each batch may be permanently identified. The Department shall be provided with a clear and legible copy of all batch records.

Cement, pozzolan and aggregate component weights quantities shall be recorded separately. Water at central mix plants may be recorded by weight or volume.

Weights and/or volumes shall be recorded as indicated on the batching scale or meter within an accuracy of ± 1 scale or meter gradation. The minimum recorder resolution shall be equivalent to or less than the minimum gradation on the scale or meter, unless otherwise approved by the Director of QACS.

When the automation system is capable of producing other than standard size batches (full, half or quarter cubic yard increments), the recordation requirements shall be in accordance with written directives from the Director of QACS.

On automation systems installed on or after January 2, 1987, a clear and identifiable indication shall appear on the recordation, whenever a batch is initiated without all conditions being satisfied for fully automated production under these specifications or a system is taken out of the fully automated mode during the batching sequence.

Each plant site shall be equipped with an approved instrument capable of automatically applying a time- date stamp to each delivery ticket as the delivery vehicle departs from the plant site.

(F) FAILURE OF AUTOMATIC BATCHING, ADMIXTURE DISPENSING AND RECORDING EQUIPMENT

If at any time the automatic proportioning, admixture dispensing or recording instruments become inoperative, the plant may be allowed, with the approval of DDC's Director of Quality Assurance and Construction Safety, or the Director's representative, to batch and mix concrete mixtures for a period not exceeding 48 hours from the time of breakdown. Written permission of the Director of Quality

Assurance and Construction Safety, will be required to operate without these instruments for periods longer than 48 hours.

3.05.08 CONCRETE MIXING, TRANSPORTING AND DISCHARGING.

(A) GENERAL

Concrete may be mixed at a central plant, in truck mixers or at the site as described in these specifications. When mixed at a central plant, the concrete shall be transported in vehicles acceptable to the NYSDOT. All concrete shall be discharged from the discharge openings directly into the forms or into approved conveyance equipment while fresh and before there is evidence of initial set. No retempering of the concrete will be permitted. Retempering is defined as the addition of water after the mix has attained its desired initial slump. Temperature of the concrete mixture upon discharge shall not exceed 90° Fahrenheit.

The Contractor shall supply concrete at a rate consistent with placement operations as determined by the Engineer. The Engineer, or its representative, may discontinue the use of any type of concrete mixing or transporting units when unsatisfactory results are obtained. The requirements of this section shall apply unless otherwise stated in the specific item.

A summary of time limitations for the various types of Portland Cement concrete mixing equipment from the beginning of batching to the completion of discharge is given to Table 3.05-X, Summary of Concrete Batching, Mixing, Hauling and Discharging.

(B) CONCRETE UNIFORMITY

Mixing shall be performed in an approved mixer capable of combining aggregates, cement, water and admixtures into a thoroughly mixed and uniform mass within the specified mixing period, and discharging the mixture without segregation. Each mixer shall display, in a clearly visible location, a manufacturer's supplied plate(s) stating the capacity of the mixer and the recommended drum speeds for each operation.

All concrete produced shall meet the uniformity requirements in Table 3.05-VIII, Concrete Uniformity. Tests shall be performed by the Department when required by the specifications or requested by the Engineer. It will not be necessary to verify that mixing equipment meets the uniformity requirement unless evidence of non-uniform concrete is found or unless the Contractor requests a reduced mixing time for central mixers. In order to obtain uniformity the Contractor may reduce the batch size below the rated mixer capacity or reduce the mixing speed tolerance limit.

(C) CENTRAL MIXED CONCRETE

Central mixed concrete is defined as concrete mixed in a stationary mixer and transported in approved agitating or non-agitating units to the point of deposition. Central mixed concrete may be used for mixing all concrete mixtures unless otherwise specified on the plans or in the proposal. Batch sizes for any mixer shall be no larger than the rated capacity of the drum indicated on the manufacturer's plate.

Mixing units shall be equipped with an acceptable timing device that will not permit a batch of concrete to be discharged until the specified mixing time has elapsed. Mixing units and control devices will be disapproved by DDC's Director of Quality

Assurance and Construction Safety (QACS), or the Director's representative if at any time they are found unfit to function properly. When the blades inside the drum have become loose, broken, bent, scalloped or worn away 20 percent in any dimension, they shall be properly repaired or replaced.

The constituents of the concrete mix shall be charged into the mixer in a manner approved by the Director of QACS or the Director's representative. The minimum mixing time after all materials are in the drum shall be 90 seconds, unless it can be demonstrated through tests that uniformity of the concrete meeting the requirements of Table 3.05-VIII, Concrete Uniformity, can consistently be obtained at lesser time as approved by the Director of QACS. Central mixers shall discharge the entire batch in an unrestricted manner into a hopper or directly into a delivery unit. The delivery unit shall transport the thoroughly mixed concrete to the point of use without loss of uniformity. Each delivery unit must be approved by the Director of QACS or the Director's representative prior to use and subjected to frequent inspections during its use. If found unfit, it will be disapproved until the proper operating condition has been restored. Both the agitating and non-agitating delivery units shall be completely emptied, clean and free from concrete and wash water before receiving the next load of concrete.

Delivery agitating units shall rotate at a drum speed of 2 to 6 revolutions per minute unless otherwise approved by the Director of QACS. Agitating units shall conform to the requirements for truck mixers under Subsection 3.05.8.(E), Truck Mixed Concrete, as they pertain to operating condition and condition of the drum. When central mixed concrete is transported in units approved for truck mixing, a minimum of 90 percent of the design water shall be added to the mix by the batch plant water system. The addition of water to obtain initial slump will be permitted at the work site in not more than two additions. After each addition, the concrete shall be mixed at least 30 revolutions in accordance to truck mix requirements before discharging.

The haul road used by non-agitating concrete delivery units shall be free from holes washboarding or any other features that would cause segregation in the mix. In addition, non-agitating concrete delivery units shall have cover, when ordered by the Engineer, to protect the concrete from adverse drying conditions and precipitation.

TABLE 3.05-VIII
CONCRETE UNIFORMITY

Test	Permissible Variation concrete samples taken at two locations in the batch
1. Weight per cubic foot calculated to an Air-Free Basis	2.0 lbs. per C.F.
2. Air Content, % by volume of concrete	1.0 percent
3. Slump:	
Average slump 4 inches or less	1.0 inches
Average slump greater than 4 inches	1.5 inches
4. Coarse aggregate content, portion by weight of each sample retained on a No. 4 sieve	6.0 percent
5. Unit weight of air-free mortars based on average for all comparative samples tested	1.6 percent
6. Average compressive strength of 7 days for each sample based on average strength of all comparative test specimens	10.0 percent

NOTE: Samples shall be taken at the point of discharge of the concrete mixer. Sampling and testing procedures shall be as approved by the DDC's Director of Quality Assurance and Construction Safety.

The time interval between completion of mixing at the central mix plant and completion of discharge shall be as noted in Table 3.05-IX, Time Limits for Delivery of Central Mixed Concrete.

TABLE 3.05-IX
TIME LIMITS FOR DELIVERY OF CENTRAL MIXED CONCRETE

Delivery Unit	Type of Placement	Maximum Time Minutes	Notes
Non-agitating including all open top units	All	30	
Agitating – rotating drum	Structural	90	1
Agitating – rotating drum	Pavement	60	1 & 2

NOTE 1. The concrete will be rejected if there is evidence of setting up in the mixer. The Engineer may reduce the total time limit in hot weather or under unusual conditions if unsatisfactory results are obtained.

NOTE 2. The Engineer may increase the allowable time to 90 minutes maximum for small or irregular sections of pavements where placing and finishing operations can be completed rapidly.

(D) TRANSIT MIXED CONCRETE

Transit mixed concrete is defined as concrete mixed completely in a truck mixer; mixing may occur at the following locations or combinations thereof: at the plant, while in transit, or at the point of deposition. Transit Mix may be used for all concrete items unless otherwise specified on the plans or in the proposal.

The truck mixer shall be the inclined axis rotating drum type equipped with a water tank(s) and water system having a measuring a device to measure water (U.S. gallons) introduced into the drum within an accuracy of two percent. In addition, each truck mixer shall be equipped with a hatch in the periphery of the drum shell of such design as to permit access to the inside of the drum for inspection.

Each truck mixer used for transit mixed concrete shall be equipped with an approved electrical revolution- counting device mounted in a clearly visible position.

The device shall show on separate counters (1) the number of drum revolutions at speeds within the mixing range and (2) the total number of drum revolutions. Both counters shall be legible to one revolution and shall be designed to accept a non-standard electric plug for resetting each counter to read zero at the time of loading at the batch plant. The revolution counting device shall be tamperproof such that if tampering occurs the counters will become inoperative or the device will otherwise indicate tampering including the interruption of electric power.

The revolution counting device shall be installed to count the number of revolutions of the drum in the direction of mixing. The device shall be adjusted so that it counts the number of revolutions specified for the mixing and agitating drum speed within the tolerances indicated on the manufacturers rating plate, but not to exceed the following requirements for truck mixers:

Mixing - 6 RPM minimum to 18 RPM maximum
Agitating - 2 RPM minimum to 6 RPM maximum

These limits may be adjusted for individual mixing units upon approval of the DDC's Director of Quality Assurance and Construction Safety (QACS).

Each truck mixer unit shall be inspected and approved annually by the Director or QACS or the Director's representative for use in Department work. During its use, additional inspections will be made by the Director of QACS or the Director's representative to determine the operating condition of the equipment. Whenever improper conditions exist, the truck mixer unit shall be satisfactorily repaired or replaced. This will include blades inside the drum which have become heavily caked with mortar, loose, broken, bent, scalloped, worn 20 percent in any dimension or otherwise damaged.

Truck mixers will not be permitted to mix concrete batches having volumes greater than the maximum cubic yard capacity indicated on the manufacture's rating plate(s). The drum shall be drained of wash water before charging with the constituents of the concrete mixture, and the drum shall be revolving during loading.

Approximately 90% of the design water shall be added to the mix in a manner approved by the Director of Quality Assurance and Construction Safety, by either a batch plant water system or from the water supply carried on the truck.

Mixing shall begin not more than 5 minutes after cement has made contact with the aggregates. The load shall be mixed from 70 to 100 drum revolutions and then checked for consistency. If the truck is enroute to the project, the mixer speed shall be changed to agitating speed after 70 to 100 mixing revolutions. Under no circumstances shall the mixer drum be stopped.

Water may be added to the mixture in not more than two additions at the point of deposition before discharge to obtain initial slump. After each such addition the concrete shall be mixed at least 30 revolutions in the mixing speed range. The total number of revolutions in the mixing range shall not be less than 100 nor more than 160.

After completion of mixing, discharging may begin immediately, otherwise the mixer shall be revolved at agitating speed. Once discharge has commenced, the entire load shall be discharged in not more than 50 minutes.

Concrete shall be discharged through a completely opened discharge gate providing unrestricted flow. The discharge area or gate shall remain fully open throughout the discharge period and the rate of discharge shall be controlled by the speed of the drum.

The total time interval from the moment the cement makes contact with the aggregates to the completion of discharge shall not exceed 90 minutes for structural concrete placements and 60 minutes for pavement concrete placements. The Engineer may increase the allowable time for pavement placements to 90 minutes maximum for small or irregular sections where placing and finishing operations can be completed rapidly. The Assistant Commissioner, Construction or their representative may reduce the total time limit in hot weather or under unusual conditions, if unsatisfactory results are obtained.

(E) TRUCK MIXED CONCRETE

Truck mixed concrete is defined as concrete mixed completely in a truck mixer following the addition of mixing water at the point of deposition. The requirements of Subsection 3.05.8.(D), Transit Mixed Concrete, apply except as modified:

1. Each truck mixer shall have an approved revolution counter located in a position readily visible to the Engineer. The electrical revolution counting device will not be required but it may be used to count the number of revolutions of the drum in the direction of mixing.

2. The loading of the mixers shall be performed in the following manner:

   a. Regular Truck Mix (cement in contact with moist aggregates). The drum many be rocked or revolved during the charging of coarse and/or fine aggregates with admixtures. Cement shall be charged last and the drum shall be stationary until mixing begins. Mixing shall begin no longer than 30 minutes after cement comes in contact with the aggregate.

   b. Layered Truck Mix (cement in contact with saturated surface dry or drier coarse aggregate). Fine aggregate with admixtures, coarse aggregate and cement that have been separately batched shall be charged through a hatch in the side of the drum in the following sequence: fine aggregate with

admixtures, coarse aggregate and then cement. The drum may be rocked after the addition of each aggregate size and shall remain stationary while charging the cement and until mixing begins. Mixing shall begin no longer than 90 minutes after cement comes in contact with the coarse aggregate.

3. Mixing shall begin at the point of deposition after the addition of water. The water shall be introduced into the drum either from the head section or by dual injection from both the head and discharge section. The mixing shall continue for a minimum of 100 revolutions or until uniform concrete of the required consistency is produced whichever is longer. The mixing period shall not exceed 15 minutes.
4. The entire load shall be discharged within 30 minutes after mixing has been completed.

TABLE 3.05-X
SUMMARY OF CONCRETE BATCHING, MIXING, HAULING AND DISCHARGING

Central Mixed Concrete	Transit Mixed Concrete	Truck Mixing Concrete	
	Requires electric revolution counting device	Regular Truck Mix	Layered Truck Mix
Begin Batching Charge mixer in an approved manner	Begin Batching Materials batch loaded or ribbon loaded thru back	Begin Batching Drum can be rocked or revolved for aggregates	Begin Batching Fine agg. and SSD coarse agg. is loaded thru hatch. Can rock after each fraction
	Add approximately 90% of design water	Drum cannot be moved while cement is added	Drum cannot be moved while cement is added
End of Batching & Begin Mixing 90 Seconds Minimum — After all material are in the mixer	Cement In Contact W/Aggs. 5 Minutes Maximum	Cement In Contact W/Aggs. 30 Minutes Maximum	Cement In Contact W/Aggs. 90 Minutes Maximum
End of Mixing Open Haul Units: Agitators 2-6 rpm 30 Minutes Maximum — 60 Mins. Max. (Pav't) — 90 Mins. Max. (Struct.) Rotating Drum	Beginning of Mixing At plant or in transit 100 revs Minimum — 160 revs Maximum Mix: 6-18 rpm	Beginning of Mixing At project, after the addition of water 100 revs Minimum — 15 Minutes Maximum Mix: 6-18 rpm	Beginning of Mixing At project, after the addition of water 100 revs Minimum — 15 Minutes Maximum Mix: 6-18 rpm
	End of Mixing Agitate 2-6 rpm Beginning of Discharge 50 Minutes Maximum	End of Mixing 30 Minutes Maximum — Agitate 2-6 rpm	End of Mixing 30 Minutes Maximum — Agitate 2-6 rpm
Completion of Discharge When concrete is transported in units approved for mixing, the remainder of the design water may be added at the work site to attain initial slump.	Completion of Discharge The remainder of the design water may be added at the work site to attain initial slump.	Completion of Discharge	Completion of Discharge

(F) MOBILE CONCRETE MIXING UNITS

A mobile concrete mixing unit, as approved by the Engineer, may be used in miscellaneous work defined as curb, gutter, headwalls, catch basins, manholes, drop inlets, field inlets, sign foundations, lighting structure foundations, anchor units, pullboxes, leveling footings and similar placements.

Each mobile mixing unit shall be self-contained and of the continuous mixing type, capable of carrying sufficient unmixed dry bulk cement, fine and coarse aggregate, water and admixtures to produce on site no less than six (6) cubic yards of concrete.

The mobile mixing unit shall be equipped with proportioning devices which shall deliver the materials within the following tolerances by weight:

Cement	0 to + 4%
Fine Aggregate	± 2%
Coarse Aggregate	± 2%
Water	± 1%
Admixtures	± 3%

The amount of cement being introduced into the mix shall be measured by a meter which is clearly visible and kept clean at all times. The quantity of cement shall be recorded by a ticket printer which shall, as a minimum, record the number of revolution counts of the cement feeder.

The mixers shall provide positive control of the flow of water into the mixing chamber. Water flow shall be indicated by a flow meter and be readily adjustable to provide for minor variations in aggregate moisture. The system shall be equipped with a bypass valve or hose suitable to determine batching accuracy.

The mixers shall be equipped with at least one admixture delivery system. Each system shall provide positive control of the flow of admixture into the unit's mix water system. Flowmeters shall be used to control the amount of admixture added to the mix. Admixtures shall be dispensed in a manner that shall ensure uniform distribution of the material throughout the concrete. The system shall be capable of adding admixture in the amounts necessary to achieve the required air content. The system shall be equipped with a bypass valve suitable for obtaining a calibrated sample of admixture to determine batching accuracy. The mixers shall be capable of combining aggregates, cement, water and admixture into a thoroughly mixed and uniform mass. Discharge of the mixture shall be accomplished without segregation.

When mobile mixing units are permitted, no specific mixing time will be required except that the concrete shall be properly and uniformly mixed as determined by the Engineer. All the constituents of concrete manufactured by a mobile mixing unit shall be stockpiled at the project site unless otherwise approved by the Engineer.

The Contractor shall calibrate the mobile mixing unit and shall provide a record of the calibration of the unit to the Engineer for the mix design to be used. The Engineer will furnish the mix design information and the written calibration procedure to the Contractor. The Department reserves the right to witness the calibration of the mixing unit.

Prior to actual use, the Contractor shall demonstrate, to the Engineer, that the concrete meets the specification requirements for slump, air content and

proportioning. Proportioning may be verified in accordance with written Department procedures.

If, in the opinion of the Engineer, improper conditions exist, the conditions shall be corrected as approved by the Engineer. Improper conditions shall include, but not be limited to, hydrated cement deposits and mixing blades which are loose, broken, bent, scalloped, worn 20 percent in any dimension, or heavily caked with mortar.

If the Engineer determines that the mixer unit is not performing satisfactorily, the Engineer may discontinue use of the unit. The Contractor shall provide the necessary scales, containers and personnel approved by the Engineer to perform calibration of the unit.

(G) SMALL CONSTRUCTION MIXERS

In work involving small quantities of concrete, the Engineer may permit a small construction mixer. The mixer shall be capable of producing concrete having the specified slump and air content. Any concrete placed under such conditions shall be mixed no less than 90 seconds after all the materials are in the mixer drum.

The use of a small construction mixer shall not be permitted for the flood protection system and marine structures.

3.05.09 TEMPERATURE OF CONCRETE.

The concrete at the time of pouring shall be maintained at a temperature of not less than 50° nor more than 90° Fahrenheit.

When the air temperature exceeds 85° Fahrenheit, the concrete subsequent to initial set shall be protected for three (3) days after pouring so as to prevent it from going above 90° Fahrenheit.

When the air temperature is less than 38° F in the shade the Contractor may submit, to the Engineer for approval, proposed methods for placing and protecting concrete in the cold. At such temperatures concrete shall be poured only with the approval of the Engineer and shall be adequately protected.

If the air temperature falls below 50° F, an accelerator may be used. If the air temperature exceeds 85° F, a retarder may be used. Accelerators and retarders must be approved by the Engineer before use.

3.05.10 QUALITY CONTROL PROCEDURES.

The quality control procedures used for on-site inspection, sampling and testing of Portland cement concrete shall conform to those procedures described in the Department's Materials Method 9.2 - Field Inspection of Portland Cement Concrete.

3.05.11 MEASUREMENT AND PAYMENT

No separate or additional payment will be made for compliance with the requirements of this Section.

END OF SECTION

SECTION ESCR-4.06 – CONCRETE IN STRUCTURES

4.06.01 INTENT.

This section describes Concrete in Structures to be used in the floodwall, floodgate foundations, tide gate chambers, retaining walls, retaining wall foundations, seatwall foundations, seawall cap, and other miscellaneous park walls, curbs, seatwalls and features.

4.06.02 DESCRIPTION.

Concrete in Structures under this section shall refer to all concrete in structures other than concrete curb, concrete sidewalk, concrete base for pavement, and concrete pavement. Finish, color and design shall be as specified.

4.06.03 MATERIALS.

(A) Concrete for deposit as a concrete structure shall comply with the requirements of Section ESCR-3.05, Concrete, and be of the class, type and method of mixing specified. Coarse aggregate shall be of the type, grade, size number and nominal size specified. Rubble aggregate shall be used when specified or shown on the Contract Drawings.

(B) Concrete for the floodwall, floodgate foundations, tide gate chambers, and other flood protection system structural elements shall be Flood Protection System class concrete as described in Section ESCR-3.05, Concrete.

(C) Concrete for the Stuyvesant Cove concrete sea wall cap shall be Marine/Esplanade Structures class concrete as described in Section ESCR-3.05, Concrete.

(D) All concrete for Parks Structures items shall be Mix Class B-32 as described in Section ESCR-3.05, Concrete.

(E) Concrete reinforcement shall comply with the requirements of the following sections:

Steel Bars--Section 2.23

Welded Steel Wire Fabric--Section 2.25

Kind of reinforcement, size and placement shall be as specified and as shown on Contract Drawings. Reinforcement shall be installed in accordance with the requirements of Section ESCR-4.14 Steel Reinforcement in Concrete.

(F) Elastic Type Concrete Expansion Joint Sealer shall comply with the requirements of Section 2.22, type as specified.

(G) Preformed Expansion Joint Filler shall comply with the requirements of Section 2.15, type as specified.

4.01.04 SUBMITTALS

(A) CONCRETE MIX DESIGN

Concrete mix design with product and test data demonstrating compliance with Section ESCR-3.05, Concrete.

Concrete mix design shall indicate strength and type of concrete; materials, type, brand and amounts of material constituents, including but not limited to cement, pozzolans, admixtures and applicable reference specifications.

Re-qualifications of materials or mix proportions required as a result of changes, test failures, or failure to gain initial approval for any reason.

(B) CERTIFICATES

1. Cement – supplier's certified mill reports for cement produced within 30 days of the project start date and every other mill report thereafter throughout the project.
2. Fly Ash – supplier's certified mill reports for fly ash produced within 60 days of the project start date and every other mill report thereafter through the project finish date.
3. Slag – supplier's mill reports for fly ash produced within 60 days of the project start date and every other mill report thereafter through the project finish date.
4. Admixtures – manufacturer's letter of certification, signed by a duly authorized manufacturer's representative, dated not less than 30 days from the project start date, and manufacturer's product data
5. Aggregate – supplier's test reports generated within one year of the project start date showing evaluation and compliance of product in accordance with the specification requirements of ASTM C33.
6. Water – supplier's test reports generated within three months of the project start date showing evaluation and compliance of product in accordance with the specification requirements of ASTM 1602.
7. Certified test reports for field cured cylinders, as required for removal of forms
8. Certified test reports for cores and/or load tests
9. Manufacturers' certification of compliance with specified materials and products
10. Mill Test Certificates for steel reinforcement
11. Certified Test Data and reports for materials and compressive strengths of mix designs

(C) CONCRETE PLACEMENT PLAN

Concrete placement plan, including procedure for bending or straightening reinforcement in the field, plan for mixing, transporting, conveying, placing, finishing, and curing concrete, procedure for placement of concrete underwater, procedure for repair of defects, and mechanical splicing procedures.

(D) SHOP DRAWINGS

1. Shop Drawings and required structural computations for formwork for elevated beams and slabs as applicable.
2. Plans and procedures for reshoring.
3. Shop Drawings for Steel Reinforcement.
4. Shop Drawings for park feature elements including Asser Levy seat wall and wall transition and Murphys Brothers Playground Seatwall, Murphys Brothers stepped seatwalls
5. Locations of Construction Joints, expansion joints, and waterstops.

6. Engineer's approval of Shop Drawings shall not relieve the Contractor of the responsibility for any errors, or for furnishing materials of the proper size, quality and quantity.
7. Locations of conduit runs, pipes, and all other inserts or openings in concrete elements.
8. Record Drawings

(H) TEST AND SAMPLING DATA

Provide all test and sampling data as per Section ESCR-3.05, Section 5.02, and specified herein.

(I) MOCK-UP FOR CONCRETE WORK FOR PARK FEATURES:

After all samples, product data, and the shop drawings are approved, construct mock-ups for Asser Levy seat wall and wall transition and Murphys Brothers Playground Seatwall, Murphys Brothers stepped seatwall in a location approved by the Engineer and as described below. Mock-ups and mock-up submissions for the park concrete work shall consist of the following:

Mock-ups shall consist of the following:

- Foundation of a size and reinforcement adequate to support the work at the designated location.
  - Scope of mock-up:
    - One vertical construction joint in wall.
    - Include any embeds as they would be required for wall construction and cast-in elevation markings as shown on Drawings.
    - Include typical wall elevation and transition and any jointing necessary for the transition
    - Include typical step down wall

- Reinforce as in a similar detail on the drawings and add necessary reinforcing and/or supports to maintain stability of the mock-up.
- Use approved reinforcement and accessories and assemble formwork using methods as intended for construction and to achieve the specified requirements.
- Place concrete with methods to be used in construction, including anticipated time delays between placements. Place concrete to achieve the specified requirements.
- Finish exposed surfaces of the walls with specified finish treatments when directed by the Engineer.
- Use approved concrete design mixes, inclusive of specified admixtures, for the mock-ups as will be used in the construction of the formed surfaces.
  If mock-ups do not meet the specified quality and are not approved, remove and replace in full or in part at no additional cost. Mock-ups shall be located so they will remain throughout construction. Protect mock-up from damage. Remove mock-up only when directed by the Engineer.

4.06.05 DESIGN AND CONSTRUCTION OF FORMS.

(A) Forms shall accurately conform to the shape, lines and dimensions of the structure for which they are required, be substantial and sufficiently tight to prevent leakage of mortar, and have, unless otherwise specified by the

Engineer, moldings or chamfer strips at angles. They shall be of adequate strength and be braced or tied together with approved ties and spacers, so as to maintain position and shape, and to insure the safety of workmen and passersby, be clean and free from sawdust, chips, dirt, ice and other objectionable materials. Forms shall present smooth, true surfaces to the concrete placed against them, having temporary openings where necessary, to facilitate cleaning and inspection immediately before concrete is deposited. Forms shall be coated with non-staining oil before the reinforcement is placed, or be wetted except in freezing weather.

(B) Except in cases of curved, special, and exposed surfaces, the lumber for concrete forms, after being planed, shall be not less than one and one-sixteenth (1-1/16") inches in actual thickness, shall be dressed on both surfaces, shall be tongued and grooved and shall be constructed so as to produce mortar tight joints. Plywood or other approved material shall be used on all exposed concrete surfaces, and lumber used in conjunction with it may be less than one and one-sixteenth (1-1/16") inches, if approved by the Engineer.

(C) The metal used for forms shall be of such thickness that the forms shall remain true to shape. All bolt and rivet heads shall be countersunk. Clamps, pins, or other connecting devices shall be designed to hold the forms rigidly together and to allow removal without injury to the concrete. Metal forms which do not present a smooth surface or line up properly shall not be used. Special care shall be exercised to keep metal forms free from rust, grease, or foreign matter, such as will tend to discolor the concrete.

(D) If required, the Contractor shall submit details of the forms the Contractor proposes to use to the Engineer for approval before the Contractor starts their construction.

(E) Any metal ties or anchorages which are required within the forms to hold them to correct alignment and location shall be so constructed that the metal work can be removed to a depth of at least one (1") inch from the face surface of the concrete without injury to such surface by spalling or otherwise. Wire ties shall not be used unless permitted by the Engineer. All cavities produced by the removal of metal ties shall be filled carefully with a mortar of fine aggregate and cement in the proportion that has been employed for the particular class of concrete treated and the surface left smooth and even and uniform in color.

4.06.06 EXPANSION JOINTS AND WATERSTOPS.

Expansion and construction joints shall be provided of the shape, in the manner, and at the intervals required as shown on the Contract Drawings.

Waterstops shall be installed in the floodwalls in joints to provide for expansion and contraction movements at joints. Place waterstop at all joints exposed to view, as shown on the Contract Drawings, or as directed by the Engineer. Waterstop shall be polyvinyl chloride or other approved flexible material, or the type indicated on the Contract Drawings. The waterstop shall extend at least 3 inches into the concrete on each side of the joint, shall be joined continuous and watertight, and shall be carefully protected from damage until covered by concrete or backfill.

4.06.07 CONVEYING.

(A) LOSS OF INGREDIENTS

Concrete shall be conveyed rapidly from the job-mixer or transporting vehicles to the place of final deposit by approved methods which will prevent loss of ingredients.

(B) CONVEYORS

Concrete shall be conveyed by chutes, pipes, buckets, tremies, buggies, wheelbarrows, or other approved conveyors.

(C) CLEANING

When required, all conveyors shall be thoroughly cleaned and flushed with water which shall not fall on concrete in place.

(D) CHUTES

Chutes shall be of metal or metal-lined. They shall have a slope not flatter than one vertical to two horizontal and shall deliver concrete in a practically continuous flow. Concrete shall be discharged into hoppers when the depositing is intermittent.

(E) LONG CHUTES

The use of long chutes is prohibited (a) generally, unless permitted under circumstances and in accordance with conditions prescribed by the Engineer, and (b) specifically, when the concrete is incorporated in structures which will be subject to salt water action.

(F) PIPES

When concrete is conveyed through pipes, the pipes shall be kept full of concrete and have discharge ends kept buried in the fresh concrete, unless otherwise permitted.

(G) BOTTOM DUMP BUCKETS

When concrete is placed by means of a bottom dump bucket, the buckets shall have a capacity of not less than one-half (1/2) cubic yard. In depositing concrete from such a bucket, the bucket shall be lowered gradually and carefully until it rests upon the concrete already placed. It shall then be raised very slowly during the discharge travel.

(H) BUGGIES OR WHEELBARROWS

Buggies or wheelbarrows shall travel on runways which have smooth surfaces.

4.06.08 DEPOSITING.

(A) DEPOSITING ON SURFACES

Concrete shall be deposited on surfaces free from standing water, dirt, shavings, sawdust, ice or other undesirable matter. Where necessary to deposit on set concrete, the set concrete shall be roughened, cleaned, washed and freshly coated with neat cement grout. Concrete shall be deposited at points and by methods which will minimize rehandling, prevent flowing, and obviate the necessity of working along forms. In sections confined by temporary vertical bulkheads, the concrete shall be deposited in a continuous operation until the

section is completed. No drop shall exceed five (5') feet. It shall be deposited by methods which will release entrapped air and produce a dense, compact mass. Concrete shall not be deposited on ground which is in a muddy or frozen condition.

(B) DEPOSITING UNDER WATER

For concrete to be deposited under water, the cement content shall be increased by ten (10) percent over that indicated for the class and type of concrete specified.

Concrete shall not be deposited in water if it is practicable to deposit in air. No concrete shall be deposited in water having a temperature below thirty-five (35^{o}) degrees Fahrenheit, unless permitted by the Engineer.

Concrete for deposit under water shall be conveyed by means of tremies or other approved methods.

When deposited by tremie method, the tremie shall be water-tight and sufficiently large to permit free flow of concrete. The discharge end shall be kept continuously submerged in the concrete and the shaft kept full of concrete.

(C) DEPOSITING IN FORMS

Unless specifically authorized to place concrete under water, there shall be no water in the forms at any time any concrete is deposited therein, and the work of depositing shall be kept well above the level of any rising water so that there will be no danger of entrance of water into the forms until the concrete is in place.

Concrete shall be deposited in continuous horizontal layers, each of which shall be placed before the one below has set and from which laitance and excess water shall be removed in such a manner that successive layers will be thoroughly bonded together to eliminate planes of separation between layers and prevent seepage of water.

Special care shall be taken to fill each part of the forms by depositing concrete directly as near final position as possible, to work the coarser aggregates back from the face and to force the concrete under and around the reinforcement bars without displacing them. After the concrete has taken its initial set, care shall be exercised to avoid jarring the forms or placing any strain on the ends of projecting reinforcement.

(D) DEPOSITING IN FORMS FOR FLOODWALL

Concrete for the floodwall monoliths shall be placed in one continuous pour, unless otherwise shown on the Contract Drawings. Vertical and horizontal construction joints shall not be permitted in the floodwall monoliths, unless approved by the Engineer. Where construction joints cannot be avoided, a waterstop shall be installed in the joint and as approved by the Engineer.

(E) COMPACTING CONCRETE

Unless otherwise permitted by the Engineer, all concrete, during and immediately after depositing, shall be compacted thoroughly by means of internal vibrators, supplemented by spades, slicing rods, forks or treading. The concrete shall be worked thoroughly around the reinforcement and around embedded fixtures and in the corners of the forms. The operation of compacting the concrete shall be conducted so as to form a compact, dense, impervious, artificial stone which shall

show a smooth face on exposed surfaces. Porous, plastered or defective concrete, shall be removed and replaced as directed by the Engineer, entirely at the Contractor's expense.

Vibrators shall be of sturdy construction, adequately powered and capable of transmitting to the concrete not less than 3,000 nor more than 5,000 vibrations per minute when operating under load. The vibration shall be sufficiently intense to cause the concrete to flow or settle rapidly into place and visibly affect the concrete over a radius of at least eighteen (18") inches when used in a concrete having a one (1") inch slump.

Either electric or mechanical internal vibrators approved by the Engineer may be used.

When vibrators are used, at least one vibrator for every ten (10) cubic yards of concrete placed per hour shall be in use at all times. In addition to these, at least one extra vibrator shall be at hand for emergency use.

The vibration shall be of sufficient duration to accomplish thorough compaction, but shall not be prolonged to a point where segregation occurs. Internal vibrators shall be applied close enough to the forms to vibrate the surface concrete effectively, but care shall be taken to avoid hitting the forms sufficiently to damage them. In the use of the vibrators care shall be taken not to cause vibration of concrete in which initial set has taken place.

4.06.09 CONCRETING DURING RAINFALL.

During periods of rainfall, concrete may be placed only if permitted by the Engineer, and under conditions where the required water-cement ratio can be maintained.

The placing of concrete during wet weather will not relieve the Contractor of any responsibilities under this contract.

4.06.10 CARE OF CONCRETE DURING COLD WEATHER.

During air temperatures below 38^{o} F. in the shade, concrete in structures shall, where required, be maintained in an atmosphere of not less than 50^{o} F., for at least five (5) days after placing or until the concrete has thoroughly hardened, and sufficient protective coverings, fuel and heating equipment shall be furnished, installed, operated and maintained to secure the required temperature conditions without injury to the concrete.

4.06.11 SURFACE CURING AND PROTECTION.

All surfaces of concrete shall be protected from injury and horizontal surfaces shall be cured in compliance with the requirements of Section 2.14, Curing Materials, Type 1-D, Clear.

From the moneys due to the Contractor, under this item, the sum of one (1) dollar will be deducted for each square foot of horizontal surface which the Contractor does not cure, as herein required.

4.06.12 REMOVAL OF FORMS.

Forms shall not be removed until the concrete has hardened sufficiently, and the removal shall be carried out in such a manner as to insure the complete safety of the structure. In no event however shall forms be removed in less than three (3) days, unless approved by the Engineer. The Contractor shall be responsible for all damage or injury resulting from the removal of forms.

4.06.13 SURFACE FINISH.

(A) SAMPLE SLABS

The Contractor shall, where required, submit for approval sample concrete slabs of desired sizes, exhibiting the surface finishes required that the Contractor proposes to furnish. Exposed surfaces of structures shall be finished, as required, to present appearances equal to those of samples on file in the office of the Engineer.

(B) VOIDS

The work of finishing shall not be started until all voids are filled with mortar of the same ingredients and proportions as used in the concrete.

(C) FLOAT, RUBBED AND SCRUBBED FINISHES

Forms shall be removed as early as possible to expose concrete while it is green (set but not hardened).

Float finish surfaces shall be finished smooth and true by means of wooden or steel floats and have edges, including those of joints, rounded or chamfered.

Rubbed finished surfaces shall be thoroughly wetted, be finished smooth and true by means of carborundum or other abrasive blocks, and have lather working up on the surface removed by brushing and washing. Only water shall be used in finishing. Scrubbed finished surfaces shall have the coarse aggregate uniformly exposed by scrubbing with wire brushes and water. Muriatic acid shall, where required, be added to the water in proportion of one to five (1:5), and be entirely removed with clean water when the desired finish is obtained.

(D) POINTED AND BUSH-HAMMERED FINISHES

Thoroughly cured concrete surfaces shall be dressed with tools to a uniform texture of an even face. The tools ordinarily used are electric, air, or hand tools, giving various textured surfaces such as hand-tooled, rough or fine pointed, crandalled or bush-hammered as specified.

(E) FLOODWALL FINISH

Finish for exposed faces of the floodwall shall be as specified on the Contract Drawings.

(F) SURFACE FINISHES FOR PARKS FEATURES

Unless otherwise indicated on plans all concrete sidewalks shall have a light broom finish that is non-slip, directional finish perpendicular to path of travel.

Unless otherwise indicated on contract plans, curbs and walls with exposed faces and sides shall be rubbed smooth with carborundum bricks to the satisfaction of the Engineer. Mock up shall include example of this rubbed finish.

4.06.14 REPAIRS

(A) GENERAL

Surface defects and tie holes shall be repaired, as specified hereinafter, within 24 hours after removal of forms, unless otherwise approved by Owner. Ambient air temperature, and temperature of the concrete and repair mortar shall not be lower than 50 degrees F nor higher than 90 degrees F during repair and curing.

Defects determined by Engineer to exceed surface defects (e.g., defects that extend to a depth such that reinforcing steel is exposed) shall be repaired in accordance with procedures approved by Engineer. Contractor shall submit relevant defect repair procedures.

(B) REPAIR OF DEFECTIVE AREAS

All honeycombed and other defective concrete in surface defects shall be removed down to sound concrete. As required, edges shall be chipped perpendicular to the surface, or slightly undercut; no feather-edges will be permitted. The area to be patched, and an area at least six inches wide surrounding it, shall be dampened to prevent absorption of water from the patching mortar. Bonding grout, consisting of one part cement to one part fine sand (passing a No. 30 sieve) mixed to a consistency of thick cream, shall be well brushed into the surface to be patched after surface water has evaporated from the area.

Patching mixture shall be made from the same materials as the concrete; mix shall be not more than one part cement to two and one-half parts sand by damp loose volume. White portland cement shall be substituted for a part of the gray portland cement on exposed surfaces to match the surrounding concrete; color match shall be determined by a trial patch. Mixing water, for patching mixture shall be no more than necessary for handling and placing. Patching mixture shall be at the stiffest consistency that will permit placing.

Patching mixture shall be applied when the bond coat begins to lose its water sheen. Mixture shall be thoroughly consolidated into place and struck off so as to leave the patch slightly higher than the surrounding surface. Patch shall be left undisturbed for at least one hour, to permit initial shrinkage, before final finishing. Patched area shall be kept damp for seven days. Metal tools shall not be used to finish a patch in a formed surface that will be exposed.

Other materials for adhesion or patching, including latex-modified portland cement mortar and epoxy mortars and compounds, shall be subject to prior approval by Engineer and shall be used in accordance with manufacturer's recommendations.

(C) TIE HOLES

Unless stainless steel, noncorrosive, or Owner-approved coated ties are used, tie holes in surfaces not to be exposed in the finished Work shall be cleaned, thoroughly dampened, and filled solid with patching mortar, Procedures and materials for plugging tie holes in surfaces to be exposed in the finished Work shall be as approved by Engineer.

(D) REMOVAL OF STAINS AND SURFACE DEPOSITS

Stains, rust, efflorescence, and surface deposits considered objectionable by the Engineer, shall be removed as approved by the Engineer.

4.06.15 MEASUREMENT.

In determining the volume of concrete to be paid for, deductions will be made for the spaces occupied by pile heads, timbers and drains. Deductions will not be made for the spaces occupied by steel reinforcement, structural steel or water-proofing. Other deductions will or will not be made, as specified.

The measured volume of concrete will be adjusted for payment in accordance with the strength requirements under Section 5.04.

4.06.16 PRICE TO COVER.

The contract price per cubic yard for Concrete for Structures, measured in place, except such concrete as otherwise paid for, shall cover the cost of all labor, materials, equipment, insurance, and incidentals required to furnish and construct the concrete structure complete in full compliance with the requirements of the specifications, exclusive of steel reinforcement, and to furnish such samples for testing and to provide such testing equipment, laboratory space and facilities as may be required. All joints, waterstops, and sealants shall be included in the contract price.

The contract price per cubic yard for Concrete for Floodwall and Gates, measured in place, except such concrete as otherwise paid for, shall cover the cost of all labor, materials, equipment, insurance, and incidentals required to furnish and construct the concrete structure complete in full compliance with the requirements of the specifications, exclusive of steel reinforcement, and to furnish such samples for testing and to provide such testing equipment, laboratory space and facilities as may be required. All joints, waterstops, and sealants shall be included in the contract price.

The contract price per cubic yard for Concrete for Park Features, measured in place, shall cover the cost of all labor, materials, equipment, insurance, and incidentals required to furnish and construct the concrete for park structures, curbs and seatwalls complete in full compliance with the requirements of the specifications, exclusive of steel reinforcement, and to furnish such samples for testing and to provide such testing equipment, laboratory space and facilities as may be required. All joints, mock ups, waterstops, and sealants shall be included in the contract price.

The contract price per linear feet of Stuyvesant Cove Concrete Sea Wall Cap, measured in place, shall cover the cost of all labor, materials, equipment, insurance, and incidentals required to furnish and construct the concrete structure complete in full compliance with the requirements of the specifications, inclusive of steel reinforcement, and to furnish such samples for testing and to provide such testing equipment, laboratory space and facilities as may be required. All joints, mock ups, waterstops, and sealants shall be included in the contract price.

The contract price per cubic yard for concrete placed underwater shall include the cost of the additional ten (10) percent of cement used for such concrete.

Payment will be made under:

Item No.	Item	Pay Unit
4.06 A	CONCRETE FOR STRUCTURES, CLASS A-40	C.Y.
ESCR-4.06 A	CONCRETE FOR STRUCTURES, CLASS A	C.Y.
ESCR-4.06 HP FL	CONCRETE FOR FLOODWALL AND GATES	C.Y.
ESCR-4.06 PF	CONCRETE FOR PARK FEATURES	C.Y.
PK-ESCR 963	STUYVESANT COVE CONCRETE SEA WALL CAP	L.F.

END OF SECTION

SECTION ESCR-4.14 – STEEL REINFORCEMENT IN CONCRETE

4.14.01 INTENT.

This section describes installation of Steel Reinforcement in Concrete.

4.14.02 DESCRIPTION.

4.01.2. Steel Reinforcement for Concrete shall be of steel bars or welded steel wire fabric used in the floodwall, floodgate foundations, and park structures, as specified and as shown on the Contract Drawings.

4.14.03 MATERIALS

(A) Steel reinforcement shall comply with the requirements of the following sections:

Steel Bars -- Section 2.23

Welded Steel Wire Fabric -- Section 2.25

(B) Steel reinforcement shall be epoxy-coated in accordance with ASTM A775 for steel bars and ASTM A884 for welded wire fabric, unless otherwise noted. Supplier and applicator shall be on the NYSDOT approved list (https://www.dot.ny.gov/divisions/engineering/technical-services/technical-services-repository/alme/pages/890-1.html)

(C) Size and placement shall be as specified and as shown on the Contract Drawings.

(D) Dowel bars, if required, shall be of a type, size and placement as specified and as shown on the Contract Drawings.

(E) Shop drawings of reinforcing steel showing the location and type of supports and tie wires shall be submitted to the Engineer for approval before any work covered by these drawings is undertaken.

(F) Taper threaded terminators, as shown on the Contract Drawings, shall be epoxy-coated nVent LENTON D6 Mechanical Anchor, or approved equal. Terminators must satisfy the requirements of ACI 318 and ASTM A970.

Any errors discovered in these drawings will be corrected by the Engineer, but failure to discover errors shall not relieve the Contractor of responsibility, and any incorrect work resulting therefrom shall be corrected by the Contractor at no expense to The City.

The Contractor shall obtain the Engineer's approval for the reinforcement the Contractor proposes to use before ordering.

4.14.04 METHODS.

(A) FABRICATION AND PROTECTION

Steel reinforcement bars shall be delivered in bundles or fabricated mats, and shall have the manufacturer and size of steel identified by attached metal tags when one-quarter (1/4") inch or less in size and by rolled raised symbols or letters when greater than one-quarter (1/4") inch, or by other means acceptable to the Engineer. Where reinforcement bars are delivered in bundles, they shall be securely wired. Bars shall be identified with heat number marked on attached tag.

Bar mats shall have bars of the size and spacing required and be made up in sections of the length and width required. They shall be fastened together in an approved manner at each intersection.

Reinforcement bars shall be protected at all times from mechanical injuries and from the weather and, when placed in the work, shall be free from injurious dirt, defects, paint and oil, and have a workmanlike finish. Bars which will remain exposed for some time after being placed in the work shall, if directed, be immediately coated with thin grout composed of equal parts of cement and sand.

Steel wire fabric shall be protected from moisture, and, when placed in the work, shall be free from grease, injurious rust, dirt or other foreign substances.

(B) BENDING BARS

Reinforcement bars shall be bent cold to the exact shapes shown on the Contract Drawings and, if required, in conformity with approved templates. Bars having kinks or bends not shown on the plan will be rejected.

(C) SPLICES AND LAPS

Reinforcement bars under flexural stress shall be of the full lengths required, or if permitted, be spliced with approved clamps or other approved devices which will transfer the full working stress of the bar. Reinforcement bars under temperature and shrinkage stresses shall be as long as can be conveniently used. Where necessary, laps shall be as directed. Laps shall be not less than forty (40) times the nominal diameter of the bars. Splices and laps shall be staggered. The distance between splices and laps and adjacent bars, and the distance between a splice or lap and the exposed surface of concrete shall be not less than two (2") inches, or as shown on the plan.

Welded steel wire fabric shall have transverse or longitudinal end members overlapping each other by not less than a full mesh length or width respectively. Overlapping sheets shall be securely and properly fastened together.

(D) SUPPORTS

Steel reinforcement shall be supported at the specified depth in such a manner that no displacement will occur during concreting operations. It shall be supported either on approved devices or upon a layer of concrete which has been evenly struck off. The method of supporting the steel at the proper elevation shall be as approved by the Engineer. Bar supports shall be non-conductive material or plastic bar supports.

(E) PLACING

Reinforcement bars shall be placed, spaced, securely fastened together and held in their positions in an approved manner until the concrete is placed around them.

Steel wire fabric shall be laid in sheets which shall be straight and true to form and shall be securely held in position by approved methods so that they will be in their prescribed position after the concrete has been thoroughly compacted.

No concrete shall be deposited until the Engineer has inspected the placing of the reinforcing steel and has given permission to place the concrete. All concrete placed in violation of this provision will be rejected and removed at the Contractor's own expense.

(F) EPOXY COATING REPAIRS

Repair sheared and cut ends and damaged coating with an epoxy patching material conforming to ASTM A775 (AASHTO M284) in accordance with the patching material manufacturer's recommendations.

(G) MECHANICAL ANCHORS

Reinforcing bar anchorage in the form of taper-threaded terminators shall be provided for pile plugs at the locations indicated on the Contract Drawings, and as directed by the Engineer.

The terminators shall be installed on-site, prior to placement of the cast-in-place concrete pile plugs. The taper-threaded terminators shall be of the size indicated on the Contract Drawings.

4.14.05 MEASUREMENT.

The weight of steel reinforcement bars to be paid for will be that of all reinforcement bars incorporated in the work, as required, which shall be computed from theoretical lengths and weights of bars.

The weight of steel wire fabric to be paid for will be that of all material incorporated in the work, as required, which shall be computed from the theoretical lengths, widths and weights.

4.14.06 PRICE TO COVER.

The contract price per pound for Steel Reinforcement in Concrete shall cover the cost of all labor, materials, equipment, insurance, and incidentals required to furnish and install coated reinforcement and taper-threaded terminators complete in place in full compliance with the requirements of the specifications, and to furnish such samples for test as may be required.

Payment will be made under:

Item No.	Item	Pay Unit
ESCR-4.14	EPOXY-COATED STEEL REINFORCEMENT	LBS.

END OF SECTION

SECTION ESCR-6.27 – DEMOLITION OF STRUCTURES

6.27.1 INTENT.

This section describes the demolition of pavement, roadways, barriers, curbs, manholes, sewers, vaults, esplanade, embayment, sheet pile bulkheads, tie rods, relieving platform decks, piles, and other structures that need to be removed to facilitate the installation of the flood protection system, which includes the floodwall, floodgates, regulators/tide gate chambers, manholes, and reconstruction of adjacent elements affected by the flood protection system.

6.27.2 DESCRIPTION.

In addition to furnishing all necessary labor, materials, plant, equipment, and necessary incidentals required, the work shall include the demolition, removal and disposal of entire or portions of structures, as indicated on the Contract Drawings, specified or directed by the Engineer, together with all appurtenances, debris and refuse of all kinds, and other miscellaneous structures.

6.27.3 GENERAL.

(A) LAWS, PERMITS, ETC.

The Contractor shall comply with all laws, ordinances, statutes, rules and regulations relating to the demolition of buildings or structures; the removal and disposal of materials resulting from demolition operations; the protection of adjacent properties and the general public; and the furnishing and maintenance of passageways, guard fences and other protective facilities. The Contractor shall obtain all required permits and licenses, pay all fees and give all notices necessary for the prosecution of the work.

(B) DISPOSAL

All materials resulting from demolition operations or required to be excavated in connection with such operations, except as otherwise provided or directed, shall be disposed of by the Contractor away from the demolition site and the site of the contract work. Said materials shall not be dumped, placed, stored or disposed of within the limits of any existing or projected public street or road. The burning of debris or other demolition materials will not be permitted except as approved and authorized by the New York City Fire Department, the New York State Department of Environmental Conservation, and the Engineer.

(C) CLEAN AIR ACT

The U.S. Environmental Protection Agency (E.P.A.) requires that, under the Clean Air Act and its implementing regulations, New York City agencies must notify the E.P.A. at least ten (10) days prior to demolition of any institutional, commercial or industrial building in which asbestos is used for insulation or fireproofing. Under the demolition provisions of the National Emissions Standards for Hazardous Air Pollutants Program, the U.S. Government exercises jurisdiction over the uses of asbestos, beryllium and mercury, including their disposal.

These regulations specify that E.P.A. shall be notified of such information as to the methods of demolition to be employed, description and location of the building(s) to be demolished, and scheduled starting and completion dates. Advance notification enables E.P.A. to send observers to the site to ensure that proper demolition procedures are being followed.

The Contractor shall therefore notify the Engineer at least twenty (20) days in advance of any building demolition work to be performed under the contract, furnishing the Engineer the information required above, so that the Engineer can notify the E.P.A. at least ten (10) days prior to building demolition work, of the said information.

(D) DAMAGES AND ACCIDENTS

The Contractor shall be responsible for all damages resulting from and due to the Contractor's demolition operations. Said responsibility shall include, but not be limited to, the grounds; buildings; structures; and portions of buildings or structures which are adjacent to the demolition site and are to remain. No additional payment or compensation will be made or allowed the Contractor for costs incurred for repairs and replacements required to satisfactorily remedy the aforesaid damages or for the settlement of any claims resulting therefrom.

The Contractor shall provide all materials, labor and machinery necessary and shall place proper and sufficient guard and fences and warning signals by day and by night for the prevention of accidents.

(E) RODENT EXTERMINATION

When required by any code, law, ordinance, statute, rule or regulation, the Contractor shall employ a licensed exterminator to rid a building or structure of rats; file an extermination certificate with the regulating agency; and submit a copy of the said certificate to the Engineer, before starting demolition operations.

(F) SALVAGE

The City assumes no responsibility for the condition or presence of salvageable materials in or on the premises. All damage to or loss of salvageable materials, whether by reason of fire, theft or other happening, shall be at the risk of the Contractor and no such loss or damage shall relieve the Contractor from any obligation under the contract or form the basis of any claim against the City.

(G) FIRE PROTECTION, ETC.

The Contractor shall furnish, employ and pay for all necessary appliances required for the adequate protection of the work against fire and to safeguard existing structures and the public. The Contractor shall at all times maintain adequate facilities for the thorough saturation of all debris and materials with water to the extent required to prevent dust arising from the work. All water used including temporary piping, connections, permits therefor, and removal of piping, when directed, shall be provided and paid for by the Contractor.

(H) DISCONNECTING UTILITY AND PUBLIC SERVICES

a. Prior to commencement of work, the Contractor shall give notice to the New York City Department of Citywide Administrative Services to have the steam, gas and electricity to the buildings to be demolished, disconnected by the utility companies owning the services. The Contractor shall obtain certifications from the utilities that the services have been terminated, and shall submit them to the Engineer for approval, prior to commencement of demolition operations.

b. The Contractor shall seal or plug all storm or sanitary sewers or other connections to the sewers leading from the structure to be demolished. The Contractor shall disconnect all water services and shall make the necessary arrangements with the

New York City Department of Environmental Protection, Bureau of Water and Sewer Operations, to destroy or plug the tap in the City water main. The Contractor shall obtain all permits necessary to do such work prior to the commencement of demolition. All such work shall be done in full accordance with the rules and regulations of, and to the satisfaction of the City of New York Bureaus having jurisdiction thereof.

The Contractor shall remove all gas services back to the main gas lines in the streets and the openings in the main gas lines shall be properly closed in compliance with the directions of the utility company having jurisdiction in the respective borough. All work shall be done in full accordance with the rules and regulations of, and to the satisfaction of, the utility company having jurisdiction thereof.

Electric, telephone and other wires shall be disconnected in strict accordance with the rules and regulations of the Department of the City or State and of the company or companies having jurisdiction, control or ownership of such utilities. After disconnection has been completed, telephone poles located on the property shall be removed by the utility having jurisdiction over the poles.

c. The Contractor shall maintain and preserve all utilities, other than those covered by paragraphs a and b above, traversing the premises. Contractor shall maintain in a safe condition all street openings made by the Contractor, and shall backfill and tamp them.

d. All expenses arising from or in connection with the performance of the provisions of paragraphs b and c above shall be borne by the Contractor.

e. When existing sprinkler systems with Siamese hose connections are present in structures undergoing demolition, they shall be maintained as a non-automatic sprinkler system. Sprinkler risers shall be capped immediately below the floor being demolished maintaining the sprinkler systems on all lower floors for Fire Department use.

(I) BLASTING

Blasting of any kind shall not be permitted.

(J) CITY MONUMENTS

The Contractor shall not progress demolition operations within five (5') feet (or such greater distance which the Engineer shall direct) of any City monument which may be within the limits of or be disturbed by the herein contemplated work, nor in any manner disturb the same, but shall cease work at such places until the said monuments have been referenced and reset or otherwise disposed of, except upon special permit from the Commissioner, in accordance with the City ordinances therefor.

After permission is given to remove any monument, the Contractor shall take up and preserve such monument, and if required remove same to the nearest Department yard. The Contractor shall preserve all benchmarks, reference points and stakes placed or established on the line of the work until authorized to remove the same.

(K) SUBMITTALS

a. Submit a schedule indicating proposed methods and sequence of operation for demolition and removals to the Engineer for review prior to commencement of Work. A pollution control plan for demolition activities shall be submitted by the Contractor not more than 30 days prior to the commencement of demolition work and must be approved by the Engineer.

(L) QUALITY ASSURANCE

a. The Refrigerant Recovery Technician shall be certified by the EPA-approved certification program.

6.27.4 METHODS.

(A) EXTENT OF REMOVAL

a. Thoroughly inspect and examine the building and premises for any hazardous materials. If any asbestos or other hazardous material is found other than what is included in the Contract and was to be removed as per Section 6.27.4.E, notify the Engineer immediately and do not commence the Work until receipt of written notification from the Engineer. Comply with all applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution. Asbestos abatement is to occur prior to the demolition Work.

b. Visually inspect and photograph the adjacent areas, and structures and appurtenances of the surrounding properties. Record the existing conditions; submit all information to the Engineer.

c. Thoroughly examine the building for any of the following: Historical artifacts, including cornerstones and their contents; plaques and tablets; and other remaining articles of historic significance. If any is found (either prior to commencing demolition or during demolition Work), carefully remove, clean, and deliver to a NYCDPR yard within the five boroughs, as directed by the Engineer.

d. Before demolition has commenced, NYC Parks, along with the Contractor, will inspect the building(s) and the premises and identify equipment, materials, and items desired to be retained by NYC Parks in addition to those items already indicated to be salvaged. The Contractor shall remove such equipment, materials and items either before demolition or during the process of the Work and store and protect on the Site in a location designated by the Engineer.

e. Items of salvageable value that are not desired to be retained by NYC Parks are to become the property of the Contractor and may be removed from the structure as Work progresses. Transport salvageable items from site as they are removed. Storage or sale of removed items on site will not be permitted.

Remove structures to the limits shown on the Contract Drawings.

(B) PARTIAL DEMOLITION

Where the demolition consists of only a portion of a structure, the Contractor shall provide all necessary temporary shoring and support to maintain the stability of the partially demolished structure.

(C) PREPARATION AND PROTECTION

a. Employ a certified exterminator and treat building(s) in accordance with governing regulations for rodent and insect control. Submit certificate to the owner.

b. Protect structures, underground utilities and other construction to remain from damage caused by demolition operations. If unmarked or unknown utilities are uncovered during excavation, notify the Engineer of receive further instructions prior to proceeding further. Should damage to adjacent construction or utilities occur due to Work under this Section, all costs in connection with the repair of such damage and the restoration of damaged construction to its original condition shall be borne by the Contractor.

c. Protect materials and surfaces and structure, which are to remain, from damage; if damage occurs, repair or replacement shall be made by the Contractor, to the satisfaction of the owner, and at the expense of the Contractor.

(D) DELAYS IN VACANCY

Structure shall be demolished as they become vacant and in coordination with all other works. There is no guarantee as to when such vacancy will occur. The Contractor will be notified when a vacancy occurs. The Contractor agrees that this has been taken into consideration and allowances have been made for delays and expenses resulting from the uncertainty of the time when a structure may be vacated and made available for demolition.

(E) REMOVAL AND DISPOSAL OF MATERIALS

All materials in structures, demolished hereunder, shall become the property of the Contractor, unless otherwise provided, and shall be removed and disposed of away from the site the Contractor. Before issuance of a final certificate, the Contractor shall remove all falsework, temporary structures, plant of all description, equipment, and debris of every nature from the demolition area, and dispose of them away from the site.

(F) FIELD QUALITY CONTROL

Mechanical Demolition and the construction and installation of all underpinning, shoring, sheeting, and bracing required for or affecting the support and adjacent properties or buildings is subject to Special Inspection. The Contractor's licensed professional engineer is to file all design documents.

(G) CLEAN UP

The demolition areas and the portions of the streets affected by the work shall be cleaned of all materials resulting from or used in the work to be done hereunder and shall be left in a condition satisfactory to the Engineer.

(H) IN-WATER DEMOLITION

All demolition work taking place within the water column or affecting the water column shall require the installation of a turbidity curtain along the offshore edge of the esplanade to minimize the spreading of disturbed sediment. The turbidity curtain shall extend from the water surface down to the mudline and be deployed in the area of the demolition work. In addition, any debris or material from the demolition work that falls into the waterway shall be retrieved and disposed of by the Contractor.

Where indicated to be removed, the existing timber/steel piles and steel sheet piles shall be extracted and removed in their entirety to facilitate installation of the proposed cut-off wall, unless otherwise indicated on the Contract Drawings.

6.27.5 PAYMENT.

The quantity to be measured for the removal of curb and concrete barrier shall be the linear foot of removed and properly disposed structure as shown on the Contract Drawings. No payment will be made for removals taken past the specified limits.

The quantity to be measured for the removal of concrete structures and timber cribbing shall be the cubic yard of removed and properly disposed structure as shown on the Contract Drawings. No payment will be made for removals taken past the specified limits.

The quantity to be measured for the removal of timber piles shall be the number of removed and properly disposed timber piles as shown on the Contract Drawings. No payment will be made for partial removals.

The quantity to be measured for the removal of miscellaneous utilities shall be the number of removed and properly disposed utility as shown on the Contract Drawings. No payment will be made for partial removals or removals taken past the specified limits.

The quantity to be measured for the removal of the Stuy Cove concrete sea wall cap shall be the linear feet of removed and properly disposed sea wall as shown on the Contract Drawings. No payment will be made for partial removals or for removals taken past the specified limits.

6.27.6 PRICE TO COVER.

The unit price bid shall cover the cost of furnishing all labor, materials, plant, equipment, insurance, disposal, and necessary incidentals required and completing the work in accordance with the Contract Drawings, the specifications and the directions of the Engineer.

Payment will be made under:

Item No.	Item	Pay Unit
ESCR-6.27 CB	DEMOLITION OF THE EXISTING CONCRETE BARRIER	L.F.
ESCR-6.27 CB.E	DEMOLITION OF THE EXISTING EMBEDDED CONCRETE BARRIER	L.F.
ESCR-6.27 CU	DEMOLITION OF THE EXISTING CONCRETE CURB	L.F.
ESCR-6.27 S	DEMOLITION OF STRUCTURES	C.Y.
ESCR-6.27 TC	DEMOLITION OF THE EXISTING ROCK FILLED TIMBER CRIBBING	C.Y.
ESCR-6.27 TP	REMOVAL OF EXISTING TIMBER PILE	EACH
ESCR-6.27 U	REMOVAL OF MISCELLANEOUS UTILITY	EACH
PK – ESCR 964	STUY COVE CONCRETE SEA WALL CAP DEMOLITION	L.F.

END OF SECTION

SECTION ESCR-7.18 – CONTROLLED LOW STRENGTH MATERIAL (CLSM)

7.18.01 DESCRIPTION.

The work consists of mixing and placing Controlled Low Strength Material (CLSM with or without slag at the locations shown on the Contract Drawings or where ordered by the Engineer.

7.18.02 MATERIALS.

(A) GENERAL

The Contractor shall provide CLSM containing aggregate, cement and water. It may also contain, at the Contractor's option, slag, or chemical admixtures in any proportions such that the final product meets the strength and flow consistency requirements included in this specification. The use of fly ash shall not be permitted.

Materials used in this work shall conform to the following requirements of the NYS Department of Transportation, Standard Specifications:

Portland Cement, Type 1 or Type 2:	§701-01
Aggregates:	§703-01
Chemical Admixtures:	§711-08 (The mix may include high air generators manufactured for CLSM)
Slag:	§712-12
Water:	§712-01

(B) TESTS AND CONTROL METHODS

Certification from an approved testing laboratory that the CLSM will have a 28 day compressive strength between 100 PSI and 150 PSI shall be furnished by the Contractor and provide to the Engineer prior to delivery of any materials.

Hardened mixtures shall reach a minimum compressive strength of 15 PSI within 48 hours; a long term density between 90 to 110 PCF; and, a minimum of 20% and a maximum of 40% Air, when measured in accordance with ASTM D 6023. In order to allow for future manual excavation the 28 days density shall be 90 to 110 PCF.

Design the CLSM mix so that it sets within the time stated in the contract documents. If no set time is required by the Department, the set time shall conform with the Maintenance and Protection of Traffic scheme and requirements of the project.

The CLSM shall have a minimum diameter spread of 8" as determined by the following procedure to be performed by the Engineer:

Fill a hollow plastic or metal cylinder 8" in length and 3" inside diameter with the CLSM and strike off the surface. Raise the flow cylinder in a continuous motion without rotation.

Immediately measure the spread of the CLSM along two diameters which are perpendicular to each other.

The Contractor shall cast four (4) specimens (cylinders) for each batch in accordance with the Department's Materials Method 9.2 - Field Inspection of Portland Cement Concrete, and deliver them to a DDC's Quality Assurance and

Construction Safety (QACS) Bureau approved Material Testing Laboratory within seven days of the pour date for evaluation.

For each 50 Cubic Yard or portion thereof, the following Field Testing shall be performed to confirm the material conformance with the approved design mix:

ASTM D 6023	Unit Weight, Yield Cement Content & Air Content
ASTM D 5971	Sampling Freshly Mixed CLSM
ASTM D 4832	Preparation and Testing of CLSM
ASTM D 6103	Flow Consistency of CLSM

Prior to proceeding with subsequent construction operations, either one of the following Field Tests shall be performed on the surface of the in-place CLSM to estimate its surface bearing value and its suitability for load application.

ASTM D 6024	Ball Drop on CLSM
ASTM D 3441	Cone and Friction Cone Penetration Tests

A minimum of three (3) tests shall be performed for each 200 Square Feet or portion thereof, and evaluated against the following criteria:

ASTM D 6024	Inspect the indentations for visible water or sheen brought to the surface by the dropping action of the ball.

If the diameter of the indentation is equal or less than 3 inches, than the CLSM is suitable for load application, provided that:

a. The surface looks similar to that before the test with the exception of the indentation, and;

b. There is no visible surface water or sheen visible in the indentation.

ASTM D 3441	The average value of the three (3) tests shall be not less than Four (4) Tons/Square Foot. The minimum value per individual test shall not be less than Three (3) Tons/Square Foot.

7.18.03 CONSTRUCTION DETAILS.

(A) GENERAL

The Contractor shall provide all equipment for this work subject to approval of the Engineer. Mix the materials at a stationary mixing plant which is either a continuous or a batch type plant, designed to accurately proportion either by volume or by weight, so that when the materials are incorporated in the mix, a thorough and uniform mix will result.

The mix may be transported in open haul units provided the material is placed within 30 minutes of the end of mixing. Use a rotating drum unit capable of 2 - 6 rpm to transport material that cannot be placed within 30 minutes after the end of mixing. In cases where placement cannot take place within 30 minutes from the end of mixing, the material shall be transported in a rotating drum capable of 2 – 6 rpm.

Provide a mixer capable of mixing CLSM that has the specified compressive strength and flow consistency. Mix all components so as to produce a uniform

product. For work involving CLSM quantities of less than two (2) cubic yards, the Engineer may permit the Contractor to use a small construction mixer.

Narrower trench widths can be employed when using CLSM due to the self-compacting properties of the material. Construction personnel and equipment are not required to be in the trench for compaction operations. Refer to the current NYSDOT Metric Standard Sheet No. M204-1, issued under EB 02-003, for Controlled Low Strength Material (CLSM) Installation Details for Circular and Elliptical Corrugated Metal Pipes, Structural Plate Pipes and Pipe Arches, and Reinforced Concrete and Other "Rigid" Pipes for additional requirements.

For installations that require construction personnel to temporarily occupy the trench, the Contractor shall follow all OSHA requirements.

(B) FILL AND BACKFILL AT STRUCTURES, CULVERTS, PIPES, CONDUITS AND DIRECT BURIAL CABLES.

The Contractor shall place the CLSM using a method approved by the Engineer, in accordance with the appropriate NYSDOT Standard Sheet for additional guidance on the use of CLSM as backfill material.

When placing CLSM for pipe backfill, discharge the material onto the top of the pipe at the center.

Do not place CLSM in contact with aluminum pipe, including connections, fixtures, etc., unless the aluminum has been coated with an approved primer.

CLSM should be kept encapsulated with soil, as it is highly erodible and disintegrates when left exposed to the environment.

7.18.04 MEASUREMENT.

The quantity to be measured for payment shall be the number of Cubic Yards of satisfactorily placed CLSM computed between the payment lines shown on the Contract Documents or from payment lines established in writing by the Engineer.

A deduction shall be made for pipes (based on nominal diameters) and other payment items when the combined cross-sectional area exceeds one (1) sq. ft.

Unless otherwise shown, no deduction will be made for the cross-sectional area of an existing facility. No additional quantity shall be measured for payment to make up losses due to foundation settlement, compaction, erosion, or any other cause.

Cross sectioning, for the purpose of determining quantities for payment, shall be employed only where payment lines are not shown on the Contract Documents, and cannot be reasonably established by the Engineer.

7.18.05 PRICE TO COVER.

The unit price bid per cubic yard of CLSM shall include the costs of furnishing all labor, materials, equipment, insurance, and incidentals necessary to complete the work, except where specific costs are designated or included in another pay item of work. The unit price also includes any temporary supports for the exposed utilities which will be encapsulated in the CLSM.

Payment will be made under:

Item No.	Item	Pay Unit
ESCR-7.18	CONTROLLED LOW STRENGTH MATERIAL	C.Y.

END OF SECTION

SECTION ESCR 13 – ARCHITECTURAL CONCRETE TEXTURED FINISHES

DESCRIPTION

This work shall consist of all labor, materials, and equipment to complete the Architectural Concrete Textured Finishes as shown on the Drawings with designated patterns and textures. Work in this section is supplementary to project cast-in-place concrete. All work shall be in accordance with the contract documents:

MATERIALS

Formliner Panels: Shall be custom manufactured 100% pure urethane form liners mold bonded to ACX plywood. Urethane form liner thicknesses as required to obtain pattern indicated. Ensure support systems required to carry all loads while maintaining all finish requirements, alignment of joints and seams, thickness of materials, location of surface in space, true to line and plane, and designed to provide for leak-proof seams between panels.

Liner types shall be a "Varied Weave Pattern" with multiple modules as shown on Drawings.

- Formliner/facing modules shall be sized to minimize seams or joints in the finish surface and follow module variations as shown on Drawings.
- Mating edge surfaces of form liner shall be accurately formed and fabricated so that individual alignment of panels is accurate and remains tight resulting in monolithic appearance of finish surface.
- Anchors for fastening formliner/facing system to backup form shall be concealed, providing secure positive anchorage, use screw type fasteners of size and shape required to firmly anchor formliner to form system facing. Formliner shall be back-fastened to backup form system so that no fasteners appear in the finish concrete surface.
- Integrate plywood or other suitable reinforcing into formliners for anchorage, back-fastening, and proper support of formliner, to prevent distortion of surfaces under loads encountered preparing and placing concrete, and to maintain shape, size, and stability of form liner.
- Right angle edges of forms where surface to be exposed in finish concrete shall be without radius, arris or bevel, unless otherwise indicated in the Drawings. Fabricate flanges to provide accurate alignment between units, to provide uniform compressive pressure between forms, to prevent loss of fluid during concrete placement, and dimensional support for formliner.

Acceptable Form Liner Manufacturers:

- Architectural Polymers, Inc., 1220 Little Gap Road, Palmerton, PA 18071, PH: 610.824.3322, W: www.apformliner.com
- Scott System, 10777 E. 45th Avenue, Denver, CO 80239, PH: 303.373.2500, W: www.scottsystem.com
- Fitzgerald Formliners, 1500 East Chestnut Avenue, Santa Ana, CA 92701, PH: 714.245.9715, W: www.formliners.com

Or, an approved equal.

Smooth Surface Panels: Flat form surfaces shall be plastic coated material as follows:

- Panels shall be ¾" thick, in sizes to minimize joint lines and produce required straight, uniform, square edge, level seams, construction joints and edges.
- Pine plywood, minimum 7 plies per inch thickness. Panels shall be faced with a high-density plastic overlay (HDO).
- Birch plywood, minimum 14 plies per inch thickness, with heavy duty plastic overlay surface on both sides. Edges shall be sealed in manufacture.

All smooth surface formwork panels shall have sealed, square edges, and have square corners. Butted edges of panels, when multiple panels are assembled together, shall not vary more than 1/16 inch in 10 ft. in any butted joint.

Release Agents: For all formwork surfaces shall be colorless, non-staining and have no deleterious effects on the finished concrete, manufactured specifically for non-absorbent surfaces and for reducing surface voids. Formwork for custom formliners shall also be treated as directed by the custom form liner manufacturer. Form release material shall be on the NYSDOT's Approved List of Manufacturers and compatible with the formliner material.

Form Ties: Shall be manufactured specifically for use as concrete ties and shall be designed to seal tightly to the form face material without fluid loss. Ties shall be of sufficient strength to resist fluid concrete placing pressures and formwork elongation at the longest span of support used in the project. Ties shall be one of the following as approved by the Engineer:

- Fiberglass rod tie system with screw tie clamp grippers:
  - Gripper shall have a screw adjustable device between the rod gripper and the form contact surface. Rod size shall be minimum 3/8" and maximum 3/4" diameter as approved after use on the mockup.
- Cone/Tube/Rod or Cone/Coil/Rod tie system with screw tie clamps.
  - Cone size shall be maximum 1-1/2" diameter for coil spreader and 2" for tube spreader. Depth of cone shall be minimum 1-1/2".

All ties proposed for the work shall be used in the mockup structure for review and selection by the Engineer.

Joint Sealer: Seal formwork abutting edge conditions against fluid loss utilizing the following:

- Foam gaskets for sealing field erected corner form joints shall be highly compressible foam rubber or neoprene tape, paper backed, with pressure sensitive adhesive on one side, and shall be of sufficient width and thickness for specific use.
- Sealant for sealing permanent shop or bench fabricated unrevealed joints shall be non-staining, silicone caulking.

Large field joint gaps use aerosol applied expanding foam, type suitable for use intended. Use where form units abutting irregular materials and foam tape not sufficiently compressed or strong enough to stop fluid concrete leakage from formwork. Do not allow foam to expand into surface contact area of exposed concrete.

Patching Material: The patching material, technique, and match with adjacent surfaces shall be approved by the Engineer prior to any patching. Plastering and skim coating of surfaces will not be allowed.

CONSTRUCTION DETAILS

General: Responsibility for the design of architectural concrete textured finishes to be in conformance with requirements of the contract documents, and as approved by the Engineer. All work shall be performed using the highest standards of quality for visual and durable concrete and shall rest with the contractor.

Performance Criteria: The completed formed concrete surfaces shall match the color and texture of the approved sample panels. All textured finish work shall be performed so that no evidence of the following will be evident when the formwork is removed:

- Damage of any kind.
- Formwork fastening penetrations or formwork anchoring devices or projections other than approved embedded items.
- Out of alignment or incorrect profiles.
- Discoloration caused from form liner staining.
- If any of the above-mentioned deficiencies occur, the Engineer may order the affected concrete replaced or repaired with acceptable results. Repair only when directed by the Engineer. Corrected deficiencies must meet with the Engineer's approval. All remedial work shall be performed at a location approved by the Engineer and shall be submitted as tests prior to any repair work being accomplished.

Quality Assurance: The work of this section shall be performed by a concrete contractor who specializes in the type of finish work required for this project, with a minimum of five years documented successful experience and shall be performed by skilled workers thoroughly trained in the necessary trades to perform the work. Prior to commencing with the work, the contractor shall submit resumes, references, and photographs/locations of prior work examples of textured finish concrete surfaces for approval by the Engineer.

The concrete contractor shall assign a quality control person to oversee the architectural concrete textured finish work. The primary duty is to be responsible for the required execution of the work. The Concrete Quality Control Technician shall develop a check list for execution of the work and for sign off by the concrete superintendent and be submitted to the Engineer. The Quality Control Technician shall understand and be familiar with the requirements of this section.

After approval of products and samples and as early as possible, but not less than 30 days prior to the fabrication of the formwork, a pre-installation meeting shall be scheduled with the manufacturer's representative, contractor, and Engineer to discuss the materials, methods of forming, coordinating and quality control procedures involved in the Architectural Concrete Textured Finish work and the interface with related work.

The success of this Project depends greatly upon visual elements of construction that require review, selection and acceptance of samples and mockups at an early stage. Items of primary visual concern – concrete mix materials, urethane liner facing materials, concrete samples, and mockups shall be submitted as soon as possible. Verify list of priority items with the Engineer, notify Engineer of any impediments to providing priority samples.

Submittals: Do not proceed with the construction of the architectural concrete textured finish in the project, including fabrication of the formwork, until all samples, product data, mock-up and shop drawings have been approved by the Engineer. Contractor shall submit for approval:

1. Product Data / Qualifications for the materials specified herein, including but not limited to:
   - Custom urethane form liner manufacturer; liner tolerances, anchoring methods, backing requirements
   - Smooth surface panel
   - Form release agent
   - Form tie solution
   - Joint sealers
   - Concrete patching material

2. List – project names and locations of three similar past projects of the manufacturer and installer.
3. Item Samples – custom urethane form liner, joint seal material, and form ties.
4. Shop Drawings – plans, elevations, and sections to show detailed layout of all textured finish concrete work and interfacing adjacent concrete work, including the mockups. Show all flood walls and retaining walls. Include relevant liner panels, ties, depressions, openings, recesses, reveals, control joints, and construction joints. Shop drawings shall include detailed numbering and/or identification system used to positively identify urethane liner modules.
5. Construction Procedure Documents – develop and submit written procedures for the execution and sequencing of the work. These procedures shall be used by the contractor and incorporated into a Quality Control Checklist.

Sample Panels: Prepare formwork and cast concrete for sample walls as follows:

1. Cast up to six 4' wide x 4' high x 12" thick wall panels, with reinforcement replicating design wall reinforcing, and specified weave pattern indicated on Drawings. Each tombstone showing different liner module on one entire face. Each tombstone to show panel seams and reveals, cast vertically to test proposed design mix, and formwork facing materials.
2. Cast two (2) – 4' wide x 4' high x 12" thick smooth surface wall panels, with reinforcement replicating design wall reinforcing and each type of wall tie proposed. Show sample facing panel seams, cast vertically to test proposed design mix, formwork facing materials and tie recesses.
3. Cast panels simulating techniques to be used in production to reduce surface area voids and achieve the specified criteria. Forms shall be constructed with fluid tight square corner seams.
4. Adjust mixes and placing techniques as required between each panel to achieve the best placing technique for the mix. Submit as required to obtain approval of Engineer.
5. Apply water repellent sealer to half of finish surface of each tombstone.
6. Apply anti-graffiti treatment over half of water repellant finish treatment following manufacturer's written instructions.

Mock-up for Formed Concrete Work: After all samples, product data, and the shop drawings for the Mock-up are approved, construct mock-ups of the architectural concrete textured finish work in a location approved by the Engineer and as described below. Mock-ups and mock-up submissions for the concrete work shall consist of the following:

- Mock-ups shall be as detailed.
- Prepare and submit a "Lessons Learned" report after completion of each mock-up for review and discussion with the Project Team.

- Additional mock-ups or partial mock-ups shall be required if the above mock-ups are deficient in producing the quality required for the project.

1. Mock-ups shall consist of the following:

    - Foundation of a size and reinforcement adequate to support the work at the designated location.

        - Scope of Visual Mock-up: Bridge abutment and flood wall section using form liner weave ribbon pattern: "J" shaped in plan, 10 feet high and 12" thick, show radius abutment and 24-foot-long straight section with transition from A to B to C panel types, form liner seams, and typical joints in the project.

            - Mock-up shall be placed in a minimum of two placements.
            - One vertical construction joint in wall.
            - Include any embeds as they would be required for wall construction and cast-in elevation markings as shown on Drawings.
            - Include typical wall elevation step and radii bulk heads with dimensions as shown on the Drawing's.
            - Apply 717-03 - Penetrating Type Protective Sealer (ITEM 559.16960118) to one half of the mockup according the manufacturer's instructions.
            - Apply anti-graffiti protection coating (ITEM 559.90010011) over Penetrating Type Protective Sealer according to manufacturer's instruction in an area approved by Engineer.

    - Reinforce as in a similar detail on the drawings and add necessary reinforcing and/or supports to maintain stability.
    - Use approved form facing materials, reinforcement and accessories and assemble formwork using methods as intended for construction and to achieve the specified requirements.
    - Place concrete with methods to be used in construction, including anticipated time delays between placements. Place concrete to achieve the specified requirements.
    - Finish exposed hardened surfaces of the walls with specified finish treatments when directed by the Engineer.
    - Use approved concrete design mixes, inclusive of specified admixtures, for the mock-ups as will be used in the construction of the formed surfaces.

If mock-ups do not meet the specified quality and are not approved, remove and replace in full or in part at no additional cost. Mock-ups shall be located so they will remain throughout construction. Protect mock-up from damage. Remove mock-up only when directed by the Engineer.

Formwork:

General Requirements: Use only form units that are in like new condition and replace panels with defects with new panels. Use screw type fastening and clamping devices to maintain alignment, and to tightly close joints at corners, end forms, and at bulkheads. Apply pressure at joint to resist concrete placing pressure as close to the joint as possible. Vertical and horizontal construction joints shall be at locations approved by the Engineer and before the erection of formwork begins and shall be formed so the joint is straight, in plane and flush with the adjacent surface. Construction joints shall be at a panel joint seam and shall not interrupt the pattern of the formliner. Gaskets shall be installed in formwork corner joints and bulkheads assembled and disassembled in field. Place the gasket within the form joint. Install gasket away from contact edge 1/16" to

1/8". Clean all formwork contact surfaces prior to use. Take care in cleaning to not damage the surface. Prior to first use, all urethane liners shall be cleaned per manufacturer's recommendations.

Fabrication: Design formwork to permit easy removal. Prying against the concrete will not be permitted. Care shall be taken so as not to damage the finished concrete surface in cutting or removal of the forms. The forms shall be completely rigid and strong enough to withstand without deflection or elongation, movement or fluid loss at the high hydraulic pressures that result from the rapid filling and vibration required for architectural concrete placing. Forms shall be fabricated so the concrete can be adequately placed, vibrated and finished to achieve the specified finishes.

Layout form ties, form joints, reveals and exposed embedments as shown on the Drawings.

- Ties: Locate ties to fall at centers of individual weaves in the textured concrete. No ties shall fall on weave edge or liner butting seams.
- Embedments: Numbers, wayfinding signage, and similar items are to be cast as part of the architectural concrete textured finish as shown on the Contract Drawings. Coordinate as required. Securely and accurately locate and anchor embedment's with correct orientation. Anchor using screw type fasteners to provide compression connection to prevent loss of concrete fluid or movement of embedment. Seal or gasket at interface with urethane formliner.

Smooth surfaces shall be square and flat. Protect all cut edges to avoid swelling. Install joint sealer in all fabricated butt joints of smooth surface panels to prevent fluid loss. At butting plywood panel edges place a bead of sealant 1/8" max at back edge (away from contact face) of one panel prior to butting interface edge surfaces. Take care not to allow sealant to come in contact with form surface.

Prior to use, all form surfaces shall be coated with form release agent. Only manufacturer recommended and NYSDOT approved form release agents shall be utilized. Release agents shall be applied in strict accordance with release agent manufacturer recommendations. Hand-charged sprayers will only be allowed if a thin uniform coating of release agent is obtained on the form.

Wherever forms are to be refurbished and reused adjacent to or in combination with new forms or forms in like-new condition, locate the older forms so that any variation in texture or finish that might appear will be inconspicuous. Locate transition only at corners or other changes of plane.

Transitions between adjacent planes of surfaces shall be without the use of chamfers or radiused forms, unless otherwise specifically shown on the Architectural Drawings.

Formwork Erection Tolerances: Fabricate and position formwork surfaces to maintain hardened concrete finish lines within the following allowable variations:

- From designed edge elevation in 10ft: +/- ¼"
- From designed vertical plane in 10ft: +/- ¼"
- Cross-sectional dimensions: +/- ¼"
- In-place concrete finish surface to new formed finish surface: +/- ¼"
- Liner form surface to surface at butt joint: Maximum variation of urethane liner thickness – Fabricate so that liner plywood backing is tight to back-up form system.
- It is the intent of this specification that the formwork will be erected in such a manner that lines and surfaces are visually presentable without obvious defects. Where lines and planes require adjusting from one placement to another, adjust the forms to realign in a visually acceptable manner.

Finishes and Patching: All exposed work shall be finished with the approved finishes determined from sample tests executed in the mock-ups. Finishes shall be as specified herein where indicated on the drawings. Minor defects may require fins to be removed (i.e. top edges) or minor patching performed, however, it is the intent of this specification that the work will be performed in such a manner that only the cleaning treatments and sealer/anti-graffiti applications will be required after stripping.

Prior to treating, all surfaces shall receive the following preparation and cleanup: All surfaces to receive treatment shall be a minimum of 21 days old, or as recommended by the manufacturer. All surfaces can be treated at end of project.

- Remove all stains using an appropriate non-abrasive stain remover for each type.
- Protect all adjacent work during operations. At completion of day's work leave area clean. At completion of work, remove all equipment, waste and excess material and leave area clean.
- All treatments shall be applied to the mock-up surfaces as directed by the Engineer. Finish treatments shall be applied to the building concrete surfaces only when and as directed by the Engineer.

Treat the formed concrete surfaces with cleaning applications as determined from tests on the mock-ups:

- "Non-acid" Treatment for concrete surfaces: After stripping, the surface shall be treated for stain removal and cleaning when directed by the Engineer.

Sealer treatment for all architectural concrete surfaces: Treat all exposed vertical wall surfaces with NYSDOT approved 717-03 – Penetrating Type Protective Sealer per the manufacturers written instruction.

- All surfaces receiving treatment shall be dry.
- All surfaces receiving treatment shall be clean and free of stains and laitance.
- Any curing agents used to be completely dissipated prior to application of sealer so that sealer will be absorbed into the concrete. Test sealer in small area in inconspicuous location to determine if concrete curing material has sufficiently dissipated for proper application of sealer.

Formed Square Corner Edge Treatment: After concrete is hard use a fine masons stone or fine grit sanding block on the edge to achieve an eased edge with a 1/16-inch radius. Take care not to damage the adjacent surface. This applies to two adjacent vertically formed corner surfaces and to a formed surface adjacent to a trowel finished top surface. This treatment to be done only to edges as directed by the Engineer.

Tie Hole Treatment: Finish holes for approved ties as follows:

- At cone tie holes, plug the hole with either a field cast plug using same concrete as used in the wall, or by the following method. All tie hole treatments as determined on the mock-up.
  - Fill the hole void with a color matching mortar and tool the hole to recess the mortar surface in the hole, depth as directed by the Engineer. Take care not to allow mortar to be in contact with the finished wall surfaces.
  - Fill the cone hole by tamping in the mortar to a dense filling and finish with a dowel type tool with limiting collar to the recess required. Smooth the recessed mortar. After finishing remove excess mortar on tape and remove the tape.
  - Where through-the-wall-tie holes occur, plug the holes with backer rod material and leave 2-inch void at end. Fill void with patching mortar as indicated above

Patching: Only areas designated by the Engineer shall be patched. Where minor patching is required, as approved by the Engineer as a means of rendering the surface acceptable, it shall consist of patching with a texture matching technique and color matching mortar mix. Test patches shall be placed on the mock-up or other approved surface and be approved by the Engineer prior to commencing any patching of the work.

Apply all treatments in a manner that conforms to applicable environmental regulations. Provide protective materials, neutralizing materials, and supports to guide any run-off, overspray, or application to a collection point for proper removal. Protect adjacent water and ground surfaces from contamination from any deleterious substances, contaminants, liquids or powders. Render any spills benign; remove from site and dispose of in environmentally friendly manner.

Protection: Protect all Architectural Concrete Textured Surfaces from damage of any kind. Pay special attention to surfaces near work of other trades. All surfaces shall be free of damage at time of acceptance. Allowing damage and patching or cleaning at end of project is not acceptable. Locate material staging areas where operations will not damage textured surfaces. Protection shall assure protection from paint, oils, rust, stains, impact, or any other kind.

BASIS OF PAYMENT

No separate payment will be made for complying with the requirements of this Section, the costs are deemed included in all other related items of work.

END OF SECTION

SECTION ESCR-76.11 – CONSTRUCTION REPORT

76.11.1 INTENT.

The intent of this section is to prepare preconstruction reports for work to be performed under the contract to ensure that the Contractor's proposed means and methods of construction do not create or aggravate any potentially dangerous conditions. In order to ascertain the effects of construction on structures, the Contractor will be required to retain the services of a qualified firm with experience in structural engineering, soil mechanics, foundations, installation of piles, evaluation of the effect of construction on buildings and structures, effects of tunneling operations and tunneling shaft construction on buildings and structures, effects of dewatering and the associated movement of soil due to dewatering and the effect of vibrations upon structures. All construction work (bulkhead, floodwalls, ground improvement, roadway, sidewalk, curb, sewer, water main, regrading etc.) is subject to the preconstruction report.

76.11.2 SPECIAL EXPERIENCE REQUIREMENTS.

Within thirty (30) days of the award of this contract, the Contractor shall submit to the Commissioner qualifications of the firm it proposes to provide the engineering services described in this section. The proposed firm must meet the following special experience requirements.

(1) Such firm must, within the last three (3) consecutive years, have successfully provided engineering services similar to the services described in this section on a minimum of two (2) comparable projects.

(2) Such firm must carry professional liability insurance as specified in Schedule "A".

Compliance with such special experience requirements will be determined solely by the Commissioner. Once a firm is approved, no substitution will be permitted, unless the Commissioner has approved the qualifications of the proposed replacement in writing in advance. If the qualifications of the proposed firm are not acceptable, the Contractor shall submit the qualifications of another proposed firm within fifteen (15) days of notice to do so.

76.11.3 SUBMISSION OF PRECONSTRUCTION REPORT.

Upon approval and prior to construction the chosen firm (hereinafter referred to as the firm) shall submit six (6) copies of report(s) incorporating their findings and recommendations. The report(s) shall be prepared by or under the immediate direction of a New York State Licensed Professional Engineer as evidenced by the imprint of the Professional Engineer's seal and signature on the document. The report(s) shall include but not be limited to the following:

(A) A detailed description of the Contractor's proposed means and methods of construction including the installation of the bulkhead sheeting system, floodwalls, pile system, ground improvement, utilities, and dewatering system.

(B) An inspection of the interior and exterior (including photographs and digital audio-visual recordings as required) of all building, tunnel, and/or structures that may be affected by the proposed means and methods of construction and dewatering.

(C) A definition of the "radius of influence" that the proposed dewatering, bulkhead and floodwall installation, pile installation, ground improvement, and other construction activity that will impart on the surrounding soil.

(D) A definition of the limits of horizontal and vertical movement each building and/or structure within the "radius of influence" can tolerate without damage to the structural integrity of that building and/or structure, should these values be different than those provided for critical structures in Section ESCR-76.21; however, these

limits shall be subject to the approval of the Engineer, and shall not exceed twice the limits provided for critical structures. Movements which shall be considered include, but are not limited to, vibration-related settlements, differential settlements, settlements from dewatering, and building movement and/or rotation due to excavation or construction-related work.

(E) A complete study of the vibrations that each building/structure can tolerate along with the anticipated vibrations promulgated by the means and methods of construction, taking into account the age and condition of the buildings.

(F) A statement that the limits of movement and vibrations as defined in (D) and (E) above will not be exceeded as a result of the proposed means and methods of construction, as well as means and methods the Contractor, at the Contractor's own expense, will employ should any limits be exceeded. Limits of movement and vibrations shall be proposed by the Contractor and the firm hired by the Contractor, should those values be different than those provided for critical structures in Section ESCR-76.21, but not exceed twice the values for critical structures; however, these limits shall be subject to the approval of the Engineer.

(G) A geological profile of the soils in the area. This profile shall be based upon the boring logs taken for this project. The Contractor, at own discretion, may make additional borings to supplement the boring logs taken for the project. Supplemental borings made by the Contractor shall be at no additional cost to the City, the cost for these borings shall be deemed included in the price bid for the various items under Section ESCR-76.11CR - CONSTRUCTION REPORT.

(H) A geotechnical data summary including assumed values for the physical and strength characteristics of the soils shown on the Record(s) of Borings, developed from, but not limited to available soil and/or rock descriptions, blow counts, and available geotechnical laboratory testing. Such physical and strength characteristics include, but are not limited to, a soil's unit weight, friction angle, cohesion, consolidation properties, and permeability/drainage properties.

(I) Engineering computations to substantiate any values stated, recommended, or defined in (C), (D) and (E), using the appropriate data from (G) and (H).

The report(s) shall include all field notes, measurements and photographs and digital audio-visual recordings, as required, of existing conditions which may be aggravated by the proposed construction work and shall include a visual inspection of the interior and exterior of all buildings and structures within the radius of influence of construction activity and dewatering. A view of each exterior face of the building and/or structure is required. Additional interior photographs shall be taken to show any existing cosmetic or structural damage on buildings and tunnels.

Applications for consents to enter buildings and/or structures for the purpose of inspection shall state that the inspection is necessary to ensure the structural integrity of the building. One counterpart of each consent, duly signed and acknowledged by the owner or one of the owners, executors or administrators for the owner and for the owner's agents, lessee and any other persons who shall have a vested or contingent interest in the building, or notice of refusal if consent is not obtained shall be filed with the Engineer at least ten (10) days before the commencement of work which affect the building or structure.

The report shall also include recommendations or comments regarding any potentially dangerous and/or unsafe conditions uncovered along with all other additional information required pursuant to other sections of the specifications.

All results of the building or structure examinations shall be incorporated into the preconstruction report.

No work may begin until the Department of Design and Construction has accepted the preconstruction report. This pertains to all contract work and no exceptions will be allowed unless otherwise stated in these specifications.

76.11.4 PRICE TO COVER.

The contract price for Item CONSTRUCTION REPORT shall be a lump sum price and shall include the cost of all labor, materials, plant, equipment and insurance necessary or required to prepare the preconstruction report, including building examinations and do all other work incidental thereto all in accordance with the specifications and as directed by the Engineer.

76.11.5 PAYMENT.

No payment for the preconstruction report will be made until after the Department of Design and Construction has accepted the preconstruction report.

Payment for Construction Report will be made under the Item Number as follows:

The Item Number for Construction Report has seven characters. (The decimal point is considered a character, the third character.)

(1) The first five characters shall define Construction Report:

76.11

(2) The sixth and seventh characters shall define Construction Report:

CR - Construction Report

(3) The eighth and ninth characters shall define the reach for which the Construction Report covers:

L – Reach L ; M – Reach M

(4) The Item Number together with Description and Pay Unit as provided in the Bid Schedule is provided below:

Item No.	Item	Pay Unit
76.11CR-L	CONSTRUCTION REPORT FOR REACH L	L.S.
76.11CR-M	CONSTRUCTION REPORT FOR REACH M	L.S.
76.11CR-N	CONSTRUCTION REPORT FOR REACH N	L.S.
76.11CR-O	CONSTRUCTION REPORT FOR REACH O	L.S.
76.21CR-Q	CONSTRUCTION REPORT FOR REACH Q	L.S.
76.21CR-R	CONSTRUCTION REPORT FOR REACH R	L.S.

END OF SECTION

SECTION ESCR-76.21 – MONITORING AND POST-CONSTRUCTION REPORT

76.21.1 INTENT.

The intent of this section is to monitor and summarize the effects of construction activities on structures located within the influence line of work to be performed under the contract to ensure that the Contractor's proposed means and methods of construction do not create or aggravate any potentially dangerous conditions.

The Contractor will be required to adhere to all criteria, requirements and recommendations of the Engineer approved preconstruction report(s).

76.21.2 SPECIAL EXPERIENCE REQUIREMENTS.

Within thirty (30) days of the award of this contract, the Contractor shall submit to the Commissioner qualifications of the firm it proposes to provide the engineering services described in this section. The proposed firm must meet the following special experience requirements:

(1) Such firm must, within the last three (3) consecutive years, have successfully provided engineering services similar to the services described in this section on a minimum of two (2) comparable projects.

(2) Such firm must carry professional liability insurance as specified in Schedule "A".

Compliance with such special experience requirements will be determined solely by the Commissioner. Once a firm is approved, no substitution will be permitted, unless the Commissioner has approved the qualifications of the proposed replacement in writing in advance. If the qualifications of the proposed firm are not acceptable, the Contractor shall submit the qualifications of another proposed firm within fifteen (15) days of notice to do so.

The firm approved for the preparation of the preconstruction report(s) in accordance with Section ESCR-76.11 - Construction Report, may also be submitted for approval to perform the monitoring and post- construction report work.

76.21.3 SUBMITTALS.

(A) MONITORING REPORTS

The firm will be required to perform the monitoring during construction activity, including installation of sheet piles, piles, and ground improvement, and submit reports to the Engineer on a weekly basis. These reports shall include sketches noting the location of all monitoring points. The minimum monitoring points required are shown on the Contract Drawings; however, the Contractor and the consulting firm hired by the Contractor may add monitoring points as they see fit. Should any of the criteria set forth in the preconstruction report(s) be exceeded, the Engineer shall be notified immediately. Monitoring shall include but not be limited to the following:

(1) Settlement Monitoring

(a) For Existing Structures And/Or Buildings (other than Critical Structures as defined below):

(i) A series of reference points shall be established outside of the "radius of influence" (as previously described in Subsection 76.11.3, paragraph (C)) for monitoring structural settlements. All initial and subsequent readings shall be taken to the nearest one-hundredth (0.01) of a foot.

(ii) Structures and/or buildings shall be monitored daily for vertical and horizontal movement with respect to when work is being performed within the radius of influence. Upon completion of work within the radius of influence, buildings and/or structures shall be monitored weekly for the first month then monthly for the next five (5) months. In the event of an unusual or unexpected event, monitoring shall be performed within twenty-four (24) hours of the event.

(iii) Should the limit of horizontal and/or vertical movement, as set forth in the preconstruction report, of any building and/or structure be exceeded, the Contractor shall immediately and concurrently notify the Engineer and, at the Contractor's own expense, follow the steps included in the preconstruction report outlined in Subsection 76.11.3, paragraph (F) to rectify the situation and prevent any further settlement of such building and/or structure. The Contractor shall be fully responsible for any damages to any foundations, walls or other portions of buildings and/or structures that may result during the courses of this construction. Any damage done by the Contractor, whether it is accidental or due to negligence or carelessness in performing the work included in this contract shall be made good by the Contractor at the Contractor's own expense.

(iv) Permissible settlement for structures, other than critical structures, may be established by the Contractor's consulting firm, but shall not exceed twice the amounts specified below for critical structures.

(b) For Critical Structures when pile and ground improvement installation is being performed:

(i) Critical structures include the elevated FDR Drive structure and the Asser Levy Building.

(ii) Settlement points shall be installed at all critical structures, including columns of overhead structures adjacent to proposed construction work. A minimum of two (2) settlement points shall be established at each component of a critical structure or column.

(iii) A minimum of two (2) benchmarks shall be established for the settlement monitoring. The benchmark should be a minimum of fifty (50) feet distance from the component of the critical structure or columns and construction work alignment.

(iv) The initial survey of the settlement points shall be done prior to pile, sheet pile, or jet grouting installation or construction activity within one hundred (100) feet of the component of the critical structure or columns.

(v) A warning shall be issued if settlement reaches 1/8-inch.

(vi) All pile, sheet pile, or jet grouting installation work, or construction activity within one hundred (100) feet of the critical structure or its columns shall be stopped if settlement reaches 1/4-inch.

(vii) Frequency of settlement monitoring shall be as follows:

(1) Pile, sheet pile, or jet grouting installation between fifty (50) feet and one hundred (100) feet distance from the critical structure or its columns; once every four (4) days.

(2) Pile, sheet pile, or jet grouting installation within fifty (50) feet of the critical structure or columns; once every two (2) days.

(3) If the settlement reaches 1/8-inch; once a day.

(c) All survey readings shall be done by or under the immediate supervision of a Licensed Land Surveyor, currently registered in the State of New York. All survey readings shall include the imprint of the Surveyor's seal and signature.

(d) The Contractor shall transmit a copy of all readings to the Engineer on the same day they are taken.

(2) Vibration Monitoring

(a) For Existing Structures And/Or Buildings (other than critical structures as defined below):

(i) Should the Contractor employ means and methods of construction that will result in vibrations being imparted to the surrounding soil and/or buildings and/or structures, the Contractor shall monitor and record particle velocity. Locations of the monitoring points shall be placed in such a manner so as to ensure recordings that reveal any possibility of damage to existing structures and/or buildings. Location of the monitoring points shall be subject to the Engineer's approval.

(ii) These points shall be monitored at all times when means and methods of construction resulting in vibrations are employed. The maximum permissible peak particle velocity shall be that noted in the preconstruction report. Should particle velocities be exceeded the Contractor shall immediately cease operations and resort to another method which will eliminate or minimize the effect of vibrations.

(iii) It shall be the Contractor's responsibility to restore any buildings or structures damaged as a result of the Contractor's operations to its original condition or better.

(iv) The maximum permissible peak particle velocity may be established by the Contractor's consulting firm, but shall not exceed twice the value specified for critical structures.

(b) For Critical Structures when piles, sheet piles, and ground improvement installation is being performed:

(i) Critical structures include the elevated FDR Drive structure and the Asser Levy Building.

(ii) Vibrations at critical structures shall be monitored during the installation of piles, sheet piles, and jet grouting that are between fifty (50) feet and one hundred (100) feet from the critical structure component or columns.

(iii) A total of two (2) seismographs shall be used for the monitoring; one (1) at each of the closest critical structure component or two (2) columns from pile installation.

(iv) Check the ambient vibration prior to vibration monitoring.

(v) The allowable limit of vibration during pile driving is 0.5-inch per second (in particle velocity) above the ambient vibration level. Stop pile driving if the vibration exceeds 0.5- inch per second above ambient.

(c) The results of the vibration monitoring shall be submitted to the Engineer on the same day of monitoring.

(B) POST-CONSTRUCTION REPORT

Within thirty (30) days of the completion of all work that necessitated monitoring, the chosen firm shall prepare and submit six (6) copies of a report(s) detailing the results of the monitoring program. The report(s) shall include a comparison of all assumptions and field-measured values. Should there be excessive discrepancies between the assumptions and field-measured values, an explanation shall be presented within the report(s). These reports shall include sketches of all monitoring points. The reports shall include the location and length of all piles and sheet piles driven superimposed on the geological profile. The location and lengths of piles and sheet piles to be installed are shown on the Contract Drawings. The post- construction report(s) shall be prepared by or under the immediate direction of a New York State Licensed Professional Engineer as evidenced by the imprint of the Professional Engineer's seal and signature on the document.

76.21.4 RESPONSIBILITIES OF THE CONTRACTOR.

Prior to bidding the Contractor shall examine the site and available subsurface inspection information and formulate means and methods of construction that will not result in any damage to existing structures. Should the Contractor lack the expertise in evaluating the effects of the Contractor's means and methods of construction, the Contractor should prepare its bid in consultation with an experienced firm or authority. In any event, the Contractor will be held liable for any damage to any existing structures due to the Contractor's means and methods of construction.

In addition, should the results of the preconstruction report(s) indicate that damage will result from the Contractor's proposed means and methods of construction, the Contractor will be required to amend the Contractor's means and methods of construction in accordance with the preconstruction report, at no additional cost to the City.

76.21.5 PRICE TO COVER.

The contract unit price shall be the lump sum price bid and shall include the cost of all labor, materials, plant, equipment and insurance necessary or required to prepare weekly reports, examine buildings and structures, perform the construction monitoring, prepare the post-construction report(s) and do all other work incidental thereto all in accordance with the specifications, and as directed by the Engineer.

No separate or additional payment will be made for compliance with the requirements of the preconstruction report(s) including, but not limited to, any modification to the Contractor's means and methods of construction.

Payment for this work shall be made proportional to the work completed as follows:

Completion of Field Monitoring	60%
Acceptance of Post-Construction Report	40%

Payment for Monitoring And Post-Construction Report will be made under the Item Number as follows:

The Item Number for Monitoring And Post-Construction Report has nine to twelve characters. (The decimal point is considered a character, the third character.)

(1) The first five characters shall define Monitoring And Post-Construction Report:

76.21

(2) The sixth and seventh characters shall define Monitoring And Post-Construction Report:

MR - Monitoring And Post-Construction Report

(3) The eighth and ninth characters shall define Monitoring and Post-Construction Report within each reach:

L – Reach L ; M – Reach M

(4) The Item Number together with Description and Pay Unit as provided in the Bid Schedule is provided below:

Item No.		Pay Unit
76.21MR-L	MONITORING AND POST-CONSTRUCTION REPORT FOR REACH L	L.S.
76.21MR-M	MONITORING AND POST-CONSTRUCTION REPORT FOR REACH M	L.S.
76.21MR-N	MONITORING AND POST-CONSTRUCTION REPORT FOR REACH N	L.S.
76.21MR-O	MONITORING AND POST-CONSTRUCTION REPORT FOR REACH O	L.S.
76.21MR-Q	MONITORING AND POST-CONSTRUCTION REPORT FOR REACH Q	L.S.
76.21MR-R	MONITORING AND POST-CONSTRUCTION REPORT FOR REACH R	L.S.

END OF SECTION

SECTION ESCR-551 – STEEL PIPE PILES

551.01 INTENT.

This section describes steel pipe piles for use in the floodgate and floodwall foundations.

551.02 DESCRIPTION.

Steel pipe piles, under this section, shall refer to all permanent steel pipe piles used to support the floodwall and floodgate foundations.

551.03 MATERIALS.

(A) Steel pipe piles shall be ASTM A252 Grade 3 (Mod), 50 ksi yield, unless otherwise shown on the Contract Drawings. Pipe piles shall be either seamless pipe or full penetration electric resistance butt welded with straight or spiral seams.

(B) Pipe shall be welded in a manner that welding shall not crack or fail when the pile is subjected to its intended use, including during driving. Arrange for welds on pipes to be ultrasonically tested by the manufacturer in accordance with the provisions for Nondestructive Electric Test of Weld Seam of ASTM A53. Diameter and wall thickness shall be as shown on the Contract Drawings.

(C) Steel pipe piles shall be coated in accordance with Section ESCR-559 Protective Coating for Waterfront Structures.

551.04 SUBMITTALS.

(A) EQUIPMENT

Contractor shall submit complete descriptions of the equipment for the Work, including caps, leads, and guides where required. The description of the hammer proposed for driving piles shall include make and model number, weight and length of stroke of striking parts, the number of blows per minute at which it operates the area of the piston, and the effective pressure on the piston to be maintained during driving for double acting hammers.

(B) SHOP DRAWINGS AND AS-BUILT DRAWINGS

Fabrication drawings of piles showing location of all splices and weld details.

As-built drawing(s) showing the exact location of all piles driven and identifying abandoned piles, prepared by a surveyor licensed in the State of New York.

(C) DESIGN DATA

Computerized Pile Driving Wave Equation Analysis (WEAP)

The Contractor shall perform computer pile driving wave equation analysis to determine the suitability of the driving equipment proposed to drive the pile to the required ultimate capacity, and to insure against overstress during driving, including initial driving through soft soils. Submit wave equation analyses with pile driving equipment submittal. Wave equation computer programs such as "Wave Equation Analysis of Pile Driving, WEAP Program" and "TTI (Texas Transportation Institute) Program, Pile Driving Analysis Wave Equation," are acceptable. The results of the analysis shall be bound in a comprehensive report and submitted to the Engineer for approval prior to the ordering or driving of any piles.

High-Strain Dynamic Pile Testing by means of Pile Driving Analyzer (PDA)

The Contractor shall submit the results of all PDA testing, including CAPWAP analyses to the Engineer for review and approval. PDA and CAPWAP results report shall be provided for initial driving and restrike.

Pile Load Test Procedure and Set-Up

Submit the proposed set-up plan and procedure for performing the required static and dynamic pile load tests, and lateral pile load tests, for review and approval by the Engineer. The proposed location of the test piles is indicated on the Drawings.

Contractor shall submit static compression load test reports and lateral pile load test reports for the Engineer for review and approval.

(D) CERTIFICATES

Submit certificate stating that all materials and procedure meet or exceed the specified requirements of this Section.

Certified mill test reports for steel pipe piles.

A certification by pile hammer manufacturer of the energy, condition and operational characteristics of each pile hammer.

Test reports for welding.

(G) CONSTRUCTION PLAN

Plan for positioning coated section of pipe within limits specified in this Section.

The proposed procedure for splicing piles, including a plan for positioning all field and shop splices to meet requirements specified in this Section, and detailed procedures for performing field splices.

Verification of welder qualifications.

The proposed sequence for driving all piles.

Test and production pile driving plan and driving resistance criteria including but not limited to the following which shall be approved by the Engineer prior to start of production pile driving:

Minimum blows per foot

Maximum blows per foot

Minimum tip elevation(s)

Coating system and extent

(H) NOISE MITIGATION PLAN

Submit written plan certifying that all tools and equipment have been maintained so that they operate at normal manufacturer's operating specifications, including at peak loading, in accordance with the Rules of the City of New York (RCNY). The approved plan must be posted conspicuously and readily available on site for inspection.

551.05 METHODS.

(A) PILE DRIVING EQUIPMENT

Use rigid frame, fixed-lead type driving equipment capable of supporting the pile firmly in a vertical position or to the required batter.

Leads for the hammer shall be of sufficient length so that use of a follower will not be necessary, unless otherwise approved by the Engineer.

Use an approved driving head designed to properly fit the head of the pile or a cast steel, outside type drive sleeve to prevent damage to the top of the pile during driving.

Use an approved cap block cushion consisting of alternating plates of phenolic laminate and aluminum designed to prevent damage to the piles while also transmitting the amount of transferred energy to the pile top required by the Contract Drawings. The phenolic laminated plates shall be either "Micarta" as manufactured by Norplex Micarta, 665 Lybrand Street, PO Box 977, Postville, Iowa 52162, or "Conbest" as manufactured by Hammer & Steel, Inc., 11916 Missouri Bottom Road, St. Louis, MO 63042. Substitutes not employing phenolic laminate will not be permitted.

Do not use wood chips, small wood blocks, shavings or any extraneous material to absorb the energy of the hammer.

If piles cannot be installed using fixed-lead type driving equipment due to inaccessibility, use of hanging leads may be considered if the following provisions are complied with:

1. Furnish a plan showing the piles that are considered inaccessible and that will not be driven using fixed-lead type driving equipment. The determination of the acceptability of using hanging leads will be made solely by the Engineer.
2. Use a driving frame template or false work to maintain location tolerance and orientation (batter) requirements specified in ESCR-551.05F and on the Contract Drawings.
3. Specify the type of piles or other method of support and minimum tip elevation of piles used to support frame template and false work.
4. Specify the methods of retaining the driven piles in place upon removal of the frame template and prior to cap construction.
5. Surveying requirements

Prior to driving piles at each bent or cap, furnish the following to the Engineer:

- Sequence of installation for all inaccessible piles.
- Survey of frame location and elevation at each bent or for each row of piles.

Survey location and orientation of piles upon completion of all piles in a bent or cap prior to driving piles in next bent or cap. Furnish access for the Engineer to perform visual inspection of piles.

(B) PILE DRIVING ANALYZER (PDA)

PDA measurements will be performed by the Contractor at the start of pile driving. If, as a result of using hanging leads, the Engineer determines that additional PDA

measurements are required to verify the consistent performance of driving system, the number and frequency of additional testing shall be as determined by the Engineer. Contractor shall provide assistance to the Engineer by performing the additional testing requested, and as required on the Contract Drawings at no additional cost. Contractor shall perform CAPWAP analyses for each PDA tests performed. PDA and CAPWAP analyses shall be performed for all test piles during initial driving and restriking. All dynamically tested piles shall be restriked at no additional cost. Contractor shall provide a report for all test piles providing PDA and CAPWAP results for initial driving and restriking.

(C) PILE LOAD TESTS

The proposed locations of the test piles are indicated on the Contract Drawings. Static compression load tests shall be performed in accordance with ASTM D1143, Standard Procedure, to 200% of the allowable compression pile load, as specified in the New York City Building Code. Lateral load tests shall be performed in accordance with ASTM D3966, Standard Procedure, to 200% of the allowable lateral pile load, as specified in the New York City Building Code.

The Contractor shall retain the services of a New York State Licensed Professional Engineer to perform load tests on the pile piles, both in compression and lateral, at the locations shown in the Contract Drawings.

A test report, in accordance with ASTM D1143, shall be submitted for each compression pile load test.

A test report, in accordance with ASTM D3966, shall be submitted for each lateral pile load test.

(D) PILE HAMMER

Use a pile hammer complying with this specification section. Hammer used shall be subject to prior approval by the Engineer.

Furnish hammer of the type and energy rating as approved by Engineer; hammer capable of developing the indicated ultimate pile capacity considering hammer impact velocity; ram weight; stiffness of hammer and pile cushions; cross section, length, and total weight of pile; and character of subsurface material to be encountered. Maximum stress during pile driving shall not exceed 90% of the steel yield strength. Obtain required driving energy of hammer, except for diesel hammers, by use of a heavy ram and a short stroke with low impact velocity. At final driving, operate diesel powered hammers at rate recommended by manufacturer for hard driving. Maintain pressure at steam or air hammer so that: (1) for double-acting hammer, the number of blows per minute during and at completion of driving of a pile is equal approximately to that at which hammer is rated; (2) for single-acting hammer, there is a full upward stroke of the ram; and (3) for differential type hammer, there is a slight rise of hammer base during each downward stroke.

Keep hammer in good mechanical condition and operate it at the speed and pressure recommended by the manufacturer.

During pile driving operations, the Engineer may make occasional measurements of the velocity of the hammer ram using a Hammer Performance Analyzer (radar gun device), manufactured by Pile Dynamics, Inc., or similar. If the energy per blow computed on the basis of the measured ram velocity at impact is less than

80 percent of the rated energy per blow as specified by the manufacturer of the pile hammer, make all necessary repairs so as to improve the energy output to a value of at least 80 percent of the rated energy per blow or, alternatively, replace the pile hammer.

Use air compressor or hydraulic pump that meets minimum requirements for capacity or horsepower, as recommended by hammer manufacturer.

(E) WELDING AND SPLICING

Perform welding in accordance with requirements for shielded metal arc welding of AWS D1.1 for buildings and other structures.

AWS provisions for bridge construction shall apply where applicable. All splices shall be of the full penetration butt weld type and shall develop the full strength of the pile. All welds shall be visually inspected and all shop splices shall be ultrasonically tested. All protective coating shall be repaired after welding is completed.

Field welding, qualification of welders, and inspection of welds shall be in accordance with AWS D1.1 or D1.5. All pipe pile field splices shall be of the full penetration butt weld type and shall develop the full strength of the pile.

All field welds shall be visually inspected by an AWS certified weld inspector and 10% of field splices shall be ultrasonically tested.

Coordinate the Work and timely notify the Engineer to ensure compliance with all testing and inspection procedures required by the Engineer. Notify the Engineer 24 hours prior to performing field welding.

All pile splice shall be full penetration butt welds. An approved jig or alignment device shall be used to maintain the required straightness of pipe. For splices made during pile installation, rigid frame pile leads may be used as a jig in a manner approved by the Engineer.

Unless otherwise permitted by the Engineer based on field conditions, the number and location of splices shall comply with the following limitations:

1. No more than three splices per pile over 100 feet long.
2. No more than two splices per pile up to 100 feet long.
3. No splice closer than 25 feet from the tip.
4. No splice closer than 35 feet from the top.

(F) ALIGNMENT AND TOLERANCES

After splicing, the alignment of the centering of the undriven portion of the pile shall not deviate from the alignment of the centering of the driven portion of the pile by more than 3/8 inch in 40 feet.

Alignment deviation is defined as the horizontal offset of the centerline of the pile at the top of the pile divided by the length over which the offset is measured. After installation, the alignment deviation of the pile centerline shall not exceed two percent from vertical for vertical piles and two percent (shallower or steeper) from the batter shown on the Contract Drawings for batter piles.

Horizontal deviation is defined as the difference in horizontal position of any point on the centerline of the pile below the pile top from the design horizontal position of the corresponding point as shown on the Contract Drawings. After installation, the horizontal deviation of any point shall not be greater than an amount equal to four percent of the vertical distance from the cut-off elevation to the point in question, unless otherwise shown on the Contract Drawings.

A light source lowered to the bottom of the pile shall remain visible. However, if eye contact with the light source is lost, a measurement will be made by the Engineer with an inclinometer to determine if the pile meets the requirements of this Section.

Piles at cut-off elevation shall not deviate laterally from required location by more than 1.5 inches, and as shown on the Contract Drawings. Piles shall not be pulled into location by more than amount shown on the Contract Drawings.

(G) PILE DRIVING

Do not drive piles until excavation or filling in the area they are to occupy has been completed to the design grades shown on the Contract Drawings.

Do not drive piles until the surface is clear of debris or other materials that may interfere with pile driving. Protect existing structures, including overhead and buried utility lines. Contractor shall perform exploratory test pits in the area of the proposed pile driving as required to first expose any buried utilities prior to any pile driving at no additional cost to the City.

Do not drive piles until the Engineer has approved sequence of driving for all piles.

The Contractor shall follow the requirements in Con Ed Specification CE-SI-1080 Guidelines for Protecting Existing Underground Transmission Electric Facilities from Nearby Construction Activities for any pile driving adjacent to Con Ed electric facilities.

Perform driving operations only in the presence of the Engineer.

Maintain top of pile normal to the driving force. Maintain accurate alignment of the pile, hammer and leads to minimize bowing of pile during impact of the hammer ram.

Drive piles to the minimum tip penetration(s) and to the driving resistance shown on the Contract Drawings. Take corrective action, if required, to prevent observable impact bowing of pile at final driving resistance.

Drive piles without interruption from the first hammer blow until required penetration and driving resistance have been attained, unless otherwise approved by the Engineer. If interruption of driving is necessitated by job requirements as approved by the Engineer, upon resuming driving, overcome friction due to the stoppage and drive or use other approved means of advancing the pile to the approximate tip elevation of immediately adjacent piles and to the required driving resistance shown on the Contract Drawings.

When resistance to driving makes it impossible to advance the pile to the required minimum tip penetration, spud, drill and drive or use such other means as necessary to permit advancement to required minimum tip penetration, and then drive to the resistance shown on the Contract Drawings. Jetting will not be permitted.

Pre-drilling or pre-augering a hole of maximum diameter two inches smaller than the pile diameter may be used to advance the pile to a penetration no deeper than the required minimum tip penetration, subject to approval of the Engineer, providing the pile is driven to the required driving resistance shown on the Contract Drawings. In granular soils below the ground water level, stabilize the hole by use of drilling fluids as approved by the Engineer.

At the completion of the driving operation on a pile, the pile shall be undamaged, free of leaks and other defects and in compliance with the requirements of this Section.

Cut piles off at cut-off elevation shown on the Contract Drawings as soon as practical after driving and any required redriving.

When required, install indicator piles in locations and sequence shown on Contract Drawings. Indicator piles shall be dynamically tested piles, with PDA and CAPWAP analyses performed for initial driving, and restriking of the piles.

(H) ROCK SOCKETS

Rock sockets shall be installed as shown on the Contract Drawings.

Pipe Pile Installation

The Contractor shall choose such means as necessary to seal the pipe piles onto or into the rock. The Contractor may use impact, vibratory, or drilling methods, or any combination of these, as the Contractor deems necessary, to produce the finished pipe pile as shown on the Drawings. Blasting is prohibited, and no means shall be employed which disturb existing construction.

The socket shall be cut into the rock, and the bottom of the socket shall be level so that horizontal bearing is achieved. The diameter and depth of the socket shall be shown on the Contract Drawings. The diameter of the socket specified shall be maintained the entire length of the socket. The Engineer may direct the Contractor to cut the socket deeper than specified, if in the Engineer's opinion, this becomes necessary.

Concrete Grout

Concrete/grout 28 day compressive strength shall be as shown on the Contract Drawings.

Concrete/grout shall be tremied or pumped in a continuous operation. If the placement is interrupted, special procedures may be required prior to resumption of the pour, as directed by the Engineer.

Concrete/grout may be placed underwater by pumping, or by the tremie method.

The bottom of the socket shall be sounded and the depth determined immediately before concrete placement. Not more than ½-inch of soil residue shall be permitted at the bottom of the socket.

If the soil or any other material persists in entering the drilled socket, the socket may be grouted, the grout allowed to harden, and the socket re-drilled.

The tremie pipe or grout pipe shall extend to within six (6) in. of the bottom of the socket. The pipe shall remain a minimum of six (6) ft below the top of the concrete at all times after attaining that depth.

The tremie operation shall continue until a minimum of one-third of a cubic yard of concrete is pumped over the top of the required concrete top.

(I) CORRECTIONS OF DEFICIENCIES

Notify the Engineer immediately in writing of the failure of a pile to meet any requirement of this Section. Include all information required for the evaluation of remedial measures, including information required for redesign.

If the Engineer determines that a pile does not meet the requirements of this Section due to encountering an obstruction, then the following shall apply:

If the Engineer determines that a pile does not meet the requirements of this Section for any reason other than encountering an obstruction, the Contractor shall perform all remedial work associated with the deficient pile, including changes to concrete and reinforcement steel, at no additional cost.

An obstruction shall be defined as any natural or man-made object which does not permit the pile to be advanced by driving or driving and spudding with the approved pile driving hammer. Soils with naturally high driving resistance shall not be considered to be an obstruction.

It shall be the sole determination of the Engineer as to whether or not an obstruction has been encountered during pile driving.

If a pile fails to comply with the alignment or location requirements of Section 551.05F, the Engineer will calculate the load capacity requirements of that pile or, if in a pile group, each pile in that pile group, based on the actual "as-driven" alignment and locations. If the calculation indicates that the loading on that pile or, if in a pile group, on any pile in that pile group, exceeds 110 percent of the design load, then perform such remedial work as approved by the Engineer, including but not limited to redriving piles, furnishing and driving additional piles at locations approved by the Engineer and modifying concrete or reinforcement steel.

In the case of a pile with some deficiency that affects load capacity, the Engineer will calculate the load capacity requirements of that pile, based on its actual, "as-driven" location and alignment. If the calculation indicates that the loading on the pile exceeds some reduced allowable loading less than the design load, including a zero loading, as determined in the sole judgment of the Engineer, then perform such remedial work as approved by the Engineer, including but not limited to redriving piles, furnishing and driving additional piles at locations approved by the Engineer and modifying concrete or reinforcement steel.

If a pile fails to comply with the requirements of this Section and the Engineer determines that modification to concrete or reinforcement steel or the driving of additional piles is necessary, the City will perform all required redesign and detailing.

The Contractor, at their option and at any time as determined by the Contractor that a pile will not satisfy the requirements of this Section for a reason other than encountering an underground obstruction, may abandon such pile and replace it with a new pile or piles rather than await direction or approval from the Engineer. However, in exercising this option, the Contractor assumes the risk that such replacement pile or piles have not been installed at the proper design location and alignment so as to carry satisfactorily the design load as determined by subsequent analysis performed by the Engineer. Such abandonment shall be for

the Contractor's convenience at no cost to the City and subject to all applicable provisions of the Contract.

Abandoned piles shall be cut off one foot below the elevation of the bottom of the pile cap as shown on the Contract Drawings and filled with sand. If directed by the Engineer to fill an abandoned pile with concrete, the Contractor will be compensated for the difference between the cost of sand and concrete for the volume of concrete used to fill the pile.

(J) REDRIVING PILES

Unless otherwise shown on the Contract Drawings, take optical survey measurements to establish the elevation of the top of each pile immediately after driving (or redriving) and, subsequently, after driving (or redriving) the entire pile group. Redrive piles that the Engineer determines have heaved or uplifted 0.25 inch or more from their original elevations and piles immediately adjacent thereto as directed by the Engineer.

Redrive until both the original tip elevation and the driving resistance shown on the Contract Drawings have been obtained, except that if original tip elevation cannot be reached, driving may be discontinued at a resistance of 200 percent of the allowable capacity shown on the Contract Drawings. All piles must achieve an ultimate pile capacity equivalent to 200% of the allowable pile capacity required.

Perform redriving if pile was not initially driven to the verified and agreed upon driving criteria, and pile set up is being relied on. The sequence and scheduling of redriving must be approved by the Engineer.

Equipment for redriving shall be as specified for original driving except that use of a free hanging hammer will be permitted.

Do not cut off piles until the Engineer has determined that no further redriving is required.

(K) WELDING OF HEADED SHEAR STUDS ON PILES

Headed shear studs shall be welded to the pipe piles at the locations indicated on the Contract Drawings, and as directed by the Engineer. The studs shall be installed on-site, following pile installation. The pipe piles shall not be coated in the immediate area surrounding the shear studs, or the coating shall be removed prior to stud installation.

The headed shear studs shall be of the size indicated on the Contract Drawings. They shall not be coated. They shall be Nelson Type H4L or S3L, or approved equal, flux filled, welded as shown on the Drawings. Studs shall be from cold drawn steel Grades C-1010 through C-1020, per ASTM A108, and shall be welded per the manufacturer's recommendations. The minimum ultimate tensile strength shall be 60 ksi, and the minimum yield strength shall be 50 ksi.

(L) INSPECTION

Cooperate with the Engineer and furnish services as the Engineer may require for inspecting and obtaining data. Typical of these services shall be the measurement of length of piles, painting footmarks on piles, furnishing light and ladder if required, and moving materials or equipment as required to provide access to and clear observation of the piles.

After all piles for each pile group have been driven, the Engineer will inspect each pile.

The Engineer will keep a record of each pile driven. This record will include the following data:

1. Date of driving.
2. Pile number.
3. Type and size of pile.
4. Type, number and location of splices.
5. Pile length before driving.
6. Length of cut-off.
7. Elevation of pile top and tip to nearest 0.1 inch immediately after driving.
8. Elevation of pile top after driving entire pile group to the nearest 0.1 inch to determine amount of heave.
9. Final elevation of pile tip after required redriving of entire pile group.
10. Lower limit (elevation) of pile coating after driving.
11. Hammer type and size.
12. Hammer speed.
13. For impact hammers, blows per foot of driven length, and blows per inch where driving resistance exceeds 75 blows per foot.
14. Blows per 1/2 inch of redrive.
15. The time pile driving is started, interrupted, resumed and stopped.
16. Description of any unusual circumstances affecting the driving of the particular pile.
17. Sounded length of each pile.
18. Slope of pile.
19. Lowest elevation at which light source is fully visible and elevation at which eye contact with light source is lost.

551.06 MEASUREMENT.

The quantity of steel pipe piles to be measured for payment shall be the number of linear feet, measured to the nearest half foot, installed to the satisfaction of the Engineer. Pile length shall be measured from final cut-off elevation to pile tip elevation. No payment or allowance will be made for steel pipe piles installed beyond the limits specified.

The quantity of rock socket to be measured for payment shall be the number of rock sockets installed to the satisfaction of the Engineer. The rock socket shall include all drilling, removal of materials within the pile, cleaning, installation of anchors, temporary supports, concrete/grout fill, and other hardware required to install the rock sockets. No payment or allowance will be made for rock sockets installed beyond the limits specified.

551.07 PRICE TO COVER.

The contract unit price for steel pipe piling and rock sockets shall cover the cost of all labor, materials, plant, equipment, insurance, samples, and incidentals required to furnish, install, and weld shear studs in full compliance with the requirements of the specifications and drawings. The cost to remove any obstructions that may interfere with the installation of the steel pipe piles or rock sockets to the specified elevations will be included in the unit price.

Payment will be made under:

Item No.	Item	Pay Unit
ESCR-551.24.05 RS	ROCK SOCKET FOR 24 IN. DIAMETER X 0.5 IN. WALL THICKNESS STEEL PIPE PILE	EACH
ESCR-551.24.05.C	COATED 24 IN. DIAMETER X 0.5 IN. WALL THICKNESS STEEL PIPE PILE	L.F.
ESCR-551.24.05.CJG	COATED 24 IN. DIAMETER X 0.5 IN. WALL THICKNESS STEEL PIPE PILE PLACED IN THE JET GROUT COLUMN	L.F.
ESCR-551.30.01.CJG	COATED 30 IN. DIAMETER X 1.0 IN. WALL THICKNESS PIPE PILES PLACED IN THE JET GROUT COLUMN	L.F.
ESCR-551.24.05 DT	24 IN. DIAMETER X 0.5 IN. WALL THICKNESS STEEL PIPE PILE – DYNAMIC PILE LOAD TESTING	PER TEST
ESCR-551.24.05 ST	24 IN. DIAMETER X 0.5 IN. WALL THICKNESS STEEL PIPE PILE – STATIC COMPRESSION TESTING	PER TEST
ESCR-551.24.05 LT	24 IN. DIAMETER X 0.5 IN. WALL THICKNESS STEEL PIPE PILE – LATERAL PILE LOAD TESTING	PER TEST
ESCR-551.30.1 ST	30 IN. DIAMETER X 1.0 IN. WALL THICKNESS STEEL PIPE PILE – STATIC COMPRESSION TESTING	PER TEST
ESCR-551.30.1 LT	30 IN. DIAMETER X 1.0 IN. WALL THICKNESS STEEL PIPE PILE – LATERAL PILE LOAD TESTING	PER TEST

END OF SECTION

SECTION ESCR-551.993 – MICROPILES

551.993.01 INTENT.

This section describes micropiles for use in the flood protection structures.

551.993.02 DESCRIPTION.

Micropiles, under this section, shall refer to all micropiles used for the floodwall and floodgate structures.

551.993.03 MATERIALS.

(A) Drill Casing. Provide drill casing consisting of flush joint type steel pipe of appropriate thickness to withstand the stresses associated with advancing it into the ground, in addition to the stresses due to hydrostatic and earth pressures.

(B) Drill Casing/Pipe used as Reinforcement. Provide steel drill casing/pipe used as reinforcement conforming to API 5CT N80 steel with 80 ksi yield strength. Mill secondaries cannot be used for reinforcement.

(C) Bar Reinforcement. Provide bar reinforcement meeting the requirements of ASTM A615, Grade 80, or continuously threaded "uncoated high-strength steel bars for prestressing concrete" - ASTM A722.

(D) Casing shall be flush joint and the pipe joint shall be completely shouldered and with no stripped threads.

(E) Grout. Provide a pumpable grout consisting of, as a minimum, Portland Cement - type 2 and water that provides a stable, homogenous neat cement grout with a minimum 28-day unconfined compressive strength of 5,000 psi.

(F) Centralizers and Spacers. Provide centralizers and spacers fabricated from schedule 40 PVC pipe, tube, steel, or material non-detrimental to the reinforcing steel. Wood shall not be used.

551.993.04 SUBMITTALS

(A) Shop Drawings

Prepare and submit to the Engineer, for review and approval, working drawings and relevant calculations for micropile installation at least 21 days prior to planned start of construction.

(B) Submit a detailed description of the construction procedures proposed for use. This shall include a schedule of major equipment resources. Indicate methods and equipment that will be used to containerize waste, including but not limited to soil cuttings, spoils, and drilling fluid, generated as part of the micropiles installation. The construction procedures shall be submitted for Engineer review and approval prior to the start of any work.

(C) The working drawings shall include micropile installation details giving the following:

a. Micropile number, location and installation sequence.

b. Micropile design load.

c. Type and size of reinforcing steel.

d. Minimum total bond length.

e. Grout volumes and maximum pressures.

f. Micropile cut-off elevation.

(D) For reinforcing steel submit certified mill test reports, properly marked, for reinforcing steel, as the materials are delivered. The ultimate strength, yield strength, elongation, and composition shall be included. For steel pipe used as permanent casing, or core steel, submit a minimum of two representative coupon tests or mill certifications (if available) on each steel heat delivered to the project site.

(E) Submit the grout mix designs, including details of all materials to be incorporated, and the procedure for mixing and placing the grout to Engineer for review and approval prior to ordering any materials. This submittal shall include certified test results verifying the acceptability of the proposed mix designs.

(F) Installation Records: The following records shall be prepared for each micropile installed, within 24 hours after each pile installation is completed. The records shall include the following minimum information:

a. Pile drilling duration and observations (e.g., flush return).

b. Information on soil and rock encountered, including description of strata, water, etc.

c. Final elevation of micropile including top and bottom of bond length.

d. Cut-off elevation.

e. Design loads.

f. Description of unusual installation behavior, or conditions.

g. Any deviation from the intended parameters.

h. Grout pressure attained, where applicable.

i. Grout quantities pumped.

j. Pile materials and dimensions.

k. Micropile test records, analysis, and details.

(G) Pile Load Test Procedure and Set-Up

Submit the proposed set-up plan and procedure for performing the required static compression pile load tests and static uplift pile load tests, for review and approval by the Engineer prior to starting any tests. The proposed location of the test piles is indicated on the Drawings.

Test Reports

Provide pile load test results for both compression and tension load tests as required in this section of the Specifications.

(H) As-built drawings showing the location of the piles, their depth and inclination, and details of their composition shall be submitted within 15 days after installation of all production piles.

551.993.05 METHODS.

(A) DRILLING AND EXCAVATION

Protect existing structures, including overhead and buried utility lines. Contractor shall perform exploratory test pits in the area of the proposed micropile installation as required to first expose any buried utilities prior to any drilling at no additional cost to the City.

The Contractor shall follow the requirements in Con Ed Specification CE-SI-1080 Guidelines for Protecting Existing Underground Transmission Electric Facilities from Nearby Construction Activities for any micropiles being installed adjacent to Con Ed electric facilities.

Advance the hole using a duplex drilling method. Do not drill or flush ahead of the drill casing by more than 1 foot. Perform drilling and excavation in such a manner to prevent collapse of the hole. Use of bentonite slurry is not permitted. Use of polymer slurry to remove cuttings from the cased hole shall be approved by the Engineer.

If obstructions are encountered during excavation for a pile, progress through them by means of coring or a tri-cone roller bit. Use of drop-type impact hammers and blasting are not permitted.

Use of a down-the-hole hammer must be approved by the Engineer.

Control the procedures and operations so as to prevent mining, damage, or settlement to adjacent structures, tunnels, utilities, or adjacent ground. If any mining, damage, or settlement occurs, halt operations. Provide a written plan to the Engineer for review with procedures to avoid reoccurrence. Resume work only after the Engineer has approved the plan in writing. Repair all damage and settlement at no additional cost to the City.

Control the procedures and operations so as to prevent the soil at the bottom of the hole from flowing into the hole at all times during installation and cleaning out. Monitor the rate of fluid flow used to progress the holes.

Control drilling fluid and dispose of spoil in accordance with the approved procedure.

Do not progress a hole, pressure-grout, or post-grout, within a radius of 5 pile diameters or 5 feet, whichever is greater, of a micropile until the grout for that micropile has set for 24 hours or longer if a retarder is used.

Obstructions, including but not limited to rock fragments, cobbles, boulders, and rubble fill are expected during installation of micropiles. It is Contractor's responsibility to assess the impact of obstructions on micropile installation and take measures to overcome the obstructions without causing additional cost to the City.

If, during installation of a pile, an obstruction is encountered that prevents the practical advancement of the hole, the hole shall be abandoned and filled with grout. A new pile shall be drilled at a location to be determined by the Engineer, although it must be acknowledged that in certain structures, relocation options may be severely limited, and further attempts at the original location with different methods may be required.

Existing utilities shall be field verified prior to drilling. The Contractor shall expose all existing utilities prior to installation of micropiles. It is the Contractor's responsibility to avoid damaging existing underground utilities during micropile installation.

The micropiles shall be constructed according to the size and depth shown on the Contract Drawings. Casing shall be drilled down to the bedrock level and seated adequately prior to the drilling of the rock socket into the bedrock.

(B) REINFORCEMENT AND POST GROUT TUBE PLACEMENT

Provide centralizers sized to position the reinforcement within 3/8 inch of plan location from the center of the pile; sized to allow grout tremie pipe insertion to the bottom of the drillhole; and sized to allow grout to freely flow up the drill hole and casing and between adjacent reinforcing bars. Centralizers, spaced not to exceed 10 feet, must be used to center the reinforcement for its entire length. Securely attach the centralizers to withstand installation stresses. Do not drop, but lower the steel reinforcement to its specified location in the hole. If a post grout tube is used, attach it to the steel reinforcement prior to lowering it.

(C) GROUTING

The Contractor shall provide systems and equipment to measure the grout quality, quantity, and pumping pressure during the grouting operations. This information is to be measured and recorded by the Contractor. The grouting shall be performed immediately after the finish of drilling and flushing of the hole. No drilling of one micropile shall be performed if grouting is not expected to be finished for the same micropile immediately after drilling.

After drilling, the hole shall be flushed with water and/or air to remove drill cuttings and/or other loose debris. All drilling fluid along with cuttings and debris shall be collected in containers for future disposal. Prior to placement of grout, the Contractor shall verify that the bottom of the pile is clean and has reached the required tip elevation and that the bond length in soil or rock as shown in the Drawings has been achieved. The grout shall not contain lumps or any other evidence of poor or incomplete mixing. Admixtures, if used, shall be mixed in accordance with manufacturer's recommendations. The pump shall be equipped with a pressure gauge to monitor grout pressures. The pressure gauge shall be capable of measuring pressures of at least 150 psi or twice the actual grout pressures used by the Contractor, whichever is greater. The grouting equipment shall be sized to enable the grout to be pumped in one continuous operation. The grout should be kept in constant agitation prior to pumping.

The grout shall be injected from the lowest point of the drill hole (by tremie methods) until clean, pure grout flows from the top of the micropile. The tremie grout may be pumped through grout tubes or drill rods. Subsequent to tremie grouting, all grouting operations associated with, for example, extraction of drill casing and pressure grouting, must ensure complete continuity of the grout column. The use of compressed air to directly pressurize the fluid grout is not permissible. The grout pressures and grout takes shall be controlled to prevent excessive heave in cohesive soils or fracturing of soil or rock formations. The entire pile shall be grouted to the design cut-off level.

Upon completion of grouting, the grout tube may remain in the hole, but it shall be filled with grout. Grout tubes shall be installed prior to the tremie grouting.

The Contractor shall perform grouting in a way to minimize grout loss to joints in rock and cavities. The Contractor shall be responsible for any overrun of grout beyond the theoretical micropile volume and take it into consideration in their bid. In case the grout does not return to the top of casing after 120 percent of theoretical grout volume for this pile has been consumed, the Contractor may let the grout set and redrill and regrout the micropile. However, it shall be the Contractor's responsibility to deal with the potential grout loss issue.

Grout within the micropiles shall be allowed to attain the minimum design strength prior to being loaded. No load test shall be performed before the specified grout strength has been reached.

If the Contractor uses a post-grouting system, all relevant details including grouting pressure, volume, location and mix design, shall be submitted for Engineer approval.

(D) PILE SPLICES

Casing sections shall be joined by manufactured thread joints constructed to develop at least the required compressive, tensile, and/or bending structural strength used in the micropile design. Threaded pipe casing joints shall be located at least two casing diameters (OD) from a splice in any reinforcing bar.

Reinforcing steel shall be spliced using approved couplers from the reinforcing steel manufacturer and shall develop the ultimate tensile strength of the bars without evidence of any failure.

Lengths of casing and reinforcing steel to be spliced shall be secured in proper alignments and in such a manner that no eccentricity between the axes of the two lengths spliced or angle between them results.

(E) GROUT PLACEMENT AND CASING REMOVAL

Provide quality control of the mix by monitoring grout quality. Measure grout consistency by determining grout density per API Recommended Practice (RP) 13B-1 by the Baroid Mud Balance Test at a frequency, of at least one test per micropile, and provide the information to the inspector.

The Engineer will perform quality assurance of the mix design. Place grout by means of a tremie pipe from the bottom of the pile upward. Record the initial volume of grout required to fill the hole. Record grouting pressure and volume of grout being pumped into the pile during pressure grouting. Upon completion, maintain the grout level at or above the pile cut off elevation until the grout has set.

Locate the grout pressure and volume measuring gages at the pile installation site so that they are accessible and legible to the inspector.

(F) CONSTRUCTION TOLERANCES

Install the piles so that the center of each micropile does not vary from the plan location by more than 3 inches. Do not allow the micropile to vary from the vertical or established batter by more than 1/4 inch per foot, as measured above ground.

Cut off the top of the pile at the elevation indicated in the Contract Documents.

(G) PILE ACCEPTANCE CRITERIA

Piles will not be accepted for payment unless all the following criteria are satisfied:

1. Pile meets the following construction tolerance criteria:
   a. Centerline of piling shall not be more than 3 inches from indicated plan location.
   b. Pile-hole alignment shall be within 1 percent of design alignment.
   c. Top elevation of pile shall be within 1 inch of the design vertical elevation.
   d. Centerline of core reinforcement shall not be more than 3/4 inch from centerline of piling.
2. Pile was installed in accordance with the approved submittal.
3. Pile is not damaged.
4. Pile was installed using the same method, grout volumes, and pressures as the accepted test pile, if applicable.

(H) UNACCEPTABLE PILES

Unacceptable piles are piles which do not meet the acceptance criteria identified in the subsection above.

Submit to the Engineer a written plan of remedial action, for approval by the Engineer, showing how to correct the problem and prevent its reoccurrence. Repair, augment, or replace the unacceptable pile in accordance with the approved remedial plan at no additional cost to the City.

(I) QUALITY ASSURANCE

The Contractor shall be fully experienced in all aspects of micropile design and construction, and shall furnish all necessary equipment, materials, skilled labor, and supervision to carry out the contract. The Contractor shall have successfully completed at least three projects in the previous 5 years of similar scope and size. The Contractor shall have successfully installed a minimum of 100 micropiles in similar sites, of similar capacity to those required in the plans and specifications. The Contractor shall also provide resumes of key personnel who will be present on site (and will be materially involved) and who each have at least 3 years of relevant experience. These personnel shall include as a minimum a superintendent and a driller. The Engineer may suspend the Work if the Contractor uses non-approved personnel. If work is suspended, the Contractor shall be fully liable for all resulting costs and no adjustment in contract time will result from the suspension.

Grout shall be tested as follows:

1. Each set of grout samples shall consist of three 2-inch cube samples.
2. During test pile installation, prepare and test minimum one set of samples from grout used for each test pile. Perform one 3-day, 7-day, and one 28-day unconfined compressive strength tests in accordance with ASTM C780 Annex 6.

3. During production pile installation, prepare and test a minimum of one set of samples from each batch of grout used during production pile installation, but no less than one set per day. Perform one 7-day and one 28-day unconfined compressive strength tests per ASTM C780 Annex. The remaining sample shall be tested at 56-day if 28-day strength does not meet specifications.
4. Test results shall be submitted to the Engineer within 3 days from the finish the grout strength test. If the grout strength of a particular micropile is less than the specified strength, the Engineer may require the Contractor to prove the design capacity of the specific micropile by performing additional proof load test or to install additional micropile to replace the specific micropile with inadequate grout strength at no additional cost to the City.

(J) WELDING

All welded connections shall be performed by in accordance with AWS D1.1. These requirements do not apply to minor welding that does not carry structural load, such as cutting teeth and tacking on bearing plates.

(K) PILE LOAD TESTING

Follow the pile load testing requirements and locations specified on the Contract Drawings.

The proposed locations of the test piles are indicated on the Contract Drawings. Static compression pile load tests shall be performed on those test piles in accordance with ASTM D1143 following New York City Building Code, and as indicated on the Contract Drawings. Piles shall be tested to a load 200% of the allowable compression pile capacity provided on the Contract Drawings, using the Standard Procedure.

Static tension pile load tests shall be performed on those test piles in accordance with ASTM D3689 following New York City Building Code, and as indicated on the Contract Drawings. Piles shall be tested to a load 200% of the allowable compression pile capacity provided on the Contract Drawings, using the Standard Procedure.

The Contractor shall retain the services of a New York State Licensed Professional Engineer to perform load tests on the micropiles at the locations shown in the Contract Documents.

A test report, in accordance with ASTM D1143, shall be submitted for each compression pile load test. A test report, in accordance with ASTM D3689, shall be submitted for each tension pile load test.

(L) VIBRATION MONITORING

Follow the vibration monitoring requirements specified on the Contract Drawings, and stated herein.

Where installing micropiles adjacent to critical structures, generated vibrations shall be monitored at the critical structures. Detected vibration levels at the monitored structures shall not exceed a peek particle velocity level greater than 0.5 in./sec.

551.993.06 MEASUREMENT.

The quantity of micropiles to be measured for payment shall be the linear feet, measured to the nearest half foot, installed to the satisfaction of the Engineer. No payment or allowance will be made for micropiles installed beyond the limits specified.

551.993.07 PRICE TO COVER.

The contract unit price for micropiles shall cover the cost of all labor, materials, plant, equipment, insurance, samples, and incidentals required to furnish, and install in full compliance with the requirements of the specifications and drawings. The cost of vibration monitoring, exploratory test pits to locate utilities, any loss of grout, and the removal of any obstructions that may interfere with the installation of the micropiles to the specified elevations will be included in the unit price.

Payment will be made under:

Item No.	Item	Pay Unit
ESCR-551.993.9625	9.625 IN. O.D. X 0.54 IN. WALL THICKNESS MICROPILE	L.F.
ESCR-551.993.9625 PLT COMP	PILE LOAD TESTING FOR 9.625 IN. O.D. X 0.54 IN. WALL THICKNESS MICROPILE – STATIC COMPRESSION TEST	PER TEST
ESCR-551.993.9625 PLT TEN	PILE LOAD TESTING FOR 9.625 IN. O.D. X 0.54 IN. WALL THICKNESS MICROPILE – STATIC TENSION TEST	PER TEST

END OF SECTION

SECTION ESCR-552 – STEEL SHEET PILING

552.01 INTENT.

This section describes steel sheet piling for use in the flood protection structures.

552.02 DESCRIPTION.

Steel sheet piling, under this section, shall refer to all permanent steel sheet piling used for the floodwall and floodgate foundations.

552.03 MATERIALS.

(A) All sheet piles and king piles shall be delivered in single pieces. The interlocks of sheet piling and king piles shall be free-sliding, provide a swing angle suitable for the intended installation, but not more than 5 degrees when interlocked, and maintain continuous interlocking when installed. Sheet piling and king piles shall be sections of the dimensions shown on the Contract documents. Sheet piling and king piles shall be provided with standard pulling holes. The outboard face of sheet piling and king piles shall be fully coated in the shop per requirements of these Specification, and touched up in the field as required prior to, during and after driving.

The Contract Documents refer to AZ steel sheet pile sections manufactured by Nucor Skyline. The steel sheet pile sections listed below the respective AZ-section(s) shall be considered equivalent to the AZ-section:

- AZ 46-700N (Nucor Skyline)
- ZZ 46-700 (JD Fields)
- SLC 46-700 (Meever USA)
- Or approved equal.

Any changes to other elements of the design that may result from the use of these equivalent sections shall be at no additional cost to the City.

(B) Steel sheet piling for the floodwall shall be ASTM A572, Grade 60.

(C) Coating for the steel sheet piling, as specified on the drawings, shall be in accordance with specification Section ESCR-559 Protective Coating for Waterfront Structures.

(D) Interlock sealant, where specified on the drawings, shall be a coal-tar resistant sealant suitable for sealing against water and applied in the factory. Interlock sealant shall be approved by the Engineer and the NYSDEC.

552.04 SUBMITTALS

(A) PRODUCT DATA

Equipment Descriptions

Complete descriptions of sheet piling driving equipment including hammers, extractors, protection caps, and other installation appurtenances shall be submitted for approval prior to commencement of work.

Protective Coating Systems

Manufacturer's specifications, recommended installation procedures and equipment, Materials Safety Data Sheets (MSDS) and other pertinent data needed to prove compliance with the specified requirements.

Tools for mixing and application, as approved by the manufacturer of the coating system supplier.

Manufacturer's instruction for field touch-up of damaged coating.

Interlock Sealant

Manufacturer's specifications, recommended installation procedures and equipment, Materials Safety Data Sheets (MSDS) and other pertinent data needed to prove compliance with the specified requirements.

(B) SHOP DRAWINGS

Drawings for sheet piling shall show complete piling dimensions and details, driving sequence, and location of installed piling. Detail drawings shall include details and dimensions of templates and other temporary guide structures for installing piling, as well as all appurtenances and temporary supports for the tie rods. Detail drawings shall provide details of the method of handling piling to prevent permanent deformation, overstress, and damage to coatings and piling interlocks.

(C) DESIGN DATA

- Submit Engineer's Reports
- Welding Procedures

(D) CERTIFICATES

- Welder's Qualifications
- Certificate stating that all coating materials and procedures meet or exceed the specified requirements of this Section.
- Field Test Results for Coating
- Material Mill Certificates

(E) RECORDS

Driving Records

Records of the sheet piling driving operations shall be submitted no later than 7 days after driving is completed. These records shall provide a system of identification which shows the disposition of approved piling in the work, driving equipment performance data, piling penetration rate data, piling dimensions, and top and bottom elevations of installed piling.

Record Drawings

Provide in AutoCAD format with location and tip elevations.

Pulling and Redriving

Provide records of all sheet piles that been pulled been or redriven.

Contractor's Work Plan

Contractor shall submit a detailed work plan for driving all piles to Engineer for approval. It shall include procedures, equipment and personnel to be used, schedule and sequencing, and a general narrative of the proposed work and plan.

Engineer's Reports

The Contractor shall submit the proposed driving hammer(s) and a report prepared by a New York State licensed Professional Engineer, including WEAP analysis, that shows the hammer is adequate to install the piles and will not damage the piles during driving.

552.05 METHODS.

(A) SITE PREPARATION

Protect existing structures, including overhead and buried utility lines, during installation of sheet piles. Contractor shall perform exploratory test pits in the area of the proposed sheet pile installation to first expose any buried utilities prior to any sheet pile installation at no additional cost to the City.

The Contractor shall follow the requirements in Con Ed Specification CE-SI-1080 Guidelines for Protecting Existing Underground Transmission Electric Facilities from Nearby Construction Activities for any sheet pile installation adjacent to Con Ed electric facilities.

(B) PILE DRIVING EQUIPMENT (NON-PRESS-IN METHOD)

Where a press-in method of installation is not specified, the sheet piles shall be installed using an approved driving head designed to properly fit a pair of piles. Avoid damage to the top of the piles during driving.

Use an approved impact or vibratory pile hammer of sufficient size to drive the sheet piles to the tip elevation(s) shown on the Contract Drawings without causing stresses due to driving in excess of 90 percent of the yield strength (Fy) of the pile material, verified based on Wave Equation Analyses (WEAP Analyses) performed by the Contractor.

(C) PILE DRIVING EQUIPMENT (PRESS-IN METHOD)

Where specified on the drawings, the steel sheet piles shall be hydraulically pressed-in and extracted utilizing a non-vibratory, non-percussive hydraulic press-in methodology.

The hydraulic press-in equipment shall not produce more than 70dB of noise at a distance of 25 feet from the equipment while in operation. During pile installation, the hydraulic press-in equipment shall not produce any measurable vibration at the ground surface at a distance of 15 feet.

(D) WELDING AND SPLICING

Perform welding in accordance with requirements of AWS D1.1.

Reinforce pile tips if and as shown on the Contract Drawings.

Splicing of sheet piles is only permitted where there is limited headroom for the pile-installation equipment, such as under the FDR Drive viaduct, or as directed by the Engineer.

Have all welds visually inspected by an AWS Certified Welding Inspector (CWI). Nondestructively test all full penetration welds for 100 percent of the weld length by ultrasonic methods, as approved by the Engineer. Coordinate the Work and

timely notify the Engineer to ensure that all testing and inspection procedures required by the Engineer are properly provided.

(E) WELDING OF HEADED SHEAR STUDS ON SHEET PILES

Headed shear studs shall be welded to the sheet piles at the locations indicated on the Contract Drawings, and as directed by the Engineer. The studs shall be installed on site, following sheet pile installation. The sheet piles shall not be coated in the immediate area surrounding the shear studs, or the coating shall be removed prior to stud installation.

The headed shear studs shall be of the size indicated on the Contract Drawings. They shall not be coated. They shall be Nelson Type H4L or S3L, or approved equal, flux filled, welded as shown on the Drawings. Studs shall be from cold drawn steel Grades C-1010 through C-1020, per ASTM A108, and shall be welded per the manufacturer's recommendations. The minimum ultimate tensile strength shall be 60 ksi, and the minimum yield strength shall be 50 ksi.

(F) COATING OF PILES

Piles shall be coated in accordance with Section ESCR-559 – Protective Coating for Waterfront Structures to the extents specified on the Contract Drawings.

(G) ALIGNMENT OF PILING

Contractor shall furnish necessary surveying services for establishing sheet piling locations. Any sheet piles driven more than 2 in. from the location indicated on the Contract Drawings will not be acceptable.

Sheet piling shall be driven plumb. For permanent work, deviation from the plumb position of more than one-eighth inch per foot shall be cause for rejection.

Contractor shall provide suitable guide structures to ensure that piles and driving equipment are properly aligned during driving. Guide structures shall be equipped with suitable devices to avoid damaging protecting coatings of pilings.

If, at any time, the piling is found to be out of plumb in the plane of the wall, the Contractor shall provide tapered piles or take other corrective measures to ensure plumbness of the succeeding.

(H) PILE DRIVING

Use an approved guide frame or template to set sheet piles in proper position and alignment and to provide adequate lateral support to maintain vertical alignment during driving. Where field conditions require, use two levels of guide wales to maintain vertical alignment during driving.

Properly set and "shake out" steel sheet piles prior to driving. Place a pair of sheets within their interlocks; then lower them as far as possible. If the sheets bind or hang up in their interlocks before bearing on the ground, pick up adjacent sheets in pairs and shake out as required, until the sheets ride smoothly within their interlocks and simultaneously bear on the ground.

Top of sheet pile shall be normal to the driving force.

Drive sheet piles to the tip elevation(s) shown on the Contract Drawings. Drive sheet piles in segments to assure final sheet pile location are installed in the intended locations.

Drive sheet piles in such a manner as to prevent piles from leaning in the direction of driving and to provide a continuous closure of sheet piles, where closure is required. Where possible, drive sheet piling with the ball end leading. If an open socket is leading, provide a bolt or similar object in the bottom of the interlock to keep interlock free of soil material.

At the completion of the driving operation on a pile, verify that the pile is undamaged, free of defects and in compliance with the requirements of this Section.

Cut piles off at cut-off elevation as shown on the Contract Drawings as soon as practical after driving.

Obstructions encountered during driving shall be removed or the Contractor may penetrate the obstruction by spudding or other means at no additional cost to the City. Measures to be taken shall be as approved by the Engineer. Contractor is advised of the fact that remnants of abandoned timber piles, concrete debris, and rip rap and timber can be expected to be encountered. If a sheet pile strikes an obstruction, adjacent sheets shall be driven below the elevation of the obstruction before driving through, spudding or removing the obstruction.

No jetting will be permitted without specific approval of the Engineer.

(l) CORRECTIONS OF DEFICIENCIES

Notify the Engineer immediately in writing of the failure of any sheet pile to meet any requirement of this Section. Such written notification shall include all information required for the evaluation of remedial measures.

Perform remedial work at no additional cost to the City and in accordance with both the applicable Unit Price provisions, if any, and the modified design and details, if any, all as approved by the Engineer, except for sheet piles which do not comply with the requirements of this Section due to encountering during driving any underground obstruction consisting of a boulder or piece of manufactured or construction material as shown by the Contractor, and as determined by the Engineer on the basis of all field information.

552.06 MEASUREMENT.

The quantity of steel sheet piling to be measured for payment shall be the number of square feet, measured to the nearest square foot, installed to the satisfaction of the Engineer. The horizontal length will be measured along a projection of the sheeting on a plane parallel to and midway between the front and rear face of the sheeting wall. No payment or allowance will be made for steel sheet piling installed beyond the limits specified.

552.07 PRICE TO COVER.

The contract unit price for steel sheet piling shall cover the cost of all labor, materials, plant, equipment, insurance, samples, and incidentals required to furnish, coatings (where specified), weld shear studs, and install in full compliance with the requirements of the specifications and drawings. The cost to perform exploratory test pits to locate buried utilities prior to sheet pile installation and remove any obstructions that may interfere with the installation of the sheet piling to the specified elevations will be included in the unit price.

Payment will be made under:

Item No.	Item	Pay Unit
ESCR-552.11 46-700N CPI	COATED AZ-46-700N STEEL SHEET PILE INSTALLED USING THE PRESS-IN METHOD	S.F.
ESCR-552.11 46-700N.CPI.LH	COATED AZ-46-700N STEEL SHEET PILE INSTALLED USING THE PRESS-IN METHOD UNDER LOW HEADROOM	S.F.
ESCR-552.11 46-700N.C	COATED AZ-46-700N STEEL SHEET PILE INSTALLED USING NON-PRESS-IN METHODS	S.F.
ESCR-552.11 46-700N.CS	COATED AZ-46-700N STEEL SHEET PILE WITH INTERLOCK SEALANT INSTALLED USING NON-PRESS-IN METHODS	S.F.
ESCR-552.11 46-700N.CSPI	COATED AZ-46-700N STEEL SHEET PILE WITH INTERLOCK SEALANT INSTALLED USING PRESS-IN METHODS	S.F.

END OF SECTION

SECTION ESCR-559 – PROTECTIVE COATING FOR WATERFRONT STRUCTURES

559.01 INTENT.

Protective coating for use on the floodwall and floodgate foundation sheet piles and piles.

559.02 DESCRIPTION.

Protective coating for use on the flood protection system shall be a two-part coal tar epoxy polyamide coating system suitable for the waterfront environment.

559.03 MATERIALS.

(A) COATING

Coal Tar Epoxy Polyamide coating system shall comply with SSPC-PAINT16 and shall be a two-part 4:1 system conforming to SSPC-PS11.01

559.04 SUBMITTALS.

(A) PRODUCT DATA

1. Materials list of items proposed to be provided under this Section.
2. Manufacturer's specifications, recommended installation procedures and equipment, Materials Safety Data Sheets (MSDS) and other pertinent data needed to prove compliance with the specified requirements.
3. Tools for mixing and application, as approved by the manufacturer of the coating system supplier.
4. Manufacturer's instruction for field touch-up of damaged coating.

(B) CERTIFICATES

1. Field Test Results.

559.05 METHODS.

(A) GENERAL

Coating work shall only commence when ambient and curing temperatures are within limits of the coating manufacturer's recommendations and at least 5 degrees F above dew point temperature.

Ensure proper identification after packages are opened and all manufacturer safety recommendations are followed.

At time of delivery all products shall be dry, sealed in their original packages and containers, free of mud, oil, and any other materials or contaminants that may adversely affect quality.

(B) SURFACE PREPARATION

Prepare steel surfaces for coating applications in accordance with SSPC-SP10/NACE No. 2, or as otherwise recommended by manufacturer.

(C) PROPORTIONING OF COAL TAR EPOXY-POLYAMIDE SYSTEM

Coal tar epoxy-polyamide consists of a two-component system. Component A contains a refined coal tar pitch, polyamide resin, and a polyamine promoter to accelerate curing rate. Component B is an epoxy resin. Mix both components in a ratio of 4 parts of Component A to 1 part of Component B by volume. When thinning is allowed and is necessary for proper application, use xylene or the

coating manufacturer's recommended thinner, to a maximum of 1/2 gallon to a 5-gallon batch.

Power-stir components to a smooth, uniform consistency. Stir coating periodically during induction period. Follow coating manufacturer's requirements for induction time and pot life of mixed batches.

(D) COATING APPLICATION

Coatings shall be shop applied. Apply primer coating to dry surfaces not more than 4 hours after near-white blast cleaning. Apply coats so that finished surfaces are free from runs, sags, brush marks and variations in color.

Unless otherwise specified by manufacturer's recommendations, do not allow drying time between coats to exceed 72 hours. Under conditions of direct sunlight or elevated ambient temperatures of 90 degrees F or greater, limit intercoat drying period to a maximum of 24 hours.

Repair detected coating holidays, thin areas, exposed areas, and areas damaged during welding procedures prior to or during installation by surface treatment and application of additional coating or by manufacturer's recommendations. Allow a period of at least 72 hours to pass following final coat before placing in immersion service.

Apply the first coat to yield a dry film thickness of 8 to 10 mils. Apply the second coat so that the total dry film thickness of the two coats is between 16 and 20 mils. Measure using a magnetic thickness gage.

(E) FIELD TOUCH-UP

Touch-up areas of coating damage for all sheet piles and pipe piles with coal tar epoxy. Use same color as original coating. Follow manufacturer's instructions.

(F) FIELD TESTS

Conduct testing in the presence of the Engineer.

Holiday Testing

1. Prior to installation, test for holidays in total coating system.
2. Use a low-voltage holiday detector of less than 90 volts in accordance with manufacturer's recommendations.
3. After repair of holidays of surface treatment and application of additional coating or by manufacturer's recommendation, retest with low voltage holiday detector.

Dry Film Thickness

1. After repair of holidays, measure dry film thickness using a magnetic dry film thickness gage in accordance with ASTM D1186 and ASTM E376.
2. Re-measure after an additional coat is applied.
3. Continue to apply additional coats until minimum thickness requirements are met.

559.06 MEASUREMENT AND PAYMENT

No separate payment will be made for complying with the requirements of this Section.

END OF SECTION

SECTION ESCR-564 – STRUCTURAL STEEL

564.01 INTENT.

This section describes structural steel for use in the flood protection system.

564.02 DESCRIPTION.

Structural steel, under this section, shall refer to all permanent structural steel members and hardware used in the flood protection system, including utility crossings.

564.03 MATERIALS.

(A) Structural steel shapes and plates shall be ASTM A36, unless otherwise shown on the Contract Drawings.

(B) Bolts, nuts and washers shall conform to the provisions of ASTM A325, A563, & F436, respectively.

(C) Structural steel and hardware shall be coated in accordance with specification Section ESCR-559 – Protective Coating for Waterfront Structures.

564.04 SUBMITTALS

(A) PRODUCT DATA

1. Materials list of items proposed to be provided under this Section.
2. Manufacturer's specifications, recommended installation procedures and equipment and other pertinent data needed to prove compliance with the specified requirements.
3. Manufacturers' catalogs indicating pull-out and shear strengths of all inserts.

(B) SHOP DRAWINGS

1. Fabrication and erection drawings, including welds. Drawings shall be executed in conformance with recommendations and requirements contained in the AISC Publication: DETAILING FOR STEEL CONSTRUCTION.

(C) CERTIFICATES

1. Submit certificate stating that all materials and procedures meet or exceed the specified requirements of this Section.
2. Mill certificates certifying chemical and physical properties of all steel furnished.

(D) REPORTS AND RECORDS

1. Inspection and Test Reports
2. Welding Qualification Records
3. Welding Procedures

564.05 METHODS.

(A) All structural steel work, including, but not limited to fabrication inspection, transportation, and erection shall be performed in accordance with the provisions of the AISC Manual of Steel Construction and Code of Standard Practice For Steel Buildings and Bridges.

(B) INSPECTION OF BOLTED CONNECTIONS AND WELDS.

The Contractor shall provide all labor and equipment necessary for the performance of inspection of bolt tightness during structural steel fabrication and erection.

Welds shall be inspected in accordance with AWS D1.1.

(C) QUALIFICATION TEST FOR WELDERS, WELDING PROCEDURES AND ELECTRODE AND FLUX COMBINATIONS.

The Contractor shall provide tests and certifications required to qualify welders, welding procedures and electrode and flux combinations in accordance with AWS D1.1.

(D) RADIOGRAPHIC INSPECTION.

Where shown on the Contract Drawings, the Contractor shall provide radiographic inspection and of preparation for radiography, together with the cost of providing access and of furnishing adequate facilities for the review of radiographs in the shop or field.

(E) ULTRASONIC INSPECTION.

Ultrasonic inspection (UT) shall be performed on all full penetration welds in accordance with AWS D1.1. Any UT inspection work to be done on the job site will be performed by the City's designated representative. The Contractor shall perform any required preparation and furnish access to the weld joints to be inspected.

(F) MAGNETIC PARTICLE INSPECTION.

The Contractor shall provide magnetic particle inspection when specified or required by the inspector to verify limits of defects discovered during visual inspection.

(G) REPAIR OF DEFECTS IN WELDS AND BASE METAL.

The Contractor shall repair defects found by visual inspection or nondestructive tests at no additional cost to the City.

(H) STRAIGHTENING BENT MATERIAL AND CORRECTING CAMBER DEFICIENCIES.

The Contractor shall perform all corrective work required to straighten bent material and correct camber deficiencies, when permitted, at no additional cost to the City.

(I) FIELD REPAIR, REAMING AND DRIFTING OF HOLES.

Oversize reaming beyond the hole size shown on the shop drawings is not acceptable. The use of reamers to make up connections instead of drifting will not be allowed. Flame enlarging of holes will not be allowed. The Contractor shall provide all work permitted for the correction of unacceptable holes, including the installation of larger bolts, at no additional cost to the City.

(J) FIELD SPLICES.

Field splice locations and details are shown in the Contract Drawings. If the Contractor wishes to change the location of the splice(s), the Contractor shall submit a request to the Engineer for approval.

564.06 MEASUREMENT.

The quantity of structural steel to be measured for payment shall be the weight of steel, measured to the nearest pound, installed to the satisfaction of the Engineer. Steel density used to compute the weight of steel for payment shall be 490 lbs/cubic feet.

The weight of steel as shown on the approved shop drawings, shall include permanent bolts and welds in the structure as erected. The weight of all required bolts, nuts, washers, and all required welds will be estimated be adding 3% to the steel weight estimate, making no allowance for waste, and included in the weight for which payment will be made.

The weight of all erection materials including but not limited to bolts, pilot and driving nuts, temporary protective coatings, and all boxes, crates or other containers used for packing, together with sills, struts, and rods used for supporting members during transportation, will be excluded from the measurement for payment.

564.07 PRICE TO COVER.

The contract unit price for structural steel shall cover the cost of all labor, materials, plant, equipment, insurance, samples, and incidentals required to furnish, and install in full compliance with the requirements of the specifications and drawings.

Payment will be made under:

Item No.	Item	Pay Unit
ESCR-564	STRUCTURAL STEEL (UNCOATED)	LBS.
ESCR-564.CT	STRUCTURAL STEEL (COATED)	LBS.

END OF SECTION

(NO TEXT ON THIS PAGE)

SECTION ESCR-4.11 – EXCAVATION AND FILLING

4.11.1 INTENT.

This section describes Excavation and Filling necessary for the construction of the floodgates, and floodwall in Project Area 2.

4.11.2 DESCRIPTION.

(A) The location, general character and essential details shall be as specified and as shown on the Contract Drawings.

(B) Earth excavation shall include the removal and disposal of material of whatever nature encountered in the performance of the work, unless otherwise specified. Materials of whatever nature encountered shall be defined as including, but not be limited to, soil, stones, soft weathered rock that can be removed by mechanical means other than air hammer or drilling and blasting, and miscellaneous fill (excluding contaminated materials, debris and building demolition material consisting primarily of large wooden objects, plastic, asphalt shingles, metals, etc.) which is not classified as rock excavation or contaminated or hazardous wastes that materially affect the cost of removal and disposal to the Contractor.

Earth excavation shall not include the cost of excavation and disposal of boulders or parts thereof more than one-half (1/2) cubic yard in volume (to be measured by multiplying the maximum cross section area by seven tenths (7/10) of the length of that which is to be removed) in open cuts, rock as defined in Subsection 4.11.2.(C), materials which must be removed and disposed of as contaminated material or hazardous waste, manmade objects or structures not shown on the Contract Drawings or indicated in the specifications, that could not reasonably have been anticipated by the Contractor, were not anticipated by the City, and which materially affect the cost of excavation and disposal to the Contractor. Excavation and disposal of said materials will be paid for under other contract items where anticipated by the City or will be paid for as “Extra Work”, under Article 26 of the Standard Construction Contract, where the City deems the Contractor could not have reasonably anticipated the existence of such materials that significantly affects the Contractor’s costs of removal and disposal.

The dismantling and removal of the existing street lights, traffic signals and fire alarms will be done by the various departments having jurisdiction, except as otherwise provided. The existing foundations for these facilities shall be removed by the Contractor to a plane two (2’) feet below subgrade and such removal will be measured for payment under Earth Excavation.

(C) Rock Excavation shall include only the removal and disposal of unbroken ledge rock in its original formation which cannot be removed by ditching machines, ripper, rock plow, backhoe, or other mechanical means and which can only be removed by air hammers or by blasting, drilling or plug and feather in order to insure the prompt and proper performance of the work. It is not intended to cover softer rock formations encountered which can be removed by mechanical means other than air hammer or drilling and blasting.

(D) Grade shall mean the plane or planes through the tops of both curb lines.

(E) Rock subgrade for roadway area shall mean a plane two (2') feet below and parallel to grade and two (2') feet wider on each side than the roadway. Rock subgrade for sidewalk area shall mean a plane one (1') foot below and parallel to grade. Rock subgrade for structures shall be to the depths required for the cradle and foundation of the structure.

(F) Filling shall include the furnishing, re-use, placement and compaction of approved material required. Filling shall be by Place Measurement or Vehicle Measurement, as specified.

(G) Excavation in earth for the footings of structures shall be carefully conducted so as to approach the neat lines as closely as possible without disturbing the underlying soil and hand excavation shall be used within the last twelve (12") inches. Under no circumstances shall any backfilling material be placed upon surfaces to be used as foundation for footings. Where, in the opinion of the Engineer, the slope of existing rock surfaces requires it, rock shall be suitably benched to give full and proper bearing to concrete in accordance with the directions of the Engineer. Rock surfaces shall be cleaned and if necessary washed before concrete is poured.

(H) All excavation and backfilling required for the installation of Sewers and Water Mains shall be done under the appropriately scheduled items in accordance with the requirements of the NYC Department of Design and Construction, Division of Infrastructure, Standard Sewer Specifications and Standard Water Specifications.

4.11.3 SUBMITTALS

(A) PRODUCT DATA

Materials list of items proposed to be provided under this Section, including but not limited to, the following:

General Fill; including details of all sources of imported soil, fill or other material

Select Granular Fill; and

Lightweight Fill, including manufacturer test data and certification that the lightweight fill meets the specified properties.

(B) CERTIFICATES

Submit certificate stating that all materials and procedures meet or exceed the specified requirements of this Section.

(C) REPORTS

Tests of gradations, liquid limit, and plasticity index of fill and backfill materials.

Tests of maximum dry density or maximum index density.

(D) RECORD DRAWINGS

4.11.4 MATERIALS FOR FILL AND BACKFILL.

(A) GENERAL

All material for fill or backfill shall have a moisture content close to the optimum moisture content as determined by the Modified Proctor Test conducted in accordance with ASTM D1557.

All material for fill or backfill shall be natural or man-made materials, free of

deleterious materials, and free from frost at the time of placement.

Miscellaneous fill material removed from trenches and excavations shall not be considered as acceptable backfill material unless found to be in compliance with these specifications and approved in writing by the Engineer. The project site subsurface conditions may consist partially of variable thickness layers of unsuitable material. This material may not be considered to be acceptable backfill material as described herein, or as determined by the Engineer.

Unless otherwise approved by the Engineer, the Contractor shall import only fill material that meets one of the following environmental criteria. If there is a conflict between the Remedial Action Plan (RAP) and this Section, the more stringent criteria shall apply.

(a) Virgin quarried material.

(b) NYSDOT-spec Recycled concrete aggregate (RCA), contains less than 10% fines and no asphalt, from facilities permitted or registered by NYSDEC.

(c) Material from a facility that possesses a current Beneficial Use Determination (BUD) from the NYSDEC that includes testing at a minimum frequency of one sample per 1,000 cubic yards and such results are below the lower of the Restricted Residential and Groundwater Protection SCOs set forth in NYSDEC 6 NYCRR Part 375. Any testing shall be conducted in accordance with Part 3.2.F.

(d) Material from any other site where testing results performed by the Engineer demonstrate that the material meets the lower of the Restricted Residential and Groundwater Protection SCOs set forth in NYSDEC 6 NYCRR Part 375 in accordance with the following procedures:

    1) Contractor shall establish at the facility a designated stockpile of soil intended for import to the site. Designated stockpile shall remain undisturbed until tested by the Contractor and loaded and transported to the site.

    2) The samples will be analyzed for Target Compound List (TCL) volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, PCBs, and Target Analyte List (TAL) metals, at a frequency of one composite sample per 1,000 cubic yards. NYCDEP must approve of a lower frequency for certain sources.

    3) Laboratory analysis and approval of samples may require five (5) to ten (10) business days.

    4) Material may not be imported for use as without prior approval by the Engineer.

(e) Material from the New York City Office of Environmental Remediation Clean Soil Bank.

(B) FILL AND BACKFILL

Filling and Backfilling materials shall have a composition of inorganic soil, blasted or broken rock, and similar materials of natural or man-made origin, including mixtures thereof, shall be considered suitable materials provided it is free of shale or other soft, poor durability particles.

Glass from recycling facilities that meets the requirements of Subsection 4.11.4.(E) for Glass shall be considered suitable material for mixing with fill provided the Contractor maintains the gradations specified herein and as approved by the Engineer. However, glass shall not be placed in contact with synthetic liners, geogrids, geotextiles or other geosynthetics.

Glass incorporated into fill shall be thoroughly mixed with other suitable material so that glass constitutes no more than 30 percent by volume anywhere in the fill as visually determined by the Engineer.

The Fill and Backfill material shall meet the following gradation:

U.S. Sieve Size	Percent Passing
4 inch	100
2 inch	75 to 100
No. 4	22 to 66
No. 40	5 to 15
No. 200	0-2

Fill and Backfill, as specified above may be used up to 3 ft from finished grade or the bottom of the horticultural fill layer, where specified on the Contract Drawings. The upper 3 ft of fill material (below the finished grade or horticultural fill layer) shall meet the requirements of the Select Granular Fill, as defined below.

The Contractor may use, as fill, that portion of the excavated material conforming to these specifications. However, all materials used for fill shall be free from organic material and other unsuitable material. The only exception would be the allowable contamination of recycled glass.

Excavated materials not complying with the above specifications shall be considered unsuitable for fill and shall be removed from the job site to an approved disposal site.

(C) SELECT GRANULAR FILL

Select Granular Fill shall be a natural, well graded sand and crushed stone or approved clean earth of low silt and clay content, free from bricks, blocks, excavated pavement materials and debris, stumps, roots and other organic matter, as well as ashes, oil and other perishable or foreign material. All materials furnished under this item shall meet the following gradation:

U.S. Sieve Size	% Passing
2 inch	100
1 inch	85 to 100
1/2 inch	70 to 100
No. 4	50 to 80
No. 10	25 to 55
No. 20	11 to 30
No. 40	6 to 17
No. 60	4 to 12
No. 100	3 to 8
No. 200	0-2

Select granular fill for trench backfill material shall be well graded soil meeting the above gradation requirements, but not contain particles greater than ¼ inch in maximum dimension. The fines content (material passing the No. 200 sieve) shall not be greater than 2%.

(D) PROCESSED FILL

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 material specifications herein for either Select Granular Fill or for Fill, as required. No separate or additional payment will be made for the cost of all labor, materials, plant, equipment, samples, tests and insurance necessary or required to perform this processing work. Payment for the costs of all labor, material, equipment and insurance necessary and required to furnish and deliver, and to place, compact, sample and test these processed acceptable backfill materials shall be in accordance with Subsection 4.11.7(C). (Excavated material that is hand groomed and/or groomed with the use of excavating equipment of bricks, blocks, pavement materials, debris, stumps, roots, stones, boulders, timber, wood, etc., so as to render the excavated material acceptable for backfill, whether ordered by the Engineer or at the Contractor's own discretion, shall not be considered as processed material but shall be considered as approved excavated suitable material. No separate or additional payment will be made for the use of this groomed excavated material as backfill, the cost of all labor and material shall be deemed included in the prices bid for all contract items of work.)

(E) GLASS

Glass shall be crushed to a maximum particle size of 3/8 inch.

Glass may contain up to a maximum of five (5%) percent by volume of china, ceramics, plate glass products, paper, plastics or other deleterious materials. The material shall be subject to visual inspection by the Engineer or their representative, and may be rejected based on this inspection. In case of rejection, the inspection will be documented in writing by the Engineer who shall indicate the basis of rejection.

(F) LIGHTWEIGHT FILL

Lightweight fill shall be expanded shale, clay or slate produced by the rotary kiln process and meeting the requirements of ASTM C330. The lightweight fill shall have a proven record of durability, and be non-corrosive, with the following properties:

Soundness Loss: The maximum soundness loss shall be 30% when tested, with 4 cycles of Magnesium sulfate, in accordance with AASHTO T104.

Abrasion Resistance: The maximum abrasion loss shall be 40% when tested in accordance with ASTM C131.

Chloride Content: The maximum chloride content shall be 100 ppm.

pH between 6.5 and 9.0

Gradation:

U.S. Sieve Size	Percent Passing
1 inch	100
3/4 inch	90 to 100
3/8 inch	10 to 50
No. 4	0 to 15

The in-place compacted moist density shall be 75 lbs/ft^3. The lightweight aggregate producer shall submit verification of a compacted density of minimum 65 pcf (960 kg/m^3) when measured by the Modified Proctor test conducted in accordance with ASTM D1557, "Modified Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2,700 kN-m/m^3)).

The minimum angle of internal friction Φ shall be 40 degrees. The lightweight aggregate producer shall submit verification that the angle of internal friction shall be greater than 40° when measured in a triaxial compression test on a laboratory sample with a minimum diameter of 10 inches.

(G) REUSE OF EXCAVATED SOIL

Material may not be reused on-site without prior approval by the Engineer. If the Contractor anticipates reuse of site material, the Contractor shall notify the Engineer of the area with a minimum two (2) weeks' notice prior to reuse to allow for sampling, if necessary, and approval by the Engineer, in consultation with NYCDEP and/or NYSDEC.

4.11.5 EARTH EXCAVATION METHODS.

(A) Excavation for streets shall:

(1) be made and maintained to roadway crowns, sidewalk area slopes and side slopes specified until the entire work is accepted;

(2) be made below grade to exposed rock, when soundings indicate the existence of rock between grade and rock subgrade;

(3) include the removal, as directed, of unsatisfactory material below grade;

(4) include the cutting of the side slopes in earth excavation to a slope of one and one-half (1-1/2) horizontal to one (1) vertical or such other approved slope as may be rendered necessary by local conditions, and no measurement beyond such approved limits of slope will be made or allowed for payment.

(B) Excavation for walls and other structures shall be made to the dimensions specified and shall be done as follows.

(1) GENERAL.

Trenches and pits shall be excavated to the depths required for cradle and foundation of structures. All trenches in earth shall be excavated with vertical sides, and shall be supported by close sheeting, properly braced. Sheeting and bracing shall extend from at least the existing surface of the ground to an adequate depth below the subgrade of the structure, except where otherwise specified on the Contract Drawings, or permitted by the Engineer in writing. Sheeting must be driven below the area of the pilot cut. Driving of sheeting above the pilot cut is subject to the directions of the Engineer.

Pilot cuts for trenches shall not exceed five (5') feet at any time. The Engineer may reduce the depth of the pilot cut should soil and subsurface conditions warrant such action.

The Engineer may direct the Contractor to use other types of equipment, and to revise the procedure during the excavation of the pilot trench and the driving of the sheeting should it be found necessary to do so.

In accordance with 29 CFR 1926.650, a trench is a narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than fifteen (15') feet. If forms or other structures are installed or constructed in an excavation so as to reduce the dimension measured from the forms or structure to the side of the excavation to fifteen (15') feet or less, the excavation is also considered to be a trench. The Contractor shall provide protection from collapse and cave-in for any employee who enters a trench or other excavation in accordance with the requirements of 29 CFR 1926 Subpart P, unless the excavation is less than five (5') feet in depth and examination of the ground by the Contractor's "competent person" provides no indication of a potential cave-in. The Contractor shall include the proposed procedures to meet the excavation safety requirements in the Contractor's Project Safety and Health Plan. Trenching and excavation work shall be carried out under the supervision of the Contractor's "competent person." The Contractor shall provide ladders or ramps for access and egress within twenty-five (25') feet of an employee work area if a trench is four (4') feet or more deep. The Contractor shall keep traffic, equipment and materials at least two (2') feet away from the edge of any trench or excavation, or use retaining devices. When mobile equipment is operated near an excavation or must approach the edge of an excavation, either the operator must have a clear and direct view of the edge of the excavation; or a warning system of barricades, hand signals or mechanical signals shall be used. Workers shall not be permitted under loads that are being handled by lifting or digging equipment.

Trenches under five (5') feet in depth need not be sheeted and braced, except where one of the following conditions exist: the trenches are in close proximity to existing structures or subsurface structures; where the Engineer, in writing,

specifically prohibits the use of a non-sheeted trench; or where examination of the ground by a “competent person” provides indication of a potential cave-in, and trenches need to be sheeted and braced.

For the purposes of open excavations and trenches, the term “competent person” shall be defined as a person designated by the Contractor, in writing, who has had specific training in, and is knowledgeable about, soil analysis, the use of protective systems and the requirements of 29 CFR 1926 Subpart P, who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

Where shown, specified or permitted in writing by the Engineer, the sides of the trenches shall be sloped to elevations approved by the Engineer. Side slopes must be stable and shall be, in the dry, at least one and one half (1-1/2) vertical on one (1) horizontal.

The subgrade of trenches shall be constructed neat and to the grades as shown in the Contract Documents, and as directed by the Engineer.

Upon completion of the trenches and excavations and prior to placement of structures, the Contractor shall take in-place soil density tests of the subgrade (the number and locations of these tests shall be as directed by the Engineer), and shall compact the subgrade, as directed by the Engineer, to a minimum of ninety (90) percent of Modified Proctor Maximum Dry Density.

(2) ADDITIONAL REQUIREMENTS FOR TRENCHES

(a) Where structures are to be supported on piles and the Contractor deems it necessary to widen the trench beyond the maximum widths herein specified in order to permit the driving of such piles, the Contractor shall apply to the Engineer in writing for permission to widen the trench.

(b) Any widening or enlargement of excavation permitted in writing by the Engineer upon the request of the Contractor in order to perform the work as specified in the Contract Documents and/or to expedite the Contractor’s construction operations, will not be measured for any separate or additional payment, but the costs thereof shall be deemed included in the prices bid for all contract items of work.

(c) In rock trenches the Contractor may, with the written permission of the Engineer, omit the use of side forms. No rock shall project inside the minimum width vertical rock cut lines herein specified.

(d) Where the Contractor elects to cut the trench in rock by means that will result in overbreakage, rather than resorting to means which will insure adherence to the maximum allowable width of trench, the Contractor shall be required to fill the spaces between the edges of the external neat line of the poured-in-place structure and the sides of the rock cut with concrete, from subgrade of trench to a minimum height of two (2’) feet above the top of the footing.

(e) If the Contractor elects to carry the excavation in earth below the required subgrade of the trench, the Contractor shall backfill the trench to the required subgrade with either properly compacted Stone Ballast or with concrete, as directed by the Engineer. If the Contractor elects to carry the

excavation in rock below the required subgrade of the trench, the Contractor shall backfill the trench to the required subgrade with concrete or stone ballast as directed by the Engineer. No separate or additional payment shall be made for such backfilling where required, nor for any additional excavation and sheeting, the cost thereof shall be deemed included in the prices bid for all contract items of work.

(f) The construction of adjacent sewers and/or water mains in the same trench shall be in accordance with the requirements of the NYCDEP Standard Sewer and Water Specifications.

(3) LENGTH OF TRENCH EXCAVATION.

The maximum length of trench excavation in roadway any time shall be as stipulated for the maintenance and protection of traffic.

Unless otherwise specified in the Contract Documents or ordered in writing by the Engineer, all trenches in rock shall be excavated to its full depth for a minimum distance of twenty (20') feet in advance of the length of structure permitted to be laid; however, the total length of trench shall not be less than fifty (50') feet. The only exception to this is at its upper end or ends, where rock shall be excavated to its full depth to a distance of not less than five (5') feet beyond the sewer to be built.

(4) EXPOSED STRUCTURES TO BE PROTECTED.

All exposed structures shall be carefully protected from the effects of blasts. Any damage done to such structures shall be promptly repaired by the Contractor at the Contractor's own expense.

(5) DISPOSAL OF WATER FROM EXCAVATIONS.

The Contractor shall at all times during the progress of the work keep the trenches and excavations free from water. The water from the trenches and excavations shall be disposed of in such a manner as will not cause injury to the public health, nor to public or private property, nor to the work completed or in progress, nor to the surface of the streets, nor cause any interference with the use of the same by the public. All sewers used for disposal of water from the trenches and excavation during construction shall be acceptably cleaned.

When in order to comply with the above, it is deemed necessary to widen the trench beyond the allowable maximum width, to permit the installation of well-points, the Contractor shall, as directed by the Engineer, provide either pipe of additional strength or concrete encasement at no additional cost to the City.

The Contractor shall, with their own equipment, provide dewatering where required at no additional cost to the City. The cost for all labor, equipment, materials, etc. required to dispose of water from the trenches shall be deemed included in the prices bid for all items of the Contract.

All dewatering and discharge pipes and hoses which cross traveled roadways shall be placed in such a manner so as to eliminate any disruption of traffic flow. If so ordered by the Engineer, the Contractor shall place the pipes and hoses in shallow trenches which will then be plated over. All header pipe shall be buried below existing roadway grade at driveways in order to maintain access to driveways.

Contaminated water shall be placed in containers and treated prior to disposal.

All plates shall be firmly secured so as to eliminate any possible shift or movement.

All pumps used in the dewatering operation shall be electric and shall be powered directly from the electric grid (Con Edison drop), unless otherwise unavailable.

Where the subgrade of the trench cannot be maintained in a dry condition, except in locations where the structures are on piles, the Contractor shall excavate the trench to an additional depth of six (6”) inches below the subgrade of the sewer and backfill the trench to the subgrade of the sewer with stone ballast.

The cost for this additional excavation, sheeting, installation of stone ballast, labor, materials, plant, equipment and insurance required or necessary to complete this work shall be deemed included in the prices bid for the respective sewer or manhole items.

(C) Approved sheeting and bracing shall be used where necessary to support sides of excavation, in order to: prevent damage to subsurface structures and adjacent buildings; safeguard persons and property; minimize inconvenience to traffic and the public; protect the structure to be installed; and, provide suitable and safe working conditions. Except as otherwise provided, deviations from the above will be permitted only where, in the judgment of the Engineer, such exception will not result in any of the hazards described above.

In cases where sheeting and bracing will not adequately protect adjacent structures from damage and settlement, the Contractor will be required to use such methods as are necessary to safely support and maintain adjacent and abutting property and structures and to maintain the work safe to life, limb and property.

All sheeting and bracing systems that the Contractor elects to use or that are ordered to use by the Engineer or the Department shall comply with the requirements of Section 40.05, “SHEETING AND BRACING,” of the NYC Department of Environmental Protection, Bureau of Water and Sewer Operations, Standard Sewer and Water Main Specifications, and must receive the approvals stated therein.

Unless otherwise specified in the Contract Drawings or these Specifications or specifically permitted in writing by the Engineer, the Contractor shall be required to withdraw and remove all sheeting and bracing simultaneously with the backfilling of trenches and excavations.

(D) When directed, soundings shall be made at intervals of about ten (10’) feet to determine the existence of rock between grade and rock subgrade.

(E) When boulders, masonry, concrete, loose fragments of rock, tree stumps or other material are removed by blasting, all blasting operations shall be conducted in strict accordance with the City ordinances and regulations relative to rock blasting and the storage and use of explosives.

(F) No blasting shall be done within five (5’) feet of water mains, sewers or other structures.

(G) Excavation for the purpose of removing boulders, loose fragments of rock, tree stumps, roots and unsatisfactory material shall be backfilled with material complying with the specifications for Filling.

(H) Unless otherwise permitted, all earth excavation which is suitable and needed for fill shall be used within the contract limits.

4.11.6 ROCK EXCAVATION METHODS.

When rock surfaces in streets, trenches or other excavations are uncovered, the Engineer shall be notified in order that the Engineer may make necessary measurements. Rock excavated before such measurements are made will not be paid for.

(A) Rock Excavation for Streets shall:

(1) be made to rock subgrade, when specified;

(2) be made and maintained to side planes specified until the entire work is accepted;

(3) be made in sections not less than fifty (50') feet in length, unless otherwise permitted.

(B) Rock Excavation for walls and other structures shall be made to the dimensions specified.

In rock trenches the Contractor may, with the written permission of the Engineer, omit the use of side forms. No rock shall project inside the minimum width vertical rock cut lines herein specified.

If the Contractor elects to carry the excavation in rock below the required subgrade of the trench, the Contractor shall backfill the trench to the required subgrade with either concrete or properly compacted stone ballast, as directed by the Engineer. No separate or additional payment shall be made for such backfilling where required, nor for any additional excavation and sheeting, the cost thereof shall be deemed included in the prices bid for all contract items of work.

In addition, the filling of voids left by the removal of ledge rock from within the limits of rock excavation payment limits shall be done in accordance with the requirements of this Subsection 4.11.7.

Any widening or enlargement of excavation permitted in writing by the Engineer upon the request of the Contractor in order to perform the work as specified in the Contract Documents and/or to expedite the Contractor's construction operations, will not be measured for any separate or additional payment, but the costs thereof shall be deemed included in the prices bid for all contract items of work.

(C) No blasting will be permitted unless otherwise specified. The Contractor shall use line drilling or other acceptable methods to excavate rock. But if blasting is permitted, blasting operations shall be conducted in strict accordance with The City ordinances and regulations relative to rock blasting, the storage and use of explosives and prevention of silicosis. Any rock excavation within five (5') feet of a water main less than thirty-six (36") inches in diameter, and within ten (10') feet of a water main thirty-six (36") inches or more in diameter, shall be done with very light charges of explosives, or if directed, without blasting, and the utmost care shall be used to avoid breaking or disturbing the main. No blasting shall be done within five (5') feet of water mains, sewers or other structures except by written permission of the Engineer.

4.11.7 BACKFILLING METHODS.

(A) BACKFILLING AROUND STRUCTURES

Unless otherwise specified or directed, all trenches and excavations shall be backfilled immediately after the structures are built and inspected, and permission to backfill has been granted by the Engineer.

All backfill shall be carefully deposited and spread by approved methods.

Backfill shall proceed simultaneously with the withdrawal of sheeting. Withdrawal of sheeting below levels previously backfilled and compacted is prohibited.

The use of backhoe buckets for the compaction of backfill material in all trenches and excavations will not be permitted.

(1) Select Granular Fill

The Contractor shall use Select Granular Fill for backfilling trenches and excavations within any area less than two (2') feet wide in its least dimension (i.e. space between face of trench and outside face of cavities behind sheeting, filling of voids left by removal of boulders beyond the limits of sheeted trench, etc.) and within eighteen (18") inches around all underground facilities (i.e. conduit, cable, etc.).

Select granular fill shall be deposited and spread by approved methods in uniform horizontal layers not exceeding ten (10") inches in depth and each layer shall be thoroughly compacted to the satisfaction of the Engineer, before a successive layer is deposited. A minimum of 95 percent of Modified Proctor Maximum Density will be required after compaction.

The cost of providing Select Granular Fill as specified hereinabove, together with all labor, materials, plant, equipment, samples, and tests necessary and required for delivering, placing, compacting and testing of Select Granular Fill, shall be deemed included in the prices bid for all respective items of work. No separate or additional payment shall be made for this work unless otherwise specified.

(2) All excavated material from within the project limits which is considered as suitable material under the requirements of Subsection 4.11.4.(B), shall be utilized for backfill unless determined to be unsuitable as contaminated material by the Engineer.

The cost for all labor, materials, plant, equipment, samples, and tests necessary and required for the hauling, storing, placing, compacting and testing of suitable excavated fill material all in accordance with the Specifications and as directed by the Engineer, shall be deemed included in the prices bid for all respective items of work. No separate or additional payment shall be made for this work unless otherwise specified.

(B) BACKFILLING AROUND SHEETING

When sheeting is withdrawn all cavities remaining in or adjoining the trench shall be filled and compacted. When sheeting is left in place all cavities behind such sheeting shall be filled as directed. All materials used for such backfill and the compaction of such materials shall be as specified herein.

(C) DEFICIENCY IN FILL MATERIAL

Unless otherwise shown on the plan, trenches shall be backfilled to the height of the surface of the ground as it existed at the commencement of the work. Should there be a deficiency of suitable material for that purpose, the Contractor shall furnish and place such additional material as may be required.

Payment for the cost of all labor, material, and equipment necessary and required to furnish and deliver these acceptable backfill materials, where a deficiency of acceptable backfill material occurs, shall be made as follows:

(1) For providing acceptable select granular fill (whether natural or processed) to satisfy the requirements of Section 4.11.7(A)(1), payment shall be deemed included in the prices bid for all contract items of work. No separate payment will be made for this work.

(2) For providing acceptable clean fill (whether natural or processed) to satisfy the requirements of Section 4.11.7(A)(3) to fill voids left by the removal of ledge rock, payment shall be made under the Contract Item - ROCK EXCAVATION.

(3) For providing acceptable clean fill (whether natural or processed) ordered by the Engineer, payment shall be made under the Contract Item - FILL.

(D) REMOVAL OF SURPLUS MATERIAL

As the trenches are backfilled, the Contractor shall remove all surplus material, and regrade and leave free, clear and in good order all roadways and sidewalks adjacent to the completed work and within fifty (50') feet of the end of the completed work. All surplus material or any part thereof shall be deposited, if required by the Engineer and at the Engineer's direction, on the streets and avenues within the limits of this Contract where they are below grade or contain depressions. Such fill shall be compacted to the required density (95% Modified Proctor Maximum Density) and in such a manner so as to leave the surfaces of the backfill even with the adjoining surfaces. The surplus material not reused on site shall be disposed of in accordance with Section 8.01.

(E) TEMPORARY BULKHEADS

For retaining the backfilling only temporary bulkheads will be allowed over sewers, basin connections and drains. Such bulkheads shall not be of stone, and they shall be removed as the trenches are backfilled.

(F) SUBGRADE STRUCTURES NOT TO BE COVERED

Subgrade structures shall not be covered until the Engineer shall have inspected, measured and located the same and given permission to backfill the trenches over them.

(G) FILL

Fill shall be deposited, satisfactorily compacted, and maintained until the entire work is accepted, between:

(1) the subgrade of proposed pavement and the surface of proposed curbs and sidewalks and the existing ground surface;

(2) the planes of the slopes of the embankment or the backs of retaining walls, as specified;

(3) rock subgrade and the finished surfaces of roadways and sidewalks.

Embankment slope shall be one and one-half (1-1/2) horizontal to one (1) vertical.

(H) The Contractor shall fill or backfill with material having a moisture content suitable for the proper compaction of that material. The Contractor shall be responsible for determining the proper limits as the work is progressed. Water added shall be thoroughly incorporated into the soil, and manipulation shall be provided whenever necessary to attain uniform moisture distribution to the soil. When the moisture content of a lift, that is about to be compacted, exceeds the required amount, compaction shall be deferred until the required moisture content is achieved or a more suitable material shall be used. Fill material shall be carefully deposited and spread by approved methods in uniform horizontal layers not exceeding ten (10”) inches in depth, extending across the entire width of fill prior to compaction, and each layer being thoroughly compacted to the satisfaction of the Engineer before a successive layer is deposited. A minimum of 95 percent of Modified Proctor Maximum Density will be required after compaction.

No separate or additional payment be made for any costs associated with the achievement of optimum moisture content, including any additional excavation due to the removal of any layer not meeting the specified requirements and for the replacement of any layers with suitable material. Costs shall be deemed included in the prices bid for all items of work.

When placing fill or backfill around underground facilities in shallow excavations, ten (10”) inch layers shall be deposited to progressively bury the facility to equal depths on both sides and for the full depth and width of the trench excavated for the facility.

(I) In deep trenches, in lieu of depositing and compacting the backfill from two (2’) feet above the underground facility to a plane five (5’) feet below final surface in accordance with the above specified procedure, the Contractor may submit to the Engineer, for approval, an alternate backfill method (i.e. puddling, jetting, deeper compaction layers, etc.). This submittal must fully describe the alternate method, including proposed equipment, backfill material, depth of compaction layer, and trench locations where it will be employed. However, approval of any alternate backfill method shall not relieve the Contractor from obtaining a minimum 95% Modified Proctor maximum density. Should the Engineer determine that the specified density is not being obtained, the area must be re-excavated and backfilled at the Contractor’s own cost until the required compaction density is achieved.

(J) Backfill immediately adjacent to conduits shall not contain particles larger than one- quarter (1/4”) inch in diameter. Compaction shall be attained by the use of impact rammers, plate or small drum vibrators, or pneumatic button head compaction equipment and shall be capable of exerting a pressure equivalent to two hundred and fifty (250) to three hundred (300) pounds per inch width of compression roll, or an equivalent pressure if other than smooth wheel or pneumatic tired rollers are permitted.

Hand tamping will not be permitted except in the immediate area of the underground facility.

The backfill, within two (2') feet of such facilities, shall be wetted (except where clay is present) in ten (10") inch lifts and lightly hand tamped with as many strokes as required to achieve maximum density.

(K) Where sheeting has been used for the excavation, it shall be pulled when the excavation has been filled or backfilled to the maximum unsupported depth allowed by New York State Department of Labor Industrial Code Rule 23 and Title 29 Code of Federal Regulations Part 1926, Safety and Health Regulations for Construction. Where a difference exists between regulations, the more stringent requirements shall apply.

(L) In-place soil density tests will be required to ensure that the soil compaction requirements of the specifications are met. In-place soil density tests shall be taken for each and every layer of backfill placed, at a maximum of one hundred (100') feet intervals along the length of each layer. However, the location of the tests shall vary horizontally along each successive layer, such that no two (2) tests are conducted at the same station location as any previous layers. The number and locations of in-place soil density tests shall be as directed by the Engineer.

For each one thousand (1,000) cubic yards of each type of backfill soil utilized, for which in-place soil density tests are to be performed, shall undergo a minimum of one (1) Modified Proctor analysis in order to determine the maximum dry density and optimum moisture content of the soil material to be tested. Due to varying soil conditions, additional Proctor analyses may be required by the Engineer. The number and locations of all samples to undergo Proctor analysis shall be as directed by the Engineer.

The Contractor shall retain the services of a testing laboratory, in accordance with Section 7.12 - Soil Density Testing, to make all compaction tests of backfill materials used and placed. All compaction tests shall be witnessed and verified by the Engineer. Proctor analyses and in-place soil density tests shall be performed in accordance with Section 7.12.

Unless otherwise provided for in the Contract no separate or additional payment shall be made for the depositing, compacting and sampling of backfill nor for the services of the approved testing laboratory, the costs thereof, shall be deemed included in the prices bid for all items of work.

The Contractor shall furnish the Engineer with copies of in-process compaction reports certified by a Professional Engineer as to the compliance with the requirements of the aforementioned filling and backfilling specifications. This certified compaction report shall be submitted as directed by the Department's Quality Assurance and Construction Safety Unit.

The cost for all labor, materials, and equipment necessary and required to place, compact, sample and test provided acceptable backfill material shall be deemed included in the prices bid for all contract items of work. No separate or additional payment will be made for this work.

(M) LIGHTWEIGHT FILL

Lightweight fill shall be placed in uniform layers of 10 in., unless Contractor proves by testing that thickness can be increased, but in no case shall lift thicknesses be greater than 12 in. In confined areas vibratory plate compaction equipment shall be used (5 hp to 20 hp) with a minimum of two passes in 6 in. lifts for a 5 hp plate and 10 in. lifts for a 20 hp plate.

The contractor shall take all necessary precautions when working adjacent to the lightweight fill to ensure that the material is not over compacted. Construction equipment, other than for placement and compaction, shall not operate on the exposed lightweight fill.

4.11.8 MEASUREMENT.

(A) EARTH EXCAVATION FOR STRUCTURES

Earth excavation within the limits of the work except for structures for which the contract prices include the cost of earth excavation, will be measured and allowed to the following limits:

Condition	Payment Limits
For streets	Above the depth specified and between side limits specified.
For uncovering rock between grade and rock subgrade……	Below grade and above the rock surface.
For the removal of boulders, loose fragments of rock, tree stumps, roots and unsatisfactory material.	Below the depth specified and between side limits as directed.
For dry retaining walls….	To depth specified and to vertical planes passing through the neat lines of the footings of the walls.
For masonry walls (except dry rubble), culverts and drains (except pipe drains)……..	To depths specified and to vertical planes passing one (1') feet outside of the neat line of the structure.

(B) ROCK EXCAVATION IN STREETS, TRENCHES AND STRUCTURES

When rock surfaces in streets or trenches are uncovered, the Engineer shall be notified in order that the Engineer may make necessary measurements. Rock excavated or blasted before such measurements are made will not be paid for.

The qualities of rock to be measured for payment under each Rock Excavation item shall be the volume of ledge rock actually removed from within the following payment limits:

Condition	Payment Limits
For streets	Above rock subgrade and between side limits specified.
For walls, culverts and other lines specified……	Below rock subgrade to depths and to the payment structures

(C) ADDITIONAL INCREMENTAL COST TO EXCAVATE ROCK AT DEPTHS GREATER THAN FIVE (5') FEET IN TRENCHES AND FOR STRUCTURES

For rock excavation within trenches and for structures, where the depth of rock excavation exceeds 5 feet below grade, that quantity of rock removed below five (5') feet of grade will be measured, under Item 4.11 BAA, for an additional incremental payment over and above that made for rock excavation under Item 4.11 AA.

(D) FILL, PLACE MEASUREMENT

All filling required to complete the work, between the ground surface as determined by the Engineer before the work of filling is commenced and the surfaces specified, and between rock subgrade and the surfaces specified, will be measured in place after compaction.

No payment or allowance will be made for:

(1) sinkage, shrinkage, and settlement;

(2) backfilling holes below grade caused by the removal of boulders, loose fragments of rock, tree stumps, roots and other unsatisfactory material;

(3) backfilling to original ground surface for culverts, drains, basin connections, and between structures and sides of excavations;

(4) fill which may be spread out beyond the embankment slopes specified;

(5) spaces occupied by subsurface structures over one (1) cubic foot in volume when the placement or construction of such structures is made on newly placed fill and is started while fill operations are in progress.

The spaces occupied by curbs, crosswalks, flagging, concrete sidewalks, gutters, culverts, drains, basin connections, manholes, receiving basins, seepage basins, inlets, and gas or water pipes or any appurtenances thereof, will not be deducted from the volume of filling to be paid for when the aforesaid structures are placed or constructed after filling operations have been completed and excavation of the newly placed fill is required for such placement or construction.

(E) FILL, VEHICLE MEASUREMENT

All fill required to complete the work of filling on unstable ground by vehicle measurement, between the limits specified, will be measured in cars, trucks, etc., at the place of deposit. In computing the amount of fill to be paid for, one (1) cubic yard of measured material in the vehicle will be paid for as eight-tenths (0.8) of a cubic yard of fill. For carload and truckload deliveries, only water level loads will be accepted and no allowance will be made for any crown or peak of the load.

(F) SELECT GRANULAR FILL, PLACE MEASUREMENT

The quantity of select granular fill to be measured for payment shall be the number of cubic yards of select granular fill used outside the limits of trench excavation, as ordered in writing by the Engineer, measured in place after compaction.

No payment or allowance will be made for fill placed beyond the limits specified.

(G) SELECT GRANULAR FILL, VEHICLE MEASUREMENT

All select granular fill required to complete the work of filling on unstable ground by vehicle measurement, between the limits specified, will be measured in cars,

trucks, etc., at the place of deposit. In computing the amount of select granular fill to be paid for, one (1) cubic yard of measured material in the vehicle will be paid for as eight-tenths (0.8) of a cubic yard of fill. For carload and truckload deliveries, only water level loads will be accepted and no allowance will be made for any crown or peak of the load.

No payment or allowance will be made for fill placed beyond the limits specified.

(H) LIGHTWEIGHT FILL, PLACE MEASUREMENT

The quantity of lightweight fill to be measured for payment shall be the number of cubic yards of lightweight fill used outside the limits of trench excavation, as ordered in writing by the Engineer, measured in place after compaction.

No payment or allowance will be made for fill placed beyond the limits specified.

4.11.9 PRICE TO COVER.

(A) EARTH EXCAVATION FOR STRUCTURES

The contract price per cubic yard for earth excavation for structures shall cover the cost of all labor, materials, equipment, and insurance required to complete the work of earth excavation within the contract limits, in full compliance with the requirements of the specifications, without regard to the subsequent use of the excavated materials.

(B) ROCK EXCAVATION IN STREETS, TRENCHES AND STRUCTURES

The contract price bid per cubic yard for rock excavation shall cover the cost of all labor, materials, equipment, and insurance required to complete the work of rock excavation within the contract limits, in full compliance with the requirements of the specifications without regard to the subsequent use of the excavated material.

In addition, included in the unit prices bid hereunder for rock excavation shall be the cost of all labor, material, plant, and equipment required to furnish and deliver acceptable select granular fill material required to fill the voids left by the removal of ledge rock.

(C) ADDITIONAL INCREMENTAL COST TO EXCAVATE ROCK AT DEPTHS GREATER THAN FIVE (5') FEET IN TRENCHES AND FOR STRUCTURES

The contract price bid per cubic yard for the additional incremental cost to excavate rock at depths greater than five (5') feet in trenches and for structures, shall cover the cost of all additional labor, materials, equipment required to complete the work of rock removal at depths exceeding five (5') feet below grade. Payment under this item will be made in addition to that made under Item 4.11 AA.

(D) FILL

The contract price per cubic yard for Fill, Place Measurement or Vehicle Measurement, shall cover the cost of all labor, materials, and equipment required to complete the work of filling within the contract limits in full compliance with the requirements of the specifications. All material excavated within the limits of the work which is used as filling will be paid for as filling.

When there is no price for Fill, the cost of furnishing and depositing any Fill required shall be covered by and included in the contract prices bid for all respective items of work.

(E) SELECT GRANULAR FILL

The contract price per cubic yard for Select Granular Fill, Place Measurement or Vehicle Measurement, shall cover the cost of all labor, materials, plant, equipment, insurance, and samples required to furnish and deliver the clean select granular fill material and to do all work incidental thereto, all in accordance with the Contract Drawings and Specifications and as directed by the Engineer.

(F) LIGHTWEIGHT FILL

The contract price per cubic yard for Lightweight Fill, Place Measurement, shall cover the cost of all labor, materials, plant, equipment, insurance, and samples required to furnish and deliver the clean lightweight fill material and to do all work incidental thereto, all in accordance with the Contract Drawings and Specifications and as directed by the Engineer.

Payment will be made under:

Item No.	Item	Pay Unit
ESCR-4.11 AA	ROCK EXCAVATION IN STREETS, TRENCHES AND STRUCTURES	C.Y.
ESCR-4.11 AS	EARTH EXCAVATION FOR STRUCTURES	C.Y.
ESCR-4.11 BAA	ADDITIONAL INCREMENTAL COST TO EXCAVATE ROCK AT DEPTHS GREATER THAN FIVE (5) FEET IN TRENCHES AND FOR STRUCTURES	C.Y.
ESCR-4.11 CA	FILL, PLACE MEASUREMENT	C.Y.
ESCR-4.11 CB	FILL, VEHICLE MEASUREMENT	C.Y.
ESCR-4.11 CC	SELECT GRANULAR FILL, PLACE MEASUREMENT	C.Y.
ESCR-4.11 CD	SELECT GRANULAR FILL, VEHICLE MEASUREMENT	C.Y.
ESCR-4.11 LW	LIGHTWEIGHT FILL, PLACE MEASUREMENT	C.Y.

END OF SECTION

FLOODGATE - PAGES

SPECIAL FLOODGATE SPECIFICATIONS

CONTRACT SANDRESM2

The specifications in the FLOODGATE-Pages cover the procurement, fabrication, and construction of the roller gates and swing gates, including all foundations, concrete work and metal fabrication and associated works as well as the quick-change moveable concrete barrier and the fire standpipe Siamese modifications at Con-Ed East 15th Street plant.

The FLOODGATE-Pages supplement the specifications shown on the Specifications and Standards of New York City sheet at the beginning of this Volume 3, which apply to the work except as modified in these Contract Documents.

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DIVISION 4 CONSTRUCTION METHODS

ESCR 50 - FABRICATED STEEL FLOODGATES

50.1 INTENT.

This specification covers the requirements for furnishing all plant, equipment, labor, and materials for fabricating, assembling, delivering, and installing closure gates in accordance with these specifications and applicable drawings.

50.2 DESCRIPTION.

50.2.1 SWING GATE

This type of closure gate for flood protection constitutes a fabricated metal panel which sits on a concrete slab mounted hinge on one end and is connected with a hinge at the top on the same end. The other cantilevered end is free to move as the gates pivot around the axis through the hinges. During non-flood condition, the gate is usually kept swung open. The free end of the gate is usually supported with a hydraulic jack and is latched to a storage monolith, usually featuring a vertical concrete column. At the wake of the flood, the hydraulic jack or screw is taken off; the gate is swung closed and is latched with the gate monolith, preventing any movement. The gate is pressed against the monolith. This causes a continuous rubber seal, running along two vertical edges and also horizontally along the bottom of the gate, to be engaged producing a watertight seal that blocks any water intrusion through the gate.

50.2.2 ROLLER GATE

Roller type flood gate consists of a fabricated metal panel that sits on two rows of wheels running on tracks. The gate is pushed on one side during normal operating conditions opening up the monolith for access. In the wake of a flooding event, the roller gate panel is pushed towards the opening using winches. Once in place, the gate panel is latched to the concrete column on either end. A continuously running rubber seal, located on two vertical edges and along the horizontal bottom part of the gate, is pressed on the concrete monolith forming a watertight barrier.

50.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International

- ASTM A 1 Standard Specification for Carbon Steel Tee Rails
- ASTM A 27 Standard Specification for Steel Castings, Carbon, for General Application
- ASTM A 36 Specification for Carbon Structural Steel
- ASTM A 123 Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
- ASTM A 123 Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
- ASTM A 148 Standard Specification for Steel Castings, High Strength, for Structural Purposes
- ASTM A 153 Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
- ASTM A 240 Standard Specification for Chromium and Chromium – Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and General Applications
- ASTM A 276 Specification for Stainless Steel Bars and Shapes

- ASTM A 320 Standard Specification for Alloy – Steel and Stainless Steel Bolting for Low – Temperature Service
- ASTM A 325 Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
- ASTM A 380 Standard Practice for Cleaning and Descaling Stainless Steel Parts, Equipment, and Systems
- ASTM A 489 Standard Specification for Carbon Steel Lifting Eyes
- ASTM A 490 Heat-Treated Steel Structural Bolts, 150 ksi Minimum Tensile Strength
- ASTM A 501 Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing
- ASTM A 514/A 514M Standard Specification for High-Yield-Strength, Quenched and Tempered Alloy Steel Plate, Suitable for Welding
- ASTM A 563 Standard Specification for Carbon and Alloy Steel Nuts
- ASTM A 564 Standard Specification for Hot – Rolled and Cold – Finished Age – Hardening Stainless Steel Bars and Shapes
- ASTM A 572 Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel
- ASTM A 709 Standard Specification for Carbon and High-Strength Low-Alloy Structural Steel Shapes, Plates, and Bars and Quenched-and-Tempered Alloy Structural Steel Plates for Bridges
- ASTM A 992 Standard Specification for Structural Steel Shapes
- ASTM A 780 Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
- ASTM B 22 Standard Specification for Bronze Castings for Bridges and Turntables
- ASTM B 177 Standard Guide for Engineering Chromium Electroplating
- ASTM B 766 Standard Specification for Electrodeposited Coatings of Cadmium
- ASTM B 823 Standard Specification for Materials for Copper Base Powder Metallurgy (PM) Structural Parts
- ASTM D 395 Standard Test Methods for Rubber Property—Compression Set
- ASTM D 412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension
- ASTM D 471 Standard Test Method for Rubber Property—Effect of Liquids
- ASTM D 572 Standard Test Method for Rubber—Deterioration by Heat and Oxygen
- ASTM D 2240 Standard Test Method for Rubber Property—Durometer Hardness
- ASTM E 165 Standard Practice for Liquid Penetrant Testing for General Industry
- ASTM E 709 Standard guide for Magnetic Particle Examination
- ASTM F 436 Standard Specification for Hardened Steel Washers
- ASTM F 593 Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs
- ASTM F 594 Standard Specification for Stainless Steel Nuts
- ASTM F 1145 Standard Specification for Turnbuckles, Swaged, Welded, Forged
- ASTM F 1554 Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength
- ASTM F 3125 Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength

American Society of Mechanical Engineers (ASME)

- ASME B4.1 Preferred Limits and Fits for Cylindrical Parts
- ASME B46.1 Surface Texture (Surface Roughness, Waviness, and Lay)
- ASME BPV IX Boiler and Pressure Vessel Code; Section IX, Welding and Brazing Qualifications

American Welding Society (AWS)

- AWS D1.1 Structural Welding Code - Steel
- AWS D1.2 Structural Welding Code – Aluminum
- AWS D1.5 Bridge Welding Code

Federal Specification

- FF-S-200A Setscrews: Hexagon Socket and Spline Socket, Headless
- FS RR-W-410 Wire Rope and Strand

New York State Department of Transportation

- Standard Specifications – Construction and Materials

50.4 MATERIALS.

50.4.1 METALS

Structural steel, steel forgings, steel castings, stainless steel, bronze, aluminum alloy, and other metal materials used for fabrication shall conform to the requirements shown and specified herein.

50.4.1 STRUCTURAL STEEL

Structural steel shapes shall conform to ASTM A572/A572M, Grade 50. Structural steel plates shall conform to ASTM A36/A36M.

50.4.2 SELF-LUBRICATING BEARINGS

Self-lubricating bearings shall conform to ASTM B823, Type II. The bearings shall be impregnated with a turbine grade lubricant containing oxidation and rust inhibitors and a polar anti-wear additive.

50.4.3 BRONZE CASTINGS

Bronze castings shall conform to ASTM B22/B22M, Copper Alloy UNS No. C91300.

50.4.4 STAINLESS STEEL PLATE, SHEET, STRIP, BAR AND SHAPE

Stainless steel plate, sheet, and strip shall conform to ASTM A240/A240M, UNS S 30400. Plate finish shall be hot-rolled, annealed or heat-treated, and blast-cleaned or pickled. Sheet and strip finish shall be No. 1.

Stainless Steel Bar and Shape shall conform to ASTM A564 TYPE 630 Condition H100, and ASTM A276/A276M as shown in the drawings.

50.4.5 RUBBER SEALS

Rubber seals shall be fluorocarbon (Teflon) clad rubber seals of the mold type only and shall be compounded of natural rubber, synthetic polyisoprene, or a blend of both, and shall contain reinforcing carbon black, zinc oxide, accelerators, antioxidants, vulcanizing agents, and plasticizers. Physical characteristics of the seals shall meet the following requirements:

Physical Test	Test Value	Test Method Specification
Tensile Strength	2500 psi (min.)	ASTM D412
Elongation at Break	450 percent (min.)	ASTM D412
300 percent Modulus	900 psi (min.)	ASTM D412
Durometer Hardness (Shore Type A)	60 to 70	ASTM D2240
Water Absorption	5 percent by weight (max.)	ASTM D471
Compression Set	30 percent (max.)	ASTM D395
Tensile Strength (after aging 48 hrs.)	80 percent of tensile strength (min.)	ASTM D572

The "Water Absorption" test shall be performed with distilled water. The washed specimen shall be blotted dry with filter paper or other absorbent material and suspended by means of small glass rods in the oven at a temperature of 70 degrees C plus or minus 2 degrees C for 22 plus or minus 1/4 hours. The specimen shall be removed, allowed to cool to room temperature in air, and weighed. The weight shall be recorded to the nearest 1 mg as M1 (M1 is defined in ASTM D471). The immersion temperature shall be 70 degrees C plus or minus 1 degree C and the duration of immersion shall be 166 hours.

Rubber seals shall have a fluorocarbon film vulcanized and bonded to the sealing surface of the bulb. The film shall be 0.060 inch thick Huntington Abrasion Resistant Fluorocarbon Film No. 4508, or equal, and shall have the following minimum physical properties:

Tensile strength	2,000 psi
Elongation	250 percent

The outside surface of the bonded film shall be flush with the surface of the rubber seal and shall be free of adhering or bonded rubber. Strips and corner seals shall be molded in lengths suitable for obtaining the finish lengths shown and with sufficient excess length to provide test specimens for testing the adequacy of the adhesion bond between the film and bulb of the seal. At one end of each strip or corner seal to be tested, the fluorocarbon film shall be masked during bonding to prevent a bond for a length sufficient to hold the film securely during testing.

50.4.6 BOLTS, NUTS AND WASHERS

All bolts shall be high-strength bolts unless noted otherwise on the Drawings. High-strength bolts, nuts, and washers shall conform to ASTM A325, Type 1, hot-dip galvanized or ASTM A490, Type 1. Bolts 1/2 inch and larger shall have heavy hexagon heads. The finished shank of bolts shall be long enough to provide full bearing. Washers for use with bolts shall conform to the requirements specified in the applicable specification for bolts. Nuts shall be ASTM A563, type to match bolt type and finish. Hardened steel flat and beveled washers shall be ASTM F436, type to match bolt finish.

50.4.7 SCREWS

Screws shall be of the type indicated.

50.4.8 SHACKLES AND TURNBUCKLES

Shackles and turnbuckles shall be of forged steel conforming to ASTM A668/A668M, zinc coated. Turnbuckles shall be end-threaded right and left hand and shall be of the size shown.

50.4.9 SCREW JACKS

Screw jacks shall have a 30,000 lb rated capacity and shall conform to the details shown.

50.4.10 WINCHES

Winches shall be 15,000 lb marine winches with 4.0-inch drum as specified in plans. Each winch shall be equipped with 75 foot of 1/2 inch diameter wire cable suitable for exterior exposure.

50.4.11 RAILS

Rail segments shall conform to 100 lb American Railway Engineering Association (A.R.E.A) rails.

50.4.12 WIRE ROPES

Wire rope shall conform to FS RR-W-410, Type III, Class 1, Construction 6 by 6 desk lashing ropes, improved plow steel, fiber core, as shown.

50.4.13 WHEELS

Wheels shall be short hub or long hub, rigid type, heavy duty steel casters fabricated from steel castings conforming to ASTM A148/A148M. Wheel shall be of the size and load capacity shown and shall be provided with lubrication fittings, roller bearings and removable axle. Wheel treads shall be machined-finished to conform with the indicated rail. Unless otherwise specified or shown, axles for wheels shall be of stainless-steel bars conforming to ASTM A276/A276M, UNS S30400.

50.4.14 PADLOCKS AND HASPS

Padlocks shall conform to CID A-A-59486C, Type II. Padlocks shall be keyed alike and provided with two keys. Hasps shall be of wrought steel and sized to accommodate padlocks.

50.4.15 ELASTOMERIC BEARING PADS

Elastomeric bearing pads shall conform to the requirements of NYSDOT Specification Section 716-11, Steel Laminated Elastomeric Bridge Bearings.

50.5 METHODS.

50.5.1 QUALITY ASSURANCE

(a) Qualification of welders and welding operators – Prior to welding, submit certification for each welder stating the type of welding and positions qualified for, the code and procedure qualified under, date qualified, and the firm and individual certifying the qualification tests. If the qualification date of the welder or welding operator is more than 6 months old, accompany the welding operator's qualification certificate with a current certificate by the welder attesting to the fact that he has been engaged in welding since the date of

certification, with no break in welding service greater than 6 months. Conform to all requirements specified in AWS D1.1/D1.1M or BPVC SEC IX.

50.5.2 DELIVERY, STORAGE, AND HANDLING

Perform delivery, handling, and storage of materials and fabricated items conforming to the requirements specified herein. Unload materials and equipment delivered to the site in the presence of the Engineer. Verify the condition and quantity of the items delivered by the Engineer and acknowledge receipt and condition thereof in writing. If delivered items are damaged or a shortage is determined, notify the Engineer of such in writing within 24 hours after delivery.

(a) Rubber Seals – Store rubber seals in a place which permits free circulation of air, maintains a temperature of 70 degrees F or less, and prevents the rubber from being exposed to the direct rays of the sun. Keep rubber seals free of oils, grease, and other materials which would deteriorate the rubber. Rubber seals shall not be distorted during handling.

50.5.3 SEQUENCING AND SCHEDULING

Submit a sequencing and scheduling plan, approved before the work is commenced, which illustrates that work affecting roadways has been coordinated with New York State DOT and New York City DOT. Include in the plan schedules, lists of labor or materials to be provided the affected agency, and any other aspects of the work that may impact on the operations of these entities as specified in the Contract requirements. The protection plan shall clearly demonstrate how all public or private roads, streets, or highways will be kept open to traffic at all times during the construction period, except as required to complete the Work and as shown on the NYCDOT OCMC traffic stipulations. The sequencing and scheduling plan must comply with all other Contract requirements such as warning signs, flagmen, permits, and debris removal.

50.5.4 FABRICATION

(a) Detail Drawings – Prior to performing any fabrication submit detailed shop drawings to the Engineer for approval. Submit detail drawings for metalwork and machine work, prior to fabrication, include within the detail drawings catalog cuts, templates, fabrication and assembly details and type, grade and class of material as appropriate. All temporary and tack welds shall be identified on the shop drawings. Each member shall be identified following the numbering scheme shown on the drawings. A table shall be provided containing a list of all members and a reference to each material certificate and test report that applies to that member. Shop drawings shall identify weld procedures and NDT required for each weld. Any and all splices shall be included in the shop drawings and clouded for approval. Indicate methods of protecting the work during shipping, storage, field assembly, and installation. Submit detail drawings of closure gates and appurtenant items, including fabrication drawings, etched pattern layout drawings, shop assembly drawings, delivery drawings, and field installation drawings.

(1) Fabrication Drawings – Fabrication drawings shall show complete details of materials, tolerances, connections, and proposed welding sequences which clearly differentiate shop welds and field welds.

(2) Etched Pattern Layout Drawings – Layout drawings shall show complete layout of etched pattern and graphics. Drawings to include etching profile and dimensions. Layouts to be coordinated with skin

plate sizes and pattern offsets at seams, welds, latches, seals, and related elements as shown on the drawings.

(3) Shop Assembly Drawings – Shop assembly drawings shall provide details for connecting the adjoining fabricated components in the shop to assure satisfactory field installation.

(4) Delivery Drawings – Delivery drawings shall provide descriptions of methods of delivering components to the site, including details for supporting fabricated components during shipping to prevent distortion or other damages.

(5) Field Installation Drawings – Field installation drawings shall provide a detailed description of the field installation procedures. The description shall include the location and method of support of installation and handling equipment; provisions to be taken to protect concrete and other work during installation; method of maintaining components in correct alignment; plan for prestressing gate leaf diagonals, which shall include descriptions of connections, riggings, anchorages, and measuring equipment; and methods for installing other appurtenant items.

(b) Structural Fabrication – Components shall be shop-fabricated of the materials specified and shown. Dimensional tolerances shall be as specified and shown. Splices shall occur only where shown. Pin holes shall be bored in components after welding, straightening, stress-relieving, and threading operations are completed. Brackets, eye bar sections, and other components requiring straightening shall be straightened by methods which will not damage the material. Bronze bushings shall be press-fitted with supporting components. Bolt connections, lugs, clips, or other pick-up assembly devices shall be provided for components as shown and required for proper assembly and installation.

Material must be straight before being laid off or worked. Perform straightening, if necessary, by methods that will not impair the metal. Sharp kinks or bends are cause for rejection of the material. Material with welds will not be accepted except where welding is definitely specified, indicated or otherwise approved. Make bends using approved dies, press brakes or bending rolls. Where heating is required, take precautions to avoid overheating the metal and allow it to cool in a manner that will not impair the original properties of the metal. Proposed flame cutting of material is subject to approval and must be indicated on detail drawings. Shearing must be accurate, and all portions of the work neatly finished. Make corners square and true unless otherwise shown. Fillet re-entrant cuts to a minimum radius of 3/4 inch unless otherwise approved. Provide finished members free of twists, bends and open joints. Tighten bolts, nuts and screws.

(1) Dimensional Tolerances for Structural Work – Measure dimensions using an approved calibrated steel tape of approximately the same temperature as the material being measured. The overall dimensions of an assembled structural unit must be within the tolerances indicated on the drawings or as specified in the particular section of these specifications for the item of work. Where tolerances are not specified in other sections of these specifications

or shown, an allowable variation of 1/32 inch is permissible in the overall length of component members with both ends milled; component members without milled ends must not deviate from the dimensions shown by more than 1/16 inch for members 30 feet or less in length, and by more than 1/8 inch for members over 30 feet in length.

(2) Structural Steel Fabrication – Structural steel may be cut by mechanically guided or hand-guided torches when approved by the Engineer, provided an accurate profile with a surface that is smooth and free from cracks and notches is obtained. Prepare surfaces and edges in accordance with AWS D1.1/D1.1M,

(3) Prequalification of WPSs Clause - Where structural steel is not to be welded, chipping or grinding will not be required except as necessary to remove slag and sharp edges of mechanically guided or hand-guided cuts not exposed to view. Chip, grind or machine to sound metal hand-guided cuts which are to be exposed or visible.

(c) Welding – Welds shall be in accordance with AWS D1.1/D1.1M, and of the type shown and approved detail drawings. Components shall be stress-relief heat treated after welding where shown. Stress-relieving of components shall be performed prior to the attachment of miscellaneous appurtenances.

(1) Welding Procedures for Structural Steel – Use prequalified welding procedures for structural steel as described in AWS D1.1/D1.1M, Prequalification of WPSs Clause or qualify by tests as prescribed in AWS D1.1/D1.1M, Qualification Clause. For welding procedures qualified by tests, the coupon welding and specimen testing will be witnessed and the test report document signed by the Engineer. Approval of any welding procedure does not relieve the Contractor of the responsibility for producing a finished structure meeting all requirements of these specifications. The Contractor will be directed or authorized to make any changes in previously approved welding procedures that are deemed necessary or desirable by the Engineer. Submit a complete schedule of welding procedures for each steel structure to be welded prior to commencing fabrication. Provide the schedule in conformance with the requirements specified in the provisions of AWS D1.1/D1.1M. Provide within the schedule detailed procedure specifications and tables or diagrams showing the procedures to be used for each required joint. Include in the welding procedures filler metal, preheat, interpass temperature and stress-relief heat treatment requirements. Clearly identify each welding procedure as being prequalified or required to be qualified by tests. Show types and locations of welds designated or in the specifications to receive nondestructive testing in the welding procedures.

(2) Welding Process – Perform welding of structural steel by an electric arc welding process using a method which conforms to the applicable provisions of AWS D1.1/D1.1M. Minimize residual stresses, distortion and shrinkage from welding.

(3) Filler Metal – Provide the electrode, electrode-flux combination and grade of filler metal conforming to the appropriate AWS specification for the base metal and welding process being used or be as shown where a specific choice of AWS specification allowable is required. Submit filler metal product data. Include the AWS designation of the electrodes to be used in the schedule of welding procedures. Use only low hydrogen electrodes for manual shielded metal-arc welding regardless of the thickness of the steel. Use a controlled temperature storage oven at the job site as prescribed by AWS D1.1/D1.1M, Fabrication Clause No 5 to maintain low moisture of low hydrogen electrodes.

(4) Preheat and Interpass Temperature – Perform preheating as required by AWS D1.1/D1.1M, Fabrication Clause or as otherwise specified except that the temperature of the base metal must be at least 70 degrees F. Slowly and uniformly preheat the joint area by approved means to the prescribed temperature, held at that temperature until the welding is completed and then permitted to cool slowly in still air.

(5) Stress-Relief Heat Treatment – Where stress relief heat treatment is specified or shown, perform in accordance with the requirements of AWS D1.1/D1.1M, Fabrication Clause unless otherwise authorized or directed.

(6) Workmanship – Perform welding workmanship in accordance with AWS D1.1/D1.1M, Fabrication Clause and other applicable requirements of these specifications.

(7) Preparation of Base Metal – Prior to welding inspect surfaces to be welded to ensure compliance with AWS D1.1/D1.1M, Fabrication Clause.

(8) Temporary Welds – Make temporary welds, required for fabrication and erection, under the controlled conditions prescribed for permanent work. Make temporary welds using low-hydrogen welding electrodes and by welders qualified for permanent work as specified in these specifications. Conduct preheating for temporary welds as required by AWS D1.1/D1.1M for permanent welds except that the minimum temperature must be 120 degrees F in any case. In making temporary welds, do not strike arcs in other than weld locations. Remove each temporary weld and grind flush with adjacent surfaces after serving its purpose.

(9) Tack Welds – Tack welds that are to be incorporated into the permanent work are to exhibit the same quality requirements as the permanent welds; clean and thoroughly fuse them with permanent welds. Perform preheating as specified above for temporary welds. Provide cascaded ends on multiple-pass tack welds. Remove defective tack welds before permanent welding.

(10) Weld Access Holes. Weld access holes (corner copes to prevent intersecting welds) shall be provided as shown on the shop drawings. If intersecting out-of-plane welds is encountered, the

fabricator shall notify the Engineer for the approval of additional weld access hole additions in such locations. Payment for the addition of weld access holes not shown on plans will be the Contractor's responsibility. Unless shown on the drawings, welds will be required to wrap the ends of weld access holes.

(11) Weld Backing Removal. Unless otherwise indicated, all weld backing material shall be removed from welded joints prior to testing. All weld backing material that cannot be removed shall be identified on the shop drawings.

(12) Weld Backing Material Other Than Steel. All weld backing material, other than steel, shall be qualified by testing and shall be included in submitted PQR/WPS. Variation from approved weld backing material will not be permitted and will require the development and testing a new weld procedure which addresses the change in backing material.

(13) Welding of Steel Studs – Welding of steel studs must conform to the requirements of AWS D1.1/D1.1M, Stud Welding Clause, except as otherwise specified for the procedures for welding steel studs to structural steel, including mechanical, workmanship, technique, stud application qualification, production quality control and fabrication and verification inspection procedures.

(14) Application Qualification for Steel Studs – As a condition of approval of the stud application process, submit certified test reports and certification that the studs conform to the requirements of AWS D1.1/D1.1M, Stud Welding Clause, certified results of the stud manufacturer's stud base qualification test, and certified results of the stud application qualification test as required by AWS D1.1/D1.1M, Stud Welding Clause, prior to commencing fabrication, except as otherwise specified.

(15) Production Control – Production control of stud welding must conform to the requirements of AWS D1.1/D1.1M, Stud Welding Clause, except as otherwise specified for quality control for production welding of studs. Weld studs on which pre-production testing is to be performed must be in the same general position as required on production studs (flat, vertical, overhead or sloping). If the reduction of the length of studs becomes less than normal as they are welded, stop welding immediately and do not resume until the cause has been corrected.

(16) Weldments – Portions of the structure include thick weldments where locked in thermal stresses may make final dimensions unstable. The Contractor is required to sequence the work and thermally stress relieve subassemblies of thick weldments such that final machining achieves stable specified dimensions and tolerances.

(17) Seal Welds – Seal welds are required as shown to maintain water tightness of weld joints and to prevent corrosion. All welds

shall be seal welds unless noted otherwise. All seal welds shall be shown and made as indicated on the shop drawings. Seal welds, without a specific size shown, shall be made the minimum size fillet weld as required in AWS D1.1/D1.1M. In addition, seal welds may require weld wrapping around reentrant corners that is specifically prohibited in AWS D1.1/D1.1M.

(d) Bolted Connections – Provide bolts, nuts and washers of the type specified or indicated. Equip all nuts with washers except for high strength bolts. Use beveled washers where bearing faces have a slope of more than 1:20 with respect to a plane normal to the bolt axis. Where the use of high strength bolts is specified or indicated, conform the materials, workmanship and installation to the applicable provisions of ASTM F3125/F3125M. Install High Strength Bolts ASTM F3125/F3125M Grade A325 or Grade A490 in accordance with the requirements of RCSC S348. All High Strength Bolted Connections are fully pretensioned to the minimum pretension as specified in RCSC S348. Follow the pre-installation verification procedures outlined in RCSC S348. All other bolted connections are snug tight in accordance with RCSC S348.

(1) Accurately locate bolt holes, smooth, perpendicular to the member and cylindrical.

(2) Drill or subdrill holes for regular bolts and ream in the shop and not more than 1/16 inch larger than the diameter of the bolt.

(3) Match-ream or drill holes for fitted bolts in the shop. Remove burrs resulting from reaming. Keep bolt threads entirely outside of the holes. The body diameter of bolts must have tolerances as recommended by ASME B4.1 for the class of fit specified. Place fitted bolts in reamed holes by selective assembly to provide an LN-2 fit.

(4) Holes for high strength bolts must not have diameters more than 1/16 inch larger than bolt diameters. If the thickness of the material is not greater than the diameter of the bolts, the holes may be punched. If the thickness of the material is greater than the diameter of the bolts the holes may be drilled full size or subpunched or subdrilled at least 1/8 inch smaller than the diameter of the bolts and then reamed to full size. Poor matching of holes will be cause for rejection. Drifting occurring during assembly cannot distort the metal or enlarge the holes. Reaming to a larger diameter of the next standard size bolt will be allowed for slight mismatching.

(e) Machine Work – Tolerances, allowances and gauges for metal fits between plain, non-threaded, cylindrical parts conform to ASME B4.1 for the class of fit shown or required unless otherwise shown on approved detail drawings. Tolerances for machine-finished surfaces designated by non-decimal dimensions must be within 1/64 inch. Sufficient machining stock must be provided on placing pads to ensure true surfaces of solid material. Provide finished contact or bearing surfaces true and exact to secure full contact. Polish journal surfaces and finish all surfaces with sufficient smoothness and accuracy to ensure proper operation when assembled. Accurately machine parts entering any machine and all like parts be interchangeable except that parts assembled together for drilling or reaming of holes or machining will not

be required to be interchangeable with like parts. Accurately locate all drilled bolt holes.

(1) Unfinished Surfaces – Lay out all work to secure proper matching of adjoining unfinished surfaces unless otherwise directed. Where there is a large discrepancy between adjoining unfinished surfaces chip and grind smooth or machine to secure proper alignment. Unfinished surfaces must be true to the lines and dimensions shown and be chipped or ground free of all projections and rough spots. Fill in depressions or holes not affecting the strength or usefulness of the parts in an approved manner.

(2) Pin Holes – Pin holes are to be bored true to gauges, smooth, straight and at right angles to the axis of the member. Do the boring after the member is securely fastened in position.

(3) Shafting – Turn or grind shafting with hot-rolled or cold-rolled steel, as required, unless otherwise specified or authorized. Provide fillets where changes in section occur. Cold-finished shafting may be used where keyseating is the only machine work required.

(4) Bearings – Bearings may be lined with bronze unless otherwise specified or shown. Where the bearing pressure is in excess of 200 psi, line bearings with bronze. Pressures on lined bearings must not exceed psi of projected area unless otherwise required or authorized. Anti-friction bearings of approved types and of sizes not less than those recommended by the bearing manufacturer for the duty intended will be permitted subject to approval. Properly align all bearings provided with a suitable means of lubrication. Install anti-friction bearings as required to provide for retention of the lubricant and to exclude dirt and grit.

(f) Etched Pattern – Exposed faces of gate skin plates to receive custom etched pattern as shown on the approved detail drawings. Etching to produce a smooth and continuous profile; gaps or skips in profile to be limited to 1/8" maximum. Profile to be at the width and depth indicated on the drawings; however, no etching to be more than 1/16" deep maximum.

(g) Miscellaneous Provisions – Apply zinc coatings in a manner and of a thickness and quality conforming to ASTM A123/A123M. Where zinc coatings are destroyed by cutting, welding or other causes regalvanize the affected areas. Regalvanize coatings 2 ounces or heavier with a suitable low-melting zinc base alloy similar to the recommendations of the American Hot-Dip Galvanizers Association to the thickness and quality specified for the original zinc coating. Repair coatings less than 2 ounces with cold galvanizing in accordance with ASTM A780/A780M.

(h) Drain holes – Locate drain holes as shown on the drawings, unless otherwise noted. Drain holes shall be drilled. Flame cutting of holes will not be permitted.

(i) Fabrications – Submit samples approved prior to use of the represented materials or items in the work. Samples of standard and shop fabricated items shall be full size and complete as required for installation in the work. Approved samples may be installed in the work provided each sample is clearly identified

and its location recorded. Fabrications shall conform to the following requirements.

(1) Gate Leaf – Gate leaf shall be of welded structural steel fabrication. Gate leaf shall be provided complete with hinge assemblies, pintle assembly, wheel assemblies, gate hooks, seal assemblies, and other appurtenant components as specified and shown. Proposed shop-fabrication of gate leaf in separate segments to facilitate handling and shipping must be approved and shall be as shown on approved detail drawings. Such segments shall permit easy field-assembly and shall be as few as practicable to minimize the number of joints to be field-welded. The overall height of gate leaf shall not vary from the nominal dimension by more than 1/4 inch. The surfaces of framing elements to skin plates are to be welded shall not vary from a true plane by more than 1/4 inch. The diagonal dimensions across the corners of both faces of the gate leaf shall not differ from the calculated dimensions based on gate dimensions shown in the drawings by more than 1/2 inch. Splices in skin plates shall be located only where shown. Etched pattern on skin plates to be appear continuous across plate spices; individual etched profiles of the pattern to be aligned within 1/8" across skin plate splices. In addition to welds specifically indicated for nondestructive testing, other welds as chosen by the Engineer in the girders, verticals and skin plate of the gate leaf shall receive nondestructive testing at the Contractor's expense following the guidelines specified in Section 50.5.5(d)(8).

(2) Hinge Assembly –Materials for the hinge assembly shall follow the schedule shown in the plan. In addition to welds specifically indicated for nondestructive testing, 50 percent of the welds in the hinge assembly and the welds connecting the hinge assembly to the gate framing shall receive nondestructive testing utilizing Ultrasonic Testing. After all welding is completed, the hinge assembly shall be stress-relieved by heat-treating. Stress-relieving shall be performed prior to machining.

(3) Rolling Gate Wheel Assembly – Rolling gate wheel assembly shall be provided complete with cast steel wheels as specified herein and fittings, couplings and hoses for lubrication of wheels. Fittings shall be 1/4 inch threaded-pipe fitting. Couplings shall be 1/4-inch stainless steel half coupling. Hoses shall be 1/4 inch inside diameter, double-braided stainless steel flexible hoses. Couplings and hoses shall have a pressure rating of 3,000 psi.

(4) Seal Assembly – Seal assembly shall consist of rubber seals, steel retainer and spacer bars, retractable plate, and fasteners. Rubber seals shall be continuous over the full length. Seals shall be accurately fitted and drilled for proper installation. Bolt holes shall be drilled in the rubber seals by using prepared templates or the retainer bars as templates. Splices in seals shall be fully molded, develop a minimum tensile strength of 50 percent of the unspliced seal, and occur only at locations shown. All vulcanizing of splices shall be done in the shop. The vulcanized splices between molded

corners and straight lengths shall be located as close to the corners as practicable. Splices shall be on a 45-degree bevel related to the "thickness" of the seal. The surfaces of finished splices shall be smooth and free of irregularities. Steel retainer bars shall be field-spliced only where shown. Field welding of the steel retainer bar shall be ground flush.

(5) Miscellaneous Embedded Metals – Wall armor, shear anchors, protection and seal plates and shapes, and other miscellaneous embedded metals shall be of structural steel or corrosion-resisting steel conforming with the details specified herein and shown.

(j) Shop Assembly – Gates and appurtenant items shall be assembled completely in the shop, unless otherwise approved, to assure satisfactory field installation. Adjoining components shall be fitted and bolted together to facilitate field connections. The matchmarking of unassembled items shall be carefully preserved until the items are assembled. Mating surfaces and machined surfaces shall be covered with a rust preventive until assembly. Assembled components shall be shop-welded in their final positions as much as delivery and field installation conditions will permit. Rubber seals shall be fitted and drilled to match the seal retainers, match-marked, and removed for shipment. Shop assembly and disassembly work shall be performed in the presence of the Engineer unless waived in writing. The presence of the Engineer will not relieve the Contractor of any responsibility under this contract.

50.5.5 TESTS, INSPECTIONS, AND VERIFICATIONS

Submit certified test reports for material tests with all materials delivered to the site.

(a) General – Perform material tests and analyses certified by an approved laboratory to demonstrate that materials are in conformity with the specifications. These tests and analyses must be performed and certified at the Contractor's expense, and are in addition to the standard manufacturer's material test reports. Perform tests, inspections, and verifications conforming to the requirements of the particular sections of these specifications for the respective items of work unless otherwise specified or authorized. Conduct tests in the presence of the Engineer if so required. Furnish specimens and samples for additional independent tests and analyses upon request by the Engineer. Properly label specimens and samples and prepare for shipment. Submit certified test reports for material tests performed by the Contractor as well as manufacturers' material test reports with all materials delivered to the site.

(b) Nondestructive Testing – When doubt exists as to the soundness of any material part, such part may be subjected to any form of nondestructive testing determined by the Engineer. This may include Ultrasonic (UT), Magnetic Particle Testing (MT), Radiographic Testing (RT) or any other test that will thoroughly investigate the part in question. The cost of such investigation will be borne by the Department if the part is found to be sound and by the Contractor if the part is found to be defective. Any defects will be cause for rejection; replace and retest rejected parts at the Contractor's expense.

(c) Tests of Machinery and Structural Units – The details for tests of machinery and structural units must conform to the requirements of the particular sections

of these specifications covering these items. Assemble each complete machinery and structural unit and test them in the shop, in the presence of the Engineer, unless otherwise directed. The Engineer's waiving of tests does not relieve the Contractor of responsibility for any fault in operation, workmanship or material that occurs before the completion of the contract or guarantee. After being installed at the site, operate each complete machinery or structural unit through a sufficient number of complete cycles to demonstrate to the satisfaction of the Engineer that it meets the specified operational requirements in all respects.

(d) Inspection of Structural Steel Welding – Nondestructive testing of designated welds will be required. Supplemental examination of any joint or coupon cut from any location in any joint may also be required. Selection of welds to be tested shall be as agreed upon between the Engineer and Contractor. The Contractor's Certified Welding Inspector (CWI) shall be present whenever welding is performed. The CWI shall perform inspection, as necessary, prior to assembly, during assembly, during welding, and after welding. CWI shall perform inspection as required in AWS D1.1/D1.1M.

(1) Visual Examination – All visual inspection shall be conducted in accordance with AWS D1.1/D1.1M, by a CWI. Document this inspection in the Visual Weld Inspection Log. Submit certificates indicating that CWI meet the requirements of AWS QC1.

(2) Nondestructive Testing – Perform as designated or described in the sections of these specifications, the nondestructive testing of shop and field welds covering the particular items of work. Record final nondestructive testing results in the Weld Inspection Log which identifies final NDT inspection of all welds requiring inspection and submit the log.

(3) Testing Agency – The nondestructive testing of welds and the evaluation of tests as to the acceptability of the welds must be performed by a testing agency adequately equipped and competent to perform such services or by the Contractor using suitable equipment and qualified personnel. All personnel performing nondestructive testing shall be certified Level I or II in the method of NDT being utilized in accordance with AWS D1.1/D1.1M. Level I inspectors must have direct supervision of a Level II inspector. Submit certification for nondestructive testing personnel prior to all testing. In either case, written approval of the examination procedures is required, and performance of the examination tests must be done in the presence of the Engineer. The evaluation of tests is subject to the approval and all records become the property of the Department.

(4) Radiographic Testing (RT) – Radiographic examination is required on the major shop and field welds as per AWS D1.5/D1.5M. See Section 50.5.5(d)(8) for items that shall be subjected to RT. Welds which have been designated to receive radiographic examination and are found to be inaccessible to a radiation source or film or are otherwise so situated that radiographic examination is not feasible

may be examined, with written approval, by dye penetrant, magnetic particle tests, or ultrasonic tests.

(5) Ultrasonic Testing (UT) – Examine, evaluate and report ultrasonic testing of welds in conformance to the requirements of AWS D1.1/D1.1M, Inspection Clause, for statically loaded connections. Provide ultrasonic equipment capable of making a permanent record of the test indications. Make a record of each weld tested.

(6) Magnetic Particle Inspection Conform magnetic particle inspection of welds to the applicable provisions of ASTM E709.

(7) Dye Penetrant Inspection – Perform dye penetrant inspection of welds conforming to the applicable provisions of ASTM E165/E165M.

(8) Welds to be Subject to Nondestructive Testing – 100% of all welds shall be subjected to visual inspection. All welds connecting the Fracture Critical Member (FCM), including all girders, shall be considered Fracture Critical Weld (FCW) and shall be subjected to Radiographic Testing (RT). 50% of the welds including FCW on the hinge assembly shall be subjected to UT. In addition, test 25% of all other Complete Joint Penetration (CJP) welds using RT. Randomly test 50% of all PJP and fillet welds other than FCW using UT as per Table 6.2 of AWS D1.1/D1.1M.

(9) Test Coupons – The Department reserves the right to require the Contractor to remove coupons from completed work when doubt as to soundness cannot be resolved by nondestructive testing. When coupons are removed from any part of a structure, repair the members cut in a neat manner with joints of the proper type to develop the full strength of the members. Peen repaired joints as approved or directed to relieve residual stress. The expense for removing and testing coupons, repairing cut members and the nondestructive testing of repairs is borne by the Department if the work is not found to be defective or the Contractor if the work is found to be defective.

(10) Supplemental Examination – When the soundness of any weld is suspected of being deficient due to faulty welding or stresses that might occur during shipment or erection, the Department reserves the right to perform nondestructive supplemental examinations before final acceptance. The cost of such inspection will be borne by the Department. If welds are found to be defective, the Contractor shall repair the defective work and bear the cost of the inspection.

(11) Welding Repair Plan – Repair defective welds in accordance with AWS D1.1/D1.1M, Fabrication Clause. Remove defective weld metal to sound metal by use of grinding, air carbon-arc or oxygen gouging. Thoroughly clean surfaces before welding. Retest welds that have been repaired by the same methods used in the original inspection. Except for the repair of members cut to remove test coupons and found to have acceptable welds costs of

repairs and retesting will be borne by the Contractor. Submit welding repair plans for steel, prior to making repairs.

(12) Inspection and Testing of Steel Stud Welding – Perform fabrication and verification inspection and testing of steel stud welding conforming to the requirements of AWS D1.1/D1.1M, Welding Clause except as otherwise specified. The Engineer will serve as the verification inspector. Bend or torque test one stud in every 100, including studs that do not show a full 360 degree weld flash, have been repaired by welding or whose reduction in length due to welding is less than normal as required by AWS D1.1/D1.1M, Stud Welding Clause. If any of these studs fail, bend or torque test two additional studs. If either of the two additional studs fails, all of the studs represented by the tests will be rejected. Studs that crack under testing in the weld, base metal or shank will be rejected and replaced by the Contractor at no additional cost.

(e) Testing of Rubber Seals – The fluorocarbon film of rubber seals shall be tested for adhesion bond in accordance with ASTM D413 using either the machine method or the deadweight method. A 1-inch long piece of seal shall be cut from the end of the seal which has been masked and subjected to tension at an angle approximately 90 degrees to the rubber surface. There shall be no separation between the fluorocarbon film and the rubber when subjected to the following loads:

Thickness of Fluorocarbon Film	Machine Method at 50 mm2 inches per minute	Deadweight Method
0.060 inch	30 pounds per inch width	30 pounds per inch width
0.030 inch	30 pounds per inch width	30 pounds per inch width

50.5.6 INSTALLATION

Gates and appurtenant items shall be assembled for installation in strict accordance with the contract drawings, approved installation drawings, and shop match-markings. Before assembly and installation, all bearing surfaces requiring lubrication shall be thoroughly cleaned and lubricated with an approved lubricant. All components to be field-welded shall be in correct alignment before welding is commenced.

(a) General – Thoroughly clean all parts to be installed. Remove packing compounds, rust, dirt, grit and other foreign matter. Clean holes and grooves for lubrication. Examine enclosed chambers or passages to make sure that they are free from damaging materials. Where units or items are shipped as assemblies they will be inspected prior to installation. Disassembly, cleaning and lubrication will not be required except where necessary to place the assembly in a clean and properly lubricated condition. Do not use pipe wrenches, cold chisels or other tools likely to cause damage to the surfaces of rods, nuts or other parts used for assembling and tightening parts. Tighten bolts and screws firmly and uniformly but take care not to overstress the threads.

When a half nut is used for locking a full nut place the half nut first followed by the full nut. Apply the half nut snug tight before applying full torque on the full nut. Lubricate threads of all bolts except high strength bolts, nuts and screws with an appropriate lubricant before assembly. Coat threads of corrosion-resisting steel bolts and nuts with an approved antigalling compound. Driving bolts or keys will not be permitted.

(b)

(1) Alignment and Setting – Accurately align each machinery or structural unit by the use of steel shims or other approved methods so that no binding in any moving parts or distortion of any member occurs before it is fastened in place. The alignment of all parts with respect to each other must be true within the respective tolerances required. Set true machines to the elevations shown.

(2) Blocking and Wedges – Remove all blocking and wedges used during installation for the support of parts to be grouted in foundations before final grouting unless otherwise directed. Blocking and wedges left in the foundations with approval must be of steel or iron.

(c) Embedded Metals – Corner protection angles, sill angles, seal plates, frames, pedestals, bases and other embedded metal items required for proper and complete installation shall be accurately installed to the alignment and grade required to ensure accurate fitting and matching of components. Embedded metals shall be given a primer coat of the required paint on all surfaces prior to installation in concrete forms. Anchors for embedded metals shall be installed as shown. Items requiring two concrete pours for installation shall be attached to the embedded anchors after the initial pour, adjusted to the proper alignment, and concreted in place with the second pour. Welded field splices in sealing surfaces of embedded items shall be ground smooth.

(d) Lower Hinge Assembly – Base anchors for the lower hinge assembly shall be embedded in the first pour concrete. Base plate shall be attached to base anchors, set to the final position, and epoxy fill shall be placed in the void behind the base plates and allowed to reach the strength as shown and the approved field installation drawings. After the gate leaf is set in place, the hinge assembly shall be adjusted to provide for continuous contact between the sealing surfaces over the full height and length of the gate leaf. Allowances shall be made for the seals which shall not be attached until painting operations are completed. Second pour concrete shall be placed after final adjustments are completed.

(e) Gate Leaf – Gate leaf components not assembled in the shop shall be assembled in the field as required for installation. Lower hinge assembly bearings shall be coated with grease prior to setting the gate leaf in place. All necessary precautions shall be taken to avoid distortion of the gate leaf or any component parts. Special care shall be exercised during installation to prevent any sag of the ends of the gate leaf due to compression of blocking or other causes. After the gate leaf has been set in place and the top hinge assembly installed, the gate leaf shall be plumbed and brought into correct position.

(f) Diagonals – Gate leaf diagonals shall be attached to the gate leaf after the leaf is set in place. Submit diagonal prestressing records immediately after completion of the prestressing operations. Diagonals shall be prestressed before the final adjustment of the hinge assemblies are made. Diagonal prestressing shall be as specified herein and as shown and the prestressing plan developed by the Contractor. The prestressing plan shall be submitted to the Engineer for approval. The plan for prestressing the diagonals shall describe the method of prestressing including the materials, connections, rigging, anchorages, and measuring equipment including strain gauges. The strain gauges shall be removed after the prestressing operation and touch up painting shall be applied. Compile a record of the prestressing operations consisting of the information indicated in the following table:

Stress Data Table

Gate Leaf Location:				Date:	
	1	2	3	4	5
Diagonal	Strain Gauge Initial	Strain Gauge Final	E (in.)	D (in.)	d(in.)

1. Initial strain gauge readings shall be made after slack is removed.

2. Final strain gauge readings shall be made after prestressing is complete.

3. E is the total elongation over the full length of the diagonal, computed from the strain gauge readings.

4. D is the initial deflection (sag) of the leaf prior to prestressing.

5. d is the final deflection (sag) of the leaf measured after completion of the prestress operation; it is the deflection at the bottom of the cantilever end when final strain gauge readings are taken.

(g) Top Hinge Assembly – After the gate leaf has been set in place, the top hinge assembly shall be installed and adjusted so that the center of the hinge pin is in vertical alignment with the center of the pintle. When the top hinge pin is inserted, the gate leaf shall swing horizontally throughout its range of movement. Any required final adjustments to the top hinge assembly shall be made after the gate leaf diagonals have been prestressed. The second pour concrete shall be made after final adjustments are completed.

(h) Painting – Painting of the gates shall follow NYSDOT Standard Specification Section 708-01, Structural Steel Paints Class 1. Exposed parts of gates and appurtenances except machined surfaces, corrosion-resistant surfaces, surfaces of anchorages embedded in concrete, and other specified surfaces shall be painted as specified below

(1) Blast to near white metal (SSPC-SP 10).

(2) Prime with one coat of three component, metallic, zinc rich, epoxy primer.

(3) Coat with two (2) coats of low VOC, high solids, high build epoxy intermediate coat.

(4) Finish with one coat of low VOC, high build, semi-gloss urethane finish.

(5) Gate colors to be NYC DOT Bridges Standard Colors: Gates 1-17 to be Munsel Gray FS 26173; Gate 18 to be the similar color as George Washington Bridge. Gate numbering shall follow table as shown on plan sheet FG001.

(i) Seal Assemblies – Rubber seal assemblies shall be installed after the embedded metal components have been concreted in place and the gate installation, including painting, completed. Rubber seals shall be fastened securely to metal retainers. Before operating the gates, a suitable lubricant as prescribed by the seal manufacturer shall be applied to the rubber seal rubbing plates to protect the rubber.

(j) Final Adjustment of Swing Gates – Swing gates have been designed with multiple degrees of adjustment. The pintle assembly has been designed to allow additional thrust washers to allow vertical adjustment. Shim packs have been specified to allow adjustment normal to the concrete abutment surface. Slotted holes have been provided in all seal angles to facilitate minor adjustments normal to the seal surfaces. The bearing blocks of each gate, attached to the horizontal girders, shall be in contact with the vertical face of the concrete abutment or embedded plates. If not in contact, the bearing blocks shall have a gap no larger than 1/32" measured by a feeler gauge between the bearing block and mating surface. Should the gap between the bearing blocks and mating surface exceed 1/32", the Contractor shall notify the Engineer. After all adjustments have been made, the seals of each gate shall be leak tested as specified herein.

(k) Testing of Seal – There shall be no inadvertent leakage paths around the seals. The intent of this specification is that the bulb of the J-bulb seal shall be in contact with the seal plate over the entire length when the gate is in the closed position.With the gate in the closed position, the spray from a hose shall be directed along every horizontal and vertical inch of the seal at the contact point between seal bulb and seal plate. The nozzle of the hose may be directed toward either side of the seal but shall be no more than 12 inches from the contact point between seal and seal plate. The spray shall be as nearly perpendicular to the seal as access permits. The flow of water from the hose shall be no less than 8 gallons per minute and the water pressure in the hose just upstream of the nozzle shall be no less than 40 psi, as measured by a calibrated gauge. If leakage occurs at any point along the seal, the gap between the rubber seal and seal plate shall be measured by means of feeler gauges while the water is not running. A maximum gap of 1/16 inch over not more than 12 inches will be accepted.

50.5.7 PROTECTION OF FINISHED WORK

(a) Machined Surfaces – Thoroughly clean foreign matter off machined surfaces. Protect all finished surfaces. Oil and wrap unassembled pins and bolts with moisture resistant paper or protect them by other approved means. After applying primer wash finished surfaces of ferrous metals to be in bolted contact, with an approved rust inhibitor and coat them with an approved rust resisting compound for temporary protection during fabrication, shipping and storage periods. Paint finished surfaces of metals which will be exposed after installation, except corrosion resisting steel or nonferrous metals.

(b) Lubrication After Assembly – After assembly fill all lubricating systems with the appropriate lubricant and apply additional lubricant at intervals as required to maintain the equipment in satisfactory condition until acceptance of the work.

50.5.8 ACCEPTANCE TRIAL OPERATION

After completion of the gate installation, the Engineer will examine the gates for final acceptance. The gates will be examined first to determine whether or not the workmanship conforms to the specification requirements and the standard of Painting and corrosion protection. The Contractor will then be required to operate the gates from the fully-opened to the fully-closed position to demonstrate that all parts are functioning properly. The number of error-free gate opening-closing operations, acceptable to the Engineer's satisfaction, shall follow the guidelines below.

(a) Swing Gates – Operate at least once using normal gate operating sequence and at least once using the alternative operating procedure. Refer to gate Operation & Maintenance (O&M) manual for details of operating procedures.

(b) Roller Gates – Operate at least once using normal gate operating sequence and at least once utilizing each of the two alternative operating procedures. Refer to gate O&M manual for details of operating procedures.

The workmanship in the fabrication and installation of gates shall be such that the gates in the closed position will form a watertight barrier across the opening, which shall be verified using a spray test. Required repairs or replacements to correct defects, shall be made at no additional cost to the Department. Repeat the trial operation after defects are corrected. Prior to final acceptance of the gates, provide temporary restraints to prevent unauthorized operation of the gates.

50.6 MEASUREMENT & PAYMENT.

Payment will be made at the lump sum price bid for each fabricated steel floodgate.

50.7 PRICE TO COVER.

Payment will constitute full compensation for furnishing all plant, labor, materials and equipment and performing all operations necessary for the installation of fabricated steel floodgates as specified and as shown in the drawings.

Payment will be made under:

Item No.	Item	Pay Unit
ESCR 11	GATE SILL ALLOWANCE	L.F.
ESCR-50.A.1	FURNISH AND INSTALL FABRICATED STEEL FLOODGATE (VEHICULAR ROLLER TYPE)	L.S.
ESCR-50.A.2	FURNISH AND INSTALL FABRICATED STEEL FLOODGATE (VEHICULAR SWING TYPE)	L.S.
ESCR-50.K.1	FURNISH AND INSTALL FABRICATED STEEL FLOODGATE (VEHICULAR SWING TYPE)	L.S.
ESCR-50.K.2	FURNISH AND INSTALL FABRICATED STEEL FLOODGATE (VEHICULAR SWING TYPE)	L.S.
ESCR-50.K.5	FURNISH AND INSTALL FABRICATED STEEL FLOODGATE (VEHICULAR ROLLER TYPE)	L.S.
ESCR-50.K.6	FURNISH AND INSTALL FABRICATED STEEL FLOODGATE (VEHICULAR SWING TYPE)	L.S.
ESCR-50.L.1	FURNISH AND INSTALL FABRICATED STEEL FLOODGATE (VEHICULAR SWING TYPE)	L.S.
ESCR-50.L.2	FURNISH AND INSTALL FABRICATED STEEL FLOODGATE (VEHICULAR SWING TYPE)	L.S.
ESCR-50.N.1	FURNISH AND INSTALL FABRICATED STEEL FLOODGATE (VEHICULAR SWING TYPE)	L.S.
ESCR-50.N.2	FURNISH AND INSTALL FABRICATED STEEL FLOODGATE (VEHICULAR SWING TYPE)	L.S.
ESCR-50.N.3	FURNISH AND INSTALL FABRICATED STEEL FLOODGATE (VEHICULAR ROLLER TYPE)	L.S.
ESCR-50.N.4	FURNISH AND INSTALL FABRICATED STEEL FLOODGATE (VEHICULAR ROLLER TYPE)	L.S.
ESCR-50.N.5	FURNISH AND INSTALL FABRICATED STEEL FLOODGATE (VEHICULAR ROLLER TYPE)	L.S.
ESCR-50.O.1	FURNISH AND INSTALL FABRICATED STEEL FLOODGATE (VEHICULAR SWING TYPE)	L.S.
ESCR-50.Q.1	FURNISH AND INSTALL FABRICATED STEEL FLOODGATE (VEHICULAR ROLLER TYPE)	L.S.
ESCR-50.Q.2	FURNISH AND INSTALL FABRICATED STEEL FLOODGATE (VEHICULAR SWING TYPE)	L.S.
ESCR-50.Q.3	FURNISH AND INSTALL FABRICATED STEEL FLOODGATE (VEHICULAR SWING TYPE)	L.S.
ESCR-50.Q.4	FURNISH AND INSTALL FABRICATED STEEL FLOODGATE (VEHICULAR ROLLER TYPE)	L.S.
ESCR-50.Q.5	FURNISH AND INSTALL FABRICATED STEEL FLOODGATE (PEDESTRIAN SWING TYPE)	L.S.

END OF SECTION

ITEM 619.3610 – QUICK-CHANGE MOVEABLE CONCRETE BARRIER TRANSFER VEHICLE (QMCBTV) - LEASE & MAINTAIN

619.3610.1. INTENT. This section describes leasing and maintenance of Quick-change Moveable Concrete Traffic Barrier Transfer Vehicle (Vehicle). For the purposes of this section, leasing of the vehicle refers to procuring the Vehicle and covers leasing, renting, and the use of a Contractor-owned Vehicle.

619.3610.2. DESCRIPTION. This item shall consist of procuring a Quick-change Moveable Concrete Traffic Barrier Transfer Vehicle which meets the requirements noted herein, from Lindsay Transportation Solutions (LTS); 180 River Road, Rio Vista, CA 94571; (888) 800-3691; www.barriersystemsinc.com or approved equal. The item shall also include maintaining the Vehicle, and training Vehicle operators.

619.3610.3. MATERIALS. The Vehicle shall be on the project site and in good working condition. The Vehicle is capable of performing the following functions:

1. Lateral transfer of continuous lengths of Quick-change Moveable Concrete Barrier (QMCB) from 4 feet to 18 feet;
2. Maintaining a forward speed of at least 5 miles per hour while making lateral transfer moves of the QMCB.
3. The Vehicle is equipped with a Capstan Drive and an engine block heater.

619.3610.4. METHODS. The Contractor is responsible for obtaining or entering into an agreement to procure the Vehicle within 30 days upon notification by the Engineer.

1. General:
   The Vehicle designated for use under this item will be used on FDR Drive to facilitate a work zone protection for the limits specified on contract drawings, including lateral movement of QMCB, during the work hours specified in contract documents and approved by Engineer. Each work shift, the Vehicle will be used twice, first to deploy the QMCB prior to work hours, and then to relocate the QMCB back to its stored position.

2. Maintenance:
   The Vehicle shall be stored, when not in use, in an approved storage area. The Contractor shall be required to perform all maintenance operations recommended by the manufacturer of the Vehicle.

   The Vehicle shall be kept in good repair at all times. The Contractor shall expedite repairs necessitated by malfunction of or damage to the Vehicle. Maintenance shall include the periodic cleaning of the Vehicle along with the repair of damage to the protective coating of the Vehicle.

   The Contractor shall have on hand at all times sufficient spare parts.

619.3610.5. MEASUREMENT. The quantity to be measured for payment will be the number of months of the Vehicle's use, measured to the nearest ¼ month and contingent on satisfactory maintenance of the Vehicle.

619.3610.6. PRICE TO COVER. The Vehicle shall be paid for on a monthly basis which price shall be full compensation for the use and maintenance of the Vehicle as needed and specified by the Engineer. This price shall also include all equipment, tools, labor, services, supplies and incidentals necessary to keep the Vehicle in functional state. Payment shall also include the cost of training Vehicle operators by the manufacturer or its representative.

Payment for the return of the leased vehicle to the owner shall be included under this item.

Payment will be made under:

Item No.	Item	Pay Unit
619.3610	QMCBTV - LEASE & MAINTAIN	Month

END OF SECTION

ITEM 619.3614 - QUICK-CHANGE MOVEABLE CONCRETE BARRIER (QMCB) - PURCHASE & DELIVERY

619.3614.1. INTENT. This section describes purchasing, delivery and deployment of Quick-change Moveable Concrete Barrier (QMCB)

619.3614.2. DESCRIPTION. Under this work the Contractor shall purchase, load, unload, transport, and store the QMCB, including any Quick-Lock Variable Length Barrier (QVLB), as indicated on the contract drawings or as ordered by the Engineer.

619.3614.3. MATERIALS. The Barrier is a patented product and shall be obtained from Lindsay Transportation Solutions, (180 River Road, Rio Vista, CA 94571; Phone 888-800-3691; www.barriersystemsinc.com) or approved equal.

619.3614.4. METHODS. Barriers will be manufactured by either the wet cast or dry cast methods. Minimum concrete 28-day compressive strength shall be 4 ksi. All surface voids or rock pockets shall be repaired.

The QMCB, when installed in accordance with the manufacturer's instructions, shall be able to resist the impact of vehicles in accordance with the National Cooperative Highway Research Program Report 350 (NCHRP 350) Test Level 3.

The maximum outside dimensions of the QVLB shall not exceed the outside dimensions of the standard Quick-change Moveable Concrete Barrier. The minimum outside cross sectional dimensions of the QVLB inner shell shall not be less than the QMCB dimensions by more than 1 inch at any location. The hinges utilized on the QVLB shall be similar to the hinges used on the remainder of the system. The longitudinal strength of the QVLB under impact shall be consistent with the strength of the standard Quick-change Moveable Concrete Barrier.

The QMCB and QVLB shall be loaded, unloaded and transported to the site as per the Manufacturer's instructions.

619.3614.5. MEASUREMENT. This work will be measured by the number of linear feet of QMCB, measured to the nearest foot, including any QVLB, purchased, delivered and installed on site. The unit price is not to be altered in any manner.

619.3614.6. PRICE TO COVER. The unit price bid per foot shall include the cost of Labor, materials and equipment needed to satisfactorily complete the work.

Payment will be made under:

Item No.	Item	Pay Unit
619.3614	QMCB - PURCHASE & DELIVERY	L.F.

END OF SECTION

ITEM 619.37 - QUICK-CHANGE MOVEABLE CONCRETE BARRIER (QMCB) - OPERATION

619.37.1. INTENT. This section describes lateral movement of Quick-change Moveable Concrete Barrier (QMCB)

619.37.2. DESCRIPTION. Under this work, the Contractor shall furnish, assemble the run, maintain, and remove Quick-change Moveable Concrete Barriers, at the locations and schedules specified in the contract documents, including the lateral movement of the QMCB from the stored position to the construction activity position and from the construction activity position to the stored position as shown on the plans or as ordered by the Engineer. The cost of providing the operators for the Moveable Barrier Transfer Machine shall be included under this item.

619.37.3. MATERIALS. The Quick-change moveable barriers shall be manufactured by Barrier Systems, Inc. (180 River Road, Rio Vista, CA 94571; Phone 888-800-3691; www.barriersystemsinc.com) or approved equal. The maximum deflection at NCHRP 350 Test Level 3 shall be 28 inches or less. The barrier segments shall be 32 inches high and 18 inches wide at the base. Each barrier segment shall have a six (6) inch wide, continuous yellow painted stripe applied to the lower six (6) inches of barrier face, prior to installation. The stripe shall be applied along the lower six (6) inches of each exposed face for the full length of the barrier segment. The stripe shall be reflectorized meeting the requirements of **Section 6.44** of the Standard Specifications. The moveable barriers shall be fully compatible with the moveable barrier transfer machine.

619.37.4. METHODS. The contractor shall install and move the barriers in accordance with the manufacturer's instructions to locations and schedules as shown in the Contract Documents. Where specified on the Plans, the permanent traffic barriers shall be removed and replaced with deployed QMCB prior to start of work zone operations.

Prior to set-up, the Contractor shall provide the following to the Engineer for approval:

1. Manufacturer's certification that the Barriers are NCHRP 350 approved and meets Test Level 3 conditions.
2. Shop drawings and weight of the barrier pieces.
3. Installation and maintenance details.

The Engineer will inspect the barrier following installation, after each impact, and periodically throughout the duration of the work. Any barrier segment having damage or defect that will adversely affect the performance of the barrier shall be repaired or replaced, within 24 hours, by the Contractor at no additional cost to the City.

Prior to each lateral movement of the QMCB, the Contractor shall give the Engineer ample notice as to when such movement will begin. Minimum movement for payment is 10 feet and anything less than this shall be considered as an incidental movement and shall be included under the price bid for this item. Incidental movement of the barrier to achieve proper alignment or to realign barrier sections disturbed by traffic shall also be included in the price bid.

Once contract work requiring the Quick-change Moveable Barriers is completed, the contractor shall promptly remove the barriers from the work site.

619.37.5. MEASUREMENT. The Quick-change Moveable Barriers will be measured for payment by linear foot of barrier satisfactorily used in a new work zone traffic control pattern as shown in the contract documents. Measurement shall be made only once for each work zone traffic control pattern. No separate measurements will be made for each lateral movement of the barriers by the transfer machine.

619.37.6. PRICE TO COVER. The unit price bid per linear foot of the Quick-change Moveable Barriers shall include the cost of Labor, materials and equipment needed to satisfactorily complete the work.

Payment will be made under:

Item No.	Item	Pay Unit
619.37	QMCB - OPERATION	L.F.

END OF SECTION

SECTION PK-ESCR 639 – FIRE STANDPIPE SIAMESE MODIFICATIONS AT CON-ED EAST 15TH STREET PLANT

DESCRIPTION

1.1 SCOPE OF WORK

A. Drain existing Fire Sprinkler system. Coordinate with Con-Ed, the Engineer, and FDNY.

B. Remove existing Fire Department Siamese connection with all associated piping, check valve, drip valve, pipe fittings, couplings, hangers and supports as shown on contract Drawings.

C. Existing wall opening to be re-used for new pipe, seal pipe penetration with non-shrink grout.

D. Install new check valve in building. Provide drain valve on downstream port of check valve.

E. Provide masonry/concrete structure for new free-standing fire department siamese connection.

F. Provide free standing 6”x3”x3” double clapper fire department siamese connection with all associated piping, fittings, drain valves including manual drain valve and drip ball valve.

G. Provide two (2) removeable protection bollards.

H. Provide pressure test of existing sprinkler system with new piping and Fire Department connection installed.

I. Provide signed and sealed engineering drawings and calculations for fire standpipe Siamese modifications at Con-Ed East 15th street plant. Submit signed and sealed plans and calculations for review and approval by Con-Ed and the Engineer. Contractor to file plans and calculations with NYC Department of Buildings (DOB) and FDNY. Contractor to pay all filing and expediting fees.

1.2 REFERENCES

A. NFPA 13 - Standard for the Installation of Sprinkler Systems.

B. NFPA 14 - Standard for the Installation of Standpipe and Hose Systems.

C. NYC Fire Code.

1.3 SUBMITTALS

A. Product Data:

1. Catalog sheets and specifications indicating manufacturer name, type, applicable reference standard, schedule, or class for specified pipe and fittings.
2. Material Schedule: Itemize pipe and fitting materials. Where optional materials are specified indicate option selected.

B. Shop drawing layout plan with sections and details of the Fire Standpipe modification work.

MATERIALS

2.1 STEEL PIPE AND FITTINGS

A. Steel Pipe for Threading: Standard weight, Schedule 40, black or galvanized; ASTM A53 or ASTM A135. Wheatland Tube, Saginaw Pipe Co. Inc, Continental Steel & Tube Co., or approved equal.

B. Steel Pipe for Roll Grooving: Standard weight, Schedule 40, black or galvanized; ASTM A53, Grade B, Type F for sizes 3/4 inch to 1-1/2 inch, and Type E or S for sizes 2 inch to 24 inch, or ASTM A135. Wheatland Tube, Saginaw Pipe Co. Inc, Continental Steel & Tube Co., or approved equal.

C. Cast Iron Fittings:

1. Drainage Pattern, Threaded: ASME B16.12.

2. Flanged Fittings and Threaded Flanges: ASME B16.1.
   a. Standard Weight: Class 125.
   b. Extra Heavy: Class 250.
   c. Victaulic, GroovJoint , Anvil International or Approved Equal.

D. Unions: Malleable iron, 250 lb class, brass to iron or brass to brass seats. Anvil International, Ward MFG, Ferguson or Approved Equal.

E. Couplings: Same material and pressure rating as adjoining pipe, conforming to standards for fittings in such pipe. Wheatland Tube, Saginaw Pipe Co. Inc, Continental Steel & Tube Co., or approved equal.

F. Nipples: Same material and strength as adjoining pipe, except nipples having a length of less than one inch between threads shall be extra heavy. Wheatland Tube, Saginaw Pipe Co. Inc, Continental Steel & Tube Co., or approved equal.

2.2 DUCTILE IRON PIPE AND FITTINGS

A. Water Pipe: Bitumin coated and cement-mortar lined; AWWA C151.
1. 3 and 4 Inch Sizes: Class 51.
2. 6 inch Size and Over: Class 50.

B. Fittings: Bitumin coated and cement-mortar lined; AWWA C110.

C. US Pipe, Anvil International, American The Right Way or Approved Equal.

2.3 COUPLINGS AND FITTINGS FOR GROOVED END PIPE

A. Couplings: Grinnell Corp.'s Rigidlok Fig. 7401, Victaulic Co.'s Zero-Flex Style 07, GroovJoint or approved equal having minimum pressure rating of:

1. 750 psi from 1-1/2 inch to 4 inch.
2. 700 psi for 6 inch.
3. 600 psi for 8 inch.

B. Fittings: By same manufacturer as couplings, having pressure ratings equal to or greater than couplings. Comply with the following standards:

1. Steel: ASTM A 53 or A 106, Grade B.
2. Malleable Iron: ASTM A 47.
3. Ductile Iron: ASTM A 536.

2.4 JOINING AND SEALANT MATERIALS

A. Thread Sealant:
1. LA-CO Industries' Slic-Tite Paste with Teflon.

2. Loctite Corp.'s No. 565 Thread Sealant.
3. FED PRO Gasolisa Thread Sealant
4. Or Approved Equal
3. Thread sealants for potable water shall be NSF approved.

B. Gaskets For Use With Ductile Iron Water Pipe: Synthetic rubber rings (molded or tubular): Clow Corp.'s Belltite, Tyler Pipe Industries Inc.'s Ty-Seal, U.S. Pipe and Foundry Co.'s Tyton or Approved Equal.

C. Flange Gasket Material:

1. For Use With Cold Water: 1/16 inch thick rubber. Clow Corp.'s Belltite, Tyler Pipe Industries Inc.'s Ty-Seal, U.S. Pipe and Foundry Co.'s Tyton or Approved Equal.

D. Gaskets For Use With Grooved End Pipe and Fittings: Clow Corp.'s Belltite, Tyler Pipe Industries Inc.'s Ty-Seal, U.S. Pipe and Foundry Co.'s Tyton or Approved Equal.

E. Anti-Seize Lubricant: Bostik Inc.'s Never Seez or Dow Corning Corp.'s Molykote 1000, LOCTITE LB8150, JET-LUBE Anti-Seize Compound 10055 or Approved Equal.

2.5 PACKING MATERIALS FOR BUILDING CONSTRUCTION PENETRATIONS

A. Mechanical Modular Seals: Link Seal wall and floor seals designed for the service of piping system in which installed. Thunderline Corp.'s, GPT Industries, Inc. Flexicraft Industries or Approved Equal.

2.6 PIPE SLEEVES

A. Type A: Schedule 40 steel pipe. GPT Industries, US Pipe, Wheatland Tube or Approved Equal.

2.7 FLOOR PLATES

A. Cast Iron: Solid type, unplated, with set screw; Model 395 by Grinnell Corp., Cranston, RI, GPT Industries, US Pipe or Approved Equal.

2.8 CHECK VALVE

A. Spring loaded single disk valve with grooved ends designed for Fire Protection System, UL listed, FM approved.

B. Pressure rating 365 PSI.

C. Check valve should be as manufactured by Victaulic, Fire Lock Check Valve series 717, Watts Co. or approved equal.

2.9 FIRE DEPARTMENT SIAMESE CONNECTION

A. Free standing double clapper two-way inlet, 500 GPM minimum. Dixon Inc., Crocker Inc., FPPI or Approved Equal.

B. Cast Brass bottom outlet body, 18” high brass seamless tubing, cast brass plugs and chains, overall height 24”. Dixon Inc., Crocker Inc., FPPI or Approved Equal.

2.10 SIGNAGE

A. Identification of the Fire Department Siamese Connection shall be provided with reflective markers signs, signs shall be 12 ga. stainless steel. Signs shall utilize

minimum 1 inch high red letters on white background. Sign should be mounted 5 feet above grade. Contractor to submit proposed wording and system pressure information per FDNY requirements for review and approval. Fire Department Signs, NYC, Safety Sign, Inc., DOB Signs. NYC or approved equal.

2.11 VALVES

A. Ball Drip Valve: Bermand, FPPI, NIBCO or approved equal ball drip valve, rated water pressure 365 PSI, UL listed, closing pressure 1.76 PSIG, operating pressure 0.59 PSIG, stainless steel.

B. Drain Valve: Bermand, FPPI, NIBCO Cast brass valve, UL listed, pressure rating 300 PSI, Female N.P.T. Inlet and Outlet.

2.12 PROTECTION BOLLARDS

A. Removable protection bollards shall consist of schedule 40 galvanized steel pipes.

B. 6” removable pipe filled with concrete with round concrete top, set in 8” pipe sleeve with sand between pipes and top caulked to prevent water infiltration. Caulk to be UV resistant exterior marine grade.

C. 8” permanent pipe sleeve to be set in concrete footing with top set flush with grade.

METHODS

3.1 INSTALLATION

A. Install piping at approximate locations indicated.
B. Install piping clear of door swings.
C. Install horizontal piping with a constant pitch, and without sags or humps.
D. Install vertical piping plumb.
E. Use fittings for offsets and direction changes.
F. Cut pipe and tubing ends square; ream before joining.
G. Threading: Use American Standard Taper Pipe Thread Dies.
H. Install piping to be completely drainable.
I. Install removable protection bollards as indicated.

3.2 PIPE JOINT MAKE-UP

A. Threaded Joint: Make up joint with a pipe thread compound applied in accordance with manufacturer's printed application instructions for the intended service.

B. Flanged Pipe Joint:

1. Install threaded companion flanges on steel pipe; flanges on galvanized pipe are not required to be galvanized.
2. Provide a gasket for each joint.
3. Coat bolt threads and nuts with anti-seize lubricant before making up joint.

C. Grooved Pipe Joint: Roll groove pipe ends, make up joint with grooved end fittings and couplings, in conformance with the manufacturer's printed installation instructions.

1. Cut grooved end piping is not acceptable.

D. Dissimilar Pipe Joint:

1. Joining Dissimilar Threaded Piping: Make up connection with a threaded coupling or with companion flanges.

2. Joining Dissimilar Non-Threaded Piping: Make up connection with adapters recommended by the manufacturers of the piping to be joined.

3.3 PIPING PENETRATIONS

A. Sleeve Schedule: Unless otherwise shown, comply with the following schedule for the type of sleeve to be used where piping penetrates wall or floor construction:

	CONSTRUCTION	SLEEVE TYPE
1.	Foundation walls.	A*
2.	Exterior concrete slabs on grade.	A

*Core drilling is permissible in lieu of sleeves where marked with asterisks.

B. Diameter of Sleeves and Core Drilled Holes:

1. Unless otherwise specified, size holes thru floors and walls in accordance with the through penetration fire stopping system being used.
2. Size holes thru exterior walls or waterproofed walls above inside earth or finished floors, and exterior concrete slabs in accordance with the following:
   a. Uninsulated (Bare) Pipe: Inside diameter of sleeve or core drilled hole 1/2 inch greater than outside diameter of pipe, unless otherwise specified.
   b. Mechanical Modular Seals: Size holes in accordance with the manufacturer's recommendations.
3. Size holes for sprinkler and fire standpipe piping in accordance with NFPA 13.

C. Length of Sleeves (except as shown otherwise on Drawings):

1. Floors, Finished: Equal in length to total finished thickness of floor and extending 1/2 inch above the finished floor level, except as follows:
   a. In furred spaces at exterior walls, extend sleeve one inch above the finished floor level.
2. Exterior Concrete Slabs: Equal in length to total thickness of slab and extending 1/2 inch above the concrete slab.

D. Packing of Sleeves and Core Drilled Holes:

1. Pack sleeves in exterior walls or waterproofed walls above inside earth or finished floors with oakum to within 1/2 inch of each wall face, and finish both sides with Type 1C (one part) sealant. See Section 07900.
   a. Mechanical modular seals may be used in lieu of packing and sealant for sleeves and core drilled holes.
2. Pack sleeves in exterior concrete slabs with oakum to full depth, and within 1/2 inch of top of sleeve and finish the remainder with sealant. See Section 07900.
   a. Sealant Types:
      1) Piping Conveying Materials up to 140 degrees F other than Motor Fuel Dispensing System Piping: Type 1C (one part).
   b. Mechanical modular seals may be used in lieu of packing and sealant for sleeves and core drilled holes.

3.4 FLOOR, WALL AND CEILING PLATES

A. Install plates for exposed uninsulated piping passing thru floors, walls, ceilings, and exterior concrete slabs as follows:

1. In Finished Spaces:
   a. Piping 4 Inch Size and Smaller: Solid or split, chrome plated cast brass.
   b. Piping Over 4 Inch Size: Split, chrome plated cast brass.
2. Unfinished Spaces (Including Exterior Concrete Slabs): Solid, unplated cast iron.
3. Fasten plates with set screws.
4. Plates are not required in pipe shafts or furred spaces.

3.5 PIPE AND FITTING SCHEDULE

A. Piping Above Floor:

1. Standard weight black steel pipe, with roll grooved ends, grooved pipe fittings, and couplings.

B. Sprinkler and Standpipe (Below Ground): Coated ductile iron water pipe and fittings, with mechanical (Flanged) Joints.

3.6 PRESSURE TEST

A. Fire Sprinkler system after modification shall be tested in accordance with the requirements of the NYC Building Code, the NYC Fire Code and NFPA 25. Test shall be conducted in the pressure of the owner and FDNY.

B. Tests required by NYC Building Code, NYC Fire Code and NFPA 25 shall be conducted at the expense of the contractor.

MEASUREMENT:

4.1 PER LUMP SUM

A. Payment for STANDPIPE will be made on a Lump Sum basis for work satisfactorily completed. Monthly payments will be made in proportion to the amount of work done as determined by the Engineer.

4.2 PRICE TO COVER

A. The Lump Sum (LS) shall cover the cost of all labor, materials, equipment, insurance, and incidentals required to furnish, maintain, remove and complete the work, together with all other work in connection therewith and incidental thereto, in full compliance with the Contract Drawings, the specification and the directions of the Engineer.

Item No.	Item	Pay Unit
PK-ESCR-639	FIRE STANDPIPE SIAMESE MODIFICATIONS AT CON-ED EAST 15TH STREET PLAN	LS

END OF SECTION

SECTION 6.34 A - TEMPORARY CHAIN LINK FENCE, 6'-0" HIGH

6.34A.1. DESCRIPTION

Under this section, the Contractor must furnish, erect, maintain, and remove, when directed, each type of Temporary Chain Link Fence as shown on the Contract Drawings and directed by the Engineer.

6.34A.2. MATERIALS AND METHODS

All materials and methods shall be as specified in Section 6.34 of the Standard Highway Specifications, with the following modifications and additions:

Temporary Chain Link Fence to be furnished under Item 6.34 ACT, shall consist of chain link fence fabric, top and bottom tension wires, gates, posts to be embedded in the pavement, and all necessary incidental in accordance with the Contract Drawings and the directions of the Engineer.

Temporary Chain Link Fence to be furnished under Item 6.34 ACTP, shall consist of chain link fence fabric, top and bottom rails for mounting a decorative mesh (to be furnished under another item), gates, posts with steel plate footings, sand bags to hold fence in place, and all necessary incidental in accordance with the Contract Drawings and the directions of the Engineer.

When directed by the Engineer, the Contractor must remove and dispose of the temporary chain link fence to the satisfaction of the Engineer. The Contractor must then fill any holes left in the pavement with compacted clean sand to grade.

6.34A.3. MEASUREMENT

The quantities of Temporary Chain Link Fence to be measured for payment shall be the number of linear feet of each type satisfactorily installed, complete, measured in place, from center to center of end posts.

6.34A.4. PRICES TO COVER

The prices bid for each type of Temporary Chain Link Fence shall be a unit price per linear foot and shall cover the cost of all labor, materials, plant, equipment, insurance, and necessary incidentals required to furnish, install, maintain, and remove temporary chain link fence; all in accordance with the Contract Drawings, the specifications and the directions of the Engineer. Temporary chain link fence shall also include, but not limited to, any gates as may be required.

Payment will be made under:

Item No.	Description	Pay Unit
6.34 ACT	TEMPORARY CHAIN LINK FENCE, 6'-0" HIGH	L.F.
6.34 ACTP	TEMPORARY CHAIN LINK FENCE, 6'-0" HIGH, (WITH TOP AND BOTTOM RAILS AND POSTS MOUNTED on STEEL PLATES)	L.F.

END OF SECTION

SECTION 6.34 DT - TEMPORARY CHAIN LINK FENCE AND GATE, 8'-0" HIGH

6.34DT.1. DESCRIPTION

Under this section, the Contractor shall furnish, erect, maintain, and remove, when directed, Temporary Chain Link Fence and Gate as shown on the Contract Drawings and directed by the Engineer.

6.34DT.2. MATERIALS AND METHODS

All materials and methods shall be as specified in Section 6.34 of the NYC Department of Transportation, Standard Highway Specifications, with the following modifications and additions:

Temporary Chain Link Fence and Gate to be furnished under section 6.34 DT, shall consist of chain link fence fabric, top and bottom tension wires, gates, posts to be embedded in the pavement, and all necessary incidental in accordance with the Contract Drawings and the directions of the Engineer.

When directed by the Engineer, the Contractor shall remove and dispose of the temporary chain link fence and gate to the satisfaction of the Engineer. The Contractor shall then fill any holes left in the pavement with compacted clean sand to grade.

6.34DT.3. MEASUREMENT

The quantities of Temporary Chain Link Fence to be measured for payment shall be the number of linear feet satisfactorily installed, complete, measured in place, from center to center of end posts.

Payment will be made for the Temporary Chain Link Fence and Temporary Chain Link Gate only for the initial installation at any location. Whenever temporary chain link fence and/or temporary chain link gate is moved to a new location, as required by the Plans or directed by the Engineer, payment will be made in the same manner as if it were an initial installation.

However, no payment will be made: for movements of the temporary chain link fence and/or temporary chain link gate made for the Contractor's convenience; for movement of temporary chain link fence and/or temporary chain link gate at a given location at the end of a work period and subsequent replacement at the same location at the beginning of the next work period; for movement of temporary chain link fence and/or temporary chain link gate at a given location during a work period and subsequent replacement at the same location during the same work period; or for the interchanging of temporary chain link fence and/or temporary chain link gate between initial installations.

6.34DT.4. PRICE TO COVER

The price bid for the Temporary Chain Link Fence and for Temporary Chain Link Gate shall be a unit price per linear foot and shall cover the cost of all labor, materials, plant, equipment, insurance, and necessary incidentals required to furnish, install, maintain, and remove temporary chain link fence and/or temporary chain link gate; all in accordance with the Contract Drawings, the specifications and the directions of the Engineer.

Payment will be made under:

Item No.	Item Description	Pay Unit
6.34 ADT	Temporary Chain Link Fence, 8'-0" HIGH	L.F.
6.34 BDT	Temporary Chain Link Gate, 8'-0" HIGH	L.F.

END OF SECTION

HAZ - PAGES

SPECIFICATIONS FOR HANDLING, TRANSPORTATION AND DISPOSAL OF NONHAZARDOUS AND POTENTIALLY HAZARDOUS CONTAMINATED MATERIALS

SANDRESM2

NOTICE

THE PAGES CONTAINED IN THIS SECTION ARE ISSUED FOR THE PURPOSE OF SPECIFYING THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND HEREBY MADE PART OF SAID CONTRACT DOCUMENTS .

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(NO TEXT ON THIS PAGE)

SECTION ESCR 4.25 RECOVERY WELL INSTALLATION

4.25.1 INTENT.

This document defines the requirements for the installation of Non-Aqueous Phase Liquid (NAPL) recovery wells as part of the recovery well network included in the New York State Department of Environmental Conservation (NYSDEC)-approved Mitigation Work Plan (MWP) for Manufactured Gas Plant (MGP)-Related NAPL Contamination. The recovery wells are to be installed by the Contractor in up to three separate iterative installation events to allow for gauging and/or recovery to be performed by the Engineer and the required subsequent NYSDEC reporting to be completed by the Engineer after each event. The Engineer, in consultation with NYSDEC, will determine the need for the subsequent well installations beyond the initial recovery wells, which are shown on the Drawings. The Contractor is responsible for the installation of all recovery wells as required by NYSDEC in compliance with NYSDEC-approved MWP for MGP-Related NAPL Contamination.

4.25.2 RELATED DOCUMENTS.

(A) Drawings and general provisions of the Contract apply to this Section.

(B) Related Documents

(1) East Side Coastal Resiliency: Mitigation Work Plan (MWP) for MGP-Related NAPL Contamination [and associated MGP Waste Management Plan (WMP) and Health and Safety Plan (HASP)], prepared by AKRF under the Hazen and Sawyer / AKRF JV.

(2) East Side Coastal Resiliency: Remedial Action Plan (RAP) [and associated Construction HASP (CHASP), prepared by AKRF under the Hazen and Sawyer / AKRF JV.

(3) East Side Coastal Resiliency: Supplemental Subsurface Investigation Report - Borough of Manhattan, New York, prepared by AKRF under the Hazen and Sawyer / AKRF JV.

(4) East Side Coastal Resiliency: MWP for MGP-Related NAPL Contamination, AKRF.

(5) East Side Coastal Resiliency: Supplemental Subsurface Investigation Report - Borough of Manhattan, New York, prepared by AKRF under the Hazen and Sawyer / AKRF JV.

(6) East Side Coastal Resiliency Project Area One: Subsurface Exploration Report - Borough of Manhattan, New York, prepared by AKRF under the Hazen and Sawyer / AKRF JV.

(7) East Side Coastal Resiliency Project Area Two: Subsurface Exploration Report - Borough of Manhattan, New York, prepared by AKRF under the Hazen and Sawyer / AKRF JV.

(8) Remedial Investigation Report, Operable Unit 2 (OU2) – Former East 21st Street Works – Site # V00536, New York, New York, AECOM.

(9) Remedial Investigation Report, Stuyvesant Town Former Manufactured Gas Plant Sites, VCA Index D2—0003-02-08, AECOM.

(10) Remedial Investigation Report for Operable Unit 2 – East 11th Street Works Site – NYSDEC Site No. V00534, New York, New York, ARCADIS.

4.25.3 DESCRIPTION.

(A) The Contractor will comply with all requirements of the Contract Documents. No work under this section will be performed without the supervision of the Engineer.

(B) Installation of all recovery wells will be performed and paid under this section.

4.25.4 SUBMITTALS.

(A) INITIAL SUBMITTALS

(1) The Contractor will obtain all applicable permits before commencing any work and provide them to the Engineer.
(2) The Contractor will prepare a site Health and Safety Plan (HASP). All Contractor site personnel will be required to read and sign the HASP.
(3) The Contractor will submit a Recovery Well Installation Plan for review and approval by the Engineer in accordance with this section 30 days prior to the start of work. The Plan must include:

(a) Statement of Qualifications. The Statement should provide sufficient data and information to demonstrate that the Contractor performing the work is fully experienced in environmental drilling operations.

(b) Lists of all materials and equipment proposed for the work. List will include all materials for the construction of the recovery wells, protective clothing/equipment, drilling equipment/rigs, and drums. The Contractor will submit materials data sheets for all materials for which such data sheets are available. Submit specification sheets for drill equipment/rigs.

(c) A copy of the certificate of license that the Contractor performing the drilling work is a licensed drilling contractor in the State of New York.

(d) The name, address, and applicable permits of the proposed disposal/recycling facility(s) for disposal of drilling cuttings and fluids.

(e) Disposal Facility disposal characterization sampling requirements, including, but not limited to: number of samples, parameters, type of analyses and methods of sampling and analysis.

(f) Names, addresses, and 6 New York Codes, Rules and Regulations (NYCRR) Part 364 Permits of all transporters.

(g) Proof of permit, license or authorization to transport waste in all states through which waste will be transported.

(h) All local, state, and federal permits required for the transport and disposal of all waste resulting from the work of this section.

(i) Equipment decontamination procedures and setup.

(j) Material Safety Data Sheets for any products proposed for use on site.

(k) Spill prevention and response procedures.

(B) DURING WORK SUBMITTALS

(1) Submit documentation of final satisfactory disposal (i.e., manifests, weight tickets) within 30 days of disposal in accordance with the Recovery Well Installation Plan.

(C) POST PROJECT/CONTRACT CLOSEOUT SUBMITTALS

(1) Compilation of all completed and signed waste shipment record forms, bills of lading, manifests, and disposal receipts pertaining to this work.

(2) As-Built Drawings: Provide as-built drawings giving actual locations, construction details, and depths for each of the installed recovery wells.

4.25.5 GENERAL REQUIREMENTS.

(A) All work must be accomplished in accordance with Federal, State, and local requirements and accepted safety standards. Before initiating the work, consult applicable regulatory and permit requirements with the appropriate government agencies. Contractor is responsible to advise the Engineer or his/her designated representative of any conflict between applicable regulatory requirements and this specification.

(B) Recovery well installation work cannot commence until the cutoff wall sheeting installation is complete for the area in closest proximity to an individual proposed recovery well. If a recovery well is proposed in an area where re-grading and/or material import for increasing elevation is proposed, the recovery well installation work cannot commence until the regrading and/or material import work have been completed.

(C) The Contractor will obtain all applicable permits before commencing any work.

(D) The Contractor will call for utility mark outs from the New York City/Long Island One Call Center prior to the commencement of work. If a proposed recovery well location is in conflict with utilities, subsurface structures, or other features, the Engineer will determine the location of the needed offset in coordination with the Contractor. The Contractor is responsible to protect both marked and unmarked existing utilities and structures during the work. Private utility mark-outs and/or pre-clearing borings utilizing soft-dig technologies may also be conducted as deemed necessary by the Contractor.

(E) Drilling equipment is expected to be decontaminated prior to arrival at the Site and also after each boring and/or recovery well installation. Potential additional decontamination may be requested at the discretion of the Engineer.

(F) The Engineer reserves the right to inspect all work performed under this section. In addition, the Engineer reserves the right to reject all work that does not comply with the terms of this section. The City will not be held accountable for any costs associated with the rejection and repair or replacement of work not performed in accordance with this section. The Engineer must approve any deviations to this section in writing. The work, as defined by this section, will be completed in full by the Contractor within the mutually agreed upon schedule.

4.25.6 SPECIAL REQUIREMENTS.

(A) The Contractor will attend a kick-off meeting with the Engineer prior to the onset of this work.

(B) Personnel may be exposed to MGP hydrocarbon liquids, vapors, or wastes during this work that may require specialized training and the use of personal protective equipment (PPE).

(C) MGP Hydrocarbon Substances: Personnel working on-site will be made aware of appropriate health precautions. Symptoms of intoxication may result when high concentrations of MGP hydrocarbon vapors are inhaled. The following health precautions are suggested:

(1) Minimize the chance of inhaling MGP hydrocarbon vapors.

(2) Keep MGP liquids away from eyes, skin, and mouth. They are harmful if ingested.

(3) Use soap and water, or waterless hand cleaner, to remove any MGP product or associated coal tar from the skin. Do not use gasoline or similar solvent to remove oil or grease from the skin.

(4) Avoid using hydrocarbon-soaked leather goods.

(5) All disposable PPE (i.e., gloves, masks, boot covers, coveralls, caps, etc.) will be disposed of off-site on a daily basis by the Contractor. If heavily soiled, this material should be drummed and properly disposed of at a facility licensed to handle hydrocarbon-contaminated materials.

(6) Keep working area clean and well ventilated.

(7) Spills/contamination will be reported to the Engineer immediately. The Engineer will notify the appropriate regulatory agency(s) for any spill reporting.

(8) Clean up spills promptly. The Contractor will be equipped with oil sorbent materials. These materials will be drummed or otherwise properly contained and disposed of at a facility licensed to handle hydrocarbon-contaminated materials.

(9) The health and safety of the Contractor's employees and subcontractors to the Contractor is the sole responsibility of the Contractor.

4.25.7 AUTHORITY TO STOP WORK.

(A) Causes for suspension/stopping of work may be at any time if a determination by the Engineer is made that conditions are not within those set within this section, applicable regulations, and/or the RAP, MGP WMP, or associated HASP/CHASPs. The stoppage of work will continue until conditions have been corrected to the satisfaction of the Engineer. Standby time taken to resolve any problems will be at no additional expense to The City.

4.25.8 PREPARATION.

(A) SITE SECURITY

(1) The perimeter of the immediate work area will be secured with fencing or equivalent equipment to secure the site and prevent entry by non-site personnel.

(2) The Engineer will inspect the security measures prior to the start of work and any requested modifications will be made in a timely manner.

(3) Exits/entrances to the active work area or site perimeter must be secured with a locking gate, and all gates must be locked and secured during non-business hours.

(B) EROSION AND SEDIMENT CONTROLS

(1) Best management practices related to erosion and sediment controls must be implemented. The control measures may include, but not be limited to procedures for perimeter site controls, stabilized construction pads at each construction entrance, equipment decontamination, and dust suppression, as appropriate.

(2) The Engineer will conduct routine inspections and any requested maintenance, repairs, or modifications will be made in a timely manner.

(C) ODOR AND VAPOR MITIGATION

(1) As necessary, and as directed by the Engineer, the Contractor will implement odor and vapor mitigation measures to ensure odor and vapors are migrating outside the work zone.

4.25.9 MATERIALS.

(A) The Contractor will supply all labor, materials, equipment, services, insurance, and incidentals necessary or required to perform the work in accordance with applicable governmental regulations and this section.

(B) EQUIPMENT

(1) Equipment, drill rigs, storage containers, and water tanks brought on-site will be clean and decontaminated prior to entry to the Site.

(2) Storage containers utilized for the storage and/or transport of contaminated materials will be structurally sound and tight to prevent leakage or spillage of materials. United States Department of Transportation (DOT)-approved containers and drums will be provided for storage, transportation, and disposal of solid and liquid wastes associated with the management of potentially contaminated materials prior to and following characterization of waste.

(3) Drilling operations will be performed utilizing rotosonic drill rigs.

(C) WATER

(1) Water used for decontamination or other purposes may be obtained from any clean source. The Contractor will procure any permits required.

(2) Water generated from equipment decontamination and well development must be containerized in 55-gallon drums for disposal off-site in accordance with all local, state, and federal regulations. Owner and other Contractors to coordinate disposal.

(D) WELL MATERIALS

(1) All materials and equipment to be furnished under this section will be new and of the latest standard products as advertised in printed catalogs by reputable manufacturers. All recovery wells will be constructed of a 6-inch diameter solid stainless-steel riser, 0.020-inch slotted stainless steel screen, and a 5-foot solid stainless-steel sump at the base. The pipe will be manufactured in strict compliance with ASTM A181/A181M. The recovery wells will be finished at the surface with labeled steel manhole covers and apron.

4.25.10 METHODS.

(A) Verification of Conditions

(B) Contractor and, if applicable, Contractor's subcontractor for waste disposal, will be held to have field-verified the types and quantity of wastes to be removed and will have become familiar with all variable field conditions existing at the site before the submission of bid(s) for the Contract work.

(C) Contractor will notify the Engineer 30 days in advance of work associated with this section.

(D) PROTECTION OF EXISTING FACILITIES AND STRUCTURE

(1) The Contractor will notify the Underground Utilities Call Center a minimum of three (3) days before any intrusive activities.

(2) Limited access is available to all drilling locations. Contractor is responsible for reviewing work areas and providing equipment to accomplish the work.

(3) In the event that subsurface work at any given drilling location must be resumed during a subsequent work shift, the Contractor will temporarily cover the subsurface penetration in a manner that eliminates tripping hazards and also cordon off the area to eliminate all other safety hazards.

(4) Contractor will maintain the Site in a manner that eliminates tracking of soil off-site or to portions of the Site that are outside of the designated work areas.

(5) The Contractor will take precautions to ensure that project operations do not cause interference with nearby vehicular and pedestrian traffic and are protective of the on-site workers and visitors, occupants/users of the area, and the general public. Traffic barriers, signs, or similar warnings may be required to control traffic flow in the work area. If Contractor's operations cause damage, harm, upset, or similar impact to roads or private/public property, the Contractor will remedy such impact to the satisfaction of the Engineer and at no additional cost to The City.

(E) PERMITS

(1) The Contractor will acquire all permits and approvals necessary to perform the work, including, but not limited to, NYC Department of Buildings (DOB), NYC Department of Parks and Recreation, and NYC DOT. The Contractor will acquire all permits to complete the work, including any other permits not specified herein that may be required by federal, state, or local agencies.

(F) The Contractor will perform odor, dust, and vapor mitigation measures at the direction of the Engineer. The Engineer will conduct air monitoring in accordance with the RAP (which includes a CHASP) and MGP WMP in work zones and surrounding areas.

(G) All drilling work will be performed using two rotosonic drill rigs and crews working concurrently unless otherwise approved by the Engineer.

(H) SOIL BORING ADVANCEMENT

(1) Prior to installation of each recovery well, a soil boring will be advanced in each location 10 feet deeper than the deepest depth of the adjacent sheet pile wall for the flood protection system, typically to a depth of 60 feet. Based on the observations from the Engineer of the subsurface NAPL contamination, the Engineer will prescribe the recovery well construction depth and the screen interval.

a. Soil borings will be advanced using a rotosonic drill rig to obtain high-quality core samples.

b. At each proposed recovery well location, continuous soil cores will be collected in 5-foot long, 4-inch diameter dedicated plastic bags/sleeves.

c. Soil cores will be inspected by the Engineer for evidence of contamination. The Engineer will also prepare a log of the subsurface geology observed in the soil cores.

(I) RECOVERY WELL INSTALLATION

(1) Recovery wells will be installed using a rotosonic drill rig and constructed as shown on the **Drawing RW0001-00 titled "Recovery Well Details and Notes"**.

(2) All recovery wells will be constructed of a 6-inch diameter solid stainless-steel riser, up to 20 feet 0.020-inch slotted stainless steel screen sections, and a 5-foot solid stainless-steel sump at the base within a 10-inch diameter borehole. The riser/screen pipe will be manufactured in strict compliance with ASTM A181/A181M.

(3) The annular space of the recovery wells will include:

a. 4-foot thick interval of bentonite grout at the base,

b. Followed by a filter pack constructed of No. 2 silica sand, which will be constructed to 1-foot above the top of the screen [the screen interval will be determined by the Engineer based on the soil boring observations referenced in **Subsection 4.25.10(H)**];Followed by a 2-foot thick layer of bentonite seal;

c. Followed by a layer of bentonite grout installed to 2 feet below the ground surface;

d. The remaining 2-foot space will be filled with a layer of concrete to the ground surface for construction of the concrete apron referenced in **Subsection 4.25.10(I)(5).**

(4) Each recovery well will be finished with a minimum 10-inch diameter flush-mount steel well box.

(5) Each flush-mount steel well box surrounded by a 3-foot square by 6-inch thick reinforced concrete apron.

(6) Each recovery well will be physically labeled with fixed identification tags in the field to facilitate future identification and monitoring of individual wells.

(7) Recovery wells located in grass lawns will have the concrete apron be painted green or dyed with green pigment in an effort to minimize disturbing the appearance of the grass lawn.

(8) Each recovery well flush-mount steel well box will be labeled with a black triangle with a white base and clearly labeling stating "Monitoring Well – Do Not Fill".

(J) WELL DEVELOPMENT

(1) Immediately following installation, each recovery well will be developed via pumping and surging to remove any accumulated fines and establish a hydraulic connection with the surrounding aquifer.

(2) Well development will be conducted by the Contractor using a submersible pump.

(3) The pump will be used to surge the well during development. If necessary, clean water can be introduced to the well at the screened interval for the first 10 minutes of development. Following completion of development, purged water will be containerized in 55-gallon drums for off-site disposal.

(4) The Engineer will observe development efforts and will field screen purged water every 5 minutes using a photoionization detector and turbidity meter. Well development will be terminated after turbidity readings remain below 50 nephthelometric units (NTU) for three consecutive readings. In the event that turbidity readings do not decrease below 50 NTU, well development will be terminated after 45 minutes of surging and development. In the event that limited water column recharge is noted, the well will be allowed to recharge and will be pumped dry three times prior to termination of the well development efforts.

(5) If NAPL is observed from the purge water, turbidity readings would be terminated, and the recovery well will be pumped till NAPL is no longer recoverable, as determined by the Engineer.

(K) SURVEYING OF RECOVERY WELLS

(L) Within 30 days after installation, the Contractor will have each recovery well surveyed for the horizontal and vertical locations. The vertical locations will include elevations for top of riser casing, ground surface, and manhole to an accuracy of 0.01 feet DISPOSAL OF INVESTIGATION DERIVED WASTE

(1) The management drill cuttings and fluids will be performed in accordance with **Section 8.01**.

(1) The wastes generated by drilling activities will be containerized in DOT-approved, 55-gallon drums with all appropriate labels and maintained in a designated drum staging area determined by the Engineer, segregated as groundwater and soil, where MGP contaminated soil and groundwater are further segregated (as determined by the Engineer) to the extent feasible. DOT-approved 55-gallon drums will be contained within a locking spill containment pallet or secured in another manner approved by the Engineer.

(2) Disposable sampling equipment, including, spoons, gloves, bags, paper towels, etc., that have come in contact with contaminated environmental media will be double-bagged and disposed as municipal trash in a facility trash dumpster as non-hazardous trash.

(3) Decontamination fluids will be containerized in properly labeled DOT-approved 55-gallon drums for future off-site disposal at a permitted facility. Fluids that contain sheens and NAPL will be containerized separately, as determined by the Engineer.

(4) The Contractor will perform any required waste classification sampling and analysis of the removed materials.

(5) Other debris (i.e. concrete, asphalt) will be stockpiled as directed by the Engineer.

(M) SITE RESTORATION

(1) The Contractor will provide all labor, material, and equipment to perform all drilling operations, backfilling boreholes and surface restoration.

(2) The Contractor will be responsible for maintaining any utilities encountered during drilling operations. Damages to any utilities caused by the work performed under this section will be repaired by the Contractor at no expense to The City.

(3) All work will be completed at-grade with concrete patching and permanent structures (e.g., wells with protective manholes) sealed in place with concrete.

(4) In the event that subsurface work at any given drilling location must be resumed during a subsequent work shift, the Contractor will temporarily cover the subsurface penetration in a manner that eliminates tripping hazards and also cordon off the area to eliminate all other safety hazards.

(N) SUBSEQUENT MOBILIZATIONS FOR ADDITIONAL RECOVERY WELL INSTALLATION

(1) Following the well installation of the initial recovery wells included in the Drawings, the Engineer will monitor, gauge, and perform NAPL recovery from recovery wells for a period of up to 60 days and provide a data summary report to NYSDEC. The Engineer in consultation with NYSDEC, will determine the need for additional wells in up to 2 iterative well installation events. Each recovery well installation event will include a 60-day period of monitoring, gauging, and recovering with a follow-up data report to NYSDEC.

(2) The subsequent recovery well installations may be able to be performed without a remobilization, based on site logistics and timely NYSDEC direction on subsequent well installation.

(O) WARRANTY OF RECOVERY WELLS

(1) The Contractor is responsible to perform any necessary repairs as determined by the Engineer to the recovery wells for a period of 2 years following the installation of the recovery well. The repairs may consist of, but not limited to, re-padding the recovery well, decommissioning failed/collapsed recovery wells and installing a replacement recovery well, and redevelopment of poorly performing wells.

(P) METHOD OF MEASUREMENT

(1) Quantities of recovery wells will be measured as fully completed recovery wells in accordance with this section.

(2) Quantities of investigation derived waste, as per Subsection 4.25.10 L, will be measure in 55-gallon drums and determined by finalized disposal manifests from the receiving facility.

(Q) PRICE TO COVER

(1) The unit bid price bid per quantity for Item ESCR-4.25 RW will include the cost of furnishing all labor, materials, equipment, plan, insurance, fees, permits, any other incidentals necessary to complete all the work as specified herein for the installation of recovery wells to a depth of 35 feet below grade.

(2) The unit bid price per foot for Item ESCR-4.25 PFT will include the incremental cost of furnishing all labor, materials, equipment, plan, insurance, fees, permits, any other incidentals by foot for recovery well installation beyond the depth of 35 feet below grade until the terminal construction depth of the recovery well.

(3) The unit bid price per 55-gallon drum for Item ESCR-4.25 IDW will include the costs for handling, transportation, disposal, documentation, fees, permits, loading, hauling, and any other incidentals necessary to complete all the work as specified herein for handling, transporting, and disposal of investigation derived wastes.

(4) The unit bid price per 55-gallon drum for Item ESCR-4.25 MGP will include the costs for handling, transportation, disposal, documentation, fees, permits, loading, hauling, and any other incidentals necessary to complete all the work as specified herein for handling, transporting, and disposal of MGP-contaminated investigation derived wastes.

(5) The unit bid price per 55-gallon drum for Item ESCR-4.25 HAZ will include the costs for handling, transportation, disposal, documentation, fees, permits, loading, hauling, and any other incidentals necessary to complete all the work as specified herein for handling, transporting, and disposal of hazardous investigation derived wastes.

Payment will be made under:

Item No.	Item	Pay Unit
ESCR-4.25 RW	RECOVERY WELL INSTALLED TO 35 FEET BELOW GRADE	EACH
ESCR-4.25 PFT	ADD/DEDUCT PRICE FOR ADDITIONAL/REDUCED RECOVERY WELL FOOT (BEYOND/LESS THAN THE BASE 35 FOOT RECOVERY WELL UNDER 4.23 RW)	FOOT
ESCR-4.25 IDW	INVESTIGATION DERIVED WASTE (NON-HAZARDOUS)	DRUMS
ESCR-4.25 MGP	MGP-CONTAMINATED INVESTIGATION DERIVED WASTE (NON-HAZARDOUS)	DRUMS
ESCR-4.25 HAZ	HAZARDOUS INVESTIGATION DERIVED WASTE	DRUMS

SECTION ESCR 8.01 Handling, Transporting, and Disposal of Potential and Identified Contaminated and Hazardous Materials

8.01.1. DESCRIPTION. This Section provides common references and requirements for **Sections 8.01 C1, 8.01 C2, 8.01H, 8.01S, 8.01W1,** and **8.01 W2.**

8.01.2. MATERIALS. None.

8.01.3. METHODS.

(A) Current New York City Department of Environmental Protection (NYCDEP) Limitations for Discharge to Sewer provided below. The Contractor is responsible to adhere to any updates to the NYCDEP Limitations for Discharge to Sewer.

NYCDEP Bureau of Wastewater Treatment – Limitations for Effluent to Sanitary or Combined Sewers

Parameter[1]	Daily Limit	Units	Sample Type	Monthly Limit
Non-polar material[2]	50	mg/l	Instantaneous	---
pH	5-11	SU's	Instantaneous	---
Temperature	< 150	Degree F	Instantaneous	---
Flash Point	> 140	Degree F	Instantaneous	---
Cadmium	2 0.69	mg/l mg/l	Instantaneous Composite	--- ---
Chromium (VI)	5	mg/l	Instantaneous	---
Copper	5	mg/l	Instantaneous	---
Lead	2	mg/l	Instantaneous	---
Mercury	0.05	mg/l	Instantaneous	---
Nickel	3	mg/l	Instantaneous	---
Zinc	5	mg/l	Instantaneous	---
Benzene	134	ppb	Instantaneous	57
Carbontetrachloride	---	---	Composite	---
Chloroform	---	---	Composite	---
1,4 Dichlorobenzene	---	---	Composite	---
Ethylbenzene	380	ppb	Instantaneous	142
MTBE (Methyl-Tert-Butyl-Ether)	50	ppb	Instantaneous	---
Naphthalene	47	ppb	Composite	19
Phenol	---	---	Composite	---
Tetrachloroethylene (Perc)	20	ppb	Instantaneous	---
Toluene	74	ppb	Instantaneous	28
1,2,4 Trichlorobenzene	---	---	Composite	---
1,1,1 Trichloroethane	---	---	Composite	---
Xylenes (Total)	74	ppb	Instantaneous	28
PCB's (Total)[3]	1	ppb	Composite	---
Total Suspended Solids (TSS)	350[4]	mg/l	Instantaneous	---
CBOD[5]	---	---	Composite	---
Chloride[5]	---	---	Instantaneous	---
Total Nitrogen[5]	---	---	Composite	---
Total Solids[5]	---	---	Instantaneous	---

Notes for table above:

1 All handling and preservation of collected samples and laboratory analyses of samples must be performed in accordance with 40 C.F.R. pt. 136. If 40 C.F.R. pt. 136 does not cover the pollutant in question, the handling, preservation, and analysis must be performed in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater." All analyses must be performed using a detection level less than the lowest applicable regulatory discharge limit. If a parameter does not have a limit, then the detection level is defined as the least of the Practical Quantitation Limits identified in NYSDEC's Analytical Detectability and Quantitation Guidelines for Selected Environmental Parameters, December 1988

2 Analysis for ***non-polar materials*** must be done by USEPA method 1664 Rev. A. Non-Polar Material will mean that portion of the oil and grease that is not eliminated from a solution containing N–Hexane, or any other extraction solvent the USEPA will prescribe, by silica gel absorption.

3 Analysis for PCBs is required if ***both*** conditions listed below are met:
1) if proposed discharge ≥ 10,000 gpd;
2) if duration of a discharge > 10 days.
Analysis for PCBs must be done by USEPA method 608 with MDL=<65 ppt. PCB's (total) is the sum of PCB-1242 (Arochlor 1242), PCB-1254 (Arochlor 1254), PCB-1221 (Arochlor 1221), PCB-1232 (Arochlor 1232), PCB-1248 (Arochlor 1248), PCB-1260 (Arochlor 1260) and PCB-1016 (Arochlor 1016).

4 For discharge ≥ 10,000 gpd, the TSS limit is 350 mg/l. For discharge < 10,000 gpd, the limit is determined on a case by case basis.

5 Analysis for Carbonaceous Biochemical Oxygen Demand (CBOD), Chloride, Total Solids and Total Nitrogen are required if proposed discharge ≥ 10,000 gpd.

(B) Applicable Regulations

Applicable regulations include, but are not limited to:

1. 49 CFR 100 to 179 - DOT Hazardous Materials Transport and Manifest System Requirements
2. 6 NYCRR 375-6 - NYSDEC Remedial Program Soil Cleanup Objectives
3. 6 NYCRR 360-1 NYSDEC Solid Waste Management Facilities
4. 6 NYCRR 364- Waste Transporter permits
5. Local restrictions on transportation of waste/debris
6. 40 CFR 260 to 272 - Hazardous Waste Management (RCRA)
7. 6 NYCRR 371 - Identification and Listing of Hazardous Wastes
8. 6 NYCRR 372 - Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities
9. 6 NYCRR 373-1 - Hazardous Waste Treatment, Storage and Disposal Facility Permitting Requirements
10. 6 NYCRR 376 - Land Disposal Restrictions
11. Posted weight limitations on roads or bridges
12. Transportation Skills Programs, Inc. 1985 - Hazardous Materials and Waste Shipping Papers and Manifests
13. Other local restrictions on transportation of waste/debris
14. Occupational Safety and Health Administration (OSHA), Standards and Regulations, 29 CFR 1910 (General Industry)

15. OSHA 29 CFR 1910.120 Hazardous Waste Operations and Emergency Response
16. OSHA Safety and Health Standards 29 CFR 1926 (Construction Industry)
17. OSHA 29 CFR 1910.146 Confined Space Entry Standard
18. Standard Operating Safety Guidelines, USEPA Office of Emergency and Remedial Response Publication, 9285.1-03
19. NIOSH / OSHA / USCG / USEPA Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (1986)
20. U.S. Department of Health and Human Services (DHHS) "NIOSH Sampling and Analytical Methods," DHHS (NIOSH) Publication 84-100
21. ANSI, Practice for Respiratory Protection, Z88.2 (1980)
22. ANSI, Emergency Eyewash and Shower Equipment, Z41.1 (1983)
23. ANSI, Protective Footwear, Z358.1 (1981)
24. ANSI, Physical Qualifications for Respirator Use, Z88.6 (1984)
25. ANSI, Practice for Occupational and Educational Eye and Face Protection, Z87.1 (1968)
26. Water Pollution Control Federation "Manual of Practice No. 1, Safety in Wastewater Works"
27. NFPA No. 327 "Standard Procedures for Cleaning and Safeguarding Small Tanks and Containers"
28. Occupational Safety and Health Act Confined Space Entry Standard 29 CFR 1910.146.87
29. Department of Transportation 49 CFR 100 through 179
30. Department of Transportation 49 CFR 387 (46 FR 30974, 47073)
31. Environmental Protection Agency 40 CFR 136 (41 FR 52779)
32. Environmental Protection Agency 40 CFR 262 and 761
33. Resource Conservation and Recovery Act (RCRA)
34. Any transporter of hazardous or non-hazardous materials must be licensed in the State of New York and all other states traversed in accordance with all applicable regulations.

(C) Definitions

Contaminated Groundwater and Decontamination Fluids: Groundwater within the excavation trench or decontamination water that contains regulated compounds above the NYCDEP Discharge to Sewer Effluent limits.

Disposal or Treatment Facility: A facility licensed to accept either non-hazardous regulated waste or hazardous waste for either treatment or disposal.

Exclusion Zone: Work area that will be limited to access by Contractor personnel specifically trained to enter the work area only. The exclusion zone will be set up to secure the area from the public and untrained personnel. The project health and safety program will apply to all construction personnel including persons entering the work area.

Hazard Assessment: An assessment of any physical hazards that may be encountered on a work site.

Hazardous Soils: Soils that exhibit any of the characteristics of a hazardous waste, namely ignitability, corrosivity, reactivity, and toxicity, as defined in 6 NYCRR Part 371, Section 371.3 and 40 CFR Section 261.

Hazardous Substance Evaluation: An evaluation of the possible or known presence of any hazardous substances that may be encountered on a job site. This evaluation is included in the Health and Safety Plan and will include the identification and description of any hazardous substances expected to be encountered. Material Safety Data Sheets (MSDS) will be included for each substance.

Health and Safety Plan: A plan employed at a work site that describes all the measures that will be taken to assure that all work is conducted in a safe manner, and that the health of the workers and the public will be insured.

Material Handling Plan: A plan outlining the methods that will be employed to handle, transport and dispose of contaminated materials.

Manufactured Gas Plant Contaminated Soils: Soils producing higher than background responses on a photoionization detector, creosote-like odor, visual impacts (e.g., staining or discoloration), proximity to known releases from historic Manufactured Gas Plant facilities, and exceed the soil cleanup levels for naphthalene and other volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) exceeding 6 NYCRR Part 375 NYSDEC SCOs.

MGP Mitigation Work Plan: A plan approved by NYSDEC, which includes a system of recovery wells and procedures to minimize the migration of Manufactured Gas Plant-related wastes during and after construction.

Non-Hazardous Contaminated Soils: Soils which exhibit a distinct chemical or petroleum odor, or exhibit elevated photoionization detector readings but are not classified as hazardous waste under 6 NYCRR Part 371, Section 371.3 and 40 CFR Section 261.

New York State Health Department's Environmental Laboratory Approval Program: A program by which the state of New York approves and accredits environmental testing laboratories.

PCBs: Polychlorinated biphenyls are a group of toxic compounds commonly used as a coolant in transformers and other electrical components.

Photoionization Detector: A hand held instrument used to measure volatile organic compounds in air. The instrument ionizes the organic molecules through the use of an ultraviolet lamp.

RCRA Hazardous Waste Characteristics: Characteristics of a material which may indicate the material is hazardous. These include: ignitability corrosivity, reactivity, and toxicity.

Remedial Action Plan: A plan approved by NYCDEP outlining procedures for managing soil and groundwater during subsurface disturbance and includes guidelines for the import and export of soil/fill materials.

Total Petroleum Hydrocarbons: An analytical procedure used to determine the total amount of petroleum compounds in a material.

Waste Management Plan for MGP-Related Contamination: A plan approved by NYSDEC specifically addressing the management and handling of soil and groundwater impacted by Manufactured Gas Plant-related wastes.

(D) Phase I and Phase II Investigation Reports

1. East Side Coastal Resiliency Project Area One: Subsurface Exploration Report - Borough of Manhattan, New York, Hazen and Sawyer / AKRF-JV, October 2015, 8,555 Pages.

2. East Side Coastal Resiliency Project Area Two: Subsurface Exploration Report - Borough of Manhattan, New York, Hazen and Sawyer / AKRF-JV, October 2015, 3,145 Pages.

3. East Side Coastal Resiliency: Supplemental Subsurface Investigation Report - Borough of Manhattan, New York, Hazen and Sawyer / AKRF-JV, November 2016, 12,342 Pages.

4. East Side Coastal Resiliency, Parallel Conveyance & Isolation Gates: Environmental Subsurface Investigation Report - Borough of Manhattan, New York, AKRF-KSE JV, January 2019, 2,221 Pages.

5. East Side Coastal Resiliency: Supplemental Subsurface Investigation Report - Borough of Manhattan, New York, Hazen and Sawyer / AKRF-JV, August 2019, 2,161 pages.

8.01.4. MEASUREMENT AND PAYMENT. No separate payment will be made for complying with the requirements of this Section.

SECTION ESCR 8.01 C1 – Handling, Transportation, and Disposal of Non-Hazardous Contaminated Soil

8.01 C1.1. WORK TO INCLUDE

(A) General

This work will consist of the handling, transportation, and disposal of contaminated soils. The materials covered by this specification are soils that are contaminated with petroleum, manufactured gas plant (MGP) wastes, or chemical products but cannot be classified as hazardous waste. For the purpose of this specification, soil will be defined as any material excavated below the pavement (concrete and/or asphalt) and pavement base (concrete and/or asphalt).

Soil to be excavated can be classified as non-contaminated, contaminated, or hazardous soil. Non-contaminated soils are defined as soils not exhibiting any of the following characteristics.

- Exceedances of New York State Department of Environmental Conservation (NYSDEC) Part 375-6 Restricted Commercial Soil Cleanup Objectives (SCOs) for street work, Restricted Residential SCOs for work areas in parkland, or Residential SCOs for housing projects.
- Elevated Photo-Ionization Detector (PID) readings, subsequently confirmed by laboratory analysis and showed exceedances of applicable SCOs.
- Visual evidence of contamination, such as the presence of staining, discoloration.
- Petroleum, MGP waste, and/or chemical odors, subsequently confirmed by laboratory analysis and showed exceedances of applicable SCOs.
- Physical evidence of coal ash, municipal solid waste, construction and demolition debris, or dredged spoils.

Contaminated soils are defined as soils exhibiting one or more of the above characteristics. Contaminated soils must be handled, transported, and disposed of in accordance with the specifications for **Section 8.01**.

Hazardous soils are defined as soils showing exceedances of Toxicity Characteristic Leaching Procedure (TCLP) or ignitability, corrosivity, or reactivity Regulatory Levels for Hazardous Waste published in Resource Conservation and Recovery Act (RCRA), 6 New York Codes, Rules, and Regulations (NYCRR) Part 371, or 40 Code of Federal Regulations (CFR) Section 261. Hazardous soils must be handled, transported, and disposed of in accordance with the specifications of this section.

This entire specification 8.01 covers the handling, transportation, and disposal of contaminated soils and hazardous soils only. Non-contaminated soil can be reused at the project site with prior approval by the Engineer, provided it meets other contract requirements. Soil reused on-site must be (1) below a structure; (2) beneath a roadbed or other paved area; or (3) in any unpaved areas, either beneath the soil cap. Soil reused for the soil cap must meet the criteria for fill and backfill as required in ESCR 4.11 - Excavation and Filling and the RAP. Excess non-contaminated soil becomes the property of the Contractor.

The Contractor must ensure that all operations associated with the handling, sampling, loading, transportation, and disposal of contaminated soils are in compliance with all applicable Federal, State, and City statutes and regulations.

The Contractor must supply all equipment, material and labor required to conduct the specified work of this Section. The Contractor must document the excavation, handling, transportation and disposal of contaminated soils.

(B) Request for Approval of Subcontractors

A subcontractor/subconsultant, such as the independent Environmental Consultant and the waste hauler, is not permitted to start work until approved by the Engineer. If the Contractor performs work using a subcontractor/subconsultant prior to approval, the Contractor will not be paid for the work performed by that subcontractor/subconsultant and the Contractor may be subject to sanctions including, but not limited to, initiation of default proceedings.

The Contractor must submit a completed original Request for Approval of Subcontractors (RFAS) form and all required documents, such as legal identity, project reference list, Corporate Health and Safety Plan (HASP), waste transporter permits, Occupational Safety and Health Administration (OSHA) 10 certification, Hazardous Waste and Emergency Response (HAZWOPER) certification, etc., to the Engineer at least 30 days prior to the scheduled subcontract work start date. The Engineer must then submit the original RFAS to DDC Safety and Site Support, Office of Environmental and Geotechnical Services (OEGS) for review and approval. If the RFAS is denied by OEGS, OEGS will issue the final denial and return the original RFAS to the Engineer. If the RFAS is approved by OEGS, OEGS will forward the original RFAS package and an approval memo to the DDC ACCO for further review and approval. The ACCO's Vendor Integrity Unit and Office of Contract Opportunity (OCO) will review the subcontractor/subconsultant's overall business integrity and compliance with Vendor Exchange System (VENDEX), Executive Order 50, Local Law 1, and Minority- and Women-Owned Business Enterprise/ Disadvantaged Business Enterprise (MWBE/DBE) participation as per the contract. ACCO will issue the final Approval or Denial. The original RFAS will be returned to the Engineer, who will subsequently notify and return the original RFAS to the Contractor.

(C) Independent Environmental Consultant

The Contractor must retain an independent Environmental Consultant to obtain all permits, prepare the plans required in the specification 8.01, and perform, sampling, and other health and safety services. The independent Environmental Consultant must be approved under the RFAS process and must demonstrate the minimum requirements as set forth below:

1. The independent Environmental Consultant project supervisor on site and other designated key personnel must have a minimum of three (3) years of experience in the environmental field dealing with issues associated with contaminated soils, specifically volatile organic compounds and MGP-related contamination.
2. The independent Environmental Consultant must be experienced in work of similar nature, size, and complexity and must have previous experience in working with DDC.
3. The independent Environmental Consultant must furnish a project listing identifying the location, nature of services provided, owner, owner's contact, contact's working telephone number, project duration and value for at least five (5) projects within the last 3 years.

(D) Sampling and Analysis

Prior to the performance of soil sampling, the Contractor will submit a Field Sampling Plan (FSP). Soil sampling must not be conducted until OEGS has approved the FSP. The Contractor must conduct sampling and analysis of the impacted soils as specified under **Section 8.01 C2**. The laboratory results must be forwarded to OEGS for review to determine if the soils would be handled and disposed of as contaminated soils or hazardous soils.

(E) Material Handling Plan

At least 45 days prior to the commencement of work, the Contractor must submit to the OEGS for review a Material Handling Plan (MHP). The MHP must be approved by the OEGS prior to the Contractor beginning any soil excavation work. The MHP must, at a minimum, consist of:

1. The Contractor's procedures for safely handling contaminated soils. The procedures must include personnel safety and health as well as environmental protection considerations.
2. For the proposed laboratory for analysis of representative soil samples, provide the following: (a) name, (b) address, (c) telephone number, and (d) New York State Department of Health's (NYSDOH) Environmental Laboratories Accreditation Program (ELAP) status.
3. Identification of the Contractor's proposed waste transporter(s) (hauler). This information must include:
    1. Name and Waste Transporter Permit Number
    2. Address
    3. Name of responsible contact for the waste transporter
    4. Telephone number for the contact
    5. All necessary permit authorizations for each type of waste transported
    6. Previous experience in performing the type of work specified herein
4. The name and location of the facility where an off-site scale is located. The Contractor must outline the procedures on controlling trucks leaving the work site and en-route to the off-site scale.
5. All staging/stockpiling areas (if stockpiling areas are intended and available), or alternate procedures that will be used. Alternate procedures may include, but are not limited to, agreements from the intended disposal facilities to accept boring data and/or analytical data previously obtained during the site characterization so that materials may be directly loaded into vehicles for shipment to the disposal facility.
6. A backup facility must be provided, should the staging/stockpile areas become unavailable, insufficient in area or presented by some other unforeseen difficulty.
7. Identification of the Contractor's two proposed Treatment Storage or Disposal (TSD) facilities for contaminated soils (primary and back-up) for final disposal of the soils. Both primary and backup TSD facilities must be currently state-licensed disposal facilities approved to receive contaminated soil. The information required for each facility must include:
    a. General Information
        1. Facility name and the State identification number
        2. Facility location
        3. Name of responsible contact for the facility
        4. Telephone number for contact
        5. Signed letter of agreement to accept waste as specified in this contract. The letter must indicate agreement to handle and accept the specified estimated quantities and types of material during the time period specified in the project schedule and any time extension as deemed necessary.
        6. Unit of measure utilized at disposal facility for costing purposes
    b. A listing of all permits, licenses, letters of approval, and other authorizations to operate, which are currently held and valid for the proposed facility.
    c. A listing of all permits, licenses, letters of approval, and other authorizations to operate which have been applied for by the proposed facility but not yet granted or issued.
    d. The Contractor must specify and describe the disposal/containment unit(s) that the proposed facility will use to manage the waste. The Contractor must identify the capacity available in the units and the capacity reserved for the subject waste.

e. The Contractor must provide the date of the proposed facility's last compliance inspection.
f. A list of all active (unresolved) compliance orders (or agreements), enforcement notices, or notices of violations issued to the proposed facility must be provided. The source and nature of the cause of violation must be stated, if known.

8. Description of all sampling and field/laboratory analyses that will be needed to obtain disposal facility approval.

8.01 C1.2. MATERIALS

(A) The Contractor must provide containers as specified in the United States Department of Transportation (USDOT) regulations.

(B) The Contractor must provide polyethylene sheeting, which is to be placed under (20 mil. thickness minimum) and over (10 mil. thickness minimum) soil piles.

(C) The Contractor must provide Portland cement as a soil amendment to stabilize wet soil that is determined by the Engineer to be impacted by MGP wastes prior to shipping for off-site disposal.

(D) The Contractor must assure that the waste transporter's appropriate choice of vehicles and operating practices are fitted to prevent spillage or leakage of contaminated material during transportation.

(E) The Contractor must provide, install, and maintain any temporary stockpiling or loading facilities on site as required until completion of material handling activities. The location and design of any such facilities must be included in the MHP.

8.01 C1.3. CONSTRUCTION DETAILS

(A) Material Handling

1. Immediately after excavation of non-hazardous contaminated soil the Contractor must:
   a. Stabilize wet soil determined by the Engineer to be impacted with MGP wastes with Portland cement as a soil amendment prior to soil waste disposal. The Contractor is responsible for determining the appropriate percent of Portland cement required to stabilize the soil. It is anticipated that stabilization will require a minimum of 5% Portland cement. Dosage of Portland cement shall be no greater than 25% by wet weight;
   b. Load material directly onto trucks/tankers/roll offs for disposal off site; or
   c. If interim stockpiling is required, place contaminated soil on a minimum of 20 mil. polyethylene sheeting and cover it securely by minimum of 10 mil. polyethylene sheeting to protect against cross contamination, airborne dust, leaching or runoff of contaminants into the subsurface, groundwater, or stormwater. Weight or secure the sheeting by appropriate means and seal seams as approved by the DDC to prevent tearing or removal by wind or weather. Grade surrounding surface to provide for positive drainage away from pile. Each stockpile must not exceed 500 cubic yards unless otherwise approved by the Engineer. Contaminated soils must be stockpiled separately from uncontaminated and hazardous soil at an off-site location approved by DDC or secured on-site by the Contractor, meeting all required Federal, State and Local stipulations. Stockpiles must be at least 800 feet away from any sensitive receptors, such as schools, daycare center, hospitals, nursing homes, etc., and at least 100 feet away from any water body, unless otherwise coordinated with the Engineer.

2. Institute appropriate procedures and security measures to ensure the protection of site personnel and the public from contaminated materials as described in the approved MHP, Site HASP, and **Section 8.01 S - Health and Safety.**
3. Petroleum contaminated, MGP contaminated, and non-hazardous soils must be segregated separately when stockpiling.
4. Any soil encountered that appears to contain unknown contaminants (based on visual, odor, or other observation), or that vary substantially from the material originally identified must be segregated in stockpiles and the Contractor's independent Environmental Consultant promptly notified to collect soil samples for analysis. Construct stockpiles to the same requirements as stated in subsection (A).(1).(b) above.
4. Provide any dewatering that is necessary to complete the work. Contaminated water must be disposed of in accordance with **Section 8.01 W1**.

(B) Off-Site Transportation to Disposal Facility

1. General
   a. The Contractor must furnish all labor, equipment, supplies and incidental costs required to transport contaminated material from the work area to the off-site disposal facility, and any other items and services required for transporting contaminated material for disposal at an off-site facility.
   b. The Contractor will be responsible for tracking all materials and vehicles from the site to the off-site scale.
   c. The Contractor must submit to the Engineer the certified tare and gross weight slips for each load received at the accepted facility which must be attached to each returned manifest. These documents must be maintained and kept with project field records.
   d. Contaminated soils must be delivered to the disposal or treatment facility within 30 calendar days after excavation.
   e. The Contractor must coordinate the schedule for truck arrival and material deliveries at the job site to meet the approved project schedule.
   f. The Contractor must inspect all vehicles leaving the project site to ensure that contaminated soils adhering to the wheels or undercarriage are removed prior to the vehicle leaving the site.
   g. The Contractor must obtain letters of commitment from the waste haulers and the TSD facility to haul and accept shipments.
   h. The Contractor must provide waste profile forms to OEGS for review and approval before transporting contaminated soil to the approved TSD facility.
2. Hauling
   a. The Contractor must coordinate manifesting, placarding of shipments, and vehicle decontamination. All quantities must be measured and recorded upon arrival at the disposal facility. If any deviation between the two (2) records occurs, the matter is to be reported immediately to the Engineer and to be resolved by the Contractor to the satisfaction of the Engineer.

b. The Contractor will be held responsible, at its own cost for any and all actions necessary to remedy situations involving material spilled in transit or mud and dust tracked off-site.

c. The Contractor must ensure that trucks are protected against contamination by properly covering and lining them with polyethylene sheeting or by decontaminating them prior to and between acceptances of loads. Trucks with loaded contaminated soil must be covered securely with tarps before leaving the project site to prevent generation of airborne dust during hauling. When loading soil determined by the Engineer to be impacted by MGP wastes, the Contractor must use impermeable, tight fitting truck covers. The Contractor must install and maintain a truck tracking pad to limit the amount of sediment that is transported from the site by vehicles. The truck tracking pad should be at least 24 feet wide and 50 feet long, and constructed of 3-6 inch washed stone with a depth of at least 12 inches. When working in areas determined to be impacted by MGP wastes by the Engineer, the truck tracking pad must additionally include liner(s) and a sump for decontaminating all vehicles leaving the site, and all decontamination fluids will be containerized for disposal.

d. The Contractor will be responsible for inspecting the access routes for road conditions, overhead clearance, and weight restrictions.

e. The Contractor must only use the transporter(s) identified in the approved MHP for the performance of work. A revised MHP or an addendum to the original approved MHP must be submitted to OEGS for review and approval at no additional cost to the City for any use of substitute or additional transporters.

f. The Contractor must develop, document, and implement a policy for accident prevention.

g. The Contractor must not combine contaminated materials from other projects with material from this project.

h. No material will be transported until approval by the Engineer is obtained.

3. Off-Site Disposal

a. The Contractor must use only the disposal facility(ies) identified in the approved MHP for the performance of the work. A revised MHP or an addendum to the original approved MHP must be submitted to OEGS for review and approval at no additional cost to the City for any use of substitutions or additions of disposal facility.

b. The Contractor must be responsible for acceptance of the materials at an approved facility, for ensuring that the facility is properly permitted to accept the stated materials, and for ensuring that the facility provides the stated treatment and/or disposal services.

c. The City reserves the right to contact and visit the TSD facility and regulatory agencies to verify the agreement to accept the stated materials and to verify any other information provided.

d. In the event that the identified and approved facility ceases to accept the stated materials or the facility ceases operations, it is the Contractor's responsibility to locate an alternate approved and permitted facility(ies) for accepting materials. The alternate facility(ies) must be approved in writing by the Engineer in the same manner and with the same requirements as for the original facility(ies). This must be done at no extra cost or delay to the City.

e. The Contractor must obtain manifest forms, and complete the shipment manifest records required by the appropriate regulatory agencies for verifying the material and quantity of each load in unit of volume and weight. Copies of each manifest must be submitted to the Engineer within four (4) business days following shipment, and within three (3) business days after notification of receipt of the facility. The signed manifests must be maintained and kept with the project field records. Any manifest discrepancies must be reported immediately to the Engineer and be resolved by the Contractor to the satisfaction of the Engineer.

4. Equipment and Vehicle Decontamination

   a. The Contractor must design and construct a portable decontamination station to be used to decontaminate equipment and vehicles that have been used to handle contaminated soil. The cost for this work will be paid under Item ESCR-8.01 S.

   b. Water generated during the decontamination process must be disposed of in accordance with **Section 8.01 W1**.

8.01 C1.4 METHOD OF MEASUREMENT

Quantities for contaminated soils will be measured in tons. The tonnage will be determined by off-site truck scales, as per Subsection 8.01 C1.(3).(B).(1), that are capable of generating load tickets.

8.01 C1.5 PRICE TO COVER

(A) The unit bid price per ton for Item ESCR-8.01 C1 and ESCR-8.01 C1MGP must include the cost of furnishing all labor, materials, equipment, plan, and insurance for excavation, handling, transportation, disposal, documentation, fees, permits, loading, stockpiling, hauling, and any other incidentals necessary to complete all the work as specified herein for handling, transporting, and disposal of non-hazardous contaminated and non-hazardous MGP contaminated soil.

(B) Final disposal of hazardous soil will be paid for under Item ESCR-8.01 H – Handling, Transporting and Disposal of Hazardous Soils. Disposal of decontamination water will be paid for under Item ESCR-8.01 W1 – Removal, Treatment and Discharge/Disposal of Contaminated Water.

(C) Backfill will be paid for under its respective item as specified in the contract document.

(D) The independent Environmental Consultant will be paid under Item ESCR-8.01 S – Health and Safety.

Payment will be made under:

Item No.	Description	Pay Unit
ESCR-8.01 C1	HANDLING, TRANSPORTING, AND DISPOSAL OF NON-HAZARDOUS CONTAMINATED SOIL	TONS
ESCR-8.01 C1MGP	HANDLING, TRANSPORTING, AND DISPOSAL OF NON-HAZARDOUS MGP CONTAMINATED SOIL	TONS

SECTION ESCR 8.01 C2 – In-Situ and Ex-Situ Soil Sampling and Analysis for Waste Disposal Parameters

8.01 C2.1 WORK TO INCLUDE

(A) Description

The work will consist of collecting and analyzing representative samples of soil to be excavated in-situ and/or ex-situ from stockpiles for parameters typically requested by the disposal facilities to determine if the soil to be excavated is suitable for reuse, or to be hauled off-site for disposal purposes as contaminated and/or hazardous soil.

(B) Sampling and Laboratory Analysis

1. At least forty-five (45) days prior to the commencement of work, the Contractor's independent Environmental Consultant must submit an FSP and an Investigation Health and Safety Plan (Investigation HASP) to OEGS for review and approval, prior to conducting the field sampling. The FSP must include, at a minimum, the following information:

   a. Project information
   b. Description of sample collection methodology for soil to be excavated and soil which appears to contain unknown contaminants based on field observation
   c. Type of analyses
   d. Sample preservation and handling
   e. Training and experience of the personnel who will collect the samples
   f. Equipment Decontamination
   g. Analytical laboratory's name, address, New York State Department of Health's ELAP certification number, and telephone number
   h. Map of the project area
   i. Sample location plan
   j. Chain of Custody

   The Investigation HASP must identify actual and potential hazards associated with planned sampling field activities and stipulate appropriate health and safety procedures, so as to minimize field personnel exposures to physical, biological, and chemical hazards that may be present in the sampling media. The Investigation HASP must include, at a minimum, the following information:

   a. Project information
   b. Description of work to be performed
   c. Names of responsible health and safety personnel
   d. Worker training
   e. Job hazard analysis
   f. Confined Space Entry Plan (if applicable)
   g. Personal monitoring (if applicable)
   i. Personnel Protection Equipment (PPE)
   j. Decontamination
   k. Safety rules
   l. Spill prevention and control, dust control, vapor/odor suppression procedures
   m. Identification of nearest hospital and route
   n. Emergency Incident Reporting

2. The Contractor's Environmental Consultant must collect one (1) grab and one (1) composite sample per 500 cubic yards of soil to be excavated in-situ and/or ex-situ from

stockpiles. Sample locations must be placed throughout along the project area. For in-situ sampling, each grab soil sample must be collected from either the 6-inch interval above the water table (when encountered) or the 6-inch interval above the bottom of the proposed excavation depth (where recovery allowed), or from the 6-inch interval showing the highest potential for contamination based on field observation. For composite soil sampling, grid sampling must be performed for projects with excavation depth deeper than six (6) feet below grade. Each composite sample must consist of five (5) grab samples collected from various intervals along the depth of excavation at each sampling location. For stockpiled soils, each composite sample must consist of five (5) grab samples collected from various depths within each soil stockpile, at least two feet below the soil surface. For drummed soil, one (1) composite sample per 10 drums must be collected. Each composite soil sample must consist of one (1) grab sample from each of the 10 drums.

3. The quality of the data from the sampling program is the Contractor's responsibility. The Contractor must furnish all qualified personnel, materials, equipment and instruments necessary to carry out the sampling. Unless directed otherwise, all sampling procedures must follow the NYSDEC sampling guidelines and protocols. All sampling must be conducted by a qualified person trained in sampling protocols using standard accepted practices for obtaining representative samples.
4. Each grab and composite sample must be analyzed for all parameters required by disposal facilities accepting contaminated and hazardous soil.
5. All sample containers must be marked and identified with legible sample labels, which must indicate the project name, sample location and/or container, the sample number, the date and time of sampling, preservatives utilized and other information that may be useful in determining the character of the sample. Chain-of-custody must be tracked from laboratory issuance of sample containers through laboratory receipt of the samples.
6. The Contractor must maintain a bound sample logbook. The Contractor must provide the Engineer access to it at all times and must turn it over to the Engineer in good condition at the completion of the work. The following information, at a minimum, must be recorded to the log:
    a. Sample identification number
    b. Sample location
    c. Field observation
    d. Sample type
    e. Analyses
    f. Date/time of collection
    g. Collector's name
    h. Sample procedures and equipment utilized
    i. Date sent to laboratory and name of laboratory
7. The City reserves the right to direct the Contractor to conduct alternative sampling in lieu of the parameters described in subsection 8.01 C2(1)(B)(4), if the situation warrants. The substitute sampling parameters will be of equal or lesser monetary value than those described in subsection 8.01 C2(1)(B)(4), as determined by industry laboratory pricing standards.
8. Only dedicated sampling equipment may be used to collect these samples. All equipment involved in field sampling must be decontaminated before being brought to the sampling location, and must be properly disposed after use.

9. The Contractor's Environmental Consultant must prepare a Field Sampling Result Report (FSSR), tabulate the analytical results, and compare the data to the applicable NYSDEC Part 375.6 Soil Cleanup Objectives, and TCLP for Hazardous Waste published in RCRA and 6 NYCRR Part 371, or 40 CFR Section 261. If the soil is to be disposed of in a disposal facility outside of the State of New York, the soil sampling data must also be compared to the applicable regulatory criteria established by the state in which the disposal facility is located. The FSSR, with the tabulated tables and laboratory analytical data, must be submitted to OEGS for review and approval prior to any soil reuse or disposal activities.
10. Soils exceeding any of the hazardous characteristic criteria meet the legal definition of hazardous soils (rather than non-hazardous contaminated soils) and must be transported or disposed of under **Section 8.01 H**. All analyses must be done by a laboratory that has received approval from the ELAP for the methods to be used. The Contractor must specify the laboratory in the MHP.
11. The Contractor must contact the disposal facility where the waste will be sent for permanent disposal, and arrange to collect any additional samples required by the facility. The cost associated with additional sampling and testing must be included in the bid price of this Item.

8.01 C2.2 METHOD OF MEASUREMENT

Quantities for samples must be measured as the number of sets of samples that are tested. A set will be defined as one (1) grab and one (1) composite samples per 500 cubic yards to be analyzed for the full range of parameters as specified in subsection 8.01 C2(1).(B).(4).

8.01 C2.3 PRICE TO COVER

The unit price bid per set for Item ESCR-8.01 C2 will include the cost of furnishing all labor, materials, equipment, plan, and insurance necessary for sampling, handling, transporting, testing, documentation, fees, permits, and any other incidentals necessary to complete the work as specified herein for in-situ and ex-situ soil sampling and analysis for waste disposal parameters.

Payment will be made under:

Item No.	Description	Pay Unit
ESCR-8.01 C2	SAMPLING AND TESTING OF CONTAMINATED/POTENTIALLY HAZARDOUS SOIL FOR DISPOSAL PURPOSES	SETS

SECTION ESCR 8.01 H – Handling, Transportation, and Disposal of Hazardous Soils

8.01 H.1 WORK TO INCLUDE

(A) General

This work will consist of the handling, transportation, and disposal of hazardous soils, which are defined as soils showing exceedances of TCLP for Hazardous Waste published in RCRA, 6 NYCRR Part 371, or 40 CFR Section 261. Hazardous soil can also be contaminated soils, as defined in **Section 8.01 C1**, but must be handled, transported, and disposed of as hazardous soil under **Section 8.01 H**, in accordance with the specifications herein. For the purpose of this specification, soils will be defined as any materials excavated below the pavement and base for pavement.

The Contractor must ensure that all operations associated with the handling, sampling, loading, transportation, and disposal of hazardous materials are in compliance with the applicable Federal, State, and Local statutes and regulations. The Contractor must supply all equipment, material and labor required to conduct the specified work under this section.

The Contractor must document the excavation, handling, sampling, and testing, transportation, and disposal of hazardous soils. The City must be listed in the disposal documents as the waste generator.

The Contractor must decontaminate all equipment prior to its removal from the exclusion zone and/or following contact with hazardous materials, as detailed in **Section 8.01 S**. Water generated during the decontamination process must be disposed of as detailed in **Section 8.01 W1**.

The Contractor must retain an independent Environmental Consultant, meeting the requirements specified in Section 8.01 C1. The independent Environmental Consultant must conduct sampling for laboratory analysis of soil to be excavated to determine whether the soil is contaminated and/or hazardous.

All work under this section must be performed under the direct supervision of the Contractor's Environmental Consultant, as approved by the OEGS.

(B) Material Handling Plan

At least 45 days prior to the commencement of work, the Contractor must submit to the OEGS for review a MHP. The MHP must be approved by the OEGS prior to the Contractor beginning any soil excavation work. The MHP must, at a minimum, consist of:

1. The Contractor's procedures for identifying hazardous soils during excavation, including the specific model and manufacturer of intended organic vapor monitoring equipment and calibration procedures to be used. It should also include the training and experience of the personnel who will operate the equipment.
2. The Contractor's procedures for safely handling hazardous soils or soils which have not yet been tested but are believed to be potentially hazardous. The procedures must include personnel safety and health as well as environmental protection considerations.
3. Name, address, NYSDOH ELAP status and telephone number of the proposed laboratory for analysis of representative soil samples.
4. Identification of the Contractor's proposed waste transporter(s). This information must include:

a. Name and Waste Transporter Permit Number
b. Address
c. Name of responsible contact for the waste transporter
d. Telephone number for the contact
e. All necessary permit authorizations for each type of waste transported
f. Previous experience in performing the type of work specified herein

5. The name and location of the facility where an off-site scale is located. The Contractor must outline the procedures on controlling trucks leaving the work site and en-route to the off-site scale.

6. All staging/stockpiling areas (if stockpiling areas are intended and available), or alternate procedures that will be used. Alternate procedures may include, but are not limited to, agreements from the intended disposal facilities to accept boring data and/or analytical data previously obtained during the site characterization so that materials may be directly loaded into vehicles for shipment to the disposal facility.

7. A backup facility must be provided, should the staging/stockpile areas become unavailable, insufficient in area or not be present by some other unforeseen difficulty.

8. Identification of the Contractor's two proposed Treatment Storage or Disposal (TSD) facilities for hazardous soils (primary and back-up) for final disposal of the hazardous soils. Both primary and backup TSD facilities must be currently USEPA or State-approved RCRA TSD facilities for hazardous soils. The information required for each facility must include:

   a. General Information
      1. Facility name and the USEPA identification number
      2. Facility location
      3. Name of responsible contact for the facility
      4. Telephone number for contact
      5. Signed letter of agreement to accept waste as specified in this contract. The letter must indicate agreement to handle and accept the specified estimated quantities and types of material during the time period specified in the project schedule and any time extension as deemed necessary.
      6. Unit of measure utilized at disposal facility for costing purposes
   b. A listing of all permits, licenses, letters of approval, and other authorizations to operate, which are currently held and valid for the proposed facility.
   c. A listing of all permits, licenses, letters of approval, and other authorizations to operate which have been applied for by the proposed facility but not yet granted or issued.
   d. The Contractor must specify and describe the disposal/containment unit(s) that the proposed facility will use to manage the waste. The Contractor must identify the capacity available in the units and the capacity reserved for the subject waste.
   e. The Contractor must provide the date of the proposed facility's last compliance inspection under RCRA.
   f. A list of all active (unresolved) compliance orders (or agreements), enforcement notices, or notices of violations issued to the proposed facility must be provided. The source and nature of the cause of violation must be stated, if known.

9. Description of all sampling and field/laboratory analyses that will be needed to obtain disposal facility approval.

8.01 H.2 MATERIALS

(A) The Contractor must provide containers as specified in the USDOT regulations.

(B) The Contractor must provide Portland cement as a soil amendment to stabilize wet soil that is determined by the Engineer to be impacted by MGP wastes prior to shipping the material for off-site disposal.

(C) The Contractor must provide polyethylene sheeting, which is to be placed under (20 mil. thickness minimum) and over (10 mil. thickness minimum) soil piles.

(D) The Contractor must assure that the waste transporter's appropriate choice of vehicles and operating practices are fitted to prevent spillage or leakage of contaminated material during transportation.

(E) The Contractor must provide, install, and maintain any temporary stockpiling or loading facilities on site as required until completion of material handling activities. The location and design of any such facilities must be included in the MHP.

8.01 H.3 CONSTRUCTION DETAILS

(A) Material Handling

1. Immediately after excavation of hazardous soil the Contractor must:
   a. Stabilize wet soil determined by the Engineer to be impacted with MGP wastes with a soil amendment prior to off-site disposal. The Contractor is responsible for determining the appropriate percent of Portland cement required to stabilize the soil. It is anticipated that stabilization will require a minimum of 5% Portland cement. Dosage of Portland cement shall be no greater than 25% by wet weight;
   b. Load material directly onto drums/trucks/tankers/roll offs for disposal off site. Containers must be labeled as hazardous soil while being held for disposal; or
   b. If interim stockpiling is required, place hazardous soil on a minimum of 20 mil. polyethylene sheeting and cover it securely by minimum of 10 mil. polyethylene sheeting to protect against cross contamination, airborne dust, leaching or runoff of contaminants into the subsurface, groundwater, or stormwater. Weight or secure the sheeting by appropriate means and seal seams as approved by the Engineer to prevent tearing or removal by wind or weather. Grade surrounding surface to provide for positive drainage away from pile. Each stockpile must not exceed 500 cubic yards unless otherwise approved by the Engineer. Hazardous soils must be stockpiled separately from uncontaminated and contaminated soil at an off-site location approved by the Engineer or secured on-site by the Contractor, meeting all required Federal, State and Local stipulations. Stockpiles must be labelled as hazardous soil and situated at least 800 feet away from any sensitive receptors, such as schools, daycare center, hospitals, nursing homes, etc., and at least 100 feet away from any water body, unless otherwise coordinated with the Engineer.
2. Institute appropriate procedures and security measures to ensure the protection of site personnel and the protection of the public from hazardous soils as described in the approved MHP, Site HASP, and **Section 8.01 S**.
3. Any soil encountered that appears to contain unknown contaminants (based on visual, odor, or other observation), or that vary substantially from the material originally identified must be segregated in stockpiles and the independent Environmental Consultant promptly notified to collect soil samples for analysis. Construct stockpiles to the same requirements as stated in subsection (A)(1)(b) above.
4. Provide any dewatering that is necessary to complete the work. Contaminated water must be disposed of in accordance with **Section 8.01 W1**.

(B) Off-Site Transportation to Disposal Facility

1. General

   a. The Contractor must furnish all labor, equipment, supplies and incidental costs required to transport contaminated material from the work area to the off-site disposal facility, and any other items and services required for transporting hazardous material for disposal at an off-site facility.

   b. The Contractor is responsible for obtaining the USEPA hazardous waste generator identification number for the City. The application must be submitted to OEGS for review and approval prior to submission to USEPA. The Contractor must prepare the annual hazardous waste report for the project and submit to the NYSDEC and USEPA.

   c. The Contractor will be responsible for tracking all material/vehicles from the site to the off-site scale and to the approved disposal facility.

   d. The Contractor must provide to the Engineer certified tare and gross weight slips for each load received at the accepted facility which must be attached to each returned manifest. These documents must be maintained and kept with project field records.

   e. Hazardous soils must be delivered to the disposal or treatment facility within 30 calendar days after excavation.

   f. The Contractor must coordinate the schedule for truck arrival and material deliveries at the job site to meet the approved project schedule.

   g. The Contractor must inspect all vehicles leaving the project site to ensure that hazardous soils adhering to the wheels or undercarriage are removed prior to the vehicle leaving the site.

   h. The Contractor must obtain letters of commitment from the waste haulers and the TSD facility to haul and accept shipments.

   i. The Contractor must provide waste profile forms to OEGS for review and approval before transporting hazardous soil to the approved TSD facility.

2. Hauling

   a. The Contractor must coordinate manifesting, placarding of shipments, and vehicle decontamination. All quantities must be measured and recorded upon arrival at the disposal facility. If any deviation between the two records occurs, the matter is to be reported immediately to the Engineer and to be resolved by the Contractor to the satisfaction of the Engineer.

   b. The Contractor will be responsible, at its own cost for any and all actions necessary to remedy situations involving material spilled in transit or mud and dust tracked off-site.

   c. The Contractor must ensure that trucks are protected against contamination by properly covering and lining them with polyethylene sheeting or by decontaminating them prior to and between acceptances of loads. Trucks with loaded contaminated soil must be covered securely with tarp before leaving the project site to prevent generation of airborne dust during hauling. When loading soil determined by the Engineer to be impacted by MGP wastes, the Contractor must use impermeable, tight fitting truck covers. The Contractor must install and maintain a truck tracking pad to limit the amount of sediment that is transported from the site by vehicles. The truck tracking pad should be at least 24 feet wide and 50 feet long, and constructed of 3-6

inch washed stone with a depth of at least 12 inches. When working in areas determined to be impacted by MGP wastes by the Engineer, the truck tracking pad must additionally include liner(s) and a sump for decontaminating all vehicles leaving the site, and all decontamination fluids will be containerized for disposal.

d. The Contractor will be responsible for inspecting the access routes for road conditions, overhead clearance, and weight restrictions.

e. The Contractor must only use the transporter(s) identified in the approved MHP for the performance of work. Only a transporter with a current Part 364 Waste Transporter Permit from NYSDEC may transport hazardous soil. A revised MHP or an addendum to the original approved MHP must be submitted to OEGS for review and approval at no additional cost to the City for any use of substitute or additional transporters.

f. The Contractor must develop, document, and implement a policy for accident prevention.

g. The Contractor must not combine hazardous materials from other projects with material from this project.

h. No material will be transported until approval by the Engineer is obtained.

3. Off-Site Disposal

a. The Contractor must use only the disposal facility(ies) identified in the approved MPH for the performance of the work. A revised MHP or an addendum to the original approved MHP must be submitted to OEGS for review and approval at no additional cost to the City for any use of substitutions or additions of disposal facility.

b. The Contractor will be responsible for acceptance of the materials at an approved facility, for ensuring that the facility is properly permitted to accept the stated materials, and for ensuring that the facility provides the stated treatment and/or disposal services.

c. The City reserves the right to contact and visit the TSD facility and regulatory agencies to verify the agreement to accept the stated materials and to verify any other information provided.

d. In the event that the identified and approved facility ceases to accept the stated materials or the facility ceases operations, it is the Contractor's responsibility to locate an alternate approved and permitted facility(ies) for accepting materials. The alternate facility(ies) must be approved in writing by the Engineer in the same manner and with the same requirements as for the original facility(ies). This must be done at no extra cost or delay to the City.

e. The Contractor must obtain manifest forms, and complete the shipment manifest records required by the appropriate regulatory agencies for verifying the material and quantity of each load in unit of volume and weight. Copies of each manifest must be submitted to the Engineer within four (4) business days following shipment, and within three (3) business days after notification of receipt of the facility. The signed manifests must be maintained and kept with the project field records. Any manifest discrepancies must be reported immediately to the Engineer and be resolved by the Contractor to the satisfaction of the Engineer.

f. The Contractor must submit all results and weights to the Engineer.

g. The Contractor is responsible to pay all fees associated with the generation and disposal of all excavated hazardous waste. These fees include, but are not limited to, the New York State Department of Finance and Taxation (DFT) quarterly fees for

hazardous waste and the NYSDEC annual hazardous waste regulatory fee program. The Contractor must submit a copy of proof of payment to the Engineer and OEGS.

4. Equipment and Vehicle Decontamination

   a. The Contractor must design and construct a portable decontamination station to be used to decontaminate equipment and vehicles that have been used to handle contaminated soil. The cost for this work will be paid under Item ESCR-8.01 S.

   b. Water generated during the decontamination process must be disposed of in accordance with **Section 8.01 W1**.

8.01 H.4 METHOD OF MEASUREMENT

Quantities for hazardous soils will be measured in tons. The tonnage will be determined by off-site truck scales, as per Subsection 8.01 H1.3.B, that are capable of generating load tickets.

8.01 H.5 PRICE TO COVER

B. The unit bid price bid per ton for Item ESCR-8.01 H will include the cost of furnishing all labor, materials, equipment, plan, and insurance for excavation, handling, transportation, disposal, documentation, fees, permits, loading, stockpiling, hauling, and any other incidentals necessary to complete all the work as specified herein for handling, transporting, and disposal of hazardous soil.

B. Final disposal of contaminated soil will be paid for under Item ESCR-8.01 C1 – Handling, Transporting and Disposal of Non-Hazardous Contaminated Soils. Disposal of decontamination water will be paid for under Item ESCR-8.01 W1 – Removal, Treatment and Discharge/Disposal of Contaminated Water.

C. Backfill will be paid for under its respective item as specified in the contract document.

D. The independent Environmental Consultant will be paid under Item ESCR-8.01 S – Health and Safety.

Payment will be made under:

Item No.	Description	Pay Unit
ESCR-8.01 H	HANDLING, TRANSPORTING, AND DISPOSAL OF HAZARDOUS SOIL	TONS

SECTION ESCR 8.01 S – Health and Safety

8.01 S.1 WORK TO INCLUDE

Health and Safety Requirements for work related to contaminated and / or hazardous soil:

(A) Scope of Work

It is the Contractor's responsibility to stage and conduct the Contractor's work in a safe manner. The Contractor must implement a Health and Safety Plan (HASP) for contaminated/hazardous soil intrusive activities as set forth in OSHA Standards 1910.120 and 1926.650-652. The Contractor must ensure that all workers have at a minimum hazard awareness training. The Contractor must segregate contaminated work area in secured exclusion zones. These zones must limit access to Contractor personnel specifically trained to enter the work area. The exclusion zone must be set up to secure the area from the public and untrained personnel. The project health and safety program will apply to all construction personnel including persons entering the work area. In addition, the Contractor must protect the public from on-site hazards, including subsurface contaminants associated with on-site activities. The HASP must be signed off by a Certified Industrial Hygienist and reviewed and approved by OEGS.

Soil and groundwater at the site may be contaminated with petroleum, solvents, manufactured gas plant (MGP) or other hazardous substances. Contractor must provide materials, equipment, and training to workers and authorized visitors to ensure their protection from these and any other hazards which may be identified during the course of this work. Workers in areas with evidence of contaminated material or known hazardous waste must have completed a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training course that meets OSHA requirements of 29 CFR Part 1910, Occupational Safety and Health Standards. In addition, all personnel in contaminated work zones will have up-to-date 8-hour refresher training and medical monitoring.

The Engineer will conduct continuous air monitoring to ensure that concentrations of organic vapors and dust do not exceed safe action levels included in the RAP. If action levels specified by the Engineer are exceeded, the Engineer will direct the Contractor to implement dust suppression measures, abatement of organic vapors, mitigation of odors, and/or temporary work stoppage, as appropriate. The City will not accept delay claims or change orders associated with conducting dust suppression, mitigation of odors, or abatement of organic vapors.

Work must include, but not be limited to:

1. Implementation of a baseline medical program.
2. Providing safety equipment and protective clothing for site personnel, including maintenance of equipment on a daily basis; replacement of disposable equipment as required; decontamination of clothing, equipment and personnel; and providing all other health and safety measures.
3. Providing, installing, operating and maintaining on-site emergency medical first aid equipment as specified in this section for which payment is not provided under other pay items in this Contract.
4. Providing, installing, operating, maintaining and decommissioning all equipment and personnel decontamination facilities specified within this section, including, but not limited to, the decontamination pad, decontamination water supply, decontamination water collection equipment and all other items and services required for the implementation of the health and safety requirements for which pay items are not provided elsewhere in this Contract.

5. Provide the minimum health and safety requirements for excavation activities within the limits of this Contract.

6. Implement and enforce a HASP: The HASP as presented in these specifications is dynamic with provisions for change to reflect new information, new practices or procedures, changing site environmental conditions or other situations which may affect site workers and the public. The HASP will also address measures for community protection, accident prevention, personnel protection, emergency response/contingency planning, air monitoring, odor control and hazardous chemicals expected on site. Providing a Confined Space Entry Program as defined in the Occupational Safety and Health Act, Confined Space Entry Standard, 29 CFR 1910.146.

7. Employ all necessary means to prevent on- and off-site odor nuisances. The procedures may include, but not limited to,: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; (c) misting with odor masking agents; and/or (d) use of pre-approved foams to cover exposed odorous soils.

8. Ensure that the Engineer's air monitoring equipment is not damaged. The cost to repair any damage to equipment caused by the Contractor will be borne by the Contractor.

9. Responsible for any toxic effects to workers or authorized visitors from the air supplied to respirators or from toxic or damaging vapors or residues resulting from petroleum, solvents, or other hazardous substances in soil or groundwater.

(B) Environmental Consulting Services

The Contractor must retain an independent Environmental Consultant to obtain all permits and perform all soil and water sampling, and health and safety services.

1. If conditions within the exclusion zone are deemed hazardous, then the Contractor and its independent Environmental Consultant must ensure that all personnel working within identified exclusion zones and/or involved (direct contact) with the handling, storage or transport of hazardous and contaminated materials must have completed a minimum of forty (40) hours of Health and Safety Training on Hazardous Waste Sites in accordance with 29 CFR 1910.120(e). The training program must be conducted by a qualified safety instructor. If conditions in the exclusion zone are deemed to be non-hazardous, the independent Environmental Consultant must provide site specific training.

2. The Contractor must ensure that on-site management and supervisors directly responsible for or who supervise employees engaged in hazardous waste operations must receive the training specified in above and at least eight (8) additional hours of specialized training on managing such operations at the time of job assignment.

(C) Submittals

1. The Contractor must submit a written HASP, as specified herein, to OEGS for review and approval. The written HASP must be submitted, within thirty (30) calendar days after the availability of analytical results of the soil and groundwater testing, as required under Section 8.01 C2 and Section 8.01 W2. The Contractor must make all necessary revisions required by OEGS and resubmit the HASP to OEGS for acceptance. Start-up work for the project will not be permitted until written acceptance has been issued by OEGS.

2. Daily safety logs must be maintained by the Contractor and must be submitted to the Engineer either on request or on completion of the work. Training logs must be maintained by the Contractor and submitted to the Engineer either on request or on completion of the work. Daily logs on air monitoring during excavation activities must be prepared and

maintained by the Contractor and submitted to the Engineer either on request or upon completion of the work.

3. A closeout report must be submitted by the Contractor to the Engineer upon completion of the work within the defined exclusion zones. This report must summarize the daily safety and monitoring logs and provides an overview of the Contractor's performance regarding environmental and safety issues. The report must carefully document all areas where contamination has been found including pictures, addresses of locations, and potential sources.
4. Medical Surveillance Examinations: The Contractor must submit to the Engineer the name, office address and telephone number of the medical consultant utilized. Evidence of baseline medical examinations together with the evidence of the ability to wear National Institute for Occupational Safety and Health (NIOSH) approved respirators (as specified in American National Standards Institute (ANSI) Z88.6) must be provided to the Engineer for all construction personnel who are to enter the exclusion zones.
5. Accident Reports: All accidents, spills, or other health and safety incidents must be reported to the Engineer.

(D) Health and Safety Plan

The HASP must comply with OSHA regulations 29 CFR 1910.120/1926.65. This document must at a minimum contain the following:

1. Description of work to be performed
2. Site description
3. Key personnel
4. Worker training procedures
5. Work practices and segregation of work area
6. Hazardous substance evaluation
7. Hazard assessment
8. Personal and community air monitoring procedures and action levels
9. Personal protective equipment
10. Decontamination procedures
11. Safety rules
12. Emergency procedures
13. Spill prevention and control, as well as spill reporting procedures
14. Dust control, vapor/odor suppression procedures
15. Identification of the nearest hospital and route
16. Confined space procedures
17. Excavation safety procedures

8.01 S.2 MEASUREMENT

Health and Safety Requirements

A. 25% of the lump sum price will be paid when the following items are implemented or mobilized:

1. Medical surveillance program
2. Health and safety training
3. Health and safety plan
4. Environmental and personnel monitoring
5. Instrumentation
6. Spill control

7. Dust control
8. Odor control
9. Personnel and equipment decontamination facilities
10. Personnel protective clothing
11. Communications
12. Mobilization

B. 50% will be paid in proportional monthly amounts over the period of work.

C 25% will be paid when the operation is demobilized and removed from the project site.

8.01 S.3 PRICE TO COVER

Health and Safety Requirements

The lump sum price bid for the health and safety requirements will include all labor, materials, equipment, and insurance necessary to complete the work in accordance with these specifications. The price bid will include, but not be limited to, the following:

A. Providing training, safety personnel, air monitoring and medical examinations as specified.

B. Providing safety equipment and protective clothing for site personnel, including maintenance of equipment on a daily basis; replacement of disposable equipment as required; decontamination of clothing, equipment and personnel; and all other health and safety activities or costs not paid for under other pay items in this Contract.

C. Providing, installing, operating and maintaining on-site emergency medical and first aid equipment. This includes all furnishings, equipment, supplies and maintenance of all medical equipment, and all other health and safety items and services for which payment is not provided under other pay items in this Contract.

D. Providing, installing, operating, maintaining, and decommissioning all personnel and equipment decontamination facilities, including decontamination pad, decontamination water supply, and all other items and services required for the implementation of the health and safety requirements for which pay items are not provided elsewhere in this Contract. Vehicle decontamination pads will be included in the price of this item. Disposal of decontamination fluid will be paid for under Item ESCR-8.01 W1.

E. Spill Control

1. Payment will account for furnishing, installing, and maintaining all spill control equipment and facilities. Payment will include equipment and personnel to perform emergency measures required to contain any spillage and to remove spilled materials and soils or liquids that become contaminated due to spillage during work within the exclusion zones and handling of excavated soils and liquids from these areas. This collected spill material will be properly disposed of.

2. Payment under this item will not include testing, handling, transportation or disposal of petroleum-contaminated/potentially hazardous soils excavated during construction. The price for this work will be paid for under Items ESCR-8.01 C1, ESCR-8.01 C2, or ESCR-8.01 H, as appropriate.

F. Dust Control

Payment will account for furnishing, installing, and maintaining dust control equipment and facilities to be used whenever applicable dust levels are exceeded as required in the Remedial Action Plan and MGP Mitigation Work Plan and associated Construction HASPs. Payment will include all necessary labor, equipment, clean water, foam, and all

other materials required by the Dust Control Plan. The NYSDOH Community Air Monitoring Plan (CAMP) may be used as guidance.

G. Vapor/Odor Suppression

Payment will account for furnishing, installing and maintaining vapor/odor control equipment and facilities to be used whenever organic vapor monitoring or the presence of odors indicates that vapor suppression is required to protect workers or the public as required in the Remedial Action Plan, MGP Mitigation Work Plan, and associated Construction HASPs. Payment will include all necessary labor, equipment, clean water, foam and all other materials required by the Vapor/Odor Suppression Plan.

H. Mobilization/Demobilization

1. Mobilization

Payment will include the following, but not be limited to:

a. All work required to furnish, install and maintain all signs, fencing, support zone facilities, parking areas and all temporary utilities;

b. All work required to furnish, install, and maintain an office space with phone and utilities for health and safety personnel;

c. All work required for complete preparation of lay down area for roll-off containers, including sampling, and any required fencing;

d. All direct invoiced cost from bonding companies and government agencies for permits and costs of insurance; and

e. All other items and services required for mobilization and site preparation.

2. Demobilization

Payment will include but not be limited to: All work required to sample the area; remove from the site all equipment, temporary utilities and supporting facilities; performance of necessary decontamination and repairs; disposal of disposable equipment and protective gear and other items and services required for complete demobilization.

Payment will be made under:

Item No.	Description	Pay Unit
ESCR-8.01 S	HEALTH AND SAFETY	L.S.

SECTION ESCR 8.01 W1 – Removal, Treatment, and Disposal / Discharge of Contaminated Water

8.01 W1.1 WORK TO INCLUDE

General: This work must consist of the proper removal and disposal of all contaminated groundwater and decontamination water generated during construction operations. The Contractor must be solely responsible for the proper disposal or discharge of all contaminated water generated at the job site. The Contractor will have the option of treating water on-site for discharge to the sewer system or removing contaminated water for off-site disposal. The Contractor must be responsible to choose a method compatible to the construction work and will be compensated on a per day basis regardless of method employed. The Contractor will be compensated for only those days where the system is in full operation.

The Contractor must retain a dewatering/water treatment Specialist (hereinafter the "Specialist") and laboratory as specified under **Section 8.01 W2**, to conduct any testing that may be required for disposal of impacted water.

The dewatering/water treatment Specialist is responsible to obtain all permits; perform all water sampling, testing; and provide ancillary services related to dewatering and water treatment. The Specialist must at a minimum provide documentation to OEGS demonstrating the minimum requirements as set forth below:

1. The Specialist must demonstrate that it has, at a minimum, three (3) years' experience in the design of dewatering plans. The Specialist should demonstrate expertise dealing with issues associated with contaminated water. During that three (3) year period, the Specialist must demonstrate that it provided dewatering and water treatment systems as a routine part of its daily operations.
2. The Specialist must be experienced in work of this nature, size, and complexity and must have previous experience in working with the NYSDEC.
3. The Specialist must furnish a project listing identifying the location, nature of services provided, owner, owner's contact, contact's telephone number, project duration and value for at least five (5) projects within the last three (3) years of a similar nature, size, and complexity to this one.
4. If conditions within the exclusion zone are deemed hazardous, then the Contractor and its independent Environmental Consultant must ensure that all personnel working within identified exclusion zones and/or involved (direct contact) with the handling, storage or transport of hazardous and contaminated material must have completed a minimum of forty (40) hours of Health and Safety Training on Hazardous Waste Sites in accordance with 29 CFR 1910.120(e). The training program must be conducted by a qualified safety instructor. If conditions in the exclusion zone are deemed to be non-hazardous, the Specialist will be responsible to provide site-specific training to its employees and other affected personnel.
5. The Contractor must ensure that on-site management and supervisors directly responsible for or who supervise employees engaged in hazardous waste operations must receive the training specified in above and at least eight (8) additional hours of specialized training on managing such operations at the time of job assignment.

The Contractor must document all operations associated with the handling, sampling and disposal of contaminated water, and ensure that they are in compliance with applicable Federal, State and Local statutes and regulations.

The Contractor must supply all labor, equipment, transport, plant, material, treatment, and other incidentals required to conduct the specified work of this section.

If water will be disposed of into the sewer system, the Contractor must ensure the Specialist treats the water to comply with the New York City Department of Environmental Protection (NYCDEP) Sewer Effluent Limit concentrations prior to discharge. The Contractor is responsible for providing settling or filtering tanks and any other apparatus required by NYCDEP. Alternatively, the Contractor can provide a plan for transport and disposal at an off-site waste disposal facility.

Within forty-five (45) calendar days after award of Contract, the Contractor must submit to OEGS for review and approval, a Water Handling Plan (WHP). The WHP must be approved by OEGS prior to the Contractor's commencement of work. The minimum requirements for the WHP are specified in **Section 8.01W 1.2**, for each type of disposal (disposal into the sewer or off-site disposal). The Contractor must maintain a complete, up to date copy of the WHP on the job site at all times.

8.01 W1.2 CONSTRUCTION DETAILS

For each disposal method the Contractor proposes to utilize (disposal to sewer or off-site disposal), the WHP must include the information required in paragraphs A and B below, as appropriate.

A. On-site treatment and discharge into New York City sewers.

1. Regulations: The Contractor must comply with all applicable regulations. This includes but may not be limited to:

   Title 15-New NYCDEP Sewer Use Regulations.

2. Permits: The Contractor is solely responsible to obtain all necessary and appropriate Federal, State and Local permits and approvals. The Contractor will be responsible for performing all and any system pilot tests required for permit approval. This includes but may not be limited to:

   a. Industrial waste approval for the New York City sewer system.

   b. Groundwater discharge permit for the New York City sewer system (NYCDEP Division of Sewer Regulation and Control), if discharge to sewer exceeds 10,000 gallons per day.

   c. The Contractor must comply with NYSDEC State Pollutant Discharge Elimination System (SPDES) Permit Number GP-0-10-001, General Permit for Stormwater Discharges.

   d. An NYSDEC water withdrawal permit is required if discharge exceeds 100,000 gallons per day.

   e. Wastewater quality control application, NYCDEP.

3. The WHP for this portion of the work must include the following at a minimum:

   a. Identification and design of Contractor's proposed treatment to assure that the water meets the NYCDEP sewer use guidelines and/or NYSDEC discharge permit requirements prior to discharge to the sewer, including identification of all materials, procedures, settling or filtering tanks, filters and other appurtenances proposed for treatment and disposal of contaminated water.

b. The name, address and telephone number of the contact for the Contractor's proposed chemical laboratory, as well as the laboratory's certifications under Federal, State or non-governmental bodies.

c. The name, address and telephone number of the contact for the Contractor's proposed independent Environmental Consultant.

d. Copies of all submitted permit applications and approved permits the Contractor have received.

e. Periodic inspection, monitoring, and reporting in accordance with discharge permit requirements.

4. Materials

The Contractor must supply all settling or filtering tanks, pumps, filters, treatment devices and other appurtenances for treatment, temporary storage and disposal of contaminated water. All equipment must be suitable for the work described herein.

5. Execution

a. The Contractor is solely responsible for disposal of all water, in accordance with all Federal, State and Local regulations.

b. The Contractor is solely responsible for any treatment required to assure that water discharged into the sewer is in compliance with all permits and Federal, State and Local statutes and regulations.

c. The Contractor is solely responsible for the quality of the water disposed of into the sewers.

d. The Contractor is responsible for sampling and testing of water for the NYCDEP/NYSDEC discharge concentrations. The quality of the data is the Contractor's responsibility. Any sampling and testing must be conducted and paid in accordance with **Section 8.01 W2**.

e. The Contractor will be responsible to maintain the discharge rate to the sewer such that all permit requirements are met, the capacity of the sewer is not exceeded and no surcharging occurs downstream due to the Contractor's actions.

f. An NYSDEC water withdrawal permit is required if discharge exceeds 100,000 gallons per day.

g. Disposal of Treatment Media

(1) The Contractor will be responsible for disposal or recycling of treatment media in accordance with all Federal, State and Local regulations.

(2) The Contractor must provide the Engineer with all relevant documentation concerning the disposal of treatment media, including manifests, bills of lading, certificates of recycling or destruction and other applicable documentation.

(3) Disposal of treatment media will not be considered as a separate pay item; instead it will be considered as incidental work thereto and included in the unit price bid.

B. Off-Site Disposal

1. Regulations: The Contractor must conform to all applicable Federal, State and Local regulations pertaining to the transportation, storage and disposal of any hazardous and/or non-hazardous materials as listed in Attachment 2.
2. The following must be submitted to the Engineer prior to initiating any off-site disposal:
   a. (1) Name and waste transporter permit number
      (2) Address
      (3) Name of responsible contact for the waste transporter
      (4) Any and all necessary permit authorizations for each type of waste transported
      (5) Previous experience in performing the type of work specified herein
   b. General information for each proposed treatment/disposal facility and at least one backup treatment/disposal facility
      (1) Facility name and USEPA identification number
      (2) Facility location
      (3) Name of responsible contact for the facility
      (4) Telephone number for contact
      (5) Unit of measure utilized at facility for costing purposes
   c. A listing of all permits, licenses, letters of approval and other authorizations to operate, which are currently held and valid for the proposed facility as they pertain to receipt and management of the wastes derived from this Contract.
   d. A listing of all permits, licenses, letters of approval and other authorizations to operate which have been applied for by the proposed facility but not yet granted or issued. Provide dates of application(s) submitted. Planned submittals must also be noted.
   e. The Contractor must specify and describe the disposal/containment unit(s) that the proposed facility will use to manage the waste and provide dates of construction and beginning of use, if applicable. Drawings may be provided. The Contractor must identify the capacity available in the units and the capacity reserved for the subject waste.
   f. The Contractor must provide the date of the proposed facility's last compliance inspection.
   g. A list of all active (unresolved) compliance orders, agreements, enforcement notices or notices of violations issued to the proposed facility must be submitted. The source and nature of the cause of violation must be stated, if known. If groundwater contamination is noted, details of the facility's groundwater monitoring program must be provided.
   h. Description of all sampling and field/laboratory analyses that will be needed to obtain disposal facility approval.
3. Materials

All vessels for temporary storage and transport to an off-site disposal facility must be as required in DOT regulations.

4. Execution

   a. General

      (1) The Contractor must organize and maintain the material shipment records/manifests required by Federal, State and Local laws. The Contractor must include all bills of lading, certificates of destruction, recycling or treatment and other applicable documents.

      (2) The Contractor must coordinate the schedule for truck arrival and material deliveries at the job site to meet the approved project schedule. The schedule must be compatible with the availability of equipment and personnel for material handling at the job site.

      (3) The Contractor must inspect all vehicles leaving the project site to ensure that contaminated liquids are not spilling and are contained for transport.

      (4) The Contractor must obtain letters of commitment from the waste haulers and the treatment, disposal or recovery facility to haul and accept shipment. The letter must indicate agreement to handle and accept the specified estimated quantities and types of material during the time period specified in the project schedule and any time extension as deemed as necessary.

      (5) The Contractor must verify the volume of each shipment of water from the site.

      (6) The Contractor is responsible for sampling and testing of water for off-site disposal. The quality of the data is the Contractor's responsibility. Any sampling and testing must be conducted and paid in accordance with **Section 8.01 W2**.

      (7) The Contractor is responsible for any additional analyses required by the TSD facility, and for the acceptance of the water at an approved TSD facility.

   b. Hauling

      (1) The Contractor must not deliver waste to any facility other than the TSD facility(ies) listed on the shipping manifest.

      (2) The Contractor must coordinate manifesting, placarding of shipments, and vehicle decontamination. All quantities must also be measured and recorded upon arrival at the TSD facility(ies). If any deviation between the two records occurs, the matter is to be reported immediately to the Engineer and must be resolved by the Contractor to the satisfaction of the Engineer.

      (3) The Contractor will be responsible for any and all actions necessary to remedy situations involving material spilled in transit or mud and dust tracked off-site. This cleanup must be accomplished at the Contractor's expense.

      (4) The Contractor will be responsible for inspecting the access routes for road conditions, overhead clearance and weight restrictions.

      (5) The Contractor must only use the transporter(s) identified in the WHP for the performance of work. Only a transporter with a current Part 364 Waste Transporter Permit from NYSDEC may transport this material. Any use of substitute or additional transporters must have previous written approval from the Engineer at no additional cost to the City.

      (6) The Contractor must develop, document, and implement a policy for accident prevention.

(7) The Contractor must not combine waste materials from other projects with material from this project.

(8) The Contractor must obtain for the City a hazardous waste generator identification number and will sign the manifest as the generator, if necessary.

(9) No material must be transported until approved by the Engineer.

c. Disposal Facilities

(1) The Contractor must use only the TSD facility(ies) identified in the WHP for the performance of the work. Substitutions or additions must not be permitted without prior written approval from OEGS, and, if approved, must be at no extra cost to the City.

(2) The Contractor will be responsible for acceptance of the material at an approved TSD facility, for ensuring that the facility is properly permitted to accept the stated material, and that the facility provides the stated storage and/or disposal services.

(3) The City reserves the right to contact and visit the disposal facility and regulatory agencies to verify the agreement to accept the stated material and to verify any other information provided. This does not in any way relieve the Contractor of the Contractor's responsibilities under this Contract.

(4) In the event that the identified and approved facility ceases to accept the stated materials or the facility ceases operations, it is the Contractor's responsibility to locate an alternate approved and permitted facility(ies) for accepting materials. The Contractor is responsible for making the necessary arrangements to utilize the facility(ies), and the alternate facility(ies) must be approved in writing by the Engineer in the same manner and with the same requirements as for the original facility(ies). This must be done with no extra cost or delay to the City.

d. Equipment and Vehicle Decontamination

(1) The Contractor must design and construct a portable decontamination station to be used to decontaminate equipment and vehicles exiting the exclusion zone. The cost for this work will be paid under Item ESCR-8.01 S.

8.01 W1.3 METHOD OF MEASUREMENT

The quantity for on-site treatment and discharge or off-site disposal will be on a per day basis.

8.01 W1.4 PRICE TO COVER

(A) The per day price bid for Item ESCR-8.01 W1 will include the cost of furnishing all labor, materials, equipment, plan, and insurance for handling, transportation, disposal, documentation, permits, hauling, mobilization and demobilization, and any other incidentals thereto to complete the work.

(B) The Contractor will not be paid for water that is within the NYCDEP Sewer Discharge Limits and/or NYSDEC permit discharge limits.

Payment will be made under:

Item No.	Description	Pay Unit
ESCR-8.01 W1	REMOVAL, TREATMENT, AND DISCHARGE/DISPOSAL OF CONTAMINATED WATER	DAY

SECTION ESCR 8.01 W2 –Sampling and Testing of Contaminated Water

8.01 W2.1 WORK TO INCLUDE

(A) Description

The work will consist of sampling and testing of potentially contaminated groundwater, surface runoff within the excavated area and all contaminated water generated during the decontamination process.

(B) Sampling and Testing

1. The Contractor is responsible, at a minimum, for sampling and testing of contaminated water for the NYCDEP Sewer Effluent Limit concentrations as listed in Section 8.01 and/or NYSDEC SPDES Permit Number GP-0-10-001, General Permit for Stormwater Discharges and/or any other NYSDEC discharge permitting requirements, and in accordance with the Engineer-approved SSP/FSP and the Investigation HASP, as specified in Section 8.01 C2. The quality of the data is the Contractor's responsibility. Any additional testing required by the Federal, State and/or disposal facilities must be included in the bid price of this Item.
2. All sampling and testing must be conducted by a person trained in sampling protocols using accepted standard practices and/or the NYSDEC sampling guidelines and protocols.
3. All sample containers must be marked with legible sample labels which must indicate the project name, sample location and/or container, the sample number, the date and time of sampling, preservatives utilized, how the sample was chilled to 4 degrees Celsius, and other information that may be useful in determining the character of the sample.
4. Chain-of-custody must be tracked from laboratory issuance of sample containers through receipt of the samples.
5. The Contractor must maintain a bound sample log book. The Contractor must provide the Engineer access to it at all times and must turn it over to the Engineer in good condition at the completion of the work. The following information, as a minimum, must be recorded to the log:
   a. Sample identification number
   b. Sample location
   c. Field observation
   d. Sample type
   e. Analyses
   f. Date/time of collection
   g. Collector's name
   h. Sample procedures and equipment used
   i. Date sent to laboratory/name of laboratory
6. Only dedicated sampling equipment may be used to collect these samples. All equipment involved in field sampling must be decontaminated before being brought to the site, and must be properly disposed of after use.
7. Samples must be submitted to the Contractor's laboratory within the holding times for the parameters analyzed.
8. All analyses must be done by a laboratory that has received approval from the NYSDOH's ELAP for the methods to be done. The Contractor must specify the laboratory in the WHP.

9. Analytical results for water discharged to the sewer and for off-site disposal must be submitted to the Engineer no later than five (5) days after sample collection.
10. The City reserves the right to direct the Contractor to conduct alternative sampling in lieu of the parameters described above, if the situation warrants. The substitute sampling parameters will be of equal or lesser monetary value than those described above, as determined by industry laboratory pricing standards.

8.01 W2.2 METHOD OF MEASUREMENT

Quantities for samples will be measured as the number of sets of samples that are tested for the NYCDEP Sewer Effluent Limit concentrations and/or NYSDEC discharge permitting requirements. A set will be defined as one (1) representative sample analyzed for the full range of NYCDEP parameters as specified in Section 8.01.

8.01 W2.3 PRICE TO COVER

The unit price bid per set for Item ESCR-8.01 W2 will include the cost of furnishing all labor, materials, equipment, plan, and insurance for handling, transport, sampling, testing, documentation, permits, other incidentals necessary to complete the work of sampling and testing of contaminated water. Any additional costs incurred by the Contractor for sampling and testing of contaminated water will be included in the bid price of this Item.

Payment will be made under:

Item No.	Description	Pay Unit
ESCR-8.01 W2-1	NYCDEP - SAMPLING AND TESTING OF CONTAMINATED WATER	SETS

JB-PAGES (2.0)

JOINT BID

NOTICE

THE PAGES CONTAINED IN THIS JOINT BID (JB-PAGES) REPRESENT ADDITIONAL CONTRACT REQUIREMENTS APPLYING TO WORK PERFORMED IN THE PRESENCE OF PRIVATELY OWNED UTILITY FACILITIES.

(NO TEXT ON THIS PAGE)

JOINT BID

DATED: January 15, 2020

1. The Contractor shall be responsible for compliance with all the provisions of the following Articles, Appendixes, Specifications, Sketches and Scope of Work, which are hereby made a part of the original contract documents:

   A. The "JOINT BID WITH PRIVATE UTILITY COMPANIES SPECIAL PROVISIONS" (Pages JB-1 through JB-6); and
   the following Con Edison and ECS specialty work items (contained on Pages JB-7 through JB-64):
   JB 117 - Utilities Crossing Piles for Flood Wall or Flood Gate
   JB 118 - Utilities Crossing Piles for Flood Wall or Flood Gate, Reinforced Concrete foundation, or Pile Cap
   JB 302 – Field Coating for oil-o-static feeder Pipes
   JB 400A – Surveyed and Drafted Test Pits for Utility Facilities
   JB 401 – Trench Excavation for Adjustment of utility Facilities
   JB 402T – Horizontal and Vertical Adjustment of Telecommunications Facilities.
   JB 403T – Furnish and Install Steel Protection Plates for Telecommunication Facilities.
   JB 405 – Excavation for Installation of Utility Facilities
   JB450 – Construction field Support
   JB 603T – Furnish and Install Telecommunications conduits.
   JB 636E – Adjustment of Utility Hardware.
   JB 636M – Modification of Work Methods to Accommodate Utility Hardware during Milling and Resurfacing Operations.
   JB 636RM – Rebuilding and Modifications to Utility Structures.
   JB 638NT – Field Constructed Telecommunications manhole Structures.
   JB 638R – Break out and Remove Utility Structure Containing Active Facilities.
   JB 798 – Modification of non Concrete Yoke Trolley Structures Removal when Crossing Utility Facilities.
   JB 799 – Modification of non Concrete Trolley Structures Removal Parallel to Utility Facilities.
   JB 800 - Modification of Concrete Yoke Trolley Structures Removal when Crossing Utility Facilities.
   JB 801 - Modification of Concrete Yoke Trolley Structures Removal Parallel to Utility Facilities.
   JB 803 – Line Cut by Pneumatic tool in Lieu of saw cut associated with Roadway Removal Operations.
   JB 850 – Installation of Rubber sheets for Utility Facilities.
   JB 900 – Extra utility Work Cost Allowance.

   B. The Private Utilities reference document called "JOINT-BIDDING SPECIFICATIONS AND SKETCHES FOR LOWER MANHATTAN", dated August 1, 2005, and which is

C. Private Utilities Participating List (Page JB-63);

D. Private Utilities Scope of Work Pages (JB-64), Con Edison pages (JB-65 through JB-82) and ECS pages (JB-83 through JB-91); and, Test Pits (Pages JB-92 through JB-93); and,

E. Private Utility drawings (53 Sheets) consisting of:

- Drawing JB1 to JB 2, General Notes & Conditions (All Utilities) (2 Sheets).
- Drawing JB3 to JB26, Conduit & Duct Occupancy plates (CONED) (24 Sheets).
- Drawing JB27 to JB35, Gas Plates. (CONED) (9 Sheets).
- Drawing JB36 to JB45, Steam & Service Plates. (CONED) (10 Sheets).
- Drawing JB46 to JB50 Mass Excavation. (CONED) (5 Sheets).
- Drawing JB51 to JB52 Electric Capital Plans. (CONED) (2 Sheets).
- Drawing JB53, Existing Conduit Plate (ECS) (1 Sheet).

2. Refer to the Private Utility reference document called "JOINT-BIDDING SPECIFICATIONS AND SKETCHES FOR LOWER MANHATTAN", Specification for JB 450, pages 56, 57, and 58;

   Note: Items under JB 450 are task driven operation items and are not based on crew size. These items are divided into three unique types, each of which provides a description of applicability and typical use. The "Method of Measurement", on page 57, states that "The actual crew performing the operation will not be considered by the facility operator, in consultation with the Resident Engineer, when determining the applicable Unit Item Type, which shall be only as per the task performed."

3. Refer to the Private Utility reference document called "JOINT-BIDDING SPECIFICATIONS AND SKETCHES FOR LOWER MANHATTAN", Specification for JB 225, page 10, Article A. Description;

   Delete the last four lines of text in their entirety, beginning with the words: "accordance with Specification under Addendum #1, . . .";

   Substitute the following revised text: "accordance with Specification Section 7.18 – Controlled Low Strength Material (CLSM), in the Standard Highway Specification. All backfill within the maximum excavation limits shown in Sketch No. JB 225 shall be of controlled low strength material (CLSM) in compliance with requirements of Section 7.18, and its cost shall be deemed included in this item."

4. Refer to the Private Utility reference document called "JOINT-BIDDING SPECIFICATIONS AND SKETCHES FOR LOWER MANHATTAN", Specification for JB 225, page 10, Article B. Materials;

   Delete the first sentence in its entirety, beginning with the words: "Furnish Controlled Low Strength Material fill or backfill . . .";

   Substitute the following revised sentence: "Furnish Controlled Low Strength Material fill or backfill as required and specified in Section 7.18 – Controlled Low Strength Material (CLSM), of the Standard Highway Specification."

5. Refer to the Private Utility reference document called "JOINT-BIDDING SPECIFICATIONS AND SKETCHES FOR LOWER MANHATTAN", Specification for JB 226, page 12, Article A. Description;

   Delete the last five lines of text in their entirety, beginning with the words: "accordance with Specification under Addendum #1, . . .";

   Substitute the following revised text: "accordance with Specification Section 7.18 – Controlled Low Strength Material (CLSM), in the Standard Highway Specification. All backfill within the maximum excavation limits shown in Sketch No. JB 225 shall be of controlled low strength material (CLSM) backfill in compliance with Section 7.18 in the Standard Highway Specifications, and its cost shall be deemed included in this item."

6. Refer to the Private Utility reference document called "JOINT-BIDDING SPECIFICATIONS AND SKETCHES FOR LOWER MANHATTAN", Specification for JB 226, page 12, Article B. Materials;

   Delete the first sentence in its entirety, beginning with the words: "Furnish controlled low strength material fill or backfill . . .";

   Substitute the following revised sentence: "Furnish controlled low strength material fill or backfill as required and specified in Section 7.18 – Controlled Low Strength Material (CLSM), of the Standard Highway Specification."

7. If the Contractor claims or alleges that delays were caused by a utility for failure to supply and/or provide Specialty Contractors in a timely manner, than the Contractor may bring a claim against the Utility. Neither the Contractor nor the Utility shall bring a delay claim against the City either in a Court of Law or the City's contract dispute resolution board process; and to the extent the Contractor alleges a delay was caused by a Utility, the Contractor will be limited to bringing such legal action in a Court of Law and will not be able to seek arbitration over any delay claims or delay-related claims. If the Contractor and Utility initiate a legal action against each other, this legal action will be outside the jurisdiction of the City's contract dispute resolution board process and the City shall not be a party in the litigation process.

Notices to Bidders

The City is bidding jointly Project ID: SANDRESM2. The City has combined its Public Work, Interference Work, and Utility Work into one bid contract package. All prospective bidders should be alerted to the fact that the City prepared all specifications, drawings, and all other necessary contract documents for the Public Work, Interference Work, and Utility Work.

The City has prepared contract documents which include specifications, drawings and all other necessary contract documents for the Public Work, Interference Work, and Utility Work. The bid items, specifications, and estimated quantities have been designed to fully compensate the Contractor for its costs to perform the Public Work, Interference Work, and Utility Work.

The Contractor agrees that its bid items and prices for the Public Work, Interference Work, and Utility Work shall include all incremental costs and/ or additional compensation for performing Public Work including: coordination of its work with the Utilities, loss of productivity and efficiency, idle time, delays (including any delays occasioned by negotiation of a contract change), change in operations, mobilization, remobilization, demobilization, added cost or expense, loss of profit, other damages or impact costs that may be suffered by the Contractor because of direct or indirect obstructions due to the presence of Utility Facilities, such as conduits, ducts or duct banks containing conductors for live and/or abandoned electric, telephone, cable TV, any type of communication cables, "Non Cost Sharing" gas mains and services, steam mains, and various non-hazardous encasement materials or utility structures located within the Public Work project area.

In the bid solicitation documents, the City has provided estimates of quantities for both Specific Public Work Items and Specific Utility Work Items. Bidders shall be required to bid a unit price on Items. For the purposes of identifying the lowest responsive and responsible bidder, a bidder's unit prices bid shall be calculated on the City's Specific Public Work Items and estimates and the Utilities' Specific Utility Work Items and estimates.

[NO FURTHER TEXT HERE.]

Con Edison and ECS specialty work items

JB 117 – UTILITIES CROSSING PILES FOR FLOOD WALL OR FLOOD GATE

A. Description

Under this section, the Contractor shall provide all incremental labor, materials, equipment, insurance and incidentals required to sleeve and seal utility facilities, included but not limited to:

1. Conduits;
2. Conductors;
3. Concrete encased conduit banks;
4. Steel pipes;
5. Plastic conduit banks;
6. Steam mains;
7. Fiber optic lines;
8. Oil-o-Static facilities; and
9. All gas mains (low pressure, high pressure, transmission mains) of any type of material (steel, P.E., C.I., W.I., etc.);

Of various sizes and configurations as encountered during construction, located under the proposed flood wall,flood gate or retaining wall between the piles and through flowable fill (or approved equal). Auger piles or a Con Edison approved equivalent method will be used under this specification to limit vibration around the utility facilities. Utility crossings, under no circumstance, will cross through jet grout material. The support, maintenance, protection, and accommodation of utility facilities, including minor adjustments to these facilities, as encountered during performance of this item and any test pits ordered by the City or Facility Operator in reference to this item shall be paid under other appropriate JB items.

Utilities crossing the flood wall, flood gate and retaining wall shall be at a 90 degree angle to the proposed sheeting line or side of excavation (for unsheeted trenches) with an allowable deviation of 60 degrees in any direction.

This item includes the additional material and effort(s), above and beyond the utility crossing details included in the contract drawings dated October 17, 2019 for the flood wall and flood gate design under Project ID: SANDRESM2.

In consultation with the Resident Engineer, the facility operator through its authorized representatives shall be solely responsible for approval of methods used by the contractor to perform work under this item. All work shall be performed without risking the integrity of the utility facility and be done consistent with all applicable safety standards as directed by the facility operator in consultation with the Resident Engineer.

B. Materials

All materials used to sleeve and seal utility facilities including but not limited to additional auger piles, lean concrete, extrudable hydrophilic waterstops, ribbed centerbulb waterstops, flowable fill, jet grout, sand, sleeves, link seal, and altering of any kind to sheeting and shoring systems, and any incidental hardware shall be supplied by the Contractor, at no cost to Con Edison, and approved by the facility operator in consultation with the Resident Engineer. All conduit(s) shall be supplied to the Contractor's requested location by the facility operator for work under this item. The Contractor shall be required to inform Con Edison in advance of the need for link seal. The Contractor shall notify the facility operator(s) of the installation schedule at least 10 days before such materials are required on the site. The Contractor shall be responsible to unload, handle, store, deliver and/or distribute the material supplied by the facility operator(s) to the required job location(s) for the duration of the contract. It shall also be the Contractor's responsibility to inspect and verify upon delivery that the correct quantity of material has been delivered and to advise the facility operator(s), through its authorized representative, of all damaged material. The Contractor at no additional expense to the facility operator(s) shall replace any material that is damaged or lost after the Contractor's inspection and acceptance.

C. Methods of Construction

All work shall comply with the specifications, plans and standard of the facility operator. The Contractor shall refer to Utility Crossings dated October 17, 2019 for the flood wall, flood gate and retaining wall design under Project ID: SANDRESM2. Alternate sheeting means and methods and/or a combination of methods shall be covered by this section if proposed by the Contractor and approved by the facility operator in consultation with the Resident Engineer. . It is the intent of this item to provide link seal around Con Edison's facilities on the flood side of the structure, install a sleeve running the entire length of the crossing, and in the remaining voids provide sand between the sleeve and utility as shown on Con Edison Dwg. EO-9230-C. Methods to perform this work in flowable fill material shall be permitted if proposed by the Contractor and approved by the facility operator in consultation with the Resident Engineer.

D. Method of Measurement

The quantity to be measured for payment shall be each (EA) type of utility facility located underneath the proposed flood wall/flood gate/retaining wall crossing through flowable fill material between the piles where the sleeve and modified wall/gate section is installed, as encountered during construction and as directed by the facility operator in consultation with the Resident Engineer. The types of piles included under this specification include drilled shaft piles and sheet piles as referenced in the Contract Drawings dated October 17, 2019 as defined below:
JB 117A = Utilities crossing drilled shaft piles for flood wall/gate
JB 117B = Utilities crossing sheet piles for flood wall/gate
The various types of facility crossings (described below) shall be defined as "ranges" of their cross sectional areas, measured in square feet (SF) along a plane cutting through the trench parallel to the flood wall/flood gate/retaining wall. The area shall be a rectangle or square vertical plane enclosing and touching the outside limits of the utility. The sides of the rectangle or square shall be approximately level and plumb. When utility facilities are located and overlap at any point along the utility spans crossing the trench excavation and are over, or under and within one foot of each other, both horizontally and vertically, (except oil-o-static lines which shall be within two feet of each other), the utility facilities involved shall be considered, for the purposes of this section, as one utility crossing limited by the outside faces of the extreme pipes, conduits, ducts and/or duct banks. The cross sectional area to be measured shall be selected at the point of the greatest area along the utility spanning the trench excavation, as previously described. Each type of utility crossing shall be paid for separately. The types of utility crossings are defined as follows:
Type .1 = Cross sectional area of utility up to and including 0.75 SF
Type .2 = Cross sectional area of utility over 0.75 SF, up to and including 2.0 SF
Type .3 = Cross sectional area of utility over 2.0 SF, up to and including 6.0 SF
Type .4 = Cross sectional area of utility over 6.0 SF, up to and including 10.0 SF
D. Type .5 = Cross sectional area of utility over 10.0 SF, up to and including 20.0 SF

E. Price to Cover

The unit price bid for each of the various items shall cover the cost of all labor, materials, equipment, insurance and incidentals necessary to sleeve and seal the utilities without disruption of service to the customers and in accordance with contract documents. Vibration monitoring shall be deemed included in the cost of all joint bid items (see general notes). Contractor to refer to the latest version of Con Edison Dwg. EO-9230-C for sleeve diameter and link seal details. Utility facilities through flowable fill material, excavatable fill, or approved equal are permitted in accordance with the facility operator and in consultation with the Resident Engineer. Under no circumstance shall utility facilities cross through jet grout material.

The unit price shall also include the cost of changes of sheeting means and methods and configuration where necessary to accommodate the utility, hand excavation within the zone of protection, removal of sheeting around the utilities, and the cost of any impact with maintenance and protection of traffic. The zone of protection varies for each type of utility facility and shall be

determined by the facility operator and in consultation with the Resident Engineer. Where the typical utility crossing details provided in the contract drawings dated October 17, 2019 for the flood wall, flood gate and retaining wall, Project ID: SANDRESM2 require modification, the unit price shall also include the cost of additional concrete, additional steel reinforcement, pile cap and pile design as directed by the facility operator in consultation with the Resident Engineer.

F. References

Details will be provided during construction when the extent of work included under this item is identified by the facility operator in consultation with the Resident Engineer.

[NO FURTHER TEXT HERE.]

JB 118 – UTILITIES CROSSING THROUGH FLOOD WALL OR FLOOD GATE, REINFORCED CONCRETE FOUNDATION, OR PILE CAP

A. Description

Under this section, the Contractor shall provide all incremental labor, materials, equipment, insurance and incidentals required to sleeve and seal utility facilities, included but not limited to:
1. Conduits;
2. Conductors;
3. Concrete encased conduit banks;
4. Steel pipes;
5. Plastic conduit banks;
6. Steam mains;
7. Fiber optic lines;
8. Oil-o-Static facilities; and
9. All gas mains (low pressure, high pressure, transmission mains) of any type of material (steel, P.E., C.I., W.I., etc.);

Of various sizes and configurations as encountered during construction, crossing through the proposed flood wall, flood gate or retaining wall reinforced concrete, foundation, or pile cap. Auger piles or a Con Edison approved equivalent method will be used under this specification to limit vibration around the utility facilities. The support, maintenance, protection, and accommodation of utility facilities encountered, including minor adjustments to these facilities, as encountered during performance of this item and any test pits ordered by the City or Facility Operator in reference to this item shall be paid under other appropriate JB items.

Utilities crossing the flood wall, flood gate and retaining wall shall be at a 90 degree angle to the proposed sheeting line or side of excavation (for unsheeted trenches) with an allowable deviation of 60 degrees in any direction.

This item includes the additional material and effort(s), above and beyond the contract drawings dated October 17, 2019 for the flood wall, flood gate and retaining wall design under Project ID: SANDRESM2. In this instance, the Contractor shall submit a redesign of the wall/gate to accommodate Con Edison utilities for review and approval by the City and Con Edison.

In consultation with the Resident Engineer, the facility operator through its authorized representatives shall be solely responsible for approval of methods used by the contractor to perform work under this item. All work shall be performed without risking the integrity of the utility facility and be done consistent with all applicable safety standards as directed by the facility operator in consultation with the Resident Engineer.

B. Materials

All materials used to sleeve and seal utility facilities including but not limited to additional steel reinforcement, additional concrete, additional piles, lean concrete, extrudable hydrophilic waterstops, ribbed centerbulb waterstops, flowable fill, jet grout, sand, sleeves, link seal, and altering of any kind to sheeting and shoring systems, and any incidental hardware shall be supplied by the Contractor, at no cost to Con Edison, and approved by the facility operator in consultation with the Resident Engineer. All conduit(s) shall be supplied to the Contractor's requested location by the facility operator for work under this item. The Contractor shall be required to inform Con Edison in advance of the need for link seal. The Contractor shall notify the facility operator(s) of the installation schedule at least 10 days before such materials are required on the site. The Contractor shall be responsible to unload, handle, store, deliver and/or distribute the material supplied by the facility operator(s) to the required job location(s) for the duration of the contract. It shall also be the Contractor's responsibility to inspect and verify upon delivery that the correct quantity of material has been delivered and to advise the facility operator(s), through its authorized representative, of all damaged material. The Contractor at no additional expense to the facility operator(s) shall replace any material that is damaged or lost after the Contractor's inspection and acceptance.

C. Methods of Construction

Upon the City and Con Edison's approval of the wall/gate redesign, all work shall comply with the specifications, plans and standards of the facility operator. Alternate sheeting means and methods and/or a combination of methods shall be covered by this section if proposed by the Contractor and approved by the facility operator in consultation with the Resident Engineer. It is the intent of this item to provide link seal around Con Edison's facilities on the flood side of the structure, install a sleeve running the entire length of the crossing, and in the remaining voids provide sand between the sleeve and utility as shown on Con Edison Dwg. EO-9230-C. Methods to perform this work shall be permitted if proposed by the Contractor and approved by the facility operator in consultation with the Resident Engineer.

D. Method of Measurement

The quantity to be measured for payment shall be each (EA) type of utility facility crossing the wall/gate through the wall itself, the foundation of the wall or the pile cap where the sleeve is installed, as encountered during construction and as directed by the facility operator in consultation with the Resident Engineer. The types of piles included under this specification include drilled shaft piles and sheet piles as referenced in the Contract Drawings dated October 17, 2019 as defined below:
JB 118A = Utilities crossing through flood wall/gates on drilled shaft piles
JB 118B = Utilities crossing through flood wall/gates on sheet piles
The various types of facility crossings (described below) shall be defined as "ranges" of their cross sectional areas, measured in square feet (SF) along a plane cutting through the trench parallel to the flood wall/flood gate. The area shall be a rectangle or square vertical plane enclosing and touching the outside limits of the utility. The sides of the rectangle or square shall be approximately level and plumb. When utility facilities are located and overlap at any point along the utility spans crossing the trench excavation and are over, or under and within one foot of each other, both horizontally and vertically, (except oil-o-static lines which shall be within two feet of each other), the utility facilities involved shall be considered, for the purposes of this section, as one utility crossing limited by the outside faces of the extreme pipes, conduits, ducts and/or duct banks. The cross sectional area to be measured shall be selected at the point of the greatest area along the utility spanning the trench excavation, as previously described. Each type of utility crossing shall be paid for separately. The types of utility crossings are defined as follows:
Type .1 = Cross sectional area of utility up to and including 0.75 SF
Type .2 = Cross sectional area of utility over 0.75 SF, up to and including 2.0 SF
Type .3 = Cross sectional area of utility over 2.0 SF, up to and including 6.0 SF
Type .4 = Cross sectional area of utility over 6.0 SF, up to and including 10.0 SF
Type .5 = Cross sectional area of utility over 10.0 SF, up to and including 20.0 SF

E. Price to Cover

The unit price bid for each of the various items shall cover the cost of the Contractor's wall/gate redesign, all labor, materials, equipment, insurance and incidentals necessary to sleeve and seal the utilities without disruption of service to the customers and in accordance with contract documents. Vibration monitoring shall be deemed included in the cost of all joint bid items (see general notes). Contractor to refer to the latest version of Con Edison Dwg. EO-9230-C for sleeve diameter and link seal details.

The unit price shall also include the cost of changes of sheeting means and methods and configuration where necessary to accommodate the utility, hand excavation within the zone of protection, removal of sheeting around the utilities, and the cost of any impact with maintenance and protection of traffic. The zone of protection varies for each type of utility facility and shall be determined by the facility operator and in consultation with the Resident Engineer. The unit price shall also include the cost of additional concrete, additional steel reinforcement, pile cap and pile design as directed by the facility operator in consultation with the Resident Engineer.

F. References

Details will be provided during construction when the extent of work included under this item is identified by the facility operator in consultation with the Resident Engineer.

[NO FURTHER TEXT HERE.]

JB 302 – FIELD COATING OF OIL-O-STATIC FEEDER PIPES

A. Description

Under this section, the Contractor shall provide all labor, tools, equipment, insurance and incidentals required to apply field coating and wrapping on Oil-O-Static feeder pipes at various locations within the contract limits in accordance with the specifications and as directed by the facility operator. The Oil-O-Static system consists of steel pipes containing high voltage cables and cooling oil. All work shall be in accordance with the Con Edison requirement G-8209, System B.

B. Materials

All materials required to apply coatings and wrappings as referenced in G-8209 shall be supplied by Con Edison.

C. Method of Construction

Some of the existing coatings on Oil-O-Static pipes may consist of coal tar wrap and may contain asbestos and/or PCB's. The Con Edison representative prior to backfilling must visually inspect all Oil-O-Static lines that are exposed during the performance of this contract. The Contractor shall notify the Con Edison representative to perform this inspection. Con Edison shall be allowed to perform an electrical spark test (jeeping) inspection of these pipes and obtain a sample of the coating for testing. The electrical spark test will indicate the amount of coating required to be applied and the sample test will determine the coating materials. If the tests are negative, the Con Edison representative will direct the Contractor to perform the required amount of coating prior to the pipes being backfilled. If the tests reveal the presence of asbestos and/or PCB's, the work will be considered "specialty work" and be performed by Con Edison forces or by a specialty Contractor hired by Con Edison. The Contractor will coordinate his operations to allow this work to be performed. The work shall be performed in accordance with Con Edison specification G-8209, which is included within this section. System B will be the only method that will be allowed. The coating shall be verified and accepted by the Con Edison representative prior to backfilling.

D. Method of Measurement

The quantity to be measured for payment shall the actual number of linear feet (L.F.) of each Oil-O-Static pipe for which coating is applied by the Contractor as prescribed.

E. Price to Cover

The price shall cover the cost of all labor, tools, equipment, insurance and incidentals necessary to unload, store and handle the necessary material and to perform all associated work to coat and wrap the Oil-O-Static lines as outlined in Con Edison specification G-8209, System B. The price shall also include the cost of all difficulties encountered to apply the coating in the area of other underground facilities and the additional excavation that may be required to obtain the necessary clearances to apply the coating; coordination with Con Edison forces or their Specialty Contractor; modifications to work methods or construction sequencing, any impact with maintenance and protection of traffic, and loss of productivity. Payment for all work herein specified shall be made on a one-time basis only; no payment for work herein specified shall be made for the same area more than one time. If the Contractor subsequently damages any coatings paid for under this contract, the pipe shall be recoated in accordance with this item at the Contractor's expense.

F. References

1. Con Edison Gas Operations Standard G-8209 – Field Coating of Steel Pipe and Fittings Installed Underground and in Subsurface Structures

[NO FURTHER TEXT HERE.]

JB 400A – SURVEYED AND DRAFTED TEST PITS FOR UTILITY FACILITIES

A. Description

Under this section, the Contractor shall furnish all labor, materials, equipment, insurance and incidentals necessary to hand excavate utilizing pneumatic tools, sheet and maintain test pits at locations approved by the facility operator in consultation with the Resident Engineer. Test pits shall be dug in order to ascertain exact locations, cover, and invert elevations, configurations, clearances, alignment and operating status of existing utility facilities. A privately licensed NYS Land Surveyor, contracted by the Contractor, shall survey the test pit using surveying equipment, take all relevant measurements and elevations as directed by the facility operator(s) in consultation with the Resident Engineer, and draft findings using AutoCAD. The contractor shall inspect jointly with the facility operator and Resident Engineer, utility facilities and other structures uncovered. Tests to determine operating status of utility facilities shall be performed by facility operator. The pits shall be covered with steel plates during non-working hours, and uncovered, as required, until the inspection work is completed. Then, the pits shall be backfilled with clean fill, and resurfaced with temporary pavement. All traffic shall be maintained and all safety measures as stipulated shall be complied with.

B. Materials

A licensed NYS surveyor will provide signed and sealed test pit results using surveying equipment and reference the Borough of Manhattan, Downtown horizontal datum and NAVD88 vertical datum to correspond directly with design drawings. Surveyed test pits shall be delivered in PDF and AutoCAD formats.

C. Methods of Construction

1. Excavation – Existing pavement to be removed shall be neatly cut along lines of removal with a saw or other approved equipment which leaves a neat straight joint line along the juncture with subsequently replaced pavement. Excavation in the vicinity of utilities and other structures shall be performed using hand tools. Use of hand operated pneumatic and electric jackhammers will be permitted only for breaking pavement and removal of masonry, concrete and boulders, or as otherwise directed by the facility operator in consultation with the Resident Engineer. All materials hand excavated from test pits shall be properly disposed of away from site by the contractor. Test pits shall be hand excavated at locations as directed by the facility operator in consultation with the Resident Engineer. All test pits shall be hand excavated to a depth and size necessary to locate the existing facilities. All facilities that are encountered during the excavation of the test pit shall be supported and protected in a manner suitable to the facility operator. Sheeting shall be used when depth of excavation exceeds five feet. The sheeting required should be furnished and installed in full compliance with the State of New York and Federal Safety Codes requirements and as specified in contract, whichever is more stringent.
Care shall be taken that no existing utility facilities or other structures are broken or damaged. All broken or damaged facilities shall be reported immediately to facility operator who shall decide whether such facilities shall be repaired or replaced by company forces or by City contractor. Contractor shall hand excavate all material encountered, including large masses of concrete, cemented masonry and boulders, as directed by the facility operator. Any type of excavation protection used shall satisfy the following:

- Industrial Code Rule 753.
- Prevent injury to workers and the public, and avoid damage to existing utility facilities and structures, and to pavements and their foundations, from caving or sliding banks within the excavation.

2. Maintenance of Test Pits – Hand excavated test pits shall be maintained free of debris and kept dry by the contractor in order to permit the inspection and measurements and to determine the locations of facilities. In order to accomplish this, contractor shall, upon completion of excavation and placement of sheeting (if depth greater than five feet), furnish and install

adequate steel plates and posting over the hand excavated pits and shall temporarily remove all equipment debris and workers, and relocate barricades in order to open the full width of street to traffic during non-working hours. The contractor shall then, at no additional cost, relocate such barricades barrels, cones and other warning devices and remove steel plates, as and when directed by the facility operator in consultation with the Resident Engineer to facilitate the inspection of exposed facilities. When work is being performed and the pits are not covered with steel plates, the contractor shall provide complete and safe access to the test pits as may be required, and he shall provide construction barricades and maintain traffic at all times as shown or as directed by the facility operator in consultation with the Resident Engineer. Upon completion of test pit inspection by the facility operator, the pit shall be backfilled by the contractor in accordance with Contract requirements and all backfill material shall conform to contract specifications for such purpose.

3. Pavement and Sidewalk Restoration - After backfilling is completed, the contractor shall construct a temporary pavement consisting of six inches (6") thick asphaltic concrete mixture in roadway areas or a two inches (2") thick asphaltic concrete mixture in sidewalk areas in order to maintain existing pedestrian and vehicular traffic. This temporary pavement shall be maintained until permanent replacement as specified in contract.

D. Method of Measurement

The quantity to be measured for payment shall be the number of cubic yards of material removed from within the limits of the pit dimensions as directed by the facility operator in consultation with the Resident Engineer. The volume occupied by existing pipes or other structures remaining within the maximum payment lines will not be deducted from the total volume measured except, where the cross sectional area of these facilities exceeds four (4) square feet. As determined by the facility operator(s) in consultation with the Resident Engineer, the quantity measured for payment may be proportionated among the facility operator(s) involved in total volume hand excavated.

E. Price to Cover

The unit price bid per cubic yards for test pits shall cover all costs of labor, material, equipment, insurance and incidentals required to hand excavate test pits, including removal and disposal of hand excavated materials, sheeting, steel plating, all associated maintenance of traffic, backfill (paid under the appropriate City items) and compaction, in compliance with DOT requirements, all in accordance with the specifications and at the direction of the facility operator in consultation with the Resident Engineer. The price shall also cover the cost of providing temporary pavements and sidewalks. The price shall also include the cost of providing safe access to the excavation by facility operator for the performance of certain test to determine operating status of utility facilities prior to City work. The price shall also include the necessary support and protection of all utility facilities crossing, paralleling and /or encroaching the test pit excavation.

F. References

1. NYS Industrial Code Rule 753

[NO FURTHER TEXT HERE.]

JB 401 - TRENCH EXCAVATION FOR ADJUSTMENT OF UTILITY FACILITIES

A. Description

Under this section, the Contractor shall provide all labor, materials, equipment, insurance and incidentals required to excavate by hand to locate and expose subsurface utilities encountered during construction in preparation for horizontal and vertical movement (covered by other Sections), and to support and maintain and protect the integrity of utility facilities including but not limited to:

1. Conduits;
2. Conductor(s) and/or cable(s);
3. Concrete Encased Conduit Bank(s);
4. Steel Pipe(s)

The trench to be excavated shall be determined by the size of the utility and the extent of adjustment required to avoid interferences as detailed on Sketch JB 402 A during all phases of contract work. The work shall be performed in accordance with the specifications, and at the directions of the facility operator in consultation with the Resident Engineer.

B. Materials

All materials used to support and maintain and protect shall be similar to those indicated on Sketches JB 100 A and 100 A-1 and shall be supplied by Contractor and be approved by the facility operator in consultation with the Resident Engineer.

C. Methods of Construction

The Contractor shall cut, break and remove various thickness of surface and base pavement, excavate by hand to expose, support and protect all utility facilities within the trench and then furnish and tamp backfill after work has been completed by the parties indicated under other Sections. The facility operator(s) shall identify the locations of all utilities within the contract area as required by New York State Industrial Code Rule 753. As provided by the Rule the Contractor shall use hand excavation methods (pick and shovel or hand held power tools) directly below the pavement base to expose the utility. Upon exposing the affected utilities sufficiently to determine relationships and/or clearances at the sole discretion of the facility operator in consultation with the Resident Engineer, the Contractor shall be permitted to proceed with a combination of hand and machine excavation sufficiently to wingback all interferences of cable and conduit. The trench shall be adjusted so as to provide a nominal cover of 24" over the highest conduit. The width of the trench shall be as directed by the facility operator in consultation with the Resident Engineer. The bottom of the trench shall be graded smooth and tamped to minimize initial settlement and to avoid "point" support of conduits. All stones projecting into the trench bottom shall be removed, and the voids backfilled before conduits are placed. Where streets are not to final grade, the cover shall be measured from the final grade, or the existing grade, whichever provides the deeper trench.

D. Method of Measurement

The Contractor shall be paid per cubic yard (C.Y.) of trench actually excavated to the limits directed as detailed in Sketch JB 402 A and to the satisfaction of the facility operator in consultation with the Resident Engineer. When two or more utility facilities requiring horizontal or vertical adjustment with different owners are in the same trench, the facility operators shall jointly determine the percentage of ownership of the trench.

E. Price to Cover

The price for excavation shall include the cost of all labor, materials, equipment, insurance, and incidentals necessary to completely expose, support and protect and maintain the integrity of the facilities without disruption of service to the customers and in accordance with the Contract Documents, associated maintenance of traffic, and traffic plates and sheeting that may be required, cut, break and remove various thickness of surface and base pavement, excavate by hand to expose existing structures, furnish, place and tamp backfill after required vertical and/or horizontal adjustments have been completed under other Sections. Any required removing, trucking, storing, and disposing of material shall be deemed included in the unit price. The price shall also include the cost of providing temporary pavement restoration. Permanent pavement restoration shall be paid under other items. The price shall also include the cost of locating and supporting and protecting all utilities encountered including slings and beams installed for utility support when required. The price shall include maintaining the sheeting for the duration of the relocation and work required by the facility operator including but not limited to pipe-ripping covered under JB 402T.

F. References

1. NYS Industrial Code Rule 753
2. Sketch JB 100 A and A-1
3. Sketch JB 402 A

[NO FURTHER TEXT HERE.]

JB 402T - HORIZONTAL AND VERTICAL ADJUSTMENT OF TELECOMMUNICATIONS FACILITIES

A. Description

Under this section, the Contractor shall provide all labor, materials, equipment, insurance and incidentals required to adjust and support and protect and maintain and accommodate the integrity of telecommunication facilities including but not limited to:

1. Conduit(s);
2. Cables and Air Pipe
3. Concrete Encased/Capped Conduit Banks

The work shall be performed in accordance with specifications and at the direction of the facility operator in consultation with the Resident Engineer.

B. Materials

All materials used to adjust and support and protect and maintain and accommodate the integrity of utility facilities shall be similar to those indicated on the standard Sketches JB 100 A & 100 A-1 and shall be supplied by the Contractor and be approved by the facility operator in consultation with the Resident Engineer.

Materials used for replacing conduit(s) removed under this item shall be supplied by and installed by the Contractor and shall include but not be limited to the following:

1. Bends
2. Split and Solid Conduit(s) PVC and Steel
3. Couplings and Adapters PVC, Tile and Steel
4. Straps or plastic ties

PVC conduit and fittings shall be as supplied by American Pipe and Plastics, Type "C" or approved equal.
Steel Pipe and fittings shall conform to ASTM A53 Schedule 40
Tile to PVC adaptors shall be as supplied American U-Tel or approved equal.

C. Methods of Construction

Lengths of "wing-back" shall be determined by the facility operator in consultation with the Resident Engineer. All work performed prior to that approval shall be at the contractors risk.

Methods of construction shall include but not be limited to the following:

1 Removal and Support

a. Break with hand held power tools, remove and dispose of plain or reinforced concrete encasement.

b. Break with hand held power tools, remove and dispose of conduit(s) enclosures and conduit that contain conductor(s) and/or cable(s) except steel/Iron conduits, inner ducts and 1 ¼" to 1 ½" PVC "quad ducts. Breaking – "ringing and ripping" - of steel/iron conduits belonging to ECS shall be performed by ECS forces only. Contractor shall make safe the work area to accommodate the ECS forces.

c. Support and protect exposed conduits, cables, innerduct and airpipe as shown in

Sketch JB 100A-1 and approved by the facility operator in consultation with the Resident Engineer.

d. ECS tenants cables may require inspection, testing and encapsulation before they can be shifted. Contractor shall make safe the work area to accommodate these forces. Contractor shall be notified by the facility operator of the ECS tenant requirements before the conduits are broken-out.

2 Adjust or Move Conductor(s) and/or cable(s) and support

a. Cable shall be relocated horizontally and/or vertically as directed by the facility operator in consultation with the Resident Engineer
b. Support and protect conductors and/or cables as shown on Sketch # JB 100 A-1 and/or as directed by the facility operator.

3. Replacement, Encasement, Protection and Support

a. Replace vacant and loaded conduit(s) with solid and/or split conduit(s) and adapters.

1) Vacant Conduit - Repairs to conduits shall not be permitted. All damaged or impaired lengths of conduit(s) shall be removed and replaced with new conduit(s). The number of vacant conduits replaced shall be confirmed by the facility operator.

2) Loaded Conduit - Replacement of conduits that are removed from around existing cable(s) or innerduct shall be accomplished with split plastic (PVC) or split steel conduits as directed by the facility operator. Where split and solid plastic or steel conduit is used, the conduit(s) shall be spaced 1½ inches from each other. All split PVC shall be secured with plastic straps spaced at a maximum distance of eighteen (18") inches. Plastic conduit shall be joined with plastic couplings.

3) Adapting - Joining plastic conduit to existing conduits of other diameters or material shall be done using single or multiple adapters, (supplied by contractor).

b. If due to subsurface conditions, the cover is less than 20" from finished grade, the duct shall be protected with steel plates furnished by the contractor and measured for payment under Item JB 403T.

c. Support and protect cable(s) and/or conductor(s) and conduit(s).

d. Verify vacant conduits and provide pull ropes

e. Encase all exposed conduit with concrete (f'c = 1200 to 1500 psi maximum) with slump commensurate to completely fill voids around conduits. Concrete encasement shall extend to two (2") inches beyond the limits of the duct bank vertically and horizontally.

D. Method of Measurement

The quantity to be measured for breaking out conduits, removing concrete, moving, protecting and supporting conductors and replacing conduits with split and solid conduit, shall be paid for by the linear foot (L.F.) of each conduit replaced. A linear foot of conduit shall be defined as one (1) single conduit measured along its longitudinal axis that has been broken out or moved from its original location either horizontally and/or vertically and measured in its final location. Quad PVC ducts produced as one unit shall be consider one duct for each quad unit. All conduits removed and not restored shall be covered for payment under the appropriate bid items for Removal of Abandoned

Masonry for Utility Facilities and/or Removal of Abandoned Utility Conduits.
Multiple tile duct bank with concrete protection cover is not considered concrete encasement.

Each type of utility adjustment shall be paid for separately, the types of utility adjustments are defined as follows:

JB-402T.1 Existing Concrete Encased Non-Steel/Iron Conduits Placed in Final Position without Concrete Encasement. (L.F.)

JB-402T.1A Existing Concrete Encased Non-Steel/Iron Conduits Placed in Final Position with Concrete Encasement. (L.F.)

JB-402T.2 Existing Non-Concrete Encased Non-Steel/Iron Conduits Placed in Final Position without Concrete Encasement. (L.F.)

JB-402T.2A Existing Non-Concrete Encased Non-Steel/Iron Conduits Placed in Final Position with Concrete Encasement. (L.F.)

JB-402T.R1A Existing Concrete Encased Steel/Iron Conduits Placed in Final Position with Concrete Encasement. (L.F.)

JB-402T.R2A Existing Non-Concrete Encased Steel/Iron Conduits Placed in Final Position with Concrete Encasement. (L.F.)

JB-402T.V1 Existing Vacant Concrete Encased Conduits Placed in Final Position without Concrete Encasement. (L.F.)

JB-402T.V1A Existing Vacant Concrete Encased Conduits Placed in Final Position with Concrete Encasement. (L.F.)

JB-402T.V2 Existing Vacant Non-Concrete Encased Conduits Placed in Final Position without Concrete Encasement. (L.F.)

JB-402T.V2A Existing Vacant Non-Concrete Encased Conduits Placed in Final Position with Concrete Encasement. (L.F.)

JB-402T.J1 Existing Concrete Encased Conduits Placed in Final Position without Concrete Encasement. (L.F.) in Which Only Conduit Joints are Broken Out and Conduits Remain Intact.

JB-402T.J1A Existing Concrete Encased Conduits Placed in Final Position with Concrete Encasement. (L.F.) in Which Only Conduit Joints are Broken Out and Conduits Remain Intact.

JB-402T.J2 Existing Non-Concrete Encased Conduits Placed in Final Position without Concrete Encasement. (L.F.) in Which Only Conduit Joints are Broken Out and Conduits Remain Intact.

JB-402T.J2A Existing Non-Concrete Encased Conduits Placed in Final Position with Concrete Encasement. (L.F.) in Which Only Conduit Joints are Broken Out and Conduits Remain Intact.

E. Price to Cover

The unit price bid per linear foot (L.F.) of conduit shall cover the cost of all labor, material, equipment, insurance, and incidentals necessary to shift, adjust, support, protect, maintain and accommodate the integrity of utilities without disruption of service to the facility operator's customers and in accordance with contract documents. The price bid shall also include the cost of: breaking out, removal and disposal of plain or reinforced concrete encasements, conduits (except iron/steel), support of cables/conduits, replacement with field split, split and solid conduits, adapters, clamps,

straps and couplings; verify vacant conduits and provide pull ropes; furnish and install concrete encasement, supports, slings and beams for utility support; changes of sheeting method and/or configuration when required and where necessary to accommodate the utilities during all phases of contract work; and removal of sheeting around the utilities, and all else necessary and required to complete the work.

The unit price shall include providing access to the facility operator pipe-ripping crews and tenants to verify and test cables before, during and after the pipe ripping operation completed by the facility operator or specialized contractor hired by the facility operator and after conduit removal by the Contractor The unit price shall include, but not limited to, opening and closing of fences; removal and replacement of temporary timber curb and opening and closing of traffic plates. Access to adjacent manholes impacted by the run is included in this item. JB 450 shall not be used in conjunction with JB-402T as JB-402T covers access to the work site at all times for work required under this item.

F. References

1. Sketches JB 100A and 100A-1
2. JB 403T
3. American Pipe and Plastics, P.O. Box 577, Binghamton, N.Y. 13902
4. American U-Tel, 9760 Smith Rd., Willoughby, Ohio 44094

[NO FURTHER TEXT HERE.]

JB 403T – FURNISH AND INSTALL STEEL PROTECTION PLATES FOR TELECOMMUNICATIONS FACILITIES

A. Description

Under this section, the Contractor shall furnish and install as required permanent steel protection plates over telecommunications facilities where directed by the facility operator(s).

B. Materials

Material shall be:
¼" thick ASTM A-36 plates. Maximum size 24" by 48".
3/8" thick ASTM A-36 plates. Maximum size 12" by 18".
Thickness to be determined by the facility operator(s)

C. Method of Construction

Steel protection plates shall be placed in accordance with the attached facility operator(s) standard sketch JB 403T. All protective plates shall overlap a minimum of 3".

D. Method of Measurement

The quantity for payment shall be the area of permanent steel plating protection furnished and installed (excluding overlap) and measured in place in Square Feet (S.F.).
JB 403T.1 – Furnish and Install 1/4" thick steel plate (S.F.)
JB 403T.2 – Furnish and Install 3/8" thick steel plate (S.F.)

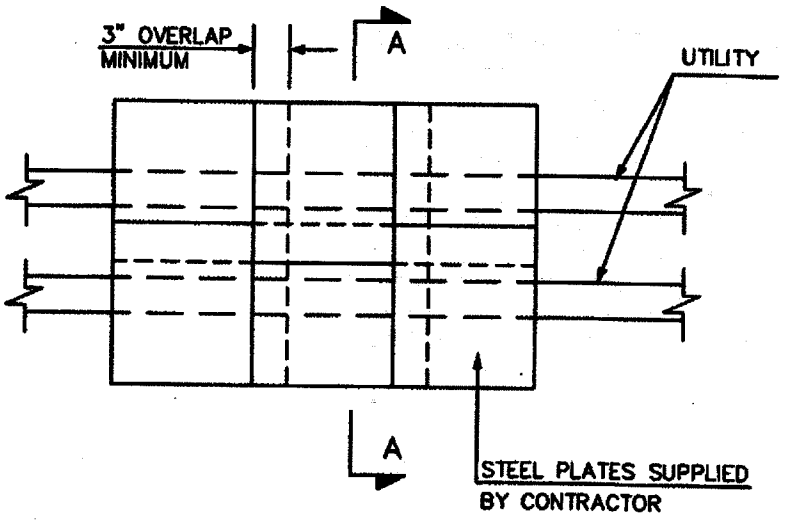
E. Price to Cover

The price shall cover the cost of all labor, material, equipment, insurance, and incidentals necessary to complete the work.

F. References

Sketch JB 403T

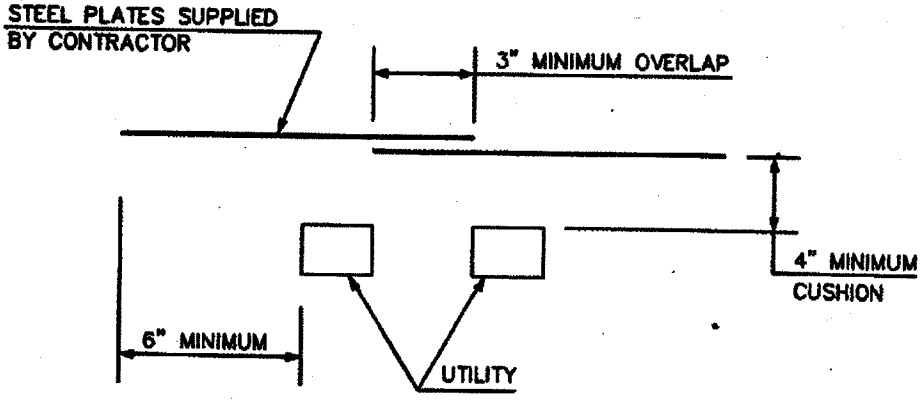
[NO FURTHER TEXT HERE.]



PLAN

NOT TO SCALE

AREA FOR PAYMENT
SHALL BE AS MEASURED
IN PLACE (EXCLUDE OVERLAP)



SECTION A–A

NOT TO SCALE

TYPICAL PLATE SIZES:
6" x 48" x 1/4"
12" x 48" x 1/4"
24" x 48" x 1/4"
12" x 24" x 3/8"

J.B. SKETCH	
PLACING STEEL PROTECTION PLATES FOR COMMUNICATION FACILITIES	
REVISIONS	
09/13/2017	CONTRACT NO. / SKETCH NO. JB 403 T

JB 405 - EXCAVATION FOR INSTALLATION OF UTILITY FACILITIES

A. Description

Under this section, the Contractor shall provide all labor, materials, equipment, insurance and incidentals necessary to excavate, maintain trenches and backfill for the installation of new utility facilities including but not limited to:

1. Conduits
2. Non-cost sharing gas facilities
3. Steam mains
4. Steel pipe(s)

The trench to be excavated shall be determined by the size of the utility facility to be installed. The work shall be performed in accordance with applicable specifications, at the direction of the facility operator.

B. Materials

All materials used to excavate and prepare trenches shall be supplied by the Contractor and be approved by the facility operator.

C. Methods of Construction

1. Excavation – The Contractor shall saw cut and/or break and remove existing roadway which may include but is not limited to, asphalt, concrete and cobblestone, utilizing approved equipment that leaves a neat straight joint line along the juncture with subsequently replaced pavement. The Contractor shall be permitted to excavate utilizing a combination of machine and hand excavation, as field conditions warrant and as directed by the facility operator. The trench shall be adjusted so as to provide a nominal cover as defined in the specifications for the facility being installed over the new utility facilities or as required based on field conditions, applicable specifications, or as directed by the facility operator. The width of the trench shall be as directed by the facility operator or as shown on Sketch JB 603T (ECS only). The bottom of the trench shall be graded smooth with a minimum cushion of 3 inches of backfill material or in conformance with applicable specification and be compacted, to minimize initial settlement and to avoid "point" support of new utility facilities. All stones projecting into the trench bottom shall be removed, and the voids backfilled before the new utility facilities are installed. Where streets are not to final grade, the cover shall be measured from the final grade, or the existing grade, whichever provides the deeper trench. Excavation in the vicinity of utilities and other structures shall be performed using hand tools. The contractor shall properly dispose of all materials excavated away from site. Size and location of excavation shall be as directed by the facility operator. Trenches shall be excavated to a depth and size necessary to facilitate the installation of the new utility facility and in conformance with the applicable specification. All existing facilities that are encountered during trench excavating shall be protected in a manner suitable to the facility operator. Tight sheeting shall be used, as required, based on field conditions and/or when the depth of excavation is equal to or greater than five feet. Skeleton type sheeting will not be permitted. The sheeting required shall be furnished and installed in full compliance with the State of New York and Federal Safety Code requirements and in compliance with applicable specifications and/or as directed by the facility operator.
Care shall be taken that no existing utility facilities or other structures are broken or damaged. Contractor shall excavate all material encountered necessary to facilitate the installation of the new utility facilities, and as directed by the facility operator. Care should be taken to avoid damage to existing utility facilities and structures, and to pavements and their foundations, and to avoid caving or sliding banks within the excavation.

2. Maintenance of Trench Excavation - Excavated trenches shall be maintained free of debris and kept dry by the contractor. In order to accomplish this, contractor shall, upon completion of excavation and placement of sheeting (as required and/or if depth is equal to or greater than five feet), furnish and install adequate steel plates, as directed by the facility operator, and posting over the excavated trenches and shall temporarily remove all equipment debris and workers, and relocate barricades in order to open the full width of street to traffic during nonworking hours, as required based on DOT requirements. The Contractor shall then, at no additional cost, relocate such barricades barrels, cones and other warning devices and remove steel plates, as and when directed by the facility operator to facilitate the installation of the new utility facility. When work is being performed and the excavations are not covered with steel plates, the Contractor shall provide complete and safe access to the trench as may be required, and shall provide construction barricades and maintain traffic at all times as shown or as directed by the facility operator. Upon completion of installation of the new utility facility, the trench excavation shall be backfilled by the contractor in accordance with Contract requirements and all backfill material shall conform to contract specifications for such purpose.

3. Pavement and Sidewalk Restoration - After backfilling is completed, the contractor shall install temporary pavement consisting of six inches (6") thick asphaltic concrete mixture in roadway areas or a two inches (2") thick asphaltic concrete mixture in sidewalk areas in order to maintain existing pedestrian and vehicular traffic. This temporary pavement shall be maintained until permanent replacement as specified in contract.

D. Method of Measurement

The quantity to be measured for payment shall be the number of cubic yards (C.Y.) of trench actually excavated and backfilled as directed by the facility operator or as shown on Sketch JB 603T for JB 603T Items. The volume occupied by existing pipes or other structures will not be deducted from the total volume measured.

JB 405.1 - Trench Excavations for installation of Utility Facilities with total depths less than five feet (C.Y.)

JB 405.2 - Trench Excavations for Utility Facilities with total depths equal to or greater than five feet (C.Y.)

E. Price to Cover

The unit price bid for the various trench excavation items shall include the cost of all labor, materials, equipment, insurance, and incidentals necessary to completely expose, protect and maintain the integrity of the facilities without disruption of service to the customers and in accordance with the contract documents. The price shall also include, installation of traffic plates as well as opening and closing of plates as may be required in order to provide access to trench; installation, removal and maintenance of tight sheeting as required; cutting, breaking and removing various thickness of surface and base pavement; excavation by hand to expose Page 3 of 3 10/05/2017 existing structures; furnishing, placing and compacting clean backfill following installation of utility facility in compliance with DOT requirements. Any required removing, trucking, storing, and disposing of material shall be deemed included in the unit price. The price shall also include the cost of providing temporary pavement restoration. Permanent pavement restoration shall be paid under city items. The price shall also include the cost of locating and protecting all utilities encountered as required.

Clean backfill material in accordance with specifications shall be used around gas facilities and critical facilities shall be paid for under item JB 303.

F. References

1. Item JB 303
2. Sketch JB603T
3. Con Edison Specifications, latest revisions

CEHSP S13.00 – Excavation and Trenching

[NO FURTHER TEXT HERE.]

JB 450 – CONSTRUCTION FIELD SUPPORT

A. Description

Under this section, the Contractor shall provide all labor, materials, equipment, insurance and incidentals necessary to provide construction field support, while maintaining and protecting surface and subsurface facilities, at various locations approved solely by the facility operator. The Contractor shall encounter various surface and subsurface utility facilities while performing various construction field support operations, which may include but are not limited to working over, under, adjacent to, around, in between and in close proximity of:

1. Conduits
2. Conductors
3. Concrete encased conduit banks
4. Steel pipes
5. Gas mains
6. Steam mains
7. Oil-o-static facilities
8. Utility structures and covers

The actual construction field support operation to be performed by the Contractor shall be performed in accordance with the contract plans, specifications or as determined based on actual field conditions and at the sole discretion and direction of the facility operator. This item shall apply to various field support operation tasks for which there are no other applicable JB Items to cover the required work. This item will not apply and will not be paid when there are other applicable JB items available either partly or completely covering tasks described below as determined solely by the facility operator.

B. Materials

All materials used to provide construction field support shall be supplied by the Contractor and be approved by the facility operator in consultation with the Resident Engineer.

C. Methods of Construction

It is the intent of this item that the Contractor provides field support construction crews suffice to perform various item type tasks required as described. For the purpose of this item a crew consists of more than one non-management individual. The Contractor shall provide all labor and equipment necessary to perform the required task as described below under existing field conditions at various locations and at the sole discretion and direction of the facility operator in consultation with the Resident Engineer. The Contractor shall perform the necessary construction field support, while maintaining and protecting surface and subsurface facilities. The Contractor shall employ approved methods of operation, including the use of appropriate equipment and tools that will enable him to complete the field support operation work as described in the Item Type description below. Existing facilities that are encountered during the construction field support operation shall be supported and protected similar to those indicated on sketches JB 100A and 100B and in a manner suitable to the facility operator in consultation with the Resident Engineer and are deemed included in this item except as included under JB-402T. The Contractor shall properly dispose of all materials excavated away from site, which may require the use of hand held tools and equipment in order to ensure that the integrity of the underground utility facilities are not jeopardized. Care should be taken to avoid damage to existing utility facilities and structures, and to adjacent curbs, sidewalks, pavements and their foundations, and to avoid caving or sliding banks within excavations.

D. Method of Measurement

1 – Quantity - The quantity to be measured for payment shall be the number of actual crew hours (CRHRS.) provided by the Contractor for performing the various types of construction field support operation as directed by the facility operator in consultation with the Resident Engineer.

2 – Type – The unit type to be measured for payment shall be based on the actual task performed by the contractor and covered by the applicable Item Type. The tasks described within the Bid Item Type below are provided as a guide only as to the general nature of the various functions included, but these examples in no way limit the use of the item to these functions only. The contractor should use this information in order to approximate the various required crew sizes necessary to perform the work covered by this item in a productive, safe and efficient manner. The actual construction crew size required to perform the field support operation shall be determined solely by the contractor in order to perform the required construction field support operation. It is the responsibility of the contractor to provide appropriate field support crews capable of performing required tasks in a productive, safe and efficient manner. The actual crew performing the operation will not be considered, by the facility operator in consultation with the Resident Engineer, when determining the applicable item type, which shall be only as per the task performed.

Note: Only one measurement type will be used for each defined construction field support area.

Type .1 = Construction Field Support requiring an average size survey crew that will perform typical field survey functions and provide quality data analysis reports.

Type .2 = Construction Field Support requiring an average small size crew capable of performing various tasks not requiring the use of a machine or operator, which may include but are not limited to: opening/closing subsurface structure cover(s), setting/resetting MPT setup(s), assisting Utility Facility/Specialty crew(s) not included in JB 402T or JB 450.5, performing conduit occupancy identification, clean-up storage work-site area, etc.

Type .3 = Construction Field Support requiring an average medium size crew capable of performing various tasks which include the use of a machine and operator, which may include but are not limited to: excavations due to cable failures, including emergency type excavations, construct manhole enclosures, installing support system for utility facilities, dewatering utility structures and excavations, opening/closing traffic and/or pedestrian plates, etc not included in JB 402T or JB 450.5.

Type .4 = Construction Field Support requiring an average large size crew capable of performing various tasks that requires the use of multiple machine(s) and operator(s), which may include but are not limited to: assistance during heat contingency, welding, repositioning and placing large diameter pipe, etc.
Type .5 = Construction Field Support requiring an average small size crew when requested by the facility operator to assist the facility operator or speciality contractor hired by the facility operator in shifting and supporting the conduits during pipe-ripping operations and all else necessary as required to complete the work including but not limited to constructing temporary work platform and temporary weather protection.

E. Price to Cover

The unit price bid for the various construction field support items shall include the cost of all labor, materials, equipment, insurance, and incidentals necessary to provide construction field support, which may include but is not limited to working over, under, adjacent to, around, in between and in close proximity of surface and subsurface utility facilities and exposing, supporting, protecting and maintaining the integrity of the facilities without disruption of service to the general public, utility customers and in accordance with the Contract Documents at various locations approved by the Facility Operator in consultation with the Resident Engineer. The unit price shall also include openings and closings of plates, and cones, barrels, arrow-boards, etc. and installing, shifting, moving and relocating cones, barrels, arrow-boards, etc. as may be required in order to provide access to excavations and during specialty work being performed by others excluding work operations covered under JB402T. The unit price shall also include excavating by hand to expose existing structures. Any required removing, trucking, storing, and disposing of material shall be deemed included in the unit price bid. The unit price shall also include the cost of supporting and protecting all utilities encountered during the construction field support operation, as required except work operations covered under JB 402T. The unit price bid shall also include alternate methods for construction field support, which may include changes in equipment and special operations, and sequencing and the use of only all hand-held tools due to existing field conditions, including potential delays and extended performance. Any and all Contractor method changes and operation modifications employed for construction field support are deemed to be included in the price bid for this item. Work under this item may be paid in combination with other City, utility or facility accommodation Items bid under other contract items except where expressedly excluded from that item.

F. References

1. Sketches JB 100A, JB 100B

[NO FURTHER TEXT HERE.]

JB 603T - FURNISH AND INSTALL TELECOMMUNICATIONS CONDUITS

A. Description

Under this Section, the Contractor shall provide all labor, materials, equipment, insurance, and incidentals required to procure and install conduit for the purpose of installing the facility operator's utilities. Conduit runs shall be as shown on the contract drawings or as specified by the facility operator in consultation with the Resident Engineer.

B. Materials

Conduit shall consist of:
PVC – 2" and 4" diameter or 1 ¼" Quad, Type "C" as supplied by American Pipe and Plastics or approved equal
Steel - 4" diameter, ASTM A53, Schedule 40 or approved equal
All conduit including sleeves, couplings, bends, pulling lines, etc. shall be supplied by the Contractor and approved by the facility operator in consultation with the resident Engineer.
The Contractor shall supply all material (Mortar, Brick, etc.) to make repairs to opening(s) as approved by the facility operator in consultation with the Resident Engineer.

C. Method of Construction

The Contractor shall install the specified conduit(s) then rod, mandrel and wire (install pulling line) the new conduits. When conduit pipes are to be connected to existing underground ducts, manholes, or boxes, the Contractor, using hand-held tools only, shall cut existing conduit, to pick-up existing underground conduits with new conduits, make openings into manholes or boxes, install/connect the conduit, and make repairs to seal the openings in the structure.

Steel pipe shall be used for shallow cover and crossing or paralleling steam mains as directed by the facility operator in consultation with the Resident Engineer.

When the facility operator required a combination of conduit types and materials the facility operator will define the configuration of the conduit system and the location of each type within the conduit bank. All conduit shall be spaced 1 ½" both vertically and horizontally from the adjacent conduit(s). All conduits shall be encased in lean concrete ($f'c$ = 1200 to 1500 psi maximum) which shall extend 2" beyond each face of the conduit formation, above and each side of the conduit formation.

If due to subsurface conditions, the cover is less than 20" from finished grade, the duct shall be protected with steel plates furnished by the facility operator(s) and measured for payment under Item JB 403.

The work shall be performed in accordance with the contract plans, specifications, and at the directions of the facility operator in consultation with the Resident Engineer.

D. Methods of Measurement

The quantity to be measured for payment shall be the number of linear feet (LF) of conduit trench for which conduit was furnished and installed:

1. 603T.1 - Install 1 ea. 2", 4" or 1 ¼" Quad" Conduit (PVC or Steel) in any

combination
2. 603T.2 - Install 2 ea. 2", 4" or 1 ¼" Quad Conduits (PVC or Steel) in any Combination
3. 603T.3 - Install 4 ea. 4" or 1 ¼" Quad Conduits (PVC or Steel) in any combination
4. 603T.4 - Install 6 ea. 4" or 1 ¼" Quad Conduits (PVC or Steel) in any combination
5. 603T.5 - Install 8 ea. 4" or 1 ¼" Quad Conduits (PVC or Steel) in any combination
6. 603T.6 - Install 12 ea. 4" or 1 ¼" Quad Conduits (PVC or Steel) in any combination
7. 603T.7 - Install 15 ea. 4" or 1 ¼" Quad Conduits (PVC or Steel) in any combination
8. 603T.8 - Install 24 ea. 4" or 1 ¼" Quad Conduits (PVC or Steel) in any combination
9. 603T.9 - Install 30 ea. 4" or 1 ¼" Quad Conduits (PVC or Steel) in any combination

A Quad, consisting of four 1 ¼" conduits shall be supplied as one unit. For purposes of measurement and payment each quad unit of four 1 ¼" ducts shall be counted as one duct.

For any equivalent combination not fitting the above categories payment shall be based on the next higher category.

E. Price to Cover

The unit price per linear foot of Conduit trench shall cover the cost of all labor, materials, equipment, insurance and incidentals necessary to furnish, install, rod, rope, and perform any other associated work required to install the conduit completely in place. Where conduits are to be connected to ducts, manholes or boxes, the cost of cutting and/or breaking into the ducts, manholes or boxes, installing and sealing the conduit, including duct plugs; and making repairs to the openings in the structure shall be considered as included in the unit price bid for the installation of the conduit. All acceptance testing, including passing a mandrill with a diameter of 1/8" less than the inside diameter of the duct through the entire length of the duct, as required by the facility operator shall be considered as included in the unit price.

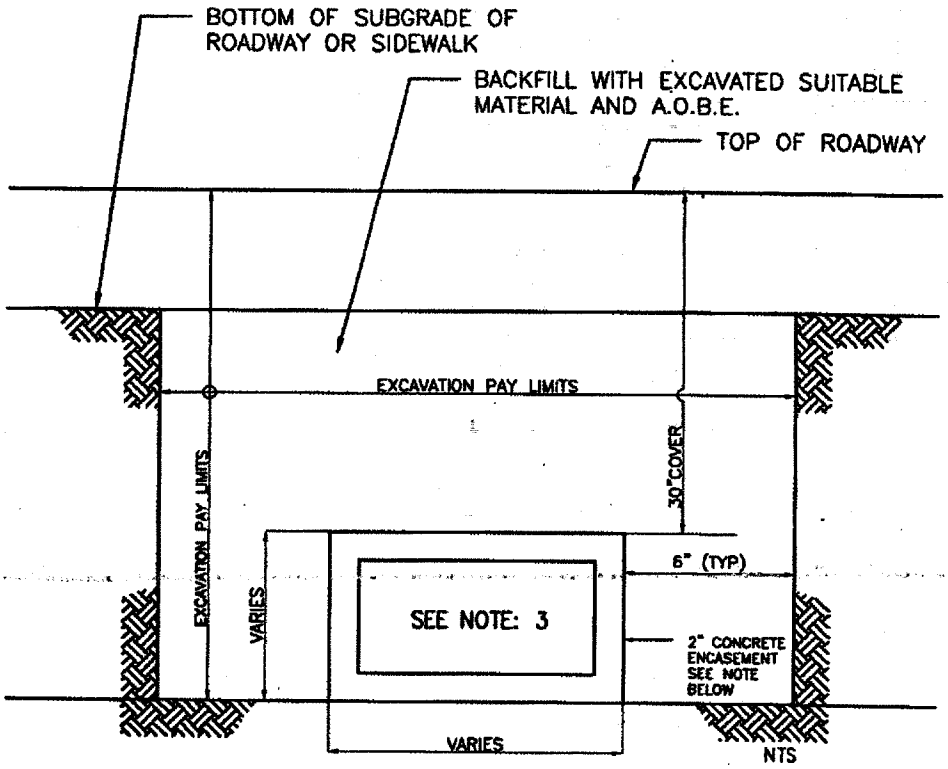
Payment for trench excavation shall be paid under Item JB 405.

Steel protection plates shall be paid for under Item JB 403T

F. References

1. Sketch JB 603T
2. Item JB 405
3. American Pipe and Plastics, P.O. Box 577, Binghamton, N.Y. 13902

[NO FURTHER TEXT HERE.]



TYPICAL CONDUIT EXCAVATION AND BACKFILL

NOTES:

QUEENS, BROOKLYN & STATEN ISLAND

1- CONCRETE ENCASE REQUIRED IF TOP OF DUCTS IS 20" OR LESS FROM SURFACE AND ALL BENDS, SWEEPS AND CHANGE OF GRADE. FOR COVER LESS THAN 20", 3/8" STEEL (A36M) COVER PLATES IN ADDITION TO THE CONCRETE ENCASEMENT SHALL BE PROVIDED.

MANHATTAN & BRONX,

2- FOR COVER LESS THAN 20", 1/4" STEEL (A36M) COVER COVER PLATES IN ADDITION TO THE CONCRETE ENCASEMENT SHALL BE PROVIDED.

3- CONDUIT CONFIGURATION TO BE DETERMINED BY ECS/VERIZON REPRESENTATIVE.

J.B. SKETCH	
TRENCH EXCAVATION FOR CONDUIT	
09/13/2017	CONTRACT NO. / SKETCH NO. JB 603T

JB 636E - ADJUSTMENT OF UTILITY HARDWARE

Under this section the Contractor shall adjust existing utility street hardware including vault grates, valve boxes, etc., to the proposed grade by either building up or lowering the installation and resetting the castings, as and where directed by the facility operator.

A. Description

Building up or lowering the installation and resetting the castings shall consist of removing the existing frame and cover, building up or decreasing the existing installation, replacing the frame and/or cover if damaged, as determined by the facility operator, with a new frame and/or cover furnished by the facility operator, and setting the frame and cover to the new elevation.

B. Materials

Materials used shall comply with the Standards and specifications of the facility operator having jurisdiction over the installations. Where high-early strength concrete is required by the Resident Engineer to be placed adjacent to utility installations then the requirement for mortar shall be quick setting mortar capable of obtaining a minimum compressive strength of 1,500 psi in two (2) hours, and the requirement for concrete shall be high-early strength complying with current N.Y. State Department of Transportation, Standard Specifications for Class F concrete.
When castings and/or covers are deemed inadequate at a location as determined by the facility operator, the facility operators shall furnish new castings and/or covers to the Contractor for installation. The Contractor is required to inform the utility operator in advance of the need for the castings. Materials supplied by the facility operator shall be delivered to the contractor's designated storage area.

C. Methods of Construction

The Contractor shall breakout and dispose of sidewalk, curb, pavement and/or pavement base around existing casting, excavate as required to remove casting and install existing or replacement casting, remove casting, protect opening, reinstall existing casting or install new casting to the proposed grades, backfill, grade and compact fill around casting, install base concrete and or sidewalk pavement and curb, tack coat around frame, install and remove temporary pavement around casting where directed by the facility operator; and install and compact asphalt binder and wearing course or other permanent pavement around casting and perform all work in accordance with the contract plans and the specifications.

Setting or resetting the castings shall be done with bricks plus mortar and/or by raising or lowering adjustable castings according to the standards of the utility owner having jurisdiction over the installation. Work shall be done in a workmanlike manner. Any damage resulting from the Contractor's operations to the existing installation which is to remain shall be satisfactorily corrected at the Contractor's own expense, as directed by the facility operator. Castings, which are deemed unacceptable for resetting, shall become the property of the Contractor and shall be removed and disposed of by him away from the site.

No traffic shall be allowed on adjusted utility hardware until permitted by the facility operator.

D. Method of Measurement

The quantity to be measured for payment shall be the number of utility hardware units (EA) in each size group actually adjusted as specified under each item. The size of each utility hardware unit, measured in width, shall be defined as either, the diameter of the exposed edge of the casting, or the exposed edge of the longest side of rectangular frames as indicated in sketch JB 636.

For Castings in Roadway

JB 636 EA RD - Adjustment of Utility Hardware (Under 7" Width)
JB 636 EB RD - Adjustment of Utility Hardware (7" to under 14" Width)
JB 636 EC RD - Adjustment of Utility Hardware (14" to under 30" Width)
JB 636 ED RD - Adjustment of Utility Hardware (30" to under 34" Width)
JB 636 EE RD – Adjustment of Utility Hardware (34" to under 41" Width)
JB 636 EG RD - Adjustment of Utility Hardware (41" to under 75" Width)
JB 636 EH RD - Adjustment of Utility Hardware (75" to under 125" Width)
JB 636 EI RD - Adjustment of Utility Hardware (125" to under 170" Width)

For Castings in Sidewalk

JB 636 EA SW - Adjustment of Utility Hardware (Under 7" Width)
JB 636 EB SW - Adjustment of Utility Hardware (7" to under 14" Width)
JB 636 EC SW - Adjustment of Utility Hardware (14" to under 30" Width)
JB 636 ED SW - Adjustment of Utility Hardware (30" to under 34" Width)
JB 636 EE SW – Adjustment of Utility Hardware (34" to under 41" Width)
JB 636 EG SW - Adjustment of Utility Hardware (41" to under 75" Width)
JB 636 EH SW - Adjustment of Utility Hardware (75" to under 125" Width)
JB 636 EI SW - Adjustment of Utility Hardware (125" to under 170" Width)

E. Price to Cover

The price for re-grading utility hardware shall be the unit price per each (EA.) and shall cover the cost of furnishing all labor, materials, plant, equipment, and incidentals required to remove existing frames and covers; build up the existing installations with brick and mortar, or lower the existing installations by removing bricks and mortar; replace damaged frames and/or covers with frames and/or covers furnished by others; break out pavement and/or pavement base; protect existing opening and installation; set the frames and covers to new elevations; grade and compact fill; install base concrete; tack coat frame; install, remove, and dispose temporary pavement; install and compact asphalt binder and wearing course or other permanent pavement; repair minor structural damage to existing installations prior to resetting frames; unloading of furnished castings at the Contractor's yard and transporting castings from the Contractor's yard to the job site as required; and complete the work in accordance with the plans, the specifications, and the directions of the facility operator.

F. References

1. NYS DOT Standard Specs for Class F Concrete
2. Con Edison Specifications, latest revisions. EO-10321-B, latest revision – Chimneys, collars & grading blocks for manholes & vaults construction and installation
3. Sketch JB 636E

[NO FURTHER TEXT HERE.]

JB 636M – MODIFICATION OF WORK METHODS TO ACCOMMODATE UTILITY HARDWAREDURING PAVEMENT MILLING AND RESURFACING OPERATIONS

A. Description

Under this section, the Contractor shall provide all labor, materials, equipment, insurance, and incidentals required to maintain, protect, and accommodate the integrity of utility hardware during pavement milling and resurfacing operations. Hardware includes castings, frames, and covers on utility structures, valve box cover castings, concrete collars around steam castings, and all other hardware protecting utility facilities.

B. Materials – N/A

C. Method of Construction

Removal of existing pavement around utility hardware shall be performed by the Contractor with extreme caution by utilizing appropriate methods of operation, by employing specialized construction equipment, and by special operations and sequencing.

The Contractor shall not mill existing pavement within 12" of the perimeter of utility hardware. Removal of pavement within 12" of the perimeter of utility hardware shall be by cutting with pavement breakers or other methods as proposed by the Contractor. All methods shall be presented to the facility operator by the Contractor prior to the start of construction and shall be approved by the facility operator.

During removal of existing pavement and for the duration of project, the Contractor shall protect utility hardware from damage by the Contractor's operations and traffic. Contractor shall also provide all necessary protection to pedestrians to prevent injury to pedestrians when crossing utility hardware during the project. Utility street hardware damaged by the Contractor or others during the project shall be replaced by the Contractor at Contractor's expense.

The Contractor shall not place any paving materials over utility hardware during the project and shall maintain free and unobstructed access to all structures at all times. The Contractor shall maintain all covers free of debris and protect the covers, if necessary, from residue that results from the paving operation.

D. Method of Measurement

The quantity to be measured for payment shall be the number of utility hardware units (EA.) in each size group actually adjusted as specified under each item. The size of each utility hardware unit, measured in width, shall be defined as either, the diameter of the exposed edge of the casting, the exposed edge of elliptical castings measured along the major axis or the exposed edge of the longest side of rectangular frames as indicated in sketch JB 636E.

JB 636 MA – Modification of Work Methods to Accommodate Utility Hardware (Under 7" Width)

JB 636 MB – Modification of Work Methods to Accommodate Utility Hardware (7" to under 14" Width)

JB 636 MC – Modification of Work Methods to Accommodate Utility Hardware (14" to under 30" Width)

JB 636 MD – Modification of Work Methods to Accommodate Utility Hardware (30" to under 34" Width)

JB 636 ME – Modification of Work Methods to Accommodate Utility Hardware (34" to under 41" Width)

JB 636 MG – Modification of Work Methods to Accommodate Utility Hardware (41" to under 75" Width)

JB 636 MH – Modification of Work Methods to Accommodate Utility Hardware (75" to under 125" Width)

JB 636 MI – Modification of Work Methods to Accommodate Utility Hardware (125" to under 170" Width)

JB 636 SMB – Modification of Work Methods to Accommodate Utility Steam Hardware (Under and including 8" Width)

JB 636 SMC – Modification of Work Methods to Accommodate Utility Steam Hardware (Above 8" to 34" Width)

A. Price to Cover

The price to modify work methods to accommodate Utility Hardware during pavement milling and resurfacing operations shall include the cost of all incremental labor, materials, time, equipment, insurance and incidentals required for removal and disposal of existing pavement, installation and compaction of base and wearing course materials, installation and compaction and removal of temporary asphalt concrete mixture, tack coating; in accordance with the plans, the specifications and the directions of the facility operator. The price to cover shall further include the cost of maintaining, protecting, and accommodating the integrity of utility street hardware during the project and during the performance of milling and resurfacing and the incremental additional work and effort made necessary to protect pedestrians from injury when crossing utility hardware during the project. The price to cover shall further include additional areas of modification of work methods beyond 12" of the perimeter of the utility street hardware due to the milling equipment and the location of other utility hardware, city street hardware, utility poles, street lights, traffic signals, curbs, sidewalks, medians, guide rails, pavement stops, cobblestones, and pavers. The price to cover for Items JB 636 SMB and JB 636 SMC shall also include modification of work methods due to existing concrete collars surrounding these castings.

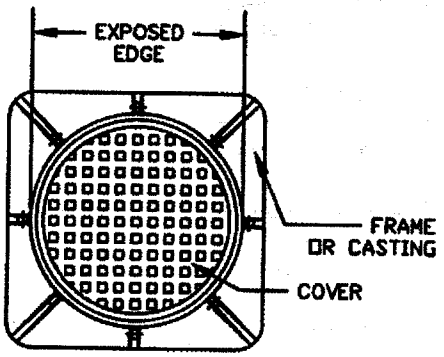
Payment for all work herein specified shall be made on a one-time basis only; no payment for work herein specified shall be made for the same area more than one time. Adjustment to utility hardware shall be paid for under the appropriate JB 636E item.

E. References

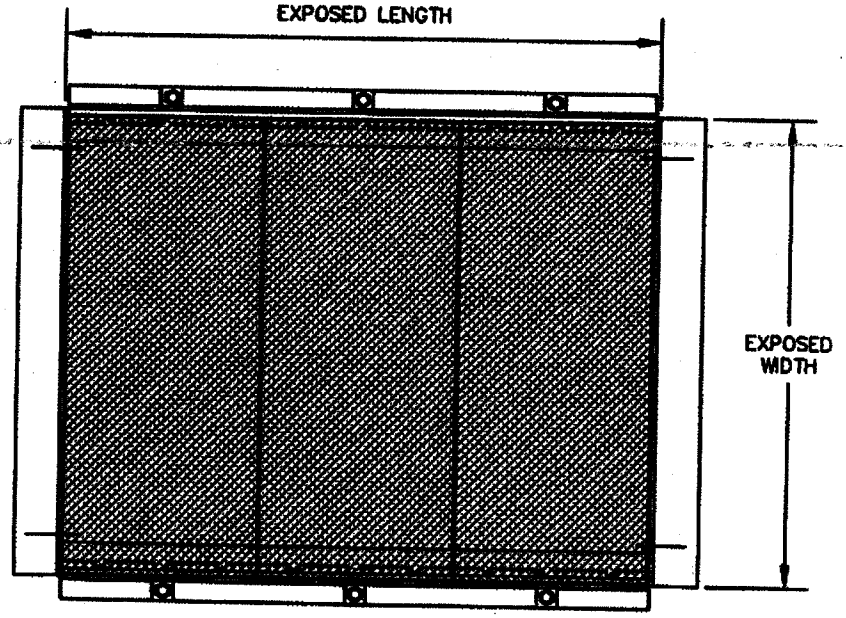
1. Sketch JB 636E
2. JB Item 636E

[NO FURTHER TEXT HERE.]

ROUND COVERS



RECTANGULAR COVERS/FRAMES



PLAN VIEW

N.T.S.

ADJUSTMENT OF
UTILITY HARDWARE

LAST REVISION	SKETCH NO.
6/30/2015	JB 636E

JB 636 RM - Rebuilding and Modifications to Utility Structures

A. Description

This section describes the work of performing the rebuilding of utility structures by rebuilding the existing structures using methods approved by the facility operator. This section also describes the work of performing modifications to utility structures to accommodate changes in roadway or sidewalk grades that cannot be accomplished by adjustment of frames and covers, as described by Section 636 E, in the judgment of the facility operator. The existing structures shall be modified using methods approved by the facility operator in consultation with the Resident Engineer.

Rebuilding and or modifications of utility structures, which include boxes, manholes, vaults and valve boxes; shall be as directed by the facility operator and for structures with a monolithic roof shall include:

- Removing the existing frame and cover, followed by
- Demolition of all or a portion of the walls, floor, and monolithic roof, followed by
- Rebuilding of all or a portion of the floor, followed by
- Rebuilding:
- A portion of the walls or
- A portion of the walls plus a vertical extension or
- All of the walls or
- All of the walls plus a vertical extension, followed by
- Rebuilding all or a portion of the monolithic roof or replacement with a non-monolithic roof.

Rebuilding and or modifications of utility structures, which include boxes, manholes, vaults and valve boxes; shall be as directed by the facility operator and for structures with a non-monolithic roof shall include:

- Removing the existing frame, cover, and roof slab, followed by
- Demolition of all or a portion of the walls and floor, followed by
- Rebuilding:
- A portion of the walls or
- A portion of the walls plus a vertical extension or
- All of the walls or
- All of the walls plus a vertical extension, followed by
- Installation of the existing roof slab or a new non-monolithic roof slab.

B. Materials

All materials used shall comply with the standards of the facility operator. The Contractor shall obtain pre-cast roofs that are available from a facility operator's vendor from that vendor.

C. Method of Construction

All work shall comply with the specifications, plans, and standards of the facility operator. The Contractor shall perform the necessary rebuilding of the floor, walls, and roof of the existing utility structure as directed by the facility operator. New roof slabs shall be monolithic or nonmonolithic as directed by the facility operator. New non-monolithic roofs shall be removable and cast on site or pre-cast as directed by the facility operator. No traffic shall be allowed on modified structures until permitted by the facility operator.

The Contractor shall perform the necessary modifications to the walls and roof of the existing utility structure to accommodate changes in roadway or sidewalk grades that cannot be accomplished by the adjustment of frames and covers as directed by the facility operator. New roof slabs shall monolithic or non-monolithic as directed by the facility operator. New non-monolithic roofs shall be removable and cast on site or pre- cast as directed by the facility operator. No traffic shall be allowed on modified structures until permitted by the facility operator.

Adjusting existing or new frames and covers shall be as described in JB 636E.

All work shall be done in a workmanlike manner and any damage resulting from the Contractor's operations shall be satisfactorily corrected as directed by the facility operator and at the Contractor's expense.

D. Method of Measurement

The quantity to be measured for payment shall be the number of cubic yards (CY) of concrete, pre-cast concrete, brick, and mortar in place to the nearest hundredth of a cubic yard. No deductions will be made for the spaces occupied by steel reinforcement.

E. Price to Cover

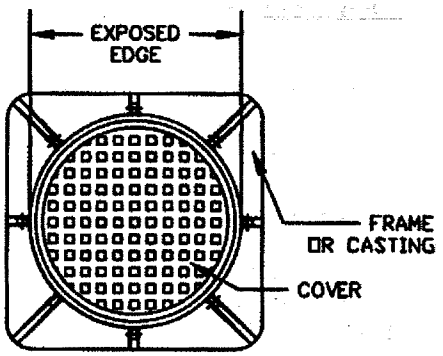
The contract price bid under this item shall be a unit price per cubic yard (CY) of concrete, precast concrete, brick, and mortar placed in the utility structure. The unit price shall cover the cost of all labor, materials, plant, equipment, insurance and incidentals required to rebuild or modify privately owned utility structures, including all pavement breaking, pavement removal and disposal, excavation, haul away, and disposal, furnish and install and compact backfill, sheeting and bracing, removing of frames and covers. The price shall also include demolition of the private utility structure, haul away and disposal of demolished materials, formwork, installation of concrete, bricks, mortar, steel reinforcement, structural steel beams, furnish and install pre-cast roofs, removal and installation of interior hardware, support and protection of all utility facilities within the excavation and structure, and the furnishing of samples, as required. All work shall comply with the plans, specifications, standards, and directions of the facility operator. Resetting of new or existing street hardware shall be paid under JB 636E.

F. References

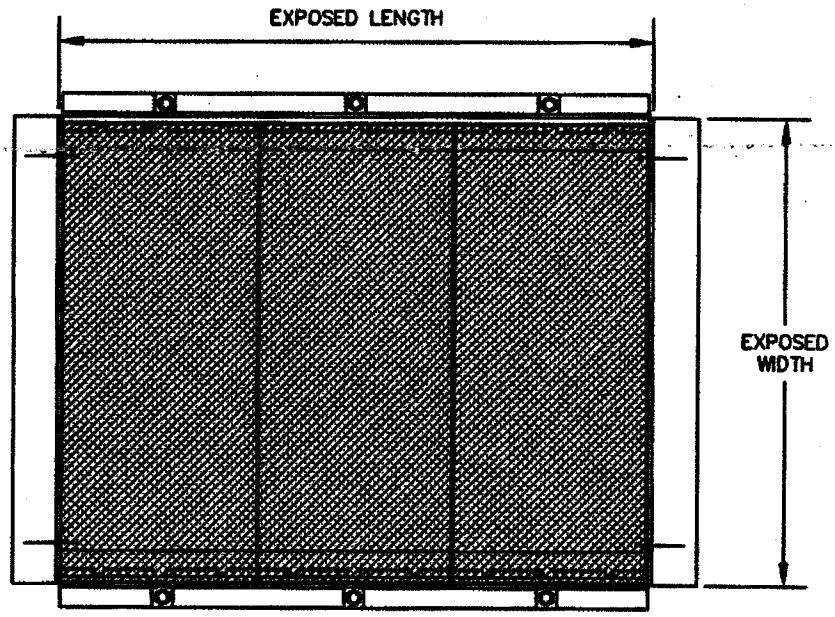
1. JB 636E

[NO FURTHER TEXT HERE.]

ROUND COVERS



RECTANGULAR COVERS/FRAMES



PLAN VIEW
N.T.S.

ADJUSTMENT OF
UTILITY HARDWARE

LAST REVISION	SKETCH NO.
6/30/2015	JB 636E

JB 638NT – FIELD CONSTRUCTED TELECOMMUNICATIONS MANHOLE STRUCTURES

Under this item the Contractor shall perform the complete installation of field constructed utility structures approved by the facility operator in consultation with the Resident Engineer. The utility structure shall be field constructed and installed in compliance with standard utility specifications and/or methods approved by the facility operator in consultation with the Resident Engineer.

A. Description

Installation of field constructed utility structure shall comply with utility standard specifications and/or as directed by the facility operator in consultation with the Resident Engineer and shall include:

- Service Boxes (various sizes)
- Manholes (various sizes)

Where approved by the facility operator, telephone structures may as an alternate be constructed of precast reinforced concrete.

B. Materials

The facility operator will furnish cable racks, pulling-in irons, sump castings, hardware, manhole steps/ladder supports and cast iron frames and covers. All other materials required for a complete manhole installation including concrete, reinforcing steel and structural steel shall be supplied by the Contractor and shall comply with the standards of the facility operator.

The Contractor shall notify the facility operator a minimum of 30 days prior to manhole construction for scheduling materials to be furnished by the utility company. The Contractor shall pick up said materials at the facility operator's yard.

All concrete shall have a minimum compressive strength of 4,000 psi at 28 days.

Reinforcing steel shall be deformed bars conforming to ASTM, Grade 60.

Structural steel shall conform to the requirements of ASTM A-36. Bolts shall conform with the requirements of ASTM A-325.

The Contractor shall supply all necessary materials (mortar, concrete, brick, etc.) for sealing duct entrance windows in manholes and for constructing chimneys and bricking up castings to grade.

C. Method of Construction

All work shall comply with the utility specifications, plans, and standards of the facility operator.

Refer to specification JB 406 for excavation and sheeting requirements associated with telephone manhole construction. Where replacement manholes are indicated on the plans, the demolition and removal of the existing manhole structure and the protection of existing cables and splices will be paid separately under JB 638R.

The Contractor shall perform the necessary field construction of the floor, walls, and roof of the utility structure as shown on the Plans and as directed by the facility operator in consultation with the Resident Engineer. No traffic shall be allowed on the structure until permitted by the facility operator in consultation with the Resident Engineer.

Field conditions may require the contractor to modify the design of the manhole structure, as directed by the facility operator in consultation with the Resident Engineer.

Refer to specification JB 636E for guidelines relating to the installation of new frames and covers. All structural steel roof beams shall be ground free of burrs and painted with one shop coat and two field coats of finish paint. The Contractor shall make provisions for and incorporate into the manhole all required materials as shown on the Plans, standard utility details or as directed by the facility operator in consultation with the Resident Engineer.

The Contractor shall provide duct entry windows in the new manhole as shown on the Plans and as directed by the facility operator. All windows shall be properly sealed around new ducts per utility company requirements.

All cable racks and wall brackets shall be supported on walls with ½" dia. X 2-½" long galvanized steel machine bolts using ½" concrete inserts or expansion bolts. Vertical spacing of inserts shall not exceed 18" o.c. (typ).

The Contractor shall confirm placement of concrete inserts for cable rack supports, pulling-in irons, and other embedments shown on the Plans with the facility operator, in consultation with the Resident Engineer, prior to manhole construction.

All work shall be done in a workmanlike manner and any damage resulting from the Contractor's operations shall be satisfactorily corrected as directed by the facility operator in consultation with the Resident Engineer and at the Contractor's expense. The contractor shall perform the installation of the utility structure while maintaining, supporting, and protecting and accommodating the integrity of all utility facilities (without disruption of service) located within the areas of the excavation and the field constructed structure.

This item shall also apply when partially or totally rebuilding or modifying an existing utility structure.

The Contractor is advised that in lieu of poured-in-place structures the substitution of Precast Reinforced Concrete Structures that comply with Utility Specifications, will be permitted only when approved by the facility operator in consultation with the Resident Engineer, along with the following provisions:

1. Precast telephone manholes shall be constructed to the interior manhole dimensions and details shown on the Plans.

2. The Contractor shall submit shop drawings and design calculations for each precast manhole structure for review and approval by the facility operator and the Resident Engineer prior to fabrication. Shop drawings shall show the overall structure dimensions, roof openings, window sizes and locations, sump locations, reinforcing steel and details, construction joint types and locations including sealant material proposed. The inside face of all windows (4 sides) shall be beveled and provisions made for all inserts and hardware for a complete manhole installation, including cable pulling iron embedments and cable rack insert embedments in accordance with the standards and requirements of the facility operator.

3. Precast manhole design criteria shall be as follows:
   - Concrete Minimum Compressive Strength: 4,000 psi or greater at 28 days.
   - Steel Reinforcement: ASTM A-615, Grade 60.
   - Design Loading: AASHTO HS20-44
   - Shop drawings and calculations shall state design methodology used and all design assumptions including soil pressures and ground water levels used in the design.

4. A 9-inch thick compacted stone ballast leveling pad shall be provided as a foundation for all precast manholes

D. Method of Measurement

The quantity to be measured for payment shall be the number of cubic yards (CY) of concrete, cast on site or pre-cast, as specified, concrete, brick, and mortar in place to the nearest hundredth of a cubic yard. No deductions will be made for the spaces occupied by steel reinforcement.

E. Price to Cover

The unit price under this item shall be a unit price per cubic yard (CY) of concrete, cast on site or pre-cast, as specified, concrete, brick, and mortar placed in the field constructed utility structure. The unit price shall cover the cost of all labor, materials, plant, equipment, insurance and incidentals required to field construct partially or totally, rebuild or modify, a utility structure. The unit price shall also include all formwork installation and removal, installation of concrete, bricks, mortar, steel reinforcement, structural steel beams, furnish and install pre-cast concrete, chimney, and installation of interior and exterior hardware, including frames and covers. The Contractor shall also install pipes, conduits, sumps, drains, sleeves, related steel or cast iron materials or equipment through the structures as shown on the drawings. Upon removal of forms, the Contractor shall remove debris and face off the entire interior of the structure. The unit price includes necessary realignment of existing ducts into the new structure up to five feet from the outside face of the new structure; any additional duct realignment required shall be paid under a separate JB item. The unit price shall further include the cost of maintaining, supporting, protecting and accommodating the integrity of all utility facilities (without disruption of service) during the work within the areas of excavation and the field constructed structure, and the furnishing of samples, as required. All work shall comply with the plans, specifications, standards, and directions of the facility operator in consultation with the Resident Engineer.

All pavement breaking, pavement removal and disposal, excavation, haul away, and disposal, furnish and install backfill, temporary pavement, sheeting, bracing, and all necessary incidentals shall be paid under item JB 406, only if required. All required break out and disposal of all types of conduits/duct banks in new structure area, including maintenance and support of cable shall be included in JB 638R. Where precast reinforced concrete manholes are used in lieu of poured in place manholes, the cost for furnishing, delivery and installation of the precast reinforced structures, additional excavation associated with the widening and deepening of trench due to increased width of precast structures and due to the placement of a stone ballast leveling pad; stone ballast; connections; and all work incidental thereto all in accordance with the Plans, Specification and Standards, shall be deemed included under this item. No additional or separate payments will be made for any work associated with the installation of precast reinforced structures.

The cost of providing an anti-freeze additive in concrete, when required, shall be paid for under Item 9.04 HW.

F. References

1. JB 406
2. JB 636E
3. JB 638R
4. Standard Utility Specifications and Drawings

[NO FURTHER TEXT HERE.]

JB 638R – BREAK OUT AND REMOVE UTILITY STRUCTURE CONTAINING ACTIVE FACILITIES

A. Description

Under this section the Contractor shall provide all labor, materials, equipment, insurance and incidentals necessary to partially or totally break out and remove existing utility structures using methods approved by the facility operator. Breaking out and removing existing utility structures shall be performed while maintaining and protecting all subsurface facilities, at locations approved by the Facility Operator. The Contractor will encounter various underground facilities, located both inside and outside the utility structure, while partially or totally breaking out and removing existing utility structures and will be required to excavate and perform work over, under, adjacent to, around, in between and in close proximity of various congested configurations of multiple facilities, conduits, pipes and cables.

All work required to partially or totally break out and remove existing utility structures shall comply with standard utility specifications and/or as directed by the facility operator and shall include but not be limited to:

- Service Boxes (various sizes)
- Manholes (various sizes)
- Vaults (various sizes)
- Valve Boxes (various sizes)
- Concrete encased conduits containing cables

B. Materials

All materials used shall be supplied by the Contractor and comply with the standards of the facility operator.

C. Method of Construction

The Contractor shall perform the necessary breaking out and removal of the existing utility structure while maintaining and protecting all subsurface facilities. The Contractor will encounter various underground facilities located both inside and outside the utility structure, while partially or totally breaking out and removing existing utility structures and will be required to excavate and perform work over, under, adjacent to, around, in between and in close proximity of various congested configurations of multiple facilities, conduits, pipes and cables, as directed by the facility operator. All work shall be done in a workmanlike manner and any damage resulting from the Contractor's operations shall be satisfactorily corrected as directed by the facility operator and at the Contractor's expense.

This item shall also apply when partially or totally breaking out and removing an existing utility structure.

The rebuilding of the utility structure is covered under JB 638N AND 638NT.

D. Method of Measurement

The quantity to be measured for payment shall be the number of cubic yards (CY) of concrete, reinforced concrete, brick, and mortar of the existing utility structure broken out, removed and disposed to the nearest hundredth of a cubic yard. No deductions will be made for the spaces occupied by steel reinforcement.

E. Price to Cover

The unit price bid under this item shall be a unit price per cubic yard (CY) of concrete, reinforced concrete, brick, and mortar of the existing utility structure broken out, removed and disposed. The unit price shall also cover the cost of all labor, materials, plant, equipment, insurance, and incidentals required to partially or totally break out, remove and dispose of existing utility structure. The unit price shall also include demolition of the existing utility structure, haul away and disposal of demolished materials, formwork, concrete, bricks, mortar, steel reinforcement, structural steel beams, interior hardware, exterior hardware, including frames and covers. The unit price shall further include the cost of maintaining, supporting, protecting and accommodating the integrity of all utility facilities (without disruption of service) during the work within the areas of excavation and the existing structure. All work shall comply with the plans, specifications and standards, provided by and at the directions of the facility operator.

The unit price shall include providing access to the facility operator tenants to verify and test cables before, during and after breaking out and removal of the utility and after conduit removal by the Contractor. The unit price shall include, but not limited to, opening and closing of fences; removal and replacement of temporary timber curb and opening and closing of traffic plates. Access to adjacent manholes impacted by the run is included in this item. JB 450 shall not be used in conjunction with JB 638R as JB 638R covers access to the work site at all times.

All pavement breaking, pavement removal and disposal, excavation, haul away, and disposal, furnish and install backfill, temporary pavement, sheeting, bracing, and all necessary incidentals shall be paid under item JB 406, only if required.

F. References

1. JB 406
2. JB 636E
3. JB 638R
4. Standard Utility Specifications and Drawings

[NO FURTHER TEXT HERE.]

JB 798 - MODIFICATION OF NON CONCRETE YOKE TROLLEY STRUCTURES REMOVAL WHEN CROSSING UTILITY FACILITES

A. Description

This JB item shall only be applied to trolley structure systems that do not contain concrete yoke foundations. This JB item shall only be used for trolley systems that have rails and wood ties only.

Under this section, the Contractor shall provide all incremental labor, equipment, insurance and incidentals required to maintain and protect and accommodate the integrity of utility facilities that include but are not limited to:

1. Conduits;
2. Conductors;
3. Concrete encased Conduit banks;
4. Steel Pipes; Steam Facilities;
5. Oil-o-static Facilities;
6. Non-cost Sharing Gas Facilities;
7. Steam Facilities;

of various sizes and configurations crossing trolley structures at various angles located within a zone of protection, as indicated on Sketch JB 798, during the removal of trolley structures and subsequent backfilling operations. Utility facilities that run parallel to trolley structures are not included within this item and will be paid for under the appropriate JB item. The work shall be performed in accordance with the contract plans, the specifications, and as encountered during construction and directed by the facility operator.

B. Materials – N/A

C. Method of Construction

The Contractor shall maintain, protect, and accommodate the integrity of all utility facilities of various sizes and configurations crossing trolley structures within a zone of protection as indicated in Sketch JB 798, during removal of trolley structures and subsequent backfilling and compaction operations under other contract item(s). The facility operator shall identify the locations of all utilities within the contract area as required by New York State Industrial Code Rule 753. As provided by the Rule, the Contractor shall use hand excavation methods (pick and shovel or hand held power tools) directly below the pavement base to expose the utility and ascertain the numerical relationships and/or dimensions of these utilities with respect to the proposed excavation. Contractor shall perform test pits at locations determined by the facility operator to expose utility as specified in JB 400. Upon exposing the affected utilities sufficiently, and at the sole discretion of the facility operator to determine relationships and/or dimensions, the Contractor shall be permitted to proceed with care to remove existing trolley structure within the zone of protection whose limit shall be defined as a distance of 24 inches from the outside face of each utility crossing.

D. Method of Measurement

The quantity to be measured for payment shall be the number of linear feet of modified trolley structure removal within the zone of protection as indicated on JB Sketch 798, measured along the centerline of trench. The trench is defined as one track set containing two rails. The zone of protection shall be defined, for the purpose of this agreement, as the boundary/area designated on the plans or a boundary/area 24 inches to either side of each of the designated facilities, based upon available records and/or information obtained from prior or new test pits, or any combination thereof. Where overlapping of the zones occurs due to multiple facilities, the boundary/area shall be modified to one zone measured from the outside limits. The contract item specified under this section shall not be measured for payment in conjunction with other types of utility items. Modifications to work methods required in areas between zones of protection for multiple utilities or JB facilities shall not be measured for payment and are included in the price bid for this item.

E. Price to Cover

The unit price per linear foot shall include the incremental cost for all labor, equipment, insurance and incidentals required to maintain and protect and accommodate the integrity of utility facilities during the removal of trolley structures (including rails, timber ties, trolley conduits and main conduit), and backfilling and compacting within a zoned area designated for protection of utilities by the facility operator.

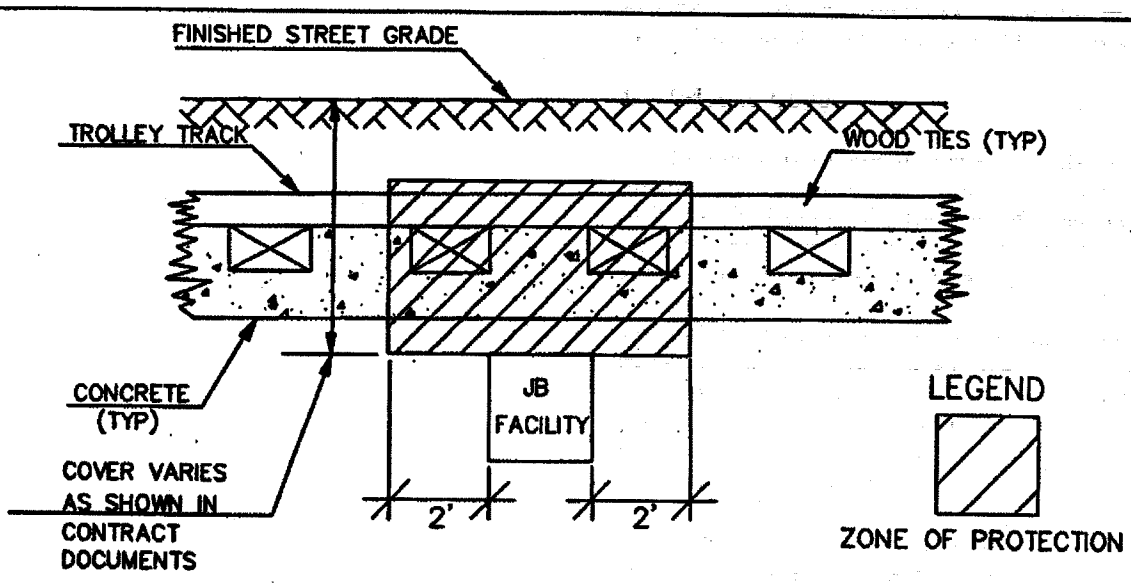
The price shall include any additional cutting, removing and disposing of roadway materials; hand or machine excavation; trucking and disposing of excavated materials, installation and removal of sheeting; and furnishing, installing and compacting backfill that may be required to support, protect, maintain and accommodate the integrity of utility facilities. The price shall also include means to ascertain the numerical relationship between utility and the trolley structure and the incremental cost for providing all vehicular and pedestrian traffic maintenance necessary to perform the work.

The Contractor shall be responsible for any and all damages resulting from and/or due to trolley demolition operations that are not performed in accordance with the specifications. When this work is performed within a mass excavation area, a credit will be taken for the removed trolley structure.

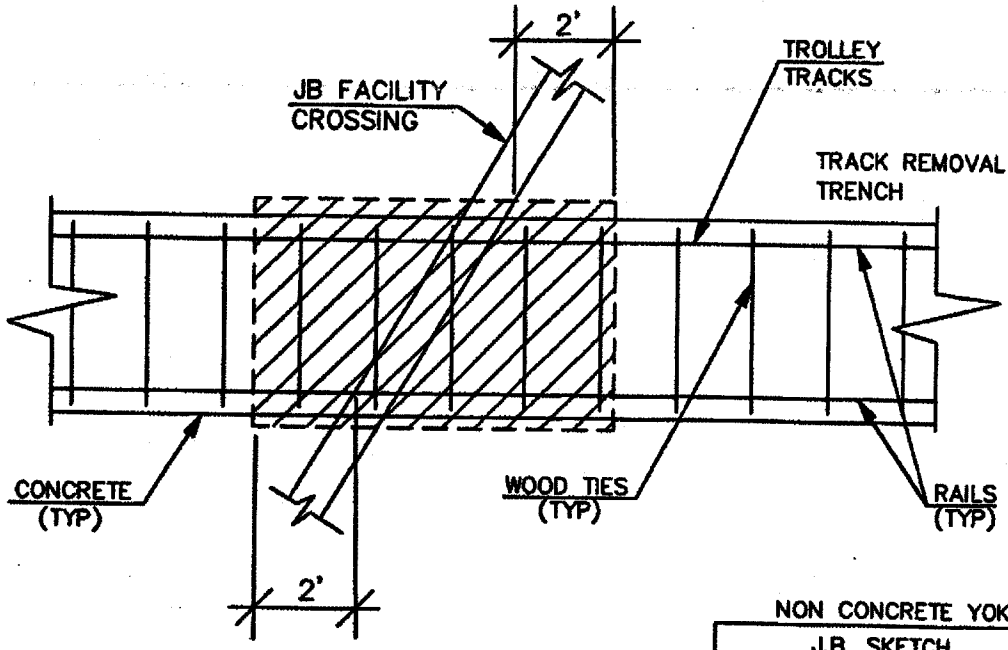
F. References

1. NYS Industrial Code Rule 753
2. Sketch JB 798

[NO FURTHER TEXT HERE.]



SECTION OF JB FACILITIES CROSSING TROLLEY TRACKS



PLAN OF JB FACILITIES CROSSING TROLLEY TRACKS

NON CONCRETE YOKE

J.B. SKETCH

ACCOMODATION FACILITIES CROSSING TROLLEY RAILROAD STRUCTURES

REVISIONS	CONTRACT NO.	SKETCH NO.
11/28/2018		JB 798

JB 799 - MODIFICATION OF NON CONCRETE TROLLEY STRUCTURES REMOVAL PARALLEL TO UTILITY FACILITIES

A. Description

This JB item shall only be applied to trolley structure systems that do not contain concrete yoke foundations. This JB item shall only be used for trolley systems that have rails and wood ties only.

Under this section, the Contractor shall provide all incremental labor, equipment, insurance and incidentals required to maintain, protect, support and accommodate the integrity of utility facilities that include but are not limited to:

1. Conduits;
2. Conductors;
3. Concrete encased Conduit banks;
4. Steel Pipes; Steam Facilities;
5. Oil-o-static Facilities; and
6. Non-cost Sharing Gas Facilities;
7. Steam Facilities.

of various sizes and configurations paralleling or encroaching trolley structures located within a zone of protection, as indicated on the Plans or as directed by the field representative, during all trolley structure removal operations and subsequent backfilling operations. Utility facilities which cross over, under and between the trolley structures are not included within this item and will be paid for under the appropriate JB item. The work shall be performed in accordance with the contract plans, the specifications, and as encountered during construction and directed by the facility operator(s).

B. Materials – N/A

C. Method of Construction

The Contractor shall maintain, protect, support and accommodate the integrity of all utility facilities of various sizes and configurations paralleling or encroaching trolley structures within a zone of protection as indicated on the Plans or as directed by the field representative, during removal of trolley structures and subsequent backfilling and compaction operations under other contract item(s). The facility operator(s) shall identify the locations of all utilities within the contract area as required by New York State Industrial Code Rule 753. As provided by the Rule, the Contractor shall use hand excavation methods (pick and shovel or hand held power tools) directly below the pavement base to expose the utility and ascertain the numerical relationships and/or dimensions of these utilities with respect to the proposed excavation. Contractor shall perform test pits at locations determined by the facility operator to expose utility as specified in JB 400. Upon exposing the affected utilities sufficiently, and at the sole discretion of the facility operator(s) to determine relationships and/or dimensions, the Contractor shall be permitted to proceed with care to remove existing trolley structure within the zone of protection whose limit shall be defined as a distance of 24 inches from the outside face of each utility to the edge of the trolley structure.

D. Method of Measurement

The quantity to be measured for payment shall be the number of linear feet of modified trolley structure removal within the zone of protection as indicated on the plans, measured along the centerline of trench. The trench is defined as one track set containing two rails. The contract item specified under this section shall not be measured for payment in conjunction with other types of utility items. Modifications to work methods required in areas between zones of protection for multiple utilities or JB facilities shall not be measured for payment and are included in the price bid for this item.

E. Price to Cover

The unit price per linear foot shall include the incremental cost for all labor, equipment, insurance and incidentals required to maintain, protect, support and accommodate the integrity of utility facilities paralleling or encroaching trolley structures during the removal of trolley structures (including rails, timber ties, trolley conduits, and main conduits), and backfilling and compacting within a zoned area designated for protection of utilities by the facility operator(s).

The unit price shall also include any additional cutting, removing and disposing of roadway materials; hand or machine excavation; trucking and disposing of excavated materials, installation and removal of sheeting; and furnishing, installing and compacting backfill that may be required to support, protect, maintain and accommodate the integrity of utility facilities. The price shall also include means to ascertain the numerical relationship between utility and the trolley structure, and the incremental cost for providing all vehicular and pedestrian traffic maintenance necessary to perform the work.

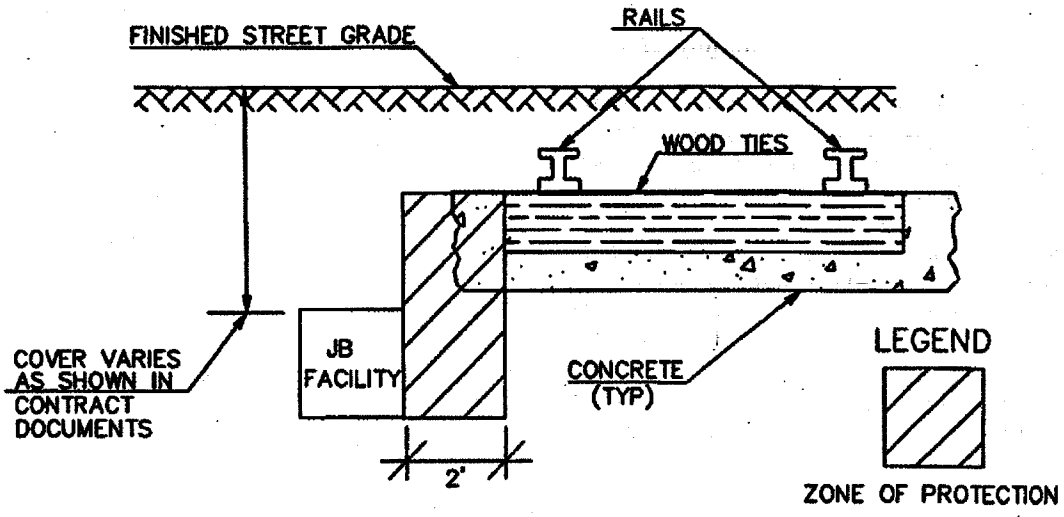
The Contractor shall be responsible for any and all damages resulting from and/or due to trolley demolition operations that are not performed in accordance with the specifications.

When this work is performed within a mass excavation area, a credit will be taken for the removed trolley structure.

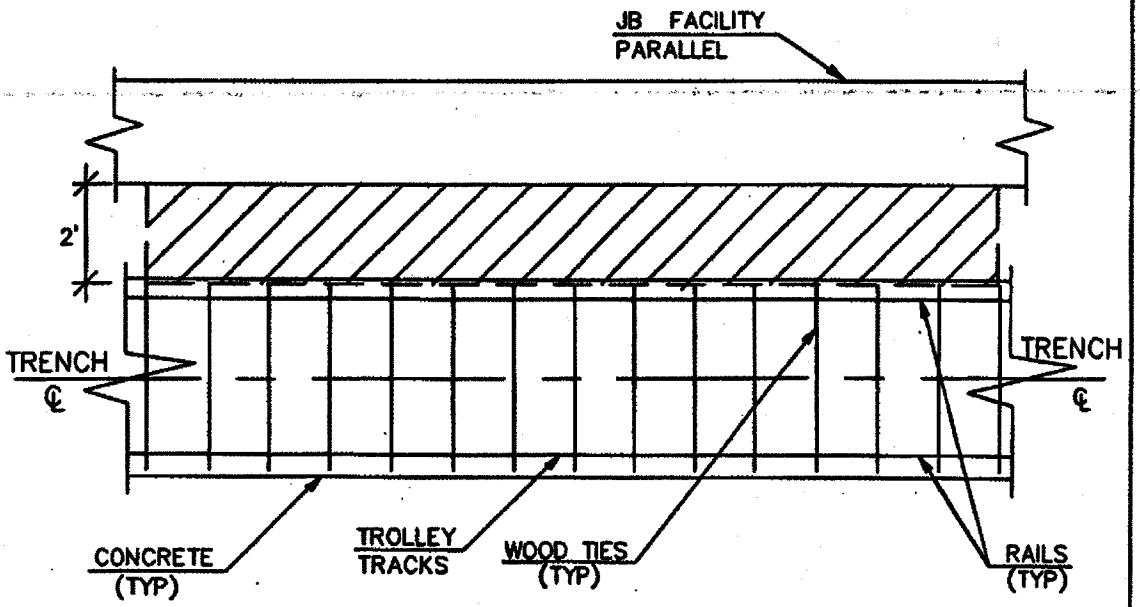
F. References

1. NYS Industrial Code Rule 753
2. Sketch JB 799

[NO FURTHER TEXT HERE.]



SECTION OF JB FACILITIES PARALLELING TROLLEY TRACKS



PLAN OF JB FACILITIES PARALLELING TROLLEY TRACKS

NON CONCRETE YOKE

J.B. SKETCH	
ACCOMODATION FACILITIES PARALLEL TROLLEY RAILROAD STRUCTURES	
REVISIONS	
11/28/2018	CONTRACT NO. / SKETCH NO. JB 799

JB 800 - MODIFICATION OF CONCRETE YOKE TROLLEY STRUCTURES REMOVAL WHEN CROSSING UTILITY FACILITES

A. Description

This JB item shall only be applied to trolley structure systems that contain concrete yoke foundations. This JB item shall not be used for trolley systems that have rails and wood ties only. Under this section, the Contractor shall provide all incremental labor, equipment, insurance and incidentals required to maintain and protect and accommodate the integrity of utility facilities that include but are not limited to:

1. Conduits
2. Conductors
3. Concrete encased conduit banks
4. Steel pipes
5. Oil-o-static facilities
6. Non-cost Sharing Gas Facilities and
7. Steam Facilities

of various sizes and configurations crossing trolley structures at various angles located within a zone of protection, as indicated on Sketch JB 800, during the removal of trolley structures and subsequent backfilling operations. Utility facilities that run parallel to trolley structures are not included within this item and will be paid for under the appropriate JB item. The work shall be performed in accordance with the contract plans, the specifications, and as encountered during construction and directed by the facility operator.

B. Materials – N/A

C. Method of Construction

The Contractor shall maintain, protect, and accommodate the integrity of all utility facilities of various sizes and configurations crossing trolley structures within a zone of protection as indicated in Sketch JB 800, during removal of trolley structures and subsequent backfilling and compaction operations under other contract item(s). The facility operator shall identify the locations of all utilities within the contract area as required by New York State Industrial Code Rule 753. As provided by the Rule, the Contractor shall use hand excavation methods (pick and shovel or hand held power tools) directly below the pavement base to expose the utility and ascertain the numerical relationships and/or dimensions of these utilities with respect to the proposed excavation. Contractor shall perform test pits to expose the utilities as specified under JB 400. Upon exposing the affected utilities sufficiently, and at the sole discretion of the facility operator to determine relationships and/or dimensions, the Contractor shall be permitted to proceed with hand held power tools to remove existing trolley structure within the zone of protection whose limit shall be defined as a perimeter located 24 inches from the outside face of each utility crossing.

D. Method of Measurement

The quantity to be measured for payment shall be the number of linear feet of modified trolley structure removal within the zone of protection as indicated on JB Sketch 800, measured along the centerline of trench. The trench is defined as one track set containing two rails. The zone of protection shall be defined, for the purpose of this agreement, as the boundary/area designated on the plans or a boundary/area 3 feet to either side of each of the designated facilities, based upon available records and/or information obtained from prior or new test pits, or any combination thereof. Where overlapping of the zones occurs due to multiple facilities, the boundary/area shall be modified to one zone measured from the outside limits. The contract item specified under this section shall not be measured for payment in conjunction with other types of utility items.

Modifications to work methods required in areas between zones of protection for multiple utilities or JB facilities shall not be measured for payment and are included in the price bid for this item.

E. Price to Cover

The unit price per linear foot shall include the incremental cost for all labor, equipment, insurance and incidentals required to maintain and protect and accommodate the integrity of utility facilities during the removal of trolley structures (including rails, timber ties, yokes, trolley conduits, main conduit, rail and yoke foundations), and backfilling and compacting within a zoned area designated for protection of utilities by the facility operator.

The unit price shall also include any additional cutting, removing and disposing of roadway materials; hand or machine excavation; trucking and disposing of excavated materials, installation and removal of sheeting; and furnishing, installing and compacting backfill that may be required to support, protect, maintain and accommodate the integrity of utility facilities. The unit price shall also include the incremental cost for providing all vehicular and pedestrian traffic maintenance necessary to perform the work.

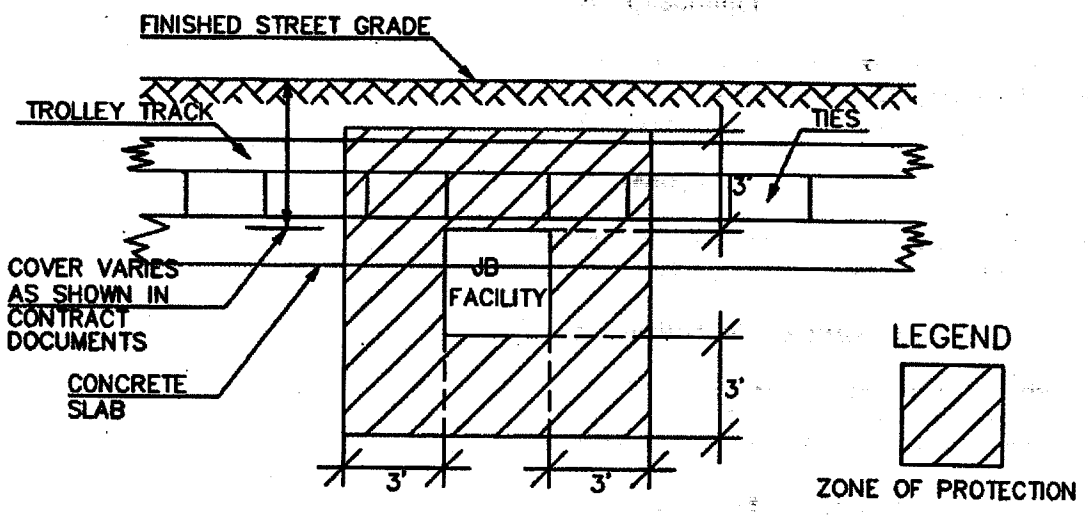
The Contractor shall be responsible for any and all damages resulting from and/or due to trolley demolition operations that are not performed in accordance with the specifications.

When this work is performed within a mass excavation area, a credit will be taken for the removed trolley structure.

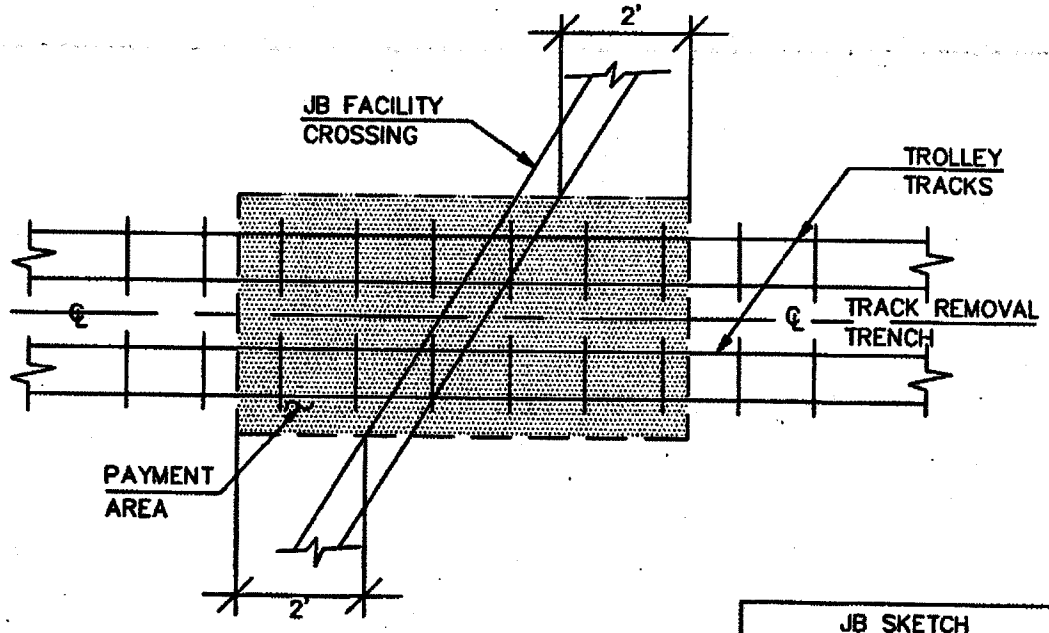
F. References

1. NYS Industrial Code Rule 753
2. Sketch JB 800

[NO FURTHER TEXT HERE.]



SECTION OF JB FACILITIES CROSSING TROLLEY TRACKS



PLAN OF JB FACILITIES CROSSING TROLLEY TRACKS

JB SKETCH	
ACCOMODATION FACILITIES AT TROLLEY RAILROAD STRUCTURES	
REVISIONS	
11/28/2018	CONTRACT NO. / SKETCH NO. JB 800

JB 801 - MODIFICATION OF CONCRETE YOKE TROLLEY STRUCTURES REMOVAL PARALLEL TO UTILITY FACILITIES

A. Description

This JB item shall only be applied to trolley structure systems that contain concrete yoke foundations. This JB item shall not be used for trolley systems that have rails and wood ties only. Under this section, the Contractor shall provide all incremental labor, equipment, insurance and incidentals required to maintain, protect, support and accommodate the integrity of utility facilities that include but are not limited to:

1. Conduits
2. Conductors
3. Concrete encased conduit banks
4. Steel pipes
5. Oil-o-static facilities
6. Non-cost sharing gas facilities and
7. Steam facilities

of various sizes and configurations paralleling or encroaching trolley structures located within a zone of protection, as indicated in sketch JB 801 or as directed by the field representative, during all trolley structure removal operations and subsequent backfilling operations. Utility facilities which cross over, under and between the trolley structures are not included within this item and will be paid for under the appropriate JB item. The work shall be performed in accordance with the contract plans, the specifications, and as encountered during construction and directed by the facility operator(s).

B. Materials – N/A

C. Method of Construction

The Contractor shall maintain, protect, support and accommodate the integrity of all utility facilities of various sizes and configurations paralleling or encroaching trolley structures within a zone of protection as indicated in sketch 801 or as directed by the field representative, during removal of trolley structures and subsequent backfilling and compaction operations under other contract item(s). The facility operator(s) shall identify the locations of all utilities within the contract area as required by New York State Industrial Code Rule 753. As provided by the Rule, the Contractor shall use hand excavation methods (pick and shovel or hand held power tools) directly below the pavement base to expose the utility and ascertain the numerical relationships and/or dimensions of these utilities with respect to the proposed excavation. Contractor shall perform test pits to expose the utilities as specified under JB 400. Upon exposing the affected utilities sufficiently, and at the sole discretion of the facility operator(s) to determine relationships and/or dimensions, the Contractor shall be permitted to proceed with hand held power tools to remove existing trolley structure within the zone of protection whose limit shall be defined as a perimeter located 24 inches from the outside face of each utility.

D. Method of Measurement

The quantity to be measured for payment shall be the number of linear feet of modified trolley structure removal within the zone of protection as indicated on the plans, measured along the centerline of trench. The trench is defined as one track set containing two rails. The contract item specified under this section shall not be measured for payment in conjunction with other types of utility items. Modifications to work methods required in areas between zones of protection for multiple utilities or JB facilities shall not be measured for payment and are included in the price bid for this item.

E. Price to Cover

The unit price per linear foot shall include the incremental cost for all labor, equipment, insurance and incidentals required to maintain, protect, support and accommodate the integrity of utility facilities paralleling or encroaching trolley structures during the removal of trolley structures (including rails, timber ties, yokes, trolley conduits, main conduit, rail and yoke foundations), and backfilling and compacting within a zoned area designated for protection of utilities by the facility operator(s).

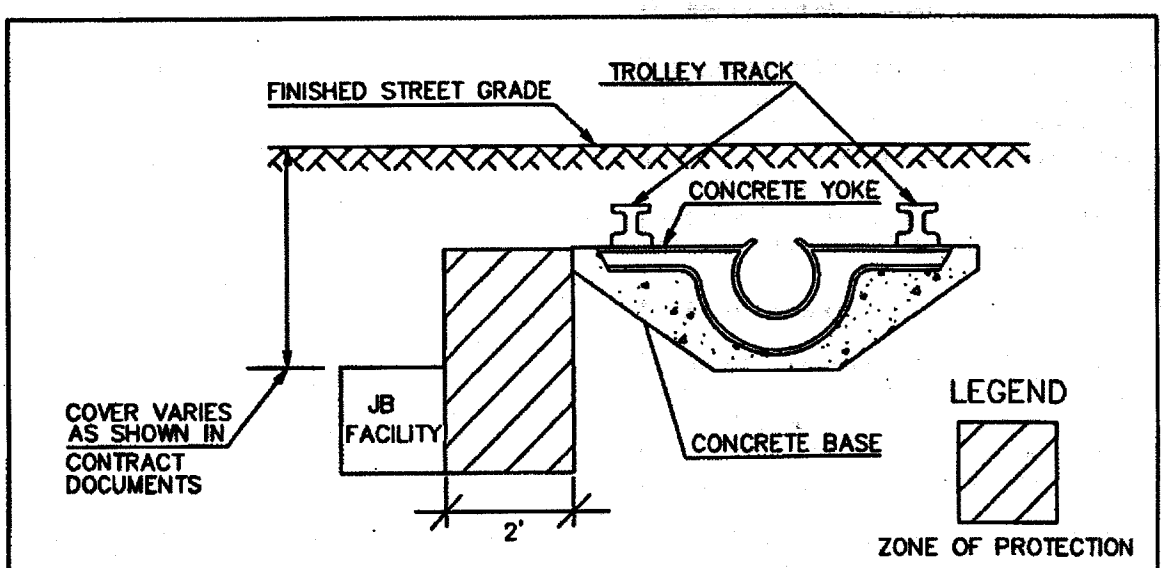
The unit price shall also include any additional cutting, removing and disposing of roadway materials; hand or machine excavation; trucking and disposing of excavated materials, installation and removal of sheeting; and furnishing, installing and compacting backfill that may be required to support, protect, maintain and accommodate the integrity of utility facilities. The unit price shall also include the incremental cost for providing all vehicular and pedestrian traffic maintenance necessary to perform the work.

The Contractor shall be responsible for any and all damages resulting from and/or due to trolley demolition operations that are not performed in accordance with the specifications.
When this work is performed within a mass excavation area, a credit will be taken for the removed trolley structure.

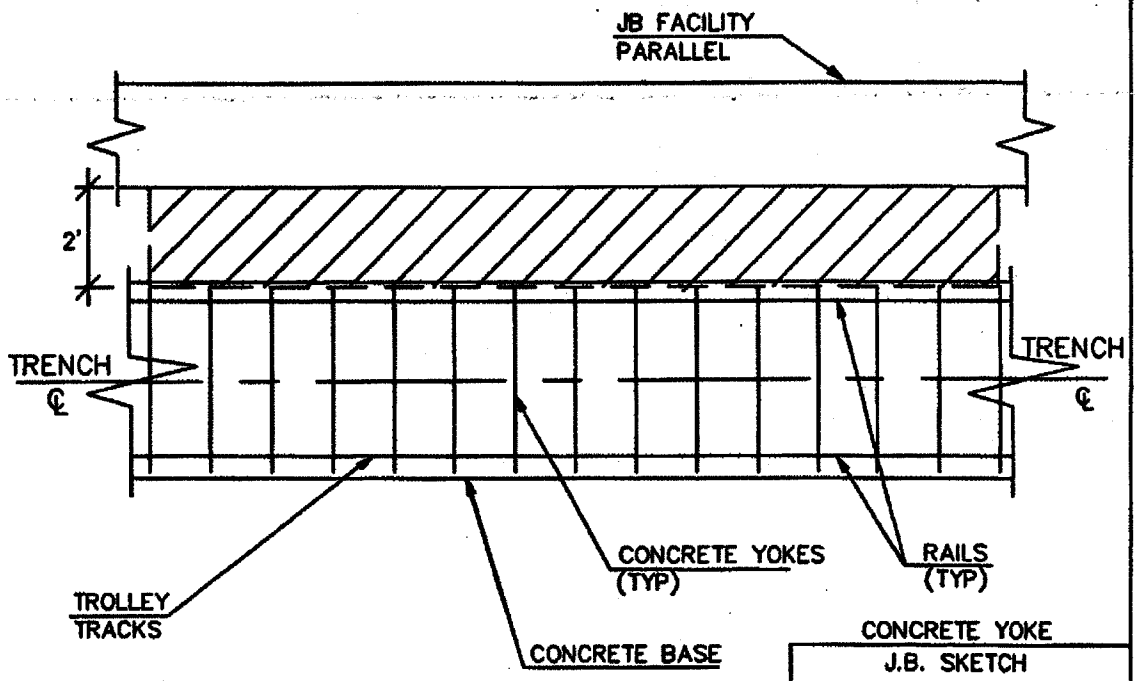
F. References

1. NYS Industrial Code Rule 753
2. Sketch JB 801

[NO FURTHER TEXT HERE.]



SECTION OF JB FACILITIES PARALLELING TROLLEY TRACKS



PLAN OF JB FACILITIES PARALLELING TROLLEY TRACKS

CONCRETE YOKE

J.B. SKETCH	
ACCOMODATION FACILITIES PARALLEL TROLLEY RAILROAD STRUCTURES	
REVISIONS	
11/28/2018	CONTRACT NO. / SKETCH NO. JB 801

JB 803 - LINE CUT BY PNEUMATIC TOOLS IN LIEU OF SAW CUT ASSOCIATED WITH ROADWAY REMOVAL OPERATIONS

A. Description

Under this section, the Contractor shall provide all incremental labor, equipment, insurance and incidentals required to maintain, protect, support and accommodate the integrity of utility facilities that include but are not limited to oil o static facilities, and any other facilities of various sizes and configurations paralleling or crossing proposed saw cut areas located within a zone of protection associated with roadway removal operations, as determined by the utility operator. Utility facilities which cross under and between the saw cut area are included within this item. The work shall be performed in accordance with the contract plans, the specifications, and as encountered during construction and determined by the facility operator(s).

B. Materials – N/A

C. Method of Construction

The Contractor shall maintain, protect, support and accommodate the integrity of all utility facilities of various sizes and configurations paralleling or crossing the saw cut area within a zone of protection as determined by the Facility Operator, during the roadway saw cut. The facility operator(s) shall identify the locations of all utilities within the contract area as required by New York State Industrial Code Rule 753. As provided by the Rule, the Contractor shall use pneumatic tools to line cut the pavement in lieu of saw cut by machine. It is the sole discretion of the facility operator(s) to determine relationships and/or dimensions, and advise the Contractor to proceed with pneumatic tools to line cut existing roadway structure.

D. Method of Measurement

The quantity to be measured for payment shall be the number of linear feet of line cut performed by pneumatic tools measured along the length of cut. The contract item specified under this section shall not be measured for payment in conjunction with other types of utility items. Modifications to work methods required in areas between zones of protection for multiple utilities or JB facilities shall not be measured for payment and are included in the price bid for this item.

JB 803.1 Line cut Asphalt Roadway (LF)
JB 803.2 Line cut any combination of Asphalt and Concrete Roadway (LF)
JB 803.3 Line cut any combination of Asphalt, Concrete, and Belgium Block (LF)

E. Price to Cover

The unit price per linear foot shall include the incremental cost for all labor, equipment, insurance and incidentals required to maintain, protect, support and accommodate the integrity of utility facilities paralleling or crossing the saw cut area associated with the removal of roadway designated for protection of utilities by the facility operator(s).

The unit price shall also include any additional cutting, removing and disposing of roadway materials; and any backfill that may be required to support, protect, maintain and accommodate the integrity of utility facilities. The price shall also include the incremental cost for providing all vehicular and pedestrian traffic maintenance necessary to perform the work.

The Contractor shall be responsible for any and all damages resulting from and/or due to saw cutting operations that are not performed in accordance with the specifications.

F. References

1. NYS Industrial Code Rule 753

JB 850 - Placing Rubber Sheets for Utility Facilities

A. Description

Under this Section, the Contractor shall place permanent Rubber Sheets supplied by the facility operator(s) to protect utility facilities where directed by the facility operator(s) in consultation with the Resident Engineer.

B. Materials

Materials shall be supplied and delivered by the facility operator(s) at the job site or Construction Yard as directed by the Contractor.

C. Method of Construction

Rubber Sheets shall be placed in accordance with the attached facility operator(s) Specification for the Installation of High Pressure Pipe For 69, 138 and 345 kV Cable Systems, CE-TS-3352, under section 1.2.4.

D. Method of Measurement

The quantity for payment shall be the area of permanent rubber sheets installed and measured in Square Feet (S.F.). Each rubber sheet is typically 1/2" thick, 48" wide by 18' long.

E. Price to Cover

The unit price bid shall cover the cost of all labor, material, equipment, insurance, and incidentals necessary to complete the work.

F. References

1. Specification for the Installation of High Pressure Pipe For 69, 138 and 345 kV Cable Systems, CE-TS-3352.

[NO FURTHER TEXT HERE.]

JB 900 – EXTRA UTILITY WORK COSTS ALLOWANCE

A. Description - Use of contract item JB-900 "Extra Utility Work Costs Allowance" – Fixed Sum

This item is applicable only for extra Utility Work. If it is determined that there is extra Utility Work for which there are no items in the Unit Price Book, then the Utility and City Contractor shall negotiate the cost of supporting and protecting, and/or alleviating the impact on the Public Work caused by the extra Utility Work with each other with the understanding that the performance of Public Work shall continue during all negotiations and discussions.

(a) If the parties reach an agreement on cost for the extra Utility Work when there are no bid items available in the Unit Price Book, then the City Contractor and the Utility shall jointly submit a copy to the City's Resident Engineer the agreed upon price along with all supporting documentation. The City Contractor shall be paid by requisitions submitted in accordance with the agreed upon price. All such extra utility work shall be totaled and the total shall be paid under Item JB 900.

(b) If the parties do not reach an agreement on the extra Utility Work within seven (7) Business Days from the start of negotiations, then parties will resolve the dispute through the dispute resolution process, as set forth in Appendix "C". During the arbitration process, the extra Utility Work will be performed and paid for on a time and material basis or an alternate method of payment, as set forth in the City's standard construction contract.

(c) When time and material is used during arbitration or if the Utility and the City Contractor can agree on an alternative method for payment for the Utility Work, then that method may be applied by the Utility, with notice to the City. The total value of such Time and Material or alternative method of payment shall be paid under Item JB 900.

B. Materials

All materials shall be supplied by the Contractor and approved by the facility operator in consultation with the Resident Engineer.

C. Method of Construction

As required.

D. Method of Measurement

No guarantee is given that this allowance item will in fact be required in this contract. The estimated "fixed sum" amount in the Bid Schedule is included in the total bid solely to insure funding availability. The quantity to be measured for payment shall be each lump sum (LS) amount of the extra utility work, or Time and Material amounts. Payments for extra Utility Work or Time and Material shall be made under JB-900 allowance item and shall be documented with a proper Change Order Request, provided that sufficient funding of JB-900 for each affected utility(ies) is available. Change Order Requests and Overrun Change Order Requests for Utility Work shall be submitted separately from Public Work Change Order Requests and Overrun Change Order Requests. The costs breakdown by items for each participating Utility shall be clearly tabulated and sub-totaled. Public Work costs shall not be combined with Utility Work Costs on Change Order Requests of any type.

E. Price to Cover

Payment made under each lump sum (LS) amount, shall cover the cost of all labor, materials, equipment, supervision, insurance and incidentals necessary to complete the extra utility work. The price includes the modification of any methods of construction and operation and associated changes in sequencing of the City contract work as required, in order to perform the extra utility work and/or the City contract work. Each lump sum (LS) amount includes all special considerations due to all site conditions, loss of productivity and efficiency, idle time, demobilization and remobilization, site maintenance, maintenance of traffic and protection, extended performance, extended overhead costs, extended engineering and extended home office costs in connection with the extra utility work. In consideration of each lump sum (LS) amount, the contractor waives all claims for impacts arising from the extra utility work, which shall be deemed included in each lump sum amount paid. The total estimated cost of this item is the "fixed sum" amount shown for this item in the Bid Schedule. No guarantee is given that the actual lump sum cost .for this item will in fact be the "fixed sum" amount. The "fixed sum" amount is included in the total bid solely to insure that sufficient monies will be available to pay the Contractor under this item.

F. References

None

LISTING OF COMPANY (IES) NAMED FOR THIS CONTRACT

COMPANY NAME	CONTACT NAME	CONTACT TELEPHONE
CON EDISON	THERESA KONG	212-460-4834
ECS	AUBREY MAKHANLALL	516-758-3705

PRIVATE UTILITY
SCOPE OF WORK

(NO TEXT IN THIS SECTION)

JOINT BID WORKSHEET

ENGINEER'S ESTIMATE OF QUANTITY AND TYPES OF INTERFERENCE

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EAST SIDE COASTAL RESILIENCY

BOROUGH OF MANHATTAN

JOINT BID ITEM NUMBER	DESCRIPTION	UNITS	ESTIMATED QUANTITY
JB 101.1	UTILITIES CROSSING TRENCH FOR SEWERS UP TO AND INCL. 24" DIAMETER (TYPE .1)	EA	3
JB 101.2	UTILITIES CROSSING TRENCH FOR SEWERS UP TO AND INCL. 24" DIAMETER (TYPE .2)	EA	1
JB 105.1	UTILITIES CROSSING TRENCH FOR SEWERS OVER 54" TO 60" DIAMETER (TYPE .1)	EA	2
JB 105.2	UTILITIES CROSSING TRENCH FOR SEWERS OVER 54" TO 60" DIAMETER (TYPE .2)	EA	2
JB 117A.1	UTILITIES CROSSING DRILLED SHAFT PILES FOR FLOOD WALL/GATE (TYPE .1)	EA	3
JB 117A.2	UTILITIES CROSSING DRILLED SHAFT PILES FOR FLOOD WALL/GATE (TYPE .2)	EA	1
JB 117A.3	UTILITIES CROSSING DRILLED SHAFT PILES FOR FLOOD WALL/GATE (TYPE .3)	EA	1
JB 117B.1	UTILITIES CROSSING SHEET PILES FOR FLOOD WALL/GATE (TYPE .1)	EA	1
JB 117B.2	UTILITIES CROSSING SHEET PILES FOR FLOOD WALL/GATE (TYPE .2)	EA	1
JB 117B.3	UTILITIES CROSSING SHEET PILES FOR FLOOD WALL/GATE (TYPE .3)	EA	1
JB 118A.1	UTILITIES CROSSING THROUGH FLOOD WALL/GATES ON DRILLED SHAFT PILES (TYPE.1)	EA	12
JB 118A.2	UTILITIES CROSSING THROUGH FLOOD WALL/GATES ON DRILLED SHAFT PILES (TYPE.2)	EA	3
JB 118A.3	UTILITIES CROSSING THROUGH FLOOD WALL/GATES ON DRILLED SHAFT PILES (TYPE.3)	EA	2
JB 118B.1	UTILITIES CROSSING THROUGH FLOOD WALL/GATES ON SHEET PILES (TYPE.1)	EA	11
JB 118B.2	UTILITIES CROSSING THROUGH FLOOD WALL/GATES ON SHEET PILES (TYPE.2)	EA	7
JB 118B.3	UTILITIES CROSSING THROUGH FLOOD WALL/GATES ON SHEET PILES (TYPE.3)	EA	1
JB 300	SPECIAL CARE EXCAVATION AND BACKFILING	CY	80

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JOINT BID ITEM NUMBER	DESCRIPTION	UNITS	ESTIMATED QUANTITY
JB 301	SPECIAL CARE EXCAVATION AND BACKFILLING FOR OIL-O-STATIC PIPES	CY	360
JB 302	FIELD COATING OF OIL-O-STATIC FEEDER PIPES	LF	300
JB 303	FURNISH, DELIVER AND INSTALL TYPE 3/8 CLEAN SAND BACKFILL	CY	500
JB 330E.1	SUPPORT & PROTECT ELEC, GAS & STEAM FACILITIES DURING EXCAVATION OF CITY TRENCH WHEN FACILITIES LIE W/IN TRENCH LIMITS (TYPE .1)	LF	320
JB 330E.2	SUPPORT & PROTECT ELEC, GAS & STEAM FACILITIES DURING EXCAVATION OF CITY TRENCH WHEN FACILITIES LIE W/IN TRENCH LIMITS (TYPE .2)	LF	210
JB 400	TEST PITS FOR UTILITY FACILITIES	CY	60
JB 401	TRENCH EXCAVATION FOR ADJUSTMENT OF UTILITIES	CY	80
JB 402.1A	EXISTING OCCUPIED CONCRETE ENCASED CONDUITS PLACED IN FINAL POSITION WITH CONCRETE ENCASEMENT	LF	400
JB 402.2A	EXISTING OCCUPIED NON-CONCRETE ENCASED CONDUITS PLACED IN FINAL POSITION WITH CONCRETE ENCASEMENT	LF	400
JB 403	PLACING STEEL PROTECTION PLATES FOR UTILITY FACILITIES	SF	600
JB 405.1	EXCAVATION FOR INSTALLATION OF UTILITY FACILITIES WITH TOTAL DEPTHS LESS THAN 5 FEET	CY	450
JB 405.2	EXCAVATION FOR INSTALLATION OF UTILITY FACILITIES WITH TOTAL DEPTHS EQUAL OR GREATER THAN 5 FEET	CY	820
JB 406	EXCAVATION FOR UTILITY STRUCTURE	CY	180
JB 410.1	MASS EXCAVATION (VOLUME UP TO AND INCLUDING 20%) FROM TOP OF ROADWAY LESS THAN 5 FT DEEP	CY	510
JB 410.2	MASS EXCAVATION (VOLUME OVER 20% UP TO AND INCLUDING 40%) FROM TOP OF ROADWAY LESS THAN 5 FT DEEP	CY	230
JB 450.1	CONSTRUCTION FIELD SUPPORT REQUIRING AVERAGE SIZE SURVEY CREW PERFORMING TYPICAL SURVEY FUNCTIONS (TYPE .1)	CRHRS	10
JB 450.2	CONSTRUCTION FIELD SUPPORT REQUIRING AVERAGE SMALL SIZE CREW CAPABLE OF PERFORMING VARIOUS TASKS (TYPE .2)	CRHRS	480

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JOINT BID ITEM NUMBER	DESCRIPTION	UNITS	ESTIMATED QUANTITY
JB 450.3	CONSTRUCTION FIELD SUPPORT REQUIRING AVERAGE MEDIUM SIZE CREW CAPABLE OF PERFORMING VARIOUS TASKS (TYPE .3)	CRHRS	480
JB 500	REMOVAL OF ABANDONED UTILITY CONDUITS (NON-CONCRETE ENCASED)	LF	18,416
JB 501	REMOVAL OF ABANDONED MASONRY FOR ELEC. AND TEL. FACILITIES	CY	10
JB 603E.1	INSTALL UTILITY CONDUITS PLACED IN FINAL POSITION WITHOUT CONCRETE ENCASEMENT	LF	6,043
JB 603E.2	INSTALL UTILITY CONDUITS PLACED IN FINAL POSITION WITH CONCRETE ENCASEMENT	LF	7,386
JB 636 EA	ADJUSTMENT OF UTILITY HARDWARE (UNDER 7" WIDTH)	EA	1
JB 636 EB	ADJUSTMENT OF UTILITY HARDWARE (7" TO UNDER 14" WIDTH)	EA	1
JB 636 EC	ADJUSTMENT OF UTILITY HARDWARE (14" TO UNDER 30" WIDTH)	EA	1
JB 636 ED	ADJUSTMENT OF UTILITY HARDWARE (30" TO UNDER 34" WIDTH)	EA	1
JB 636 EE	ADJUSTMENT OF UTILITY HARDWARE (34" TO UNDER 41" WIDTH)	EA	1
JB 636 R	REPAIR TO UTILITY STRUCTURES	CY	10
JB 636 SA	ADJUSTMENT OF UTILITY STEAM HARDWARE (CONCRETE COLLARS)	SF	200
JB 638 N	INSTALLATION OF FIELD CONSTRUCTED UTILITY STRUCTURE	CY	250
JB 638 R	BREAK OUT AND REMOVE UTILITY STRUCTURE	CY	220
JB 700	SPECIAL MODIFICATION OF WORK METHODS TO ACCOMMODATE/PROTECT UNDERGROUND FACILITIES WITH LIMITED COVER	CY	120
JB 711	USE SHEETING LINE AS FORM	LF	100
JB 800	MODIFICATION OF CONCRETE YOKE TROLLEY STRUCTURES REMOVAL WHEN CROSSING UTILITY FACILITIES	LF	200

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JOINT BID ITEM NUMBER	DESCRIPTION	UNITS	ESTIMATED QUANTITY
JB 801	MODIFICATION OF CONCRETE YOKE TROLLEY STRUCTURES REMOVAL PARALLEL TO UTILITY FACILITIES	LF	420
JB 803.2	LINE CUT BY PNEUMATIC TOOLS IN LIEU OF SAW CUT ASSOCIATED WITH RDWY REMOVAL (LINE CUT ASPHALT AND CONCRETE ROADWAY)	LF	870
JB 850	INSTALLATION OF RUBBER SHEETS FOR UTILITY FACILITIES	SF	144
JB 900	EXTRA UTILITY WORK COSTS ALLOWANCE	FS	1
JB 400A	SURVEYED AND DRAFTED TEST PITS FOR UTILITY FACILITIES	CY	100

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JB 101.1	**UTILITIES CROSSING TRENCH FOR SEWERS UP TO AND INCL. 24" DIAMETER (TYPE .1)** *At the following locations:* As Encountered **Total Quantity for JB 101.1 = 3**	**EA**
JB 101.2	**UTILITIES CROSSING TRENCH FOR SEWERS UP TO AND INCL. 24" DIAMETER (TYPE .2)** *At the following locations:* As Encountered **Total Quantity for JB 101.2 = 1**	**EA**
JB 105.1	**UTILITIES CROSSING TRENCH FOR SEWERS OVER 54" TO 60" DIAMETER (TYPE .1)** *At the following locations:* As Encountered **Total Quantity for JB 105.1 = 2**	**EA**
JB 105.2	**UTILITIES CROSSING TRENCH FOR SEWERS OVER 54" TO 60" DIAMETER (TYPE .2)** *At the following locations:* As Encountered **Total Quantity for JB 105.2 = 2**	**EA**
JB 117A.1	**UTILITIES CROSSING DRILLED SHAFT PILES FOR FLOOD WALL/GATE (TYPE .1)** *At the following locations:* As Encountered **Total Quantity for JB 117A.1 = 3**	**EA**
JB 117A.2	**UTILITIES CROSSING DRILLED SHAFT PILES FOR FLOOD WALL/GATE (TYPE .2)** *At the following locations:* As Encountered **Total Quantity for JB 117A.2 = 1**	**EA**

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JB 117A.3	**UTILITIES CROSSING DRILLED SHAFT PILES FOR FLOOD WALL/GATE (TYPE .3)**	**EA**

At the following locations:

As Encountered

Total Quantity for JB 117A.3 = 1

JB 117B.1	**UTILITIES CROSSING SHEET PILES FOR FLOOD WALL/GATE (TYPE .1)**	**EA**

At the following locations:

As Encountered

Total Quantity for JB 117B.1 = 1

JB 117B.2	**UTILITIES CROSSING SHEET PILES FOR FLOOD WALL/GATE (TYPE .2)**	**EA**

At the following locations:

As Encountered

Total Quantity for JB 117B.2 = 1

JB 117B.3	**UTILITIES CROSSING SHEET PILES FOR FLOOD WALL/GATE (TYPE .3)**	**EA**

At the following locations:

As Encountered

Total Quantity for JB 117B.3 = 1

JB 118A.1	**UTILITIES CROSSING THROUGH FLOOD WALL/GATES ON DRILLED SHAFT PILES (TYPE.1)**	**EA**

At the following locations:

As Encountered

Total Quantity for JB 118A.1 = 12

JB 118A.2	**UTILITIES CROSSING THROUGH FLOOD WALL/GATES ON DRILLED SHAFT PILES (TYPE.2)**	**EA**

At the following locations:

As Encountered

Total Quantity for JB 118A.2 = 3

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JB 118A.3	**UTILITIES CROSSING THROUGH FLOOD WALL/GATES ON DRILLED SHAFT PILES (TYPE.3)**	**EA**
	At the following locations:	
	As Encountered	
	Total Quantity for JB 118A.3 = 2	
JB 118B.1	**UTILITIES CROSSING THROUGH FLOOD WALL/GATES ON SHEET PILES (TYPE.1)**	**EA**
	At the following locations:	
	As Encountered	
	Total Quantity for JB 118B.1 = 11	
JB 118B.2	**UTILITIES CROSSING THROUGH FLOOD WALL/GATES ON SHEET PILES (TYPE.2)**	**EA**
	At the following locations:	
	As Encountered	
	Total Quantity for JB 118B.2 = 7	
JB 118B.3	**UTILITIES CROSSING THROUGH FLOOD WALL/GATES ON SHEET PILES (TYPE.3)**	**EA**
	At the following locations:	
	As Encountered	
	Total Quantity for JB 118B.3 = 1	
JB 300	**SPECIAL CARE EXCAVATION AND BACKFILLING**	**CY**
	At the following locations:	
	As Encountered	
	Total Quantity for JB 300 = 80	
JB 301	**SPECIAL CARE EXCAVATION AND BACKFILLING FOR OIL-O-STATIC PIPES**	**CY**
	At the following locations:	
	As Encountered	
	AS ENCOUNTERED AND DIRECTED BY A CON EDISON REPRESENTATIVE	
	Total Quantity for JB 301 = 360	

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JB 302	**FIELD COATING OF OIL-O-STATIC FEEDER PIPES**	**LF**
	At the following locations:	
	As Encountered	
	Total Quantity for JB 302 = 300	
JB 303	**FURNISH, DELIVER AND INSTALL TYPE 3/8 CLEAN SAND BACKFILL**	**CY**
	At the following locations:	
	As Encountered	
	Total Quantity for JB 303 = 500	
JB 330E.1	**SUPPORT & PROTECT ELEC, GAS & STEAM FACILITIES DURING EXCAVATION OF CITY TRENCH WHEN FACILITIES LIE W/IN TRENCH LIMITS (TYPE .1)**	**LF**
	At the following locations:	
	As Encountered	
	Total Quantity for JB 330E.1 = 320	
JB 330E.2	**SUPPORT & PROTECT ELEC, GAS & STEAM FACILITIES DURING EXCAVATION OF CITY TRENCH WHEN FACILITIES LIE W/IN TRENCH LIMITS (TYPE .2)**	**LF**
	At the following locations:	
	As Encountered	
	Total Quantity for JB 330E.2 = 210	
JB 400	**TEST PITS FOR UTILITY FACILITIES**	**CY**
	At the following locations:	
	As Encountered	
	Total Quantity for JB 400 = 60	
JB 401	**TRENCH EXCAVATION FOR ADJUSTMENT OF UTILITIES**	**CY**
	At the following locations:	
	As Encountered	
	AS ENCOUNTERED AND DIRECTED BY A CON EDISON REPRESENTATIVE	
	Total Quantity for JB 401 = 80	

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JB 402.1A	**EXISTING OCCUPIED CONCRETE ENCASED CONDUITS PLACED IN FINAL POSITION WITH CONCRETE ENCASEMENT**	**LF**
	At the following locations:	
	As Encountered	
	AS ENCOUNTERED AND DIRECTED BY A CON EDISON REPRESENTATIVE	
	Total Quantity for JB 402.1A = 400	
JB 402.2A	**EXISTING OCCUPIED NON-CONCRETE ENCASED CONDUITS PLACED IN FINAL POSITION WITH CONCRETE ENCASEMENT**	**LF**
	At the following locations:	
	As Encountered	
	AS ENCOUNTERED AND DIRECTED BY A CON EDISON REPRESENTATIVE	
	Total Quantity for JB 402.2A = 400	
JB 403	**PLACING STEEL PROTECTION PLATES FOR UTILITY FACILITIES**	**SF**
	At the following locations:	
	As Encountered	
	AS ENCOUNTERED AND DIRECTED BY A CON EDISON REPRESENTATIVE	
	Total Quantity for JB 403 = 600	
JB 405.1	**EXCAVATION FOR INSTALLATION OF UTILITY FACILITIES WITH TOTAL DEPTHS LESS THAN 5 FEET**	**CY**
	At the following locations:	
	As Encountered	
	Total Quantity for JB 405.1 = 450	
JB 405.2	**EXCAVATION FOR INSTALLATION OF UTILITY FACILITIES WITH TOTAL DEPTHS EQUAL OR GREATER THAN 5 FEET**	**CY**
	At the following locations:	
	As Encountered	
	Total Quantity for JB 405.2 = 820	

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JB 406 **EXCAVATION FOR UTILITY STRUCTURE** **CY**

At the following locations:

As Encountered

Total Quantity for JB 406 = 180

JB 410.1 **MASS EXCAVATION (VOLUME UP TO AND INCLUDING 20%) FROM TOP OF ROADWAY LESS THAN 5 FT DEEP** **CY**

At the following locations:

As Encountered

Total Quantity for JB 410.1 = 510

JB 410.2 **MASS EXCAVATION (VOLUME OVER 20% UP TO AND INCLUDING 40%) FROM TOP OF ROADWAY LESS THAN 5 FT DEEP** **CY**

At the following locations:

As Encountered

Total Quantity for JB 410.2 = 230

JB 450.1 **CONSTRUCTION FIELD SUPPORT REQUIRING AVERAGE SIZE SURVEY CREW PERFORMING TYPICAL SURVEY FUNCTIONS (TYPE .1)** **CRHRS**

At the following locations:

As Encountered

Total Quantity for JB 450.1 = 10

JB 450.2 **CONSTRUCTION FIELD SUPPORT REQUIRING AVERAGE SMALL SIZE CREW CAPABLE OF PERFORMING VARIOUS TASKS (TYPE .2)** **CRHRS**

At the following locations:

As Encountered

Total Quantity for JB 450.2 = 480

JB 450.3 **CONSTRUCTION FIELD SUPPORT REQUIRING AVERAGE MEDIUM SIZE CREW CAPABLE OF PERFORMING VARIOUS TASKS (TYPE .3)** **CRHRS**

At the following locations:

As Encountered

Total Quantity for JB 450.3 = 480

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JB 500	**REMOVAL OF ABANDONED UTILITY CONDUITS (NON-CONCRETE ENCASED)**	**LF**
	At the following locations:	
	As Encountered	
	AS ENCOUNTERED AND DIRECTED BY A CON EDISON REPRESENTATIVE	
	Total Quantity for JB 500 = 18,416	
JB 501	**REMOVAL OF ABANDONED MASONRY FOR ELEC. AND TEL. FACILITIES**	**CY**
	At the following locations:	
	As Encountered	
	AS ENCOUNTERED AND DIRECTED BY A CON EDISON REPRESENTATIVE	
	Total Quantity for JB 501 = 10	
JB 603E.1	**INSTALL UTILITY CONDUITS PLACED IN FINAL POSITION WITHOUT CONCRETE ENCASEMENT**	**LF**
	At the following locations:	
	As Encountered	
	Total Quantity for JB 603E.1 = 6,043	
JB 603E.2	**INSTALL UTILITY CONDUITS PLACED IN FINAL POSITION WITH CONCRETE ENCASEMENT**	**LF**
	At the following locations:	
	As Encountered	
	Total Quantity for JB 603E.2 = 7,386	
JB 636 EA	**ADJUSTMENT OF UTILITY HARDWARE (UNDER 7" WIDTH)**	**EA**
	At the following locations:	
	As Encountered	
	AS ENCOUNTERED AND DIRECTED BY A CON EDISON REPRESENTATIVE	
	Total Quantity for JB 636 EA = 1	
JB 636 EB	**ADJUSTMENT OF UTILITY HARDWARE (7" TO UNDER 14" WIDTH)**	**EA**
	At the following locations:	
	As Encountered	
	AS ENCOUNTERED AND DIRECTED BY A CON EDISON REPRESENTATIVE	
	Total Quantity for JB 636 EB = 1	

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JB 636 EC	**ADJUSTMENT OF UTILITY HARDWARE (14" TO UNDER 30" WIDTH)**	**EA**

At the following locations:

As Encountered

AS ENCOUNTERED AND DIRECTED BY A CON EDISON REPRESENTATIVE

Total Quantity for JB 636 EC = 1

JB 636 ED	**ADJUSTMENT OF UTILITY HARDWARE (30" TO UNDER 34" WIDTH)**	**EA**

At the following locations:

As Encountered

AS ENCOUNTERED AND DIRECTED BY A CON EDISON REPRESENTATIVE

Total Quantity for JB 636 ED = 1

JB 636 EE	**ADJUSTMENT OF UTILITY HARDWARE (34" TO UNDER 41" WIDTH)**	**EA**

At the following locations:

As Encountered

AS ENCOUNTERED AND DIRECTED BY A CON EDISON REPRESENTATIVE

Total Quantity for JB 636 EE = 1

JB 636 R	**REPAIR TO UTILITY STRUCTURES**	**CY**

At the following locations:

As Encountered

AS ENCOUNTERED AND DIRECTED BY A CON EDISON REPRESENTATIVE

Total Quantity for JB 636 R = 10

JB 636 SA	**ADJUSTMENT OF UTILITY STEAM HARDWARE (CONCRETE COLLARS)**	**SF**

At the following locations:

As Encountered

AS ENCOUNTERED AND DIRECTED BY A CON EDISON REPRESENTATIVE

Total Quantity for JB 636 SA = 200

CON EDISON JOINT BIDDING SCOPE OF WORK
SUPPORT AND PROTECTION
SANDRESM2
EAST SIDE COASTAL RESILIENCY
BOROUGH OF MANHATTAN

JB 638 N	**INSTALLATION OF FIELD CONSTRUCTED UTILITY STRUCTURE**	**CY**
	At the following locations:	
	As Encountered	
	Total Quantity for JB 638 N = 250	
JB 638 R	**BREAK OUT AND REMOVE UTILITY STRUCTURE**	**CY**
	At the following locations:	
	As Encountered	
	AS ENCOUNTERED AND DIRECTED BY A CON EDISON REPRESENTATIVE	
	Total Quantity for JB 638 R = 220	
JB 700	**SPECIAL MODIFICATION OF WORK METHODS TO ACCOMMODATE/PROTECT UNDERGROUND FACILITIES WITH LIMITED COVER**	**CY**
	At the following locations:	
	As Encountered	
	AS SHOWN ON CONTRACT DRAWINGS AND DIRECTED BY A CON EDISON REP.	
	Total Quantity for JB 700 = 120	
JB 711	**USE SHEETING LINE AS FORM**	**LF**
	At the following locations:	
	As Encountered	
	AS SHOWN ON CONTRACT DRAWINGS AND DIRECTED BY CON EDISON REP	
	Total Quantity for JB 711 = 100	
JB 800	**MODIFICATION OF CONCRETE YOKE TROLLEY STRUCTURES REMOVAL WHEN CROSSING UTILITY FACILITIES**	**LF**
	At the following locations:	
	As Encountered	
	AS ENCOUNTERED AND DIRECTED BY A CON EDISON REPRESENTATIVE	
	Total Quantity for JB 800 = 200	

CON EDISON JOINT BIDDING SCOPE OF WORK
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JB 801	**MODIFICATION OF CONCRETE YOKE TROLLEY STRUCTURES REMOVAL PARALLEL TO UTILITY FACILITIES**	**LF**
	At the following locations:	
	As Encountered	
	AS ENCOUNTERED AND DIRECTED BY A CON EDISON REPRESENTATIVE	
	Total Quantity for JB 801 = 420	
JB 803.2	**LINE CUT BY PNEUMATIC TOOLS IN LIEU OF SAW CUT ASSOCIATED WITH RDWY REMOVAL (LINE CUT ASPHALT AND CONCRETE ROADWAY)**	**LF**
	At the following locations:	
	As Encountered	
	AS ENCOUNTERED AND DIRECTED BY A CON EDISON REPRESENTATIVE	
	Total Quantity for JB 803.2 = 870	
JB 850	**INSTALLATION OF RUBBER SHEETS FOR UTILITY FACILITIES**	**SF**
	At the following locations:	
	As Encountered	
	Total Quantity for JB 850 = 144	
JB 900	**EXTRA UTILITY WORK COSTS ALLOWANCE**	**FS**
	At the following locations:	
	As Encountered	
	AS ENCOUNTERED AND DIRECTED BY A CON EDISON REPRESENTATIVE	
	Total Quantity for JB 900 = 1	
JB 400A	**SURVEYED AND DRAFTED TEST PITS FOR UTILITY FACILITIES**	**CY**
	At the following locations:	
	As Encountered	
	Total Quantity for JB 400A = 100	

CON EDISON CONTRACT INCLUSION ANALYSIS
CITY BID ITEMS ESTIMATED QUANTITIES
SANDRESM2
EAST SIDE COASTAL RESILIENCY
BOROUGH OF MANHATTAN

CITY BID ITEM NUMBER	DESCRIPTION	UNIT	TOTAL QUANTITY
4.02 AG	ASPHALTIC CONCRETE WEARING COURSE, 3" THICK	SY	2,300
4.02 CB	ASPHALTIC CONCRETE MIXTURE	TON	90
4.04 AC (N)	CONCRETE BASE COURSE FOR PAVEMENT, 6" THICK, CLASS B-32 (NIGHT WORK)	CY	100
4.04 HC	CONCRETE BASE FOR PAVEMENT, 8" THICK (HIGH-EARLY STRENGTH)	CY	60
4.09 AD	STRAIGHT STEEL FACED CONCRETE CURB (18" DEEP)	LF	200
4.09 BD	DEPRESSED STEEL FACED CONCRETE CURB (18" DEEP)	LF	30
4.09 CD	CORNER STEEL FACED CONCRETE CURB (18" DEEP)	LF	50
4.11 CA (N)	FILL, PLACE MEASUREMENT (NIGHT WORK)	CY	25
4.11 CC	SELECT GRANULAR FILL, PLACE MEASUREMENT	CY	300
4.13 AAS	4" CONCRETE SIDEWALK (UNPIGMENTED)	SF	950
4.13 BAS	7" CONCRETE SIDEWALK (UNPIGMENTED)	SF	2,000
6.02 AAN	UNCLASSIFIED EXCAVATION	CY	301
6.03 AA	STRIPPING PAVEMENT SURFACE (ASPHALTIC CONCRETE)	SY	160
6.03 AA (N)	STRIPPING PAVEMENT SURFACE (ASPHALTIC CONCRETE) (NIGHT WORK)	SY	240
6.55	SAWCUTTING EXISTING PAVEMENT	LF	2,530
4.04 HD	CONCRETE BASE FOR PAVEMENT, 9" THICK (HIGH-EARLY STRENGTH)	CY	600
70.81CB	CLEAN BACKFILL	CY	800

January 14, 2020

CON EDISON JOINT BIDDING SCOPE OF WORK
CITY BID ITEMS FOR INCLUSION IN
SANDRESM2
EAST SIDE COASTAL RESILIENCY
BOROUGH OF MANHATTAN

4.02 AG	**ASPHALTIC CONCRETE WEARING COURSE, 3" THICK**	**SY**
	At the following locations:	
	As Encountered	
	Total Quantity for 4.02 AG = 2,300	
4.02 CB	**ASPHALTIC CONCRETE MIXTURE**	**TON**
	At the following locations:	
	As Encountered	
	Total Quantity for 4.02 CB = 90	
4.04 AC (N)	**CONCRETE BASE COURSE FOR PAVEMENT, 6" THICK, CLASS B-32 (NIGHT WORK)**	**CY**
	At the following locations:	
	As Encountered	
	Total Quantity for 4.04 AC (N) = 100	
4.04 HC	**CONCRETE BASE FOR PAVEMENT, 8" THICK (HIGH-EARLY STRENGTH)**	**CY**
	At the following locations:	
	As Encountered	
	Total Quantity for 4.04 HC = 60	
4.09 AD	**STRAIGHT STEEL FACED CONCRETE CURB (18" DEEP)**	**LF**
	At the following locations:	
	As Encountered	
	Total Quantity for 4.09 AD = 200	
4.09 BD	**DEPRESSED STEEL FACED CONCRETE CURB (18" DEEP)**	**LF**
	At the following locations:	
	As Encountered	
	Total Quantity for 4.09 BD = 30	

CON EDISON JOINT BIDDING SCOPE OF WORK
CITY BID ITEMS FOR INCLUSION IN
SANDRESM2
EAST SIDE COASTAL RESILIENCY
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4.09 CD	**CORNER STEEL FACED CONCRETE CURB (18" DEEP)** *At the following locations:* As Encountered **Total Quantity for 4.09 CD = 50**	**LF**
4.11 CA (N)	**FILL, PLACE MEASUREMENT (NIGHT WORK)** *At the following locations:* As Encountered **Total Quantity for 4.11 CA (N) = 25**	**CY**
4.11 CC	**SELECT GRANULAR FILL, PLACE MEASUREMENT** *At the following locations:* As Encountered **Total Quantity for 4.11 CC = 300**	**CY**
4.13 AAS	**4" CONCRETE SIDEWALK (UNPIGMENTED)** *At the following locations:* As Encountered **Total Quantity for 4.13 AAS = 950**	**SF**
4.13 BAS	**7" CONCRETE SIDEWALK (UNPIGMENTED)** *At the following locations:* As Encountered **Total Quantity for 4.13 BAS = 2,000**	**SF**
6.02 AAN	**UNCLASSIFIED EXCAVATION** *At the following locations:* As Encountered **Total Quantity for 6.02 AAN = 301**	**CY**

CON EDISON JOINT BIDDING SCOPE OF WORK
CITY BID ITEMS FOR INCLUSION IN
SANDRESM2
EAST SIDE COASTAL RESILIENCY
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6.03 AA	**STRIPPING PAVEMENT SURFACE (ASPHALTIC CONCRETE)**	**SY**
	At the following locations:	
	As Encountered	
	Total Quantity for 6.03 AA = 160	
6.03 AA (N)	**STRIPPING PAVEMENT SURFACE (ASPHALTIC CONCRETE) (NIGHT WORK)**	**SY**
	At the following locations:	
	As Encountered	
	Total Quantity for 6.03 AA (N) = 240	
6.55	**SAWCUTTING EXISTING PAVEMENT**	**LF**
	At the following locations:	
	As Encountered	
	Total Quantity for 6.55 = 2,530	
4.04 HD	**CONCRETE BASE FOR PAVEMENT, 9" THICK (HIGH-EARLY STRENGTH)**	**CY**
	At the following locations:	
	As Encountered	
	Total Quantity for 4.04 HD = 600	
70.81CB	**CLEAN BACKFILL**	**CY**
	At the following locations:	
	As Encountered	
	Total Quantity for 70.81CB = 800	

ECS **DECEMBER 2019**

SANDRESM2
INSTALLATION OF EAST COAST RESILIENCY
Borough of Manhattan
Schedule JB: Scope of Work for Joint Bid Items

JB ITEM	DESCRIPTION	UNITS	ESTIMATED QUANTITY
JB 100.1	UTILITIES CROSSING TRENCH FOR CATCH BASIN CHUTE CONNECTION AND/OR TEST PIT (TYPE .1)	EA	5
JB 103.1	UTILITIES CROSSING TRENCH FOR SEWERS OVER 36" TO 48" DIAMETER (TYPE .1)	EA	5
JB 225	INSTALLATION AND REMOVAL OF CATCH BASINS WITH UTILITY INTERFERENCES	EA	4
JB 330T1	SUPPORT AND PROTECTION OF COMMUNICATION UTILITY FACILITIES DURING EXCAVATION OF CITY TRENCH WHEN PARALLELING COMMUNICATION FACILITIES LIE COMPLETELY IN THE PROPOSED CITY TRENCH	LF	250
JB 400	TEST PITS FOR UTILITY FACILITIES	CY	40
JB 401	TRENCH EXCAVATION FOR ADJUSTMENT OF UTILITY FACILITIES	CY	450
JB 402T.1A	EXISTING CONCRETE ENCASED NON-STEEL/IRON TELECOMMUNICATIONS CONDUITS PLACED IN FINAL POSITION WITH CONCRETE ENCASEMENT	LF	1500
JB 402T.R2A	EXISTING NON-CONCRETE ENCASED STEEL/IRON TELECOMMUNICATIONS CONDUITS PLACED IN FINAL POSITION WITH CONCRETE ENCASEMENT	LF	160
JB 402T.V1A	EXISTING VACANT CONCRETE ENCASED TELECOMMUNICATION CONDUITS PLACED IN FINAL POSITION WITH CONCRETE ENCASEMENT	LF	220
JB 403T.1	FURNISH AND INSTALL 1/4" STEEL PROTECTION PLATES FOR TELECOMMUNICATIONS FACILITIES	SF	200
JB 405.1	TRENCH EXCAVATION FOR INSTALLATION OF UTILITY FACILITIES WITH TOTAL DEPTHS LESS THAN FIVE FEET	CY	100
JB 405.2	TRENCH EXCAVATION FOR INSTALLATION OF UTILITY FACILITIES WITH TOTAL DEPTHS EQUAL TO OR GREATER THAN FIVE FEET, REQUIRING SHEETING	CY	20
JB 603T.2	INSTALL 2-EA. 2", 4" OR 1-1/4" QUAD CONDUIT (PVC OR STEEL) IN ANY COMBINATION	LF	250
JB 603T.3	INSTALL 4-EA. 4" OR 1-1/4" QUAD CONDUIT (PVC OR STEEL) IN ANY COMBINATION	LF	250
JB 636 EG RD	ADJUSTMENT OF UTILITY HARDWARE (41" TO UNDER 75" WIDTH) IN ROADWAY	EA	3
JB 638NT	INSTALLATION OF FIELD CONSTRUCTED TELEPHONE UTILITY STRUCTURE	CY	30
JB 638R	BREAK OUT AND REMOVE UTILITY STRUCTURE CONTAINING ACTIVE FACILITIES	CY	30

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SANDRESM2
INSTALLATION OF EAST COAST RESILIENCY
Borough of Manhattan
Schedule JB: Scope of Work for Joint Bid Items

JB 700	SPECIAL MODIFICATION OF WORK METHODS TO ACCOMMODATE/PROTECT UNDERGOUND FACILITIES WITH LIMITED COVER	CY	75
JB 900	EXTRA UTILITY WORK COSTS ALLOWANCE	LS	1

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SANDRESM2
INSTALLATION OF EAST COAST RESILIENCY
Borough of Manhattan
Schedule JB: Scope of Work for Joint Bid Items

JB 100.1

UTILITIES CROSSING TRENCH FOR CATCH BASIN CHUTE CONNECTION AND/OR TEST PIT (TYPE .1)

@ THE FOLLOWING LOCATIONS

		QTY(EA)
NEC INTERSECTION OF E 23RD STREET & MARGINAL STREET		2
AS ENCOUNTERED & DIRECTED BY THE ECS FIELD REPRESENTATIVE		3
JB 100.1	**TOTAL**	**5**

JB 103.1

UTILITIES CROSSING TRENCH FOR SEWERS OVER 36" TO 48" DIAMETER (TYPE .1)

@ THE FOLLOWING LOCATIONS

		QTY(EA)
EAST SIDE OF AVENUE C BTWN 20TH STREET & 23RD STREET		1
AS ENCOUNTERED & DIRECTED BY THE ECS FIELD REPRESENTATIVE		4
JB 103.1	**TOTAL**	**5**

JB 225

INSTALLATION AND REMOVAL OF CATCH BASINS WITH UTILITY INTERFERENCES

		QTY(EA)
NEC INTERSECTION OF E 23RD STREET & MARGINAL STREET		1
AS ENCOUNTERED & DIRECTED BY THE ECS FIELD REPRESENTATIVE		3
JB 225	**TOTAL**	**4**

JB 330T1

SUPPORT AND PROTECTION OF COMMUNICATION UTILITY FACILITIES DURING EXCAVATION OF CITY TRENCH WHEN PARALLELING COMMUNICATION FACILITIES LIE COMPLETELY IN THE PROPOSED CITY TRENCH

		QTY(LF)
AS ENCOUNTERED & DIRECTED BY THE ECS FIELD REPRESENTATIVE		250
JB 330T1	**TOTAL**	**250**

JB 400

TEST PITS FOR UTILITY FACILITIES

		QTY(CY)
AS ENCOUNTERED & DIRECTED BY THE ECS FIELD REPRESENTATIVE		40
JB 500	**TOTAL**	**40**

JB 401

TRENCH EXCAVATION FOR ADJUSTMENT OF UTILITY FACILITIES

@ THE FOLLOWING LOCATIONS

	QTY(CY)
EAST SIDE OF AVENUE C BTWN 18TH STREET & 20TH STREET	28
EAST SIDE OF AVENUE C BTWN 18TH STREET & 20TH STREET	34
EAST SIDE OF AVENUE C BTWN 18TH STREET & 20TH STREET	20
EAST SIDE OF AVENUE C BTWN 18TH STREET & 20TH STREET	139

ECS **DECEMBER 2019**

SANDRESM2
INSTALLATION OF EAST COAST RESILIENCY
Borough of Manhattan
Schedule JB: Scope of Work for Joint Bid Items

EAST SIDE OF AVENUE C BTWN 20TH STREET & 23RD STREET	14
NEC OF INTERSECTION OF AVENUE C & 23RD STREET	115
AS ENCOUNTERED & DIRECTED BY THE ECS FIELD REPRESENTATIVE	100
JB 401 **TOTAL**	**450**

JB 402T.1A

EXISTING CONCRETE ENCASED NON-STEEL/IRON TELECOMMUNICATIONS CONDUITS PLACED IN FINAL POSITION WITH CONCRETE ENCASEMENT

@ THE FOLLOWING LOCATIONS

	QTY(LF)
EAST SIDE OF AVENUE C BTWN 18TH STREET & 20TH STREET	100
EAST SIDE OF AVENUE C BTWN 18TH STREET & 20TH STREET	120
EAST SIDE OF AVENUE C BTWN 18TH STREET & 20TH STREET	500
NEC OF INTERSECTION OF AVENUE C & 23RD STREET	480
AS ENCOUNTERED & DIRECTED BY THE ECS FIELD REPRESENTATIVE	300
JB 402T.1A **TOTAL**	**1500**

JB 402T.R2A

EXISTING NON-CONCRETE ENCASED STEEL/IRON TELECOMMUNICATIONS CONDUITS PLACED IN FINAL POSITION WITH CONCRETE ENCASEMENT

@ THE FOLLOWING LOCATIONS

	QTY(LF)
EAST SIDE OF AVENUE C BTWN 18TH STREET & 20TH STREET	60
EAST SIDE OF AVENUE C BTWN 20TH STREET & 23RD STREET	40
AS ENCOUNTERED & DIRECTED BY THE ECS FIELD REPRESENTATIVE	60
JB 402T.R2A **TOTAL**	**160**

JB 402T.V1A

EXISTING VACANT CONCRETE ENCASED TELECOMMUNICATION CONDUITS PLACED IN FINAL POSITION WITH CONCRETE ENCASEMENT

@ THE FOLLOWING LOCATIONS

	QTY(LF)
NEC OF INTERSECTION OF AVENUE C & 23RD STREET	120
AS ENCOUNTERED & DIRECTED BY THE ECS FIELD REPRESENTATIVE	100
JB 402T.V1A **TOTAL**	**220**

JB 403T.1

FURNISH AND INSTALL 1/4" STEEL PROTECTION PLATES FOR TELECOMMUNICATIONS FACILITIES

@ THE FOLLOWING LOCATIONS

	QTY(SF)
AS ENCOUNTERED & DIRECTED BY THE ECS FIELD REPRESENTATIVE	200
JB 403T.1 **TOTAL**	**200**

ECS **DECEMBER 2019**

SANDRESM2
INSTALLATION OF EAST COAST RESILIENCY
Borough of Manhattan
Schedule JB: Scope of Work for Joint Bid Items

JB 405.1

TRENCH EXCAVATION FOR INSTALLATION OF UTILITY FACILITIES WITH TOTAL DEPTHS LESS THAN FIVE FEET

@ THE FOLLOWING LOCATIONS

	QTY(CY)
AS ENCOUNTERED & DIRECTED BY THE ECS FIELD REPRESENTATIVE	100
JB 405.1 TOTAL	**100**

JB 405.2

TRENCH EXCAVATION FOR INSTALLATION OF UTILITY FACILITIES WITH TOTAL DEPTHS EQUAL TO OR GREATER THAN FIVE FEET, REQUIRING SHEETING

@ THE FOLLOWING LOCATIONS

	QTY(CY)
AS ENCOUNTERED & DIRECTED BY THE ECS FIELD REPRESENTATIVE	20
JB 405.2 TOTAL	**20**

JB 603T.2

INSTALL 2-EA. 2", 4" OR 1-1/4" QUAD CONDUIT (PVC OR STEEL) IN ANY COMBINATION

@ THE FOLLOWING LOCATIONS

	QTY(LF)
AS ENCOUNTERED & DIRECTED BY THE ECS FIELD REPRESENTATIVE	250
JB 603T.2 TOTAL	**250**

JB 603T.3

INSTALL 4-EA. 4" OR 1-1/4" QUAD CONDUIT (PVC OR STEEL) IN ANY COMBINATION

@ THE FOLLOWING LOCATIONS

	QTY(LF)
AS ENCOUNTERED & DIRECTED BY THE ECS FIELD REPRESENTATIVE	250
JB 603T.3 TOTAL	**250**

JB 636 EG RD

ADJUSTMENT OF UTILITY HARDWARE (41" TO UNDER 75" WIDTH) IN ROADWAY

@ THE FOLLOWING LOCATIONS

	QTY(EA)
AS ENCOUNTERED & DIRECTED BY THE ECS FIELD REPRESENTATIVE	3
JB 636 EG RD TOTAL	**3**

JB 638NT

INSTALLATION OF FIELD CONSTRUCTED TELEPHONE UTILITY STRUCTURE

@ THE FOLLOWING LOCATIONS

	QTY(CY)
EAST SIDE OF AVENUE C BTWN 18TH STREET & 20TH STREET	5
EAST SIDE OF AVENUE C BTWN 20TH STREET & 23RD STREET	5
NEC OF INTERSECTION OF AVENUE C & 23RD STREET	10
AS ENCOUNTERED & DIRECTED BY THE ECS FIELD REPRESENTATIVE	10

ECS

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SANDRESM2
INSTALLATION OF EAST COAST RESILIENCY
Borough of Manhattan
Schedule JB: Scope of Work for Joint Bid Items

JB 638NT

TOTAL 30

JB 638R

BREAK OUT AND REMOVE UTILITY STRUCTURE CONTAINING ACTIVE FACILITIES

@ THE FOLLOWING LOCATIONS

	QTY(CY)
EAST SIDE OF AVENUE C BTWN 18TH STREET & 20TH STREET	5
EAST SIDE OF AVENUE C BTWN 20TH STREET & 23RD STREET	5
NEC OF INTERSECTION OF AVENUE C & 23RD STREET	10
AS ENCOUNTERED & DIRECTED BY THE ECS FIELD REPRESENTATIVE	10

JB 638R **TOTAL 30**

JB 700

SPECIAL MODIFICATION OF WORK METHODS TO ACCOMMODATE/PROTECT UNDERGOUND FACILITIES WITH LIMITED COVER

@ THE FOLLOWING LOCATIONS

	QTY(CY)
AS ENCOUNTERED & DIRECTED BY THE ECS FIELD REPRESENTATIVE	75

JB 700 **TOTAL 75**

JB 900

EXTRA UTILITY WORK COSTS ALLOWANCE

@ THE FOLLOWING LOCATIONS

	QTY(LS)
AS ENCOUNTERED & DIRECTED BY THE ECS FIELD REPRESENTATIVE	1

JB 900 **TOTAL 1**

ECS **DECEMBER 2019**

SANDRESM2
INSTALLATION OF EAST COAST RESILIENCY
Borough of Manhattan
Bid Item Accommodation Estimate

ITEM	DESCRIPTION	UNITS	ESTIMATED QUANTITY
4.02 AB-R	ASPHALTIC CONCRETE WEARING COURSE, 1-1/2" THICK	QTY(SY)	367
4.02 CB	ASPHALTIC CONCRETE MIXTURE	QTY(TON)	123
4.04 H	CONCRETE BASE FOR PAVEMENT, VARIABLE THICKNESS, FOR TRENCH RESTORATION (HIGH EARLY STRENGTH)	QTY(CY)	93
6.55	SAWCUTTING EXISTING PAVEMENT	QTY(LF)	1416
8.02B	SPECIAL CARE EXCAVATION AND RESTORATION FOR CURB WORK	QTY(LF)	20

ECS

DECEMBER 2019

SANDRESM2
INSTALLATION OF EAST COAST RESILIENCY
Borough of Manhattan
Bid Item Accommodation Scope

4.02 AB-R
ASPHALTIC CONCRETE WEARING COURSE, 1-1/2" THICK
@ THE FOLLOWING LOCATIONS

	QTY(SY)
EAST SIDE OF AVENUE C BTWN 18TH STREET & 20TH STREET	28
EAST SIDE OF AVENUE C BTWN 18TH STREET & 20TH STREET	45
EAST SIDE OF AVENUE C BTWN 18TH STREET & 20TH STREET	20
EAST SIDE OF AVENUE C BTWN 18TH STREET & 20TH STREET	139
EAST SIDE OF AVENUE C BTWN 20TH STREET & 23RD STREET	23
NEC OF INTERSECTION OF AVENUE C & 23RD STREET	112
4.02 AB-R TOTAL	**367**

4.02 CB
ASPHALTIC CONCRETE MIXTURE
@ THE FOLLOWING LOCATIONS

	QTY(TON)
EAST SIDE OF AVENUE C BTWN 18TH STREET & 20TH STREET	10
EAST SIDE OF AVENUE C BTWN 18TH STREET & 20TH STREET	15
EAST SIDE OF AVENUE C BTWN 18TH STREET & 20TH STREET	7
EAST SIDE OF AVENUE C BTWN 18TH STREET & 20TH STREET	46
EAST SIDE OF AVENUE C BTWN 20TH STREET & 23RD STREET	8
NEC OF INTERSECTION OF AVENUE C & 23RD STREET	37
4.02 CB TOTAL	**123**

4.04 H

CONCRETE BASE FOR PAVEMENT, VARIABLE THICKNESS, FOR TRENCH RESTORATION (HIGH EARLY STRENGTH)
@ THE FOLLOWING LOCATIONS

	QTY(CY)
EAST SIDE OF AVENUE C BTWN 18TH STREET & 20TH STREET	7
EAST SIDE OF AVENUE C BTWN 18TH STREET & 20TH STREET	12
EAST SIDE OF AVENUE C BTWN 18TH STREET & 20TH STREET	5
EAST SIDE OF AVENUE C BTWN 18TH STREET & 20TH STREET	35
EAST SIDE OF AVENUE C BTWN 20TH STREET & 23RD STREET	6
NEC OF INTERSECTION OF AVENUE C & 23RD STREET	28
4.04 H TOTAL	**93**

6.55
SAWCUTTING EXISTING PAVEMENT
@ THE FOLLOWING LOCATIONS

	QTY(LF)
EAST SIDE OF AVENUE C BTWN 18TH STREET & 20TH STREET	110
EAST SIDE OF AVENUE C BTWN 18TH STREET & 20TH STREET	170
EAST SIDE OF AVENUE C BTWN 18TH STREET & 20TH STREET	126
EAST SIDE OF AVENUE C BTWN 18TH STREET & 20TH STREET	510
EAST SIDE OF AVENUE C BTWN 20TH STREET & 23RD STREET	90
NEC OF INTERSECTION OF AVENUE C & 23RD STREET	410

6.55	TOTAL	1,416

8.02B
SPECIAL CARE EXCAVATION AND RESTORATION FOR CURB WORK
@ THE FOLLOWING LOCATIONS

	QTY(LF)
SEC OF INTERSECTION OF E 18TH STREET & AVENUE C	5
SEC OF INTERSECTION OF E 23RD STREET & AVENUE C	5
SEC OF INTERSECTION OF E 23RD STREET & AVENUE C	10

8.02B	TOTAL	20

TEST PITS

(1) THESE TEST PITS DETAIL EXISTING CONDITIONS (AS OF BID DATE) OF UTILITIES AND OTHER SUBSURFACE FACILITIES AT LOCATIONS AS SHOWN ON THE TEST PIT LOCATIONS PLAN OF THE CONTRACT DRAWINGS.

(2) DEPTHS OF FACILITIES ARE FROM EXISTING ROADWAY AND SIDEWALK ELEVATIONS AS SHOWN, OFFSETS ARE FROM EXISTING CURB, PROPERTY AND BUILDING LINES, AS SHOWN.

(3) RELEVANT ITEMS ARE NOTED ON EACH TEST PIT DIAGRAM.

(NO TEXT IN THIS SECTION)

EMPIRE CITY SUBWAY

SHEET NO. 1 OF 1

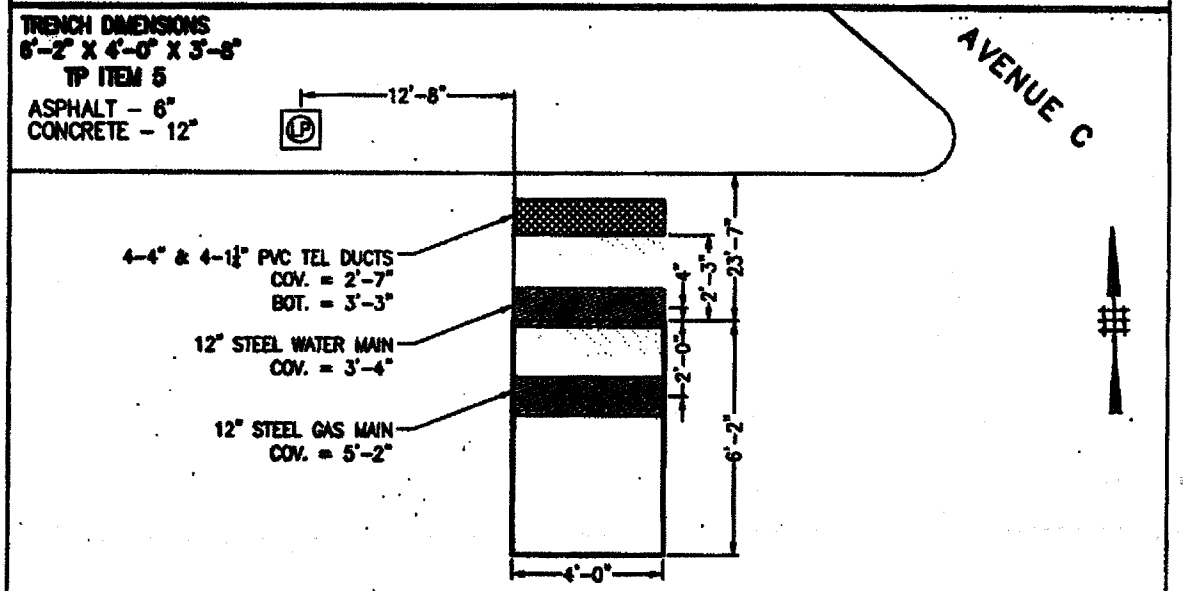
JOB: EAST COAST RESILIENCY PREPARED BY: HENRY READ DATE: 10/3/19

JOB NO: SANDRESM2 CHECKED BY: ANDREW MATARAZZO DATE: 10/8/19

TEST PIT # 4 LOCATION: SOUTH SIDE OF EAST 20TH STREET BTWN 20TH

PURPOSE: LOCATE UTILITIES STREET LOOP & AVENUE C, MAN

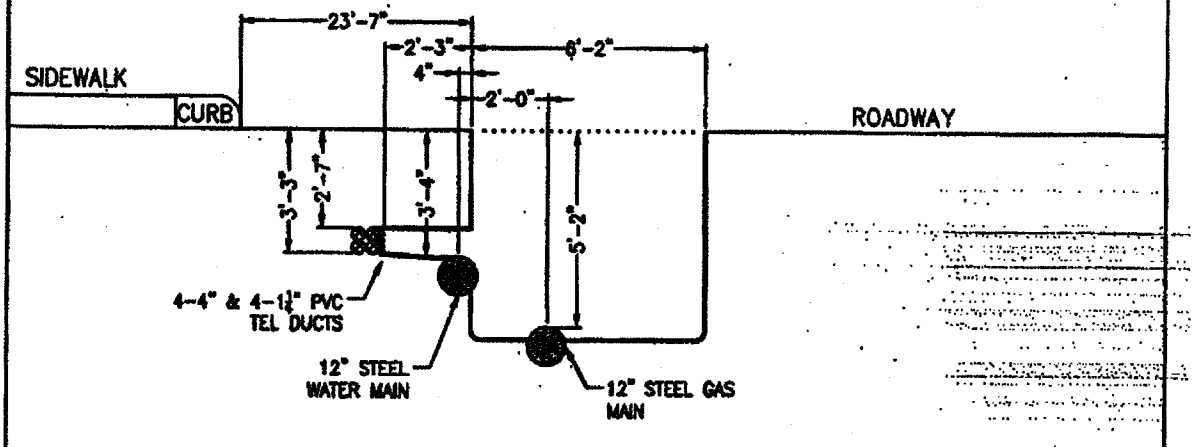
TRENCH DIMENSIONS
6'-2" X 4'-0" X 3'-8"
TP ITEM 5
ASPHALT – 6"
CONCRETE – 12"



EAST 20TH STREET

PLAN

JB ITEM 103.2



SECTION LOOKING WEST

END OF JB-PAGES

THE JB-PAGES CONSIST OF NINETY-SIX (96) PAGES
INCLUDING THIS ONE
AND FIFTY -THREE (53) SHEETS OF PRIVATE UTILITY DRAWINGS
THAT ARE ATTACHED TO THE CONTRACT PLANS

HUD - PAGES

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT PROJECTS

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT ("HUD") FUNDING ATTACHMENT

THE CITY OF NEW YORK DEPARTMENT OF DESIGN AND
CONSTRUCTION INFRASTRUCTURE DIVISION
BUREAU OF DESIGN

THIS ATTACHMENT IS HEREBY MADE A PART OF THE CONTRACT DOCUMENTS

1. The riders and exhibits listed below, and included in this Attachment, are made a part of this contract documents, and the Contractor shall be responsible for compliance with all the provisions contained therein:
   - UNIFORM FEDERAL CONTRACT PROVISIONS RIDER FOR FEDERALLY FUNDED PROCUREMENT CONTRACTS (02/16/2018)
   - CDBG RIDER (2/16/2018)
   - FEDERAL LABOR STANDARDS PROVISIONS (Form HUD-4010) (6/2009)
   - DAVIS-BACON WAGE RATES

(NO TEXT ON THIS PAGE)

UNIFORM FEDERAL CONTRACT PROVISIONS RIDER FOR FEDERALLY FUNDED PROCUREMENT CONTRACTS

(Version 02.16.2018)

[Instructions to Agencies: This Uniform Federal Contract Provisions Rider for Federally Funded Procurement Contracts ("Rider") must be attached to all federally funded procurement contracts (of any dollar amount) that are subject to 2 CFR Part 200 (Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards). This Rider does not apply to subrecipient or subaward agreements. Procurement contracts funded by the U.S. Department of Housing and Urban Development CDBG Program or CDBG-DR Program must also include the CDBG or CDBG-DR Rider, as applicable.]

A. *Definitions.* As used in this Rider:

(1) "Awarding Entity" means the entity awarding the Contract. The Awarding Entity may be the City or a contractor at any tier.

(2) "City" means the City of New York.

(3) "Commissioner" means the head of the City agency entering into this Contract.

(4) "Construction" means the building, rehabilitation, alteration, conversion, extension, demolition, painting or repair of any improvement to real property.

(5) "Contract" refers to the contract or the agreement between the Awarding Entity and the Contractor.

(6) "Contractor" means the entity performing the services pursuant to a Contract.

(7) "Federal Agency" means the U.S. agency or agencies funding this Contract in whole or in part.

(8) "Government" means the U.S. government.

(9) "Rider" means this Uniform Federal Contract Provisions Rider.

B. *Termination and Remedies for Breach of Contract.* The following provisions concerning remedies for breach of contract and termination apply to Contracts between the City and the City's Contractor.

(1) **Remedies for Breach of Contract.** If the Contractor violates or breaches the Contract, the City may avail itself of any or all of the remedies provided for elsewhere in this Contract. If there are no remedies provided for elsewhere in this Contract, the City may avail itself of any or all of the following remedies.

After declaring the Contractor in default pursuant to the procedures in paragraph (a) of subdivision (2) of this section (B) below, the City may (i) withhold payment for unsatisfactory services, (ii) suspend or terminate the Contract in whole or in part; and/or

(iii) have the services under this Contract completed by such means and in such manner, by contract procured with or without competition, or otherwise, as the City may deem advisable in accordance with all applicable Contract provisions and law. After completion of the services under this Contract, the City shall certify the expense incurred in such completion, which shall include the cost of procuring that contract. Should the expense of such completion, as certified by the City, exceed the total sum which would have been payable under the Contract if it had been completed by the Contractor, any excess shall be promptly paid by the Contractor upon demand by the City. The excess expense of such completion, including any and all related and incidental costs, as so certified by the City may be charged against and deducted out of monies earned by the Contractor.

(2) **Termination.** The City shall have the right to terminate the Contract in whole or in part for cause, for convenience, due to force majeure, or due to reductions in federal funding. If the Contract does not include termination provisions elsewhere, the following termination provisions apply:

a. **Termination for Cause**. The City shall have the right to terminate the Contract, in whole or in part, for cause upon a determination that the Contractor is in default of the Contract. Unless a shorter time is determined by the City to be necessary, the City shall effect termination according to the following procedure:

i. *Notice to Cure.* The City shall give written notice of the conditions of default signed by the Commissioner, setting forth the ground or grounds upon which such default is declared ("Notice to Cure"). The Contractor shall have ten (10) days from receipt of the Notice to Cure or any longer period that is set forth in the Notice to Cure to cure the default. The Commissioner may temporarily suspend services under the Contract pending the outcome of the default proceedings pursuant to this section.

ii. *Opportunity to be Heard.* If the conditions set forth in the Notice to Cure are not cured within the period set forth in the Notice to Cure, the Commissioner may declare the Contractor in default. Before the Commissioner may exercise his or her right to declare the Contractor in default, the Contractor must be given an opportunity to be heard upon not less than five (5) business days' notice. The Commissioner may, in his or her discretion, provide for such opportunity to be in writing or in person. Such opportunity to be heard shall not occur prior to the end of the cure period but notice of such opportunity to be heard may be given prior to the end of the cure period and may be given contemporaneously with the Notice to Cure.

iii. *Notice of Termination.* After an opportunity to be heard, the Commissioner may terminate the Contract, in whole

or in part, upon finding the Contractor in default. The Commissioner shall give the Contractor written notice of such termination ("Notice of Termination"), specifying the applicable provision(s) under which the Contract is terminated and the effective date of termination. If no date is specified in the Notice of Termination, the termination shall be effective either 10 calendar days from the date the notice is personally delivered or 15 calendar days from the date Notice of Termination is sent by another method. The Notice of Termination shall be personally delivered, sent by certified mail return receipt requested, or sent by fax and deposited in a post office box regularly maintained by the United States Postal Service in a postage pre-paid envelope.

iv. *Grounds for Default.* The City shall have the right to declare the Contractor in default:

1. Upon a breach by the Contractor of a material term or condition of this Contract, including unsatisfactory performance of the services;

2. Upon insolvency or the commencement of any proceeding by or against the Contractor, either voluntarily or involuntarily, under the Bankruptcy Code or relating to the insolvency, receivership, liquidation, or composition of the Contractor for the benefit of creditors;

3. If the Contractor refuses or fails to proceed with the services under the Contract when and as directed by the Commissioner;

4. If the Contractor or any of its officers, directors, partners, five percent (5%) or greater shareholders, principals, or other employee or person substantially involved in its activities are indicted or convicted after execution of the Contract under any state or federal law of any of the following:

a. a criminal offense incident to obtaining or attempting to obtain or performing a public or private contract;

b. fraud, embezzlement, theft, bribery, forgery, falsification, or destruction of records, or receiving stolen property;

c. a criminal violation of any state or federal antitrust law;

d. violation of the Racketeer Influence and Corrupt Organization Act, 18 U.S.C. § 1961 et seq., or the Mail Fraud Act, 18

U.S.C. § 1341 et seq., for acts in connection with the submission of bids or proposals for a public or private contract;

e. conspiracy to commit any act or omission that would constitute grounds for conviction or liability under any statute described in subparagraph (d) above; or

f. an offense indicating a lack of business integrity that seriously and directly affects responsibility as a City vendor.

5. If the Contractor or any of its officers, directors, partners, five percent (5%) or greater shareholders, principals, or other employee or person substantially involved in its activities are subject to a judgment of civil liability under any state or federal antitrust law for acts or omissions in connection with the submission of bids or proposals for a public or private contract; or

6. If the Contractor or any of its officers, directors, partners, five percent (5%) or greater shareholders, principals, or other employee or person substantially involved in its activities makes or causes to be made any false, deceptive, or fraudulent material statement, or fail to make a required material statement in any bid, proposal, or application for City or other government work.

v. *Basis of Settlement*. The City shall not incur or pay any further obligation pursuant to this Contract beyond the termination date set by the City in its Notice of Termination. The City shall pay for satisfactory services provided in accordance with this Contract prior to the termination date. In addition, any obligation necessarily incurred by the Contractor on account of this Contract prior to receipt of notice of termination and falling due after the termination date shall be paid by the City in accordance with the terms of this Contract. In no event shall such obligation be construed as including any lease or other occupancy agreement, oral or written, entered into between the Contractor and its landlord.

b. **Termination for Convenience**. The City shall have the right to terminate the Contract for convenience, by providing written notice ("Notice of Termination") according to the following procedure. The Notice of Termination shall specify the applicable provision(s) under which the Contract is terminated and the effective date of termination, which shall be not less than 10 calendar days from the date the notice is personally delivered or 15 days from the date the Notice of Termination is sent by another method. The Notice of Termination shall be personally

delivered, sent by certified mail return receipt requested, or sent by fax and deposited in a post office box regularly maintained by the United States Postal Service in a postage pre-paid envelope. The basis of settlement shall be as provided for in subparagraph (iv) of paragraph (a) of subdivision (2) of this section (B), above.

c. **Termination due to Force Majeure**

i. For purposes of this Contract, a force majeure event is an act or event beyond the control and without any fault or negligence of the Contractor ("Force Majeure Event"). Force Majeure Events may include, but are not limited to, fire, flood, earthquake, storm or other natural disaster, civil commotion, war, terrorism, riot, and labor disputes not brought about by any act or omission of the Contractor.

ii. In the event the Contractor cannot comply with the terms of the Contract (including any failure by the Contractor to make progress in the performance of the services) because of a Force Majeure Event, then the Contractor may ask the Commissioner to excuse the nonperformance and/or terminate the Contract. If the Commissioner, in his or her reasonable discretion, determines that the Contractor cannot comply with the terms of the Contract because of a Force Majeure Event, then the Commissioner shall excuse the nonperformance and may terminate the Contract. Such a termination shall be deemed to be without cause.

iii. If the City terminates the Contract due to a Force Majeure Event, the basis of settlement shall be as provided for in subparagraph (iv) of paragraph (a) of subdivision (2) of this section (B), above.

d. **Termination due to Reductions in Federal Funding**

i. This Contract is funded in whole or in part by funds secured from the Federal government. Should the Federal government reduce or discontinue such funds, the City shall have, in its sole discretion, the right to terminate this Contract in whole or in part, or to reduce the funding and/or level of services of this Contract caused by such action by the Federal government, including, in the case of the reduction option, but not limited to, the reduction or elimination of programs, services or service components; the reduction or elimination of contract-reimbursable staff or staff-hours, and corresponding reductions in the budget of this Contract and in the total amount payable under this Contract. Any reduction in funds pursuant to this

paragraph shall be accompanied by an appropriate reduction in the services performed under this Contract.

ii. In the case of the reduction option referred to in subparagraph (i), above, any such reduction shall be effective as of the date set forth in a written notice thereof to the Contractor, which shall be not less than 30 calendar days from the date of such notice. Prior to sending such notice of reduction, the City shall advise the Contractor that such option is being exercised and afford the Contractor an opportunity to make within seven calendar days any suggestion(s) it may have as to which program(s), service(s), service component(s), staff or staff-hours might be reduced or eliminated, provided, however, that the City shall not be bound to utilize any of the Contractor's suggestions and that the City shall have sole discretion as to how to effectuate the reductions.

iii. If the City reduces funding pursuant to this paragraph (c), the basis of settlement shall be as provided for in subparagraph (iv) of paragraph (a) of subdivision (2) of this section (B), above.

C. Standard Provisions. The Contractor shall comply with, include in its subcontracts, and cause its subcontractors to comply with the following provisions, as applicable:

(1) *Reporting.* Contractor shall be required to produce and deliver such reports relating to the services performed under the Contract as may be required by the Awarding Entity, City or any other State or Federal governmental agency with jurisdiction.

(2) *Non-Discrimination.* Contractor shall not violate any Federal, State, or City law prohibiting discrimination concerning employment, the provision of services, and, if applicable, housing, funded by this Contract.

(3) *Environmental Protection.* If the Contract is in excess of $150,000, the Contractor shall comply with all applicable standards, orders, or regulations issued under the Clean Air Act (42 U.S.C. § 7401-7671q), Federal Water Pollution control Act (33 U.S.C. §§ 1251-1387) Section 508 of the Clean Water Act (33 U.S.C. § 1368), Executive Order 11738, and Environmental Protection Agency regulations (provisions of 40 CFR Part 50 and 2 CFR Part 1532 related to the Clean Air Act and Clean Water Act). Violations must be reported to the Federal Agency and the Regional Office of the Environmental Protection Agency (EPA). The Contractor shall include this provision in all subcontracts.

(4) *Energy Efficiency.* The Contractor shall comply with mandatory standards and policies relating to energy efficiency that are contained in the New York State energy conservation plan issued in compliance with the Energy Policy Conservation Act (Pub. L. 94-163).

(5) *Debarment.* The Contractor certifies that neither it nor its principals is currently in a state of debarment, suspension, or other ineligible status as a result of prior performance, failure, fraud, or violation of City laws. The Contractor further certifies that neither it nor

its principals is debarred, suspended, otherwise excluded from or ineligible for participation in Federal assistance programs. The City reserves the right to terminate this Contract if knowledge of debarment, suspension or other ineligibility has been withheld by the Contractor.

(6) *Lobbying.* The Contractor certifies, to the best of its knowledge and belief, that:

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

(b) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, it will complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," (which is available on the HUD website or here: https://www.hudexchange.info/resources/documents/HUD-Form-Sflll.pdf) in accordance with its instructions; and

(c) It will require that the language of this Section (€)(6) be included in the award documents for all subcontracts at all tiers.

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

(7) *Solid Waste Disposal Act.* Pursuant to 2 CFR § 200.322, Contractor must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (codified at 42 USC § 6962). The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds $ 10,000 or the value of the quantity acquired during the preceding fiscal year exceeded $ 10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

(8) *Documentation of Costs.* All costs shall be supported by properly executed payrolls, time records, invoices, or vouchers, or other official documentation evidencing in proper detail the nature and propriety of the charges. All checks, payrolls, invoices, contracts,

vouchers, orders or other accounting documents, pertaining in whole or in part to the Agreement, shall be clearly identified and regularly accessible.

(9) *Records Retention.* The Contractor shall retain all books, documents, papers, and records relating to the services performed under the Contract for three years after final payment under the Contract is made and all other pending matters are closed.

(10) *Records Access.* The Contractor shall grant access to the City, State or any other pass-through entity, the Federal Agency, Inspectors General, and/or the Comptroller General of the United States, or any of their duly authorized representatives, to any books, documents, papers, and/or records of the Contractor that are pertinent to the Contract for the purpose of making audits, examinations, excerpts, and transcripts. The right also includes timely and reasonable access to the Contractor's personnel for the purpose of interview and discussion related to such documents. The rights of access in this section are not limited to the required retention period but last as long as the records are retained.

(11) *Small Firms, M/WBE Firms, and Labor Surplus Area Firms.* Contractor shall take the following affirmative steps in the letting of subcontracts, if subcontracts are to be let, in order to ensure that minority firms, women's business enterprises, and labor surplus area firms are used when possible:

a. Placing qualified small and minority businesses and women's business enterprises on solicitation lists;

b. Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;

c. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;

d. Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises; and

e. Using the services and assistance of the Small Business Administration, and the Minority Business Development Agency of the Department of Commerce.

(12) *Intangible Property.*

a. Pursuant to 2 CFR § 200.315(d), the Government reserves a royalty-free, non-exclusive, and irrevocable right to obtain, reproduce, publish, or otherwise use, and to authorize others to use, for Government purposes: (a) the copyright in any work developed under the Contract or subcontract; and (b) any rights of copyright to which a Contractor purchases ownership with grant support.

b. Any reports, documents, data, photographs, deliverables, and/or other materials produced pursuant to the Contract ("Copyrightable Materials"), and any and all drafts and/or other preliminary materials in any format related to such items produced pursuant to the contract, shall upon their creation become the exclusive property of the City. The Copyrightable Materials shall be considered "work-made-for-hire" within the meaning and purview of Section 101 of the United States Copyright Act, 17 U.S.C. § 101, and the City shall be the copyright owner thereof and of all aspects, elements and components thereof in which copyright protection might exist. To the extent that the Copyrightable Materials do not qualify as "work-made-for-hire," the Contractor hereby irrevocably transfers, assigns and conveys exclusive copyright ownership in and to the Copyrightable Materials to the City, free and clear of any liens, claims, or other encumbrances. The Contractor shall retain no copyright or intellectual property interest in the Copyrightable Materials. The Copyrightable Materials shall be used by the Contractor for no purpose other than in the performance of this Contract without the prior written permission of the City. The City may grant the Contractor a license to use the Copyrightable Materials on such terms as determined by the City and set forth in the license.

c. The Contractor acknowledges that the City may, in its sole discretion, register copyright in the Copyrightable Materials with the United States Copyright Office or any other government agency authorized to grant copyright registrations. The Contractor shall fully cooperate in this effort, and agrees to provide any and all documentation necessary to accomplish this.

d. The Contractor represents and warrants that the Copyrightable Materials: (i) are wholly original material not published elsewhere (except for material that is in the public domain); (ii) do not violate any copyright law; (iii) do not constitute defamation or invasion of the right of privacy or publicity; and (iv) are not an infringement, of any kind, of the rights of any third party. To the extent that the Copyrightable Materials incorporate any non-original material, the Contractor has obtained all necessary permissions and clearances, in writing, for the use of such non-original material under this Contract, copies of which shall be provided to the City upon execution of this Contract.

e. The Contractor shall promptly and fully report to the City any discovery or invention arising out of or developed in the course of performance of this Contract and the Contractor shall promptly and fully report to the Government to make a determination as to whether patent protection on such invention shall be sought and how the rights in the invention or discovery,

including rights under any patent issued thereon, shall be disposed of and administered in order to protect the public interest.

f. If the Contractor publishes a work dealing with any aspect of performance under this Agreement, or with the results of such performance, the City shall have a royalty-free, non-exclusive irrevocable license to reproduce, publish, or otherwise use such work for City governmental purposes.

D. Special Provisions for Construction Contracts. If this Contract involves Construction work, design for Construction, or Construction services, all such work or services performed by the Contractor and its subcontractors shall be subject to the following requirements in addition to those set forth above in paragraphs (A), (B), and (C):

(1) *Federal Labor Standards.* The Contractor will comply with the following:

a. The Davis-Bacon Act (40 U.S.C. §§ 3141-3148): If required by the federal program legislation, in Construction contracts involving an excess of $2000, and subject to any other federal program limitations, all laborers and mechanics must be paid at a rate not less than those determined by the Secretary of Labor to be prevailing for the City, which rates are to be provided by the City. These wage rates are a federally mandated minimum only, and will be superseded by any State or City requirement mandating higher wage rates. The Contractor also agrees to comply with Department of Labor Regulations pursuant to the Davis-Bacon Act found in 29 CFR Parts 1, 3, 5 and 7 which enforce statutory labor standards provisions.

b. If required by the federal program legislation and subject to any other federal program limitations, Sections 103 and 107 of the Contract Work Hours and Safe Standards Act (40 U.S.C. §§ 3701-3708), which provides that no laborer or mechanic shall be required or permitted to work more than eight hours in a calendar day or in excess of forty hours in any workweek, unless such laborer or mechanic is paid at an overtime rate of 1½ times his/her basic rate of pay for all hours worked in excess of these limits, under any Construction contract costing in excess of $2000. In the event of a violation of this provision, the Contractor shall not only be liable to any affected employee for his/her unpaid wages, but shall be additionally liable to the United States for liquidated damages.

c. The Copeland "Anti-Kickback" Act (18 U.S.C. § 874), as supplemented by the regulations contained in 29 CFR Part 3, requiring that all laborers and mechanics shall be paid unconditionally and not less often than once a week, and prohibiting all but "permissible" salary deductions.

d. If this Contract involves Construction work, design for Construction, or Construction services, a more complete detailed statement of Federal Labor Standards annexed hereto as FEDERAL EXHIBIT 2.

(2) *Equal Employment Opportunity.* Executive Order 11246, as amended by Executive Order 11375, and as supplemented in Department of Labor regulations (41 CFR chapter 60) for Construction contracts or subcontracts in excess of $10,000. The Contractor shall include the notice found at FEDERAL EXHIBIT I in all Construction subcontracts. For the purposes of the Equal Opportunity Construction Contract Specifications and Clause below, the term "Construction Work" means the construction, rehabilitation, alteration, conversion, extension, demolition or repair of buildings, highways, or other changes or improvements to real property, including facilities providing utility services. The term also includes the supervision, inspection, and other onsite functions incidental to the actual construction .

Standard Federal Equal Employment Opportunity Construction Contract Specifications for Contracts and Subcontracts in Excess of $10,000.

1. As used in these specifications:

a. "Covered area" means the geographical area described in the solicitation from which this Contract resulted;

b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

d. "Minority" includes:

(i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

(iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any Construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this Contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area

(including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7 a through p of these specifications. The goals set forth in the solicitation from which this Contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each Construction trade in which it has employees in the covered area. Covered Construction Contractors performing Construction Work in geographical areas where they do not have a Federal or federally assisted Construction contract shall apply the minority and female goals established for the geographical areas where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each Construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to

community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organization's responses.

c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where Construction Work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of Construction Work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above,

describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female Construction contractors and suppliers, including circulation of solicitations to minority and female Contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a Contractor association, joint Contractor-union, Contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the Program are reflected in the Contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246 or suspended or is otherwise excluded from or ineligible for participation in federal assistance programs.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, Construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, Contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for hiring of local or other areas residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

(3) **Equal Opportunity Clause** (for contracts for Construction Work) required by 41 CFR § 60-1.4(b).

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

(1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:

Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

(3) The Contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the Contractor's legal duty to furnish information.

(4) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(5) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(6) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(7) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(8) The Contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering

agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

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

E. Rights to Inventions. [Special Provisions For Contracts Involving Experimental, Developmental, or Research Work.]

(1) If this Contract involves the performance of experimental, developmental, or research work by the Contractor or its subcontractors, and the entity performing such work is a Nonprofit Organization or Small Business Firm as defined below, the following provisions apply in addition to those set forth above in paragraphs (A), (B), and (C), unless the Contract specifically states that this provision is superseded:

a. Definitions. The following definitions apply to this section (D).

i. "Invention" means any invention or discovery which is or may be patentable or otherwise protectable under Title 35 of the United States Code, or any novel variety of plant which is or may be protected under the Plant Variety Protection Act (7 U.S.C. § 2321 *et seq.*).

ii. "Subject invention" means any invention of the Contractor conceived or first actually reduced to practice in the performance of work under this Contract, provided that in the case of a variety of plant, the date of determination (as defined in section 41(d) of the Plant Variety Protection Act, 7 U.S.C. 2401(d)) must also occur during the period of Contract performance.

iii. "Practical Application" means to manufacture in the case of a composition or product, to practice in the case of a process or method, or to operate in the case of a machine or system; and, in each case, under such conditions as to establish that the invention is being utilized and that its benefits are, to the extent permitted by law or government regulations, available to the public on reasonable terms.

iv. "Made" when used in relation to any invention means the conception or first actual reduction to practice of such invention.

v. "Small Business Firm" means a small business concern as defined at section 2 of Pub. L. 85-536 (15 U.S.C. 632) and implementing regulations of the Administrator of the Small Business Administration. For the purpose of this clause, the size standards for small business

concerns involved in government procurement and subcontracting at 13 CFR 121.3-8 and 13 CFR 121.3-12, respectively, will be used.

vi. "Nonprofit Organization" means a university or other institution of higher education or an organization of the type described in section 501(c)(3) of the Internal Revenue Code of 1954 (26 U.S.C. 501(c) and exempt from taxation under section 501(a) of the Internal Revenue Code (25 U.S.C. 501(a)) or any nonprofit scientific or educational organization qualified under a state nonprofit organization statute.

b. *Allocation of Principal Rights*. The Contractor may retain the entire right, title, and interest throughout the world to each subject invention subject to the provisions of this clause and 35 U.S.C. 203. With respect to any subject invention in which the Contractor retains title, the Federal government shall have a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States the subject invention throughout the world.

c. *Invention Disclosure, Election of Title and Filing of Patent Application by Contractor.*

i. The Contractor will disclose each subject invention to the City and the Federal Agency within two months after the inventor discloses it in writing to Contractor personnel responsible for patent matters. Such disclosure shall be in the form of a written report and shall identify the contract under which the invention was made and the inventor(s). It shall be sufficiently complete in technical detail to convey a clear understanding to the extent known at the time of the disclosure, of the nature, purpose, operation, and the physical, chemical, biological or electrical characteristics of the invention. The disclosure shall also identify any publication, on sale or public use of the invention and whether a manuscript describing the invention has been submitted for publication and, if so, whether it has been accepted for publication at the time of disclosure. In addition, after such disclosure, the Contractor will promptly notify the City and the Federal Agency of the acceptance of any manuscript describing the invention for publication or of any on sale or public use planned by the Contractor.

ii. The Contractor will elect in writing whether or not to retain title to any such invention by notifying the City and the Federal Agency within two years of disclosure to the City and the Federal Agency. However, in any case

where publication, on sale or public use has initiated the one year statutory period wherein valid patent protection can still be obtained in the United States, the period for election of title may be shortened by the Federal Agency to a date that is no more than 60 days prior to the end of the statutory period.

iii. The Contractor will file its initial patent application on a subject invention to which it elects to retain title within one year after election of title or, if earlier, prior to the end of any statutory period wherein valid patent protection can be obtained in the United States after a publication, on sale, or public use. The Contractor will file patent applications in additional countries or international patent offices within either ten months of the corresponding initial patent application or six months from the date permission is granted by the Commissioner of Patents and Trademarks to file foreign patent applications where such filing has been prohibited by a Secrecy Order.

iv. Requests for extension of the time for disclosure, election, and filing under subparagraphs (1), (2), and (3) may be granted at the discretion of the Federal Agency.

d. Conditions When the Government May Obtain Title

The Contractor will convey to the Federal Agency, upon written request, title to any subject invention --

i. If the Contractor fails to disclose or elect title to the subject invention within the times specified in (c), above, or elects not to retain title; provided that the Federal Agency may only request title within 60 calendar days after learning of the failure of the Contractor to disclose or elect within the specified times.

ii. In those countries in which the Contractor fails to file patent applications within the times specified in (c) above; provided, however, that if the Contractor has filed a patent application in a country after the times specified in (c) above, but prior to its receipt of the written request of the Federal Agency, the Contractor shall continue to retain title in that country.

iii. In any country in which the Contractor decides not to continue the prosecution of any application for, to pay the maintenance fees on, or defend in reexamination or opposition proceeding on, a patent on a subject invention.

e. Minimum Rights to Contractor and Protection of the Contractor Right to File

i. The Contractor will retain a nonexclusive royalty-free license throughout the world in each subject invention to which the Government obtains title, except if the Contractor fails to disclose the invention within the times specified in (c), above. The Contractor's license extends to its domestic subsidiary and affiliates, if any, within the corporate structure of which the Contractor is a party and includes the right to grant sublicenses of the same scope to the extent the Contractor was legally obligated to do so at the time the Contract was awarded. The license is transferable only with the approval of the Federal Agency except when transferred to the successor of that party of the Contractor's business to which the invention pertains.

ii. The Contractor's domestic license may be revoked or modified by the funding Federal Agency to the extent necessary to achieve expeditious practical application of the subject invention pursuant to an application for an exclusive license submitted in accordance with applicable provisions at 37 CFR Part 404 and agency licensing regulations (if any). This license will not be revoked in that field of use or the geographical areas in which the Contractor has achieved practical application and continues to make the benefits of the invention reasonably accessible to the public. The license in any foreign country may be revoked or modified at the discretion of the funding Federal Agency to the extent the Contractor, its licensees, or the domestic subsidiaries or affiliates have failed to achieve practical application in that foreign country.

iii. Before revocation or modification of the license, the funding Federal Agency will furnish the Contractor a written notice of its intention to revoke or modify the license, and the Contractor will be allowed thirty calendar days (or such other time as may be authorized by the funding Federal Agency for good cause shown by the Contractor) after the notice to show cause why the license should not be revoked or modified. The Contractor has the right to appeal, in accordance with applicable regulations in 37 CFR Part 404 and Federal Agency regulations (if any) concerning the licensing of Government-owned inventions, any decision concerning the revocation or modification of the license.

f. Contractor Action to Protect the Government's Interest

i. The Contractor agrees to execute or to have executed and promptly deliver to the Federal Agency all instruments necessary to (i) establish or confirm the rights the Government has throughout the world in those subject inventions to which the Contractor elects to retain title, and (ii) convey title to the Federal Agency when requested under paragraph (d) above and to enable the Government to obtain patent protection throughout the world in that subject invention.

ii. The Contractor agrees to require, by written agreement, its employees, other than clerical and nontechnical employees, to disclose promptly in writing to personnel identified as responsible for the administration of patent matters and in a format suggested by the Contractor each subject invention made under contract in order that the Contractor can comply with the disclosure provisions of paragraph (c), above, and to execute all papers necessary to file patent applications on subject inventions and to establish the Government's rights in the subject inventions. This disclosure format should require, as a minimum, the information required by (c)(1), above. The Contractor shall instruct such employees through employee agreements or other suitable educational programs on the importance of reporting inventions in sufficient time to permit the filing of patent applications prior to U.S. or foreign statutory bars.

iii. The Contractor will notify the Federal Agency of any decisions not to continue the prosecution of a patent application, pay maintenance fees, or defend in a reexamination or opposition proceeding on a patent, in any country, not less than thirty calendar days before the expiration of the response period required by the relevant patent office.

iv. The Contractor agrees to include, within the specification of any United States patent applications and any patent issuing thereon covering a subject invention, the following statement, "This invention was made with government support under (identify the contract) awarded by (identify the Federal Agency). The government has certain rights in the invention."

g. Subcontracts

i. The Contractor will include this clause, suitably modified to identify the parties, in all subcontracts, regardless of tier, for experimental, developmental or research work to be performed by a small business firm or domestic nonprofit organization. The subcontractor

will retain all rights provided for the Contractor in this clause, and the Contractor will not, as part of the consideration for awarding the subcontract, obtain rights in the subcontractor's subject inventions.

ii. The Contractor will include in all other subcontracts, regardless of tier, for experimental developmental or research work the patent rights clause required by 2 CFR § 200.315(c) and Appendix II to 2 CFR Part 200.

h. *Reporting on Utilization of Subject Inventions.* The Contractor agrees to submit on request periodic reports no more frequently than annually on the utilization of a subject invention or on efforts at obtaining such utilization that are being made by the Contractor or its licensees or assignees. Such reports shall include information regarding the status of development, date of first commercial sale or use, gross royalties received by the Contractor, and such other data and information as the Federal Agency may reasonably specify. The Contractor also agrees to provide additional reports as may be requested by the Federal Agency in connection with any march-in proceeding undertaken by the Federal Agency in accordance with paragraph (j) of this clause. As required by 35 U.S.C. § 202(c)(5), the Federal Agency agrees it will not disclose such information to persons outside the Government without permission of the Contractor.

i. *Preference for United States Industry.* Notwithstanding any other provision of this clause, the Contractor agrees that neither it nor any assignee will grant to any person the exclusive right to use or sell any subject inventions in the United States unless such person agrees that any products embodying the subject invention or produced through the use of the subject invention will be manufactured substantially in the United States. However, in individual cases, the requirement for such an agreement may be waived by the Federal Agency upon a showing by the Contractor or its assignee that reasonable but unsuccessful efforts have been made to grant licenses on similar terms to potential licensees that would be likely to manufacture substantially in the United States or that under the circumstances domestic manufacture is not commercially feasible.

j. *March-in Rights*. The Contractor agrees that with respect to any subject invention in which it has acquired title, the Federal Agency has the right in accordance with the procedures in 37 CFR § 401.6 and any supplemental regulations of the Federal Agency to require the Contractor, an assignee or exclusive licensee of a subject invention to grant a nonexclusive, partially exclusive, or exclusive license in any field of use to a responsible applicant or applicants, upon terms that are reasonable under the circumstances, and if the Contractor, assignee, or exclusive licensee refuses such a request the Federal Agency has the right

to grant such a license itself if the Federal Agency determines that:

i. Such action is necessary because the Contractor or assignee has not taken, or is not expected to take within a reasonable time, effective steps to achieve practical application of the subject invention in such field of use.

ii. Such action is necessary to alleviate health or safety needs which are not reasonably satisfied by the Contractor, assignee or their licensees;

iii. Such action is necessary to meet requirements for public use specified by Federal regulations and such requirements are not reasonably satisfied by the Contractor, assignee or licensees; or

iv. Such action is necessary because the agreement required by paragraph (i) of this clause has not been obtained or waived or because a licensee of the exclusive right to use or sell any subject invention in the United States is in breach of such agreement.

k. *Special Provisions for Contracts with Nonprofit Organizations.* If the Contractor is a nonprofit organization, it agrees that:

i. Rights to a subject invention in the United States may not be assigned without the approval of the Federal Agency, except where such assignment is made to an organization which has as one of its primary functions the management of inventions, provided that such assignee will be subject to the same provisions as the Contractor;

ii. The Contractor will share royalties collected on a subject invention with the inventor, including Federal employee co-inventors (when the Federal Agency deems it appropriate) when the subject invention is assigned in accordance with 35 U.S.C. § 202(e) and 37 CFR § 401.10;

iii. The balance of any royalties or income earned by the Contractor with respect to subject inventions, after payment of expenses (including payments to inventors) incidental to the administration of subject inventions, will be utilized for the support of scientific research or education; and

iv. It will make efforts that are reasonable under the circumstances to attract licensees of subject invention that are Small Business Firms and that it will give a

preference to a Small Business Firm when licensing a subject invention if the Contractor determines that the Small Business Firm has a plan or proposal for marketing the invention which, if executed, is equally as likely to bring the invention to practical application as any plans or proposals from applicants that are not Small Business Firms; provided, that the Contractor is also satisfied that the Small Business Firm has the capability and resources to carry out its plan or proposal. The decision whether to give a preference in any specific case will be at the discretion of the Contractor. However, the Contractor agrees that the Secretary may review the Contractor's licensing program and decisions regarding Small Business Firm applicants, and the Contractor will negotiate changes to its licensing policies, procedures, or practices with the Secretary when the Secretary's review discloses that the Contractor could take reasonable steps to implement more effectively the requirements of this paragraph (k)(iv).

l. *Communication.* The central point of contact at the Federal Agency for communications on matters relating to this clause may be obtained from the City upon request.

FEDERAL EXHIBIT 1

NOTICE TO BIDDERS

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246, as amended) FOR ALL CONSTRUCTION CONTRACTS AND SUB-CONTRACTS IN EXCESS OF $10,000.

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all Construction Work in the covered area, are as follows:

Goals and Timetables for Minorities

Trade	Goal (percent)
Electricians	9.0 to 10.2
Carpenters	27.6 to 32.0
Steamfitters	12.2 to 13.5
Metal Lathers	24.6 to 25.6
Painters	28.6 to 26.0
Operating Engineers	25.6 to 26.0
Plumbers	12.0 to 14.5
Iron Workers (structural)	25.9 to 32.0
Elevator Constructors	5.5 to 6.5
Bricklayers	13.4 to 15.5
Asbestos Workers	22.8 to 28.0
Roofers	6.3 to 7.5
Iron Workers (ornamental)	22.4 to 23.0
Cement Masons	23.0 to 27.0
Glazers	16.0 to 20.0
Plasterers	15.8 to 18.0
Teamsters	22.0 to 22.5
Boilermakers	13.0 to 15.5
All Other	16.4 to 17.5

Goals and Timetables for Women

From April 1, 1980 until the present	6.9

These goals are applicable to all the Contractor's Construction Work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs Construction Work in a geographical area located outside of the covered area, it shall apply the goals established for such

geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and nonfederally involved Construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall made a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any Construction subcontract in excess of $10,000 at any tier for Construction Work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

4. As used in this Contract, the "covered area" is the City of New York.

FEDERAL EXHIBIT 2

[Insert Exhibit 2 for applicable federal grant program]

(NO TEXT ON THIS PAGE)

CDBG-DR Rider

(Version 02.16.2018)

INSTRUCTIONS TO NYC AGENCIES AND OFFICES

This CDBG Rider contains supplementary general conditions for use with procurement contracts and subrecipient agreements that are funded in whole or in part by the U.S. Department of Housing and Urban Development ("HUD") under Title I of the Housing and Community Development Act of 1974 (Pub. L. 93-383) as amended. For all procurement contracts and subrecipient agreements funded by the Community Development Block Grant Disaster Recovery ("CDBG-DR") Program, ***except those funded by the regular CDBG ("CDBG") Program***, this CDBG-DR Rider must be included as an attachment, expressly made a part of, and incorporated by reference. A different rider with terms specific to the regular CDBG Program should be attached to CDBG funded procurement contracts and subrecipient agreements.

If this rider is attached to a subrecipient agreement, the agency or office must ensure that the subrecipient agreement includes the information specific to the subaward required in 2 CFR § 200.331.

FEDERAL REGISTER NOTICES

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

Federal Register Notices applicable to the use of CDBG-DR Funds for Hurricane Sandy disaster recovery are available on the HUD Web site at https://www.hudexchange.info/cdbg-dr/cdbg-dr-laws-regulations-and-federal-register-notices.

Contents

ARTICLE 1. DEFINITIONS

As used in this CDBG-DR Rider:

(a) "Act" means Title 1 of the Housing and Community Development Act of 1974 (Pub. L. 93-383) as amended.

(b) "Agency" means the entity, or entities, executing this Agreement on behalf of the City of New York.

(c) "Agreement" means either the "contract" (as defined by 2 CFR § 200.22) between the City and the Contractor or the agreement between the City and "Subrecipient" as defined by 2 CFR § 200.93 as the context requires.

(d) "City" means the City of New York.

(e) "Construction" means the building, rehabilitation, alteration, conversion, extension, demolition, painting or repair of any improvement to real property.

(f) "Contractor" and/or "Subrecipient" means the entity or entities executing this Agreement, other than the Agency.

(g) "Equipment" means tangible personal property (including information technology systems) having a useful life of more than one year and a per-unit acquisition cost which equals or exceeds $5,000.

(h) "Grant" means Community Development Block Grant Program funds provided to the City of New York by the Federal Department of Housing and Urban Development or a pass-through entity.

(i) "Hometown Plan" means a voluntary areawide plan that was developed by representatives of affected groups (usually labor unions, minority organizations, and contractors), and subsequently approved by the Office of Federal Contract Compliance (OFCC), for purposes of implementing the equal employment opportunity requirements pursuant to Executive Order 11246, as amended.

(j) "HUD" means the Secretary of Housing and Urban Development or a person authorized to act on his or her behalf.

(k) "Program" means the New York City Community Development Block Grant Program approved by HUD as the same may from time to time be amended.

(l) "Real property" means land, including land improvements, structures and appurtenances thereto, but excludes moveable machinery and moveable equipment.

(m) "Subcontractor" means any person, firm or corporation, other than employees of the Contractor or the Subrecipient, or another Subcontractor who is engaged by the Contractor or the Subrecipient to furnish (i) services, (ii) labor or (iii) services and/or labor and materials at the site of the work performed under this Agreement.

ARTICLE 2. HOUSING AND COMMUNITY DEVELOPMENT ACT AND NATIONAL ENVIRONMENTAL POLICY ACT

[Applicable to Contractors and Subrecipients]

This Agreement is subject to Title 1 of the Housing and Community Development Act of 1974 (P.L. 93-383) as amended (The Act) and all rules, regulations and requirements now issued or hereafter issued pursuant to the Act; the Agreement may be suspended and/or terminated without liability to the City if the Grant to the City pursuant to the Act is suspended or terminated, and unless and until the City or Agency receives Community Development funds in an amount that is deemed sufficient to enable it to fund this Agreement, the City or Agency is under no obligation to make any payments to the Contractor or Subrecipient. In this regard, the Agency is under no obligation to make any payments to the Contractor or Subrecipient, and shall not make any such payment, and the Contractor or Subrecipient shall not commence performance, until:

(a) the Agency has received from the City's Office of Management and Budget instructions to proceed, evidencing compliance with the National Environmental Policy Act, as amended, and with regulations of the U.S. Department of Housing and Urban Development, related thereto, found at 24 CFR Part 58, and

(b) the Contractor or Subrecipient has been notified of such instructions by the Agency. Furthermore, the Contractor or Subrecipient and the City mutually agree that the Contractor or Subrecipient shall not advance any funds, from any source without limitation, to pay for costs intended to be paid for under this Agreement prior to the receipt and notification described in this paragraph (a), and the City shall not reimburse the Contractor or Subrecipient for any costs incurred in violation of this provision.

ARTICLE 3. LABOR REQUIREMENTS

[Applicable to Contractors and Subrecipients; must be included in all subcontracts]

(a) ***Section 3.*** This Agreement is subject to Section 3 of the Housing and Urban Development Act of 1968 (P.L. 90-448) and implementing regulations at 24 CFR Part 135, as may be amended during the term of this Agreement. Pursuant to 24 CFR § 135.38, the Contractor or Subrecipient agrees to the following:

1. The work to be performed under this Agreement is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. § 1701 u (Section 3). The purpose of Section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by Section 3 shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

2. The parties to this Agreement agree to comply with HUD's regulations in 24 CFR Part 135, which implement Section 3. As evidenced by their execution of this Agreement, the parties to this Agreement certify that they are under no contractual or other impediments that would prevent them from complying with the Part 135 regulations.

3. The Contractor or Subrecipient agrees to send to each labor organization or representative of workers with which the Contractor or Subrecipient has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the Contractor's or Subrecipient's commitments under this Section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the Section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

4. The Contractor or Subrecipient agrees to include this Section 3 clause in every subcontract subject to compliance with regulations in 24 CFR Part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this Section 3 clause, upon a finding that the Subcontractor is in violation of the regulations in 24 CFR Part 135. The Contractor or Subrecipient will not subcontract with any Subcontractor where the Contractor or Subrecipient has notice or knowledge that the Subcontractor has been found in violation of the regulations in 24 CFR Part 135.

5. The Contractor or Subrecipient will certify that any vacant employment positions, including training positions, that are filled (1) after the Contractor or Subrecipient is selected but before the Agreement is executed, and (2) with persons other than those to whom the regulations of 24 CFR Part 135 require employment opportunities to be directed, were not filled to circumvent the Contractor's or Subrecipient's obligations under 24 CFR Part 135.

6. Noncompliance with HUD's regulations in 24 CFR Part 135 may result in sanctions, termination of this Agreement for default, and debarment or suspension from future HUD assisted contracts.

7. With respect to work performed in connection with Section 3 covered Indian Housing Assistance, Section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e) also applies to the work to be performed under this Agreement. Section 7(b) requires that to the greatest extent feasible (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this Agreement that are subject to the provisions of Section 3 and Section 7(b) agree to comply with Section 3 to the maximum extent feasible, but not in derogation of compliance with Section 7(b).

8. The Contractor or Subrecipient agrees to submit, and shall cause its subcontractors to submit, quarterly reports to the Agency detailing the number of new employees hired, the number of new Section 3 employees hired, and any affirmative efforts made to direct hiring efforts to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing during the previous quarter.

(b) ***The Davis-Bacon Act (40 U.S.C. §§ 3141* et seq.*).*** In Construction contracts involving an excess of $2000, unless exclusively in connection with the rehabilitation of residential property containing fewer than 8 units, the Contractor shall pay and the Subrecipient shall cause its contractors to pay all laborers and mechanics at a rate not less than those determined by the Secretary of Labor to be prevailing for the City, which rates are to be provided by the Agency. These wage rates are a federally mandated minimum only, and will be superseded by any State or City requirement mandating higher wage rates. The Contractor also agrees to comply with Department of Labor Regulations pursuant to the Davis-Bacon Act found in 29 CFR Parts 1, 3, 5 and 7, which enforce statutory labor standards provisions. **This provision supersedes section D(1)(a) of the Uniform Federal Contract Provisions Rider for Federally Funded Procurement Contracts.**

(c) ***Overtime.*** In Construction contracts involving an excess of $2000, and subject to the exception in 24 CFR section 570.603 (regarding the rehabilitation of residential property containing less than 8 units), Contractor shall comply and the Subrecipient shall cause its contractor to comply with sections 103 and 107 of the Contract Work Hours and Safe Standards Act (40 U.S.C. §§ 3701 *et seq.*), which provides that no laborer or mechanic shall be required or permitted to work more than eight hours in a calendar day or in excess of forty hours in any workweek, unless such laborer or mechanic is paid at an overtime rate of 1½ times his/her basic rate of pay for all hours worked in excess of these limits. In the event of a violation of this provision, the Contractor shall not only be liable to any affected employee for his/her unpaid wages, but shall be additionally liable to the United States for liquidated damages. **This provision supersedes section D(1)(b) of the Uniform Federal Contract Provisions Rider for Federally Funded Procurement Contracts.**

ARTICLE 4. ADDITIONAL FEDERAL CONDITIONS FOR CONSTRUCTION FOR SUBRECIPIENTS

[Applicable to Subrecipients. A similar provision for Contractors is included in the Uniform Federal Contract Provisions Rider for Federally Funded Procurement Contracts at section D(1)(c)-(d), (2) and (3).]

If this Agreement involves Construction work, design for Construction, or Construction services, all such work or services performed by the Subrecipient and its Subcontractors shall be subject to the following requirements:

(a) ***Impermissible Salary Deductions.*** In Construction contracts of any amount, the Subrecipient shall cause its Subcontractor to comply with the Copeland "Anti-Kickback" Act (18 U.S.C. § 874), as supplemented by the regulations contained in 29 CFR Part 3, requiring that all laborers and mechanics shall be paid unconditionally and not less often than once a week, and prohibiting all but "permissible" salary deductions.

(b) ***Federal Labor Standards.*** In Construction contracts of any amount, the Subrecipient shall cause its Subcontractors to comply with the more detailed statement of Federal Labor Standards annexed hereto as FEDERAL EXHIBIT 2.

(c) ***Equal Employment Opportunity.*** In Construction contracts or subcontracts in excess of $10,000, the Subrecipient shall cause its Subcontractors to comply with Executive Order 11246, as amended by Executive Order 11375, and as supplemented in Department of Labor regulations (41 CFR chapter 60). Subrecipient shall include the following Specifications, which are required pursuant to 41 CFR § 60-4.3 in all federally assisted contracts and subcontracts. For the purposes of the Equal Opportunity Construction Contract Specifications and Clause below, the term "Construction Work" means the construction, rehabilitation, alteration, conversion, extension, demolition or repair of buildings, highways, or other changes or improvements to real property, including facilities providing utility services. The term also includes the supervision, inspection, and other onsite functions incidental to the actual construction.

Standard Federal Equal Employment Opportunity Construction Contract Specifications for Contracts and Subcontracts in Excess of $10,000. (Federal Notice Required by 41 CFR § 60-4.3)

1. As used in these specifications:

a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

d. "Minority" includes:

(i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

(iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the contractor or any subcontractor at any tier, subcontracts a portion of the work involving any Construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this Agreement resulted.

3. If the contractor is participating (pursuant to 41 CFR § 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades

which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each contractor or subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The contractor shall implement the specific affirmative action standards provided in paragraphs 7 a through p of these specifications. The goals set forth in the solicitation from which this Agreement resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the contractor should reasonably be able to achieve in each Construction trade in which it has employees in the covered area. Covered Construction contractors performing Construction Work in geographical areas where they do not have a Federal or federally assisted Construction contract shall apply the minority and female goals established for the geographical areas where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the contractor during the training period, and the contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The contractor, where possible, will assign two or more women to each Construction project. The contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to

community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organization's responses.

c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the contractor by the union or, if referred, not employed by the contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the contractor has a collective bargaining agreement has not referred to the contractor a minority person or woman sent by the contractor, or when the contractor has other information that the union referral process has impeded the contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the contractor's employment needs, especially those programs funded or approved by the Department of Labor. The contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where Construction Work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of Construction Work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the contractor's EEO policy with other contractors and subcontractors with whom the contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation

employment to minority and female youth both on the site and in other areas of a contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female Construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the Program are reflected in the contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the contractor. The obligation to comply, however, is the contractor's and failure of such a group to fulfill an obligation shall not be a defense for the contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the contractor has achieved its goals for women generally, the contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246 or suspended or is otherwise excluded from or ineligible for participation in federal assistance programs.

12. The contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 § CFR 60-4.8.

14. The contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, Construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for hiring of local or other areas residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

(B) **Equal Opportunity Clause.** Subrecipient shall include the following provisions, which are required by 41 CFR § 60-1.4(b), in all federally assisted contracts and subcontracts.

> During the performance of this contract, the Contractor agrees as follows:
>
> (1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:
>
> Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment,

notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

(3) The Contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the Contractor's legal duty to furnish information.

(4) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(5) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(6) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by HUD and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(7) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(8) The Contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any

subcontract or purchase order as HUD may direct as a means of enforcing such provisions, including sanctions for noncompliance:

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

ARTICLE 5. FEDERAL NON-DISCRIMINATION LAWS

[Applicable to Contractors and Subrecipients]

This Agreement is subject to:

(a) Section 109 of the Act, which requires that no person in the United States shall on the grounds of race, color, national origin, religion, or sex be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance made available pursuant to the Act. Section 109 also directs that the prohibitions against discrimination on the basis of age under the Age Discrimination Act and the prohibitions against discrimination on the basis of disability under Section 504 shall apply to programs or activities receiving Federal financial assistance under Title I programs. The Contractor or Subrecipient agrees to comply with provisions of 24 CFR Parts 6, 8, and 146.

(b) Title VIII of the Civil Rights Act of 1968 (P.L. 90-284; 42 U.S.C. §§ 3602-3620), as amended, which prohibits discrimination in the sale or rental of housing and in the provision of brokerage services based on race, color, religion, sex, national origin, disability, or familial status, and which requires affirmative action in the furtherance of Fair Housing objectives.

(c) Executive Order 11063, as amended by Executive Order 12259, pursuant to regulations issued at 24 CFR Part 107, which prohibits discrimination on the basis of race, color, religion, sex or national origin and requires equal opportunity in housing constructed, operated or provided with federal funds.

(d) Title VI of the Civil Rights Act of 1964 (P.L. 88-352; 42 U.S.C. §§ 2000d *et seq.*) and implementing regulations in 24 CFR Part 1, which states that no person shall, on the ground of race, color or national origin, be excluded from participation in, be denied the benefits of, or otherwise be subject to discrimination under any Program or activity made possible by, or resulting from, this Agreement.

(e) 24 CFR § 5.109, "Equal participation of faith-based organizations in HUD programs and activities."

(f) Consistent with 24 CFR § 570.614, the Contractor or Subrecipient warrants that all services, programs, and/or Construction (including design and alteration) under this Agreement shall be performed in accordance with all federal, state and local laws and regulations regarding accessibility standards for persons with disabilities including, but not limited to, the following: Section 504 of the Rehabilitation Act, the Architectural Barriers Act of 1968 (42 U.S.C. § 4151-4157), the Uniform Federal Accessibility

Standards (Appendix A to 24 CFR Part 40 and Appendix A to 41 CFR Part 101-19, subpart 101-19.6), and the Americans with Disabilities Act (42 U.S.C. § 12131; 47 U.S.C. §§ 155, 201, 218, and 225).

The non-discrimination provisions in this Article shall be incorporated in and made a part of all subcontracts executed in connection with this Agreement.

(g) Subrecipients shall comply with all civil-rights related requirements, pursuant to 24 CFR § 570.503(b)(5).

ARTICLE 6. ENVIRONMENTAL PROTECTION; ENERGY EFFICIENCY; HISTORIC PRESERVATION; FLOOD PROTECTION; LEAD-BASED PAINT

[Paragraphs (a) – (e) applicable to Contractors and Subrecipients; paragraph (f) applicable to Subrecipients]

(a) For agreements, subcontracts, and subgrants of amounts in excess of $150,000, the Contractor or Subrecipient shall comply with all applicable standards, orders, or requirements issued under the Clean Air Act (42 U.S.C. § 7401, Federal Water Pollution control Act (33 U.S.C. §§ 1251, et seq.) Section 508 of the Clean Water Act (33 U.S.C. § 1368), Executive Order 11738, and Environmental Protection Agency regulations (provisions of 40 CFR Part 50 and 2 CFR Part 1532 related to the Clean Air Act and Clean Water Act). Violations must be reported to the Federal Agency and the Regional Office of the Environmental Protection Agency (EPA).

(b) The Subrecipient and Contractor shall comply with mandatory standards and policies relating to energy efficiency that are contained in the New York State energy conservation plan issued in compliance with the Energy Policy Conservation Act (Pub. L 94-163). Further, the Contractor or Subrecipient shall comply with the construction standards concerning energy efficiency set forth in section VI(A)(1)(a)(5) of HUD Docket No. FR-5696-N-01.

(c) This Agreement is subject to laws and authorities listed in 24 CFR § 58.5, including the Historic Preservation Act of 1966 (Section 1 of Pub. L. No. 89-665, as amended by Pub. L. No. 96-515; 54 U.S.C. §§ 100101 and 300101 *et seq.*), the Archeological and Historic Preservation Act of 1974 (P.L. 93-291; 16 U.S.C. §§ 469-469c), Executive Order 11593 and regulations at 36 CFR Part 800. In general, this requires concurrence from the State Historic Preservation Officer for all rehabilitation and demolition of historic properties that are fifty years old or older or that are included on a Federal, state, or local historic property list.

(d) This Agreement is subject to the Lead-Based Paint Poison Prevention provisions found in 24 CFR § 570.608, the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§ 4821-4846), the Residential Lead Based Paint Hazard Reduction Act of 1992 (U.S.C. §§ 4851-4856, and 24 CFR Part 35, subparts A, B, J, K, and R. This provision is to be included in all subcontracts, for work in connection with this Agreement, which relate to residential structures.

(e) Pursuant to the provisions in 24 CFR § 570.605, Section 202(a) of the Flood Disaster Protection Act of 1973 (42 U.S.C. § 4106), and the regulations in 44 CFR Parts 59-79 apply to this Agreement.

(f) Subrecipients shall implement procedures and mechanisms to ensure that assisted property owners comply with all flood insurance requirements set forth in Section VI(B)(31) of HUD Docket No. FR-56960-N-01.

ARTICLE 7. UNIFORM RELOCATION ASSISTANCE

[Applicable to Contractors and Subrecipients]

This Agreement is subject to the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S.C. §§ 4601-4655) and regulations at 49 CFR Part 24 and 24 CFR section 570.606.

ARTICLE 8. UNIFORM ADMINISTRATIVE REQUIREMENTS (INCLUDING PROCUREMENT STANDARDS), COST PRINCIPLES, AND AUDIT REQUIREMENTS FOR FEDERAL AWARDS

[Subdivision (a) is applicable to Contractors and Subrecipients; subdivision (b) is applicable to Subrecipients only; subdivision (c) is applicable to Contractors only]

(a) Pursuant to 2 CFR § 2400.101 and 24 CFR § 85.1, Subrecipients and Contractors are subject to the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards at 2 CFR Part 200 (commonly referred to the "Super Circular"), as applicable.

(b) For the procurement of all subcontracts and goods contracts, Subrecipients are required to follow the procurement standards in 2 CFR §§ 200.318-200.326, except as allowed by 2 CFR § 200.110.

(c) Contractors are subject to the Uniform Federal Contract Provisions Rider, attached to this Agreement.

ARTICLE 9. UNEARNED PAYMENTS; INCOME; DOCUMENTATION OF COSTS; ACCOUNTING SYSTEM; FIDELITY BONDS; DISBURSEMENT RESTRICTIONS

[Paragraphs (a), (b), (d), and (e) are applicable to Contractors and Subrecipients; paragraph (c) is applicable to Subrecipients only]

(a) Unearned payments under this Agreement may be suspended or terminated upon refusal to accept any additional conditions that may be imposed by HUD at any time, or if the

Grant to the City under the Act is suspended or terminated. Unearned payments received by the Contractor or Subrecipient will be returned to the City.

The Contractor or Subrecipient agrees that if any income is generated from the Community Development Block Grant Program funded activities, Contractor or Subrecipient shall return such income to the City's Community Development Block Grant Program unless expressly authorized by the City. Such funds are subject to all applicable requirements governing the use of Community Development Block Grant funds, including 24 CFR § 570.503(b)(3), which provides that, at the end of the program year, the City may require remittance of all or part of any program income balances (including investments thereof) held by the Subrecipient (except those needed for immediate cash needs, cash balances of a revolving loan fund, cash balances from a lump sum drawdown, or cash or investments held for section 108 security needs). Alternative program requirements concerning the definition of "program income" are set forth in Section VI(A)(17)(a)-(b) of Docket No. FR-56960-N-01, as amended by Section II(5) of Docket No. FR-5710-N-01.

(b) All costs shall be supported by properly executed payrolls, time records, invoices, contracts, or vouchers, or other official documentation evidencing in proper detail the nature and propriety of the charges. All checks, payrolls, invoices, contracts, vouchers, orders or other accounting documents, pertaining in whole or in part to the Agreement, shall be clearly identified and readily accessible.

(c) The Subrecipient shall submit to the Agency a detailed description of its accounting, reporting and internal control systems, including but not limited to the procedures for cash receipts, cash disbursements, payrolls, personnel policies, fixed petty cash controls and other systems which are necessary under the circumstances. The Agency shall evaluate and document all systems and only upon acceptance and approval of the accounting, reporting and internal control systems by the Agency, shall funds be disbursed to the Subrecipient, other provisions of the Agreement notwithstanding.

(d) If required by the Federal awarding agency or elsewhere in this Agreement, the Agency must receive a statement from the Contractor's or Subrecipient's chief fiscal officer or its insurer assuring that all persons handling funds received or disbursed under this Agreement are covered by fidelity insurance in an amount equal to cash advances from the City. If the bond is cancelled or coverage is substantially reduced, the Contractor or Subrecipient shall promptly notify the Agency of this fact in every case not later than 48 hours. In such event, the Agency shall not disburse any more funds to the Contractor or Subrecipient until it has received assurance that adequate coverage has subsequently been obtained.

(e) No money under this Agreement shall be disbursed by the Agency to any Contractor or Subrecipient except pursuant to a written contract which incorporates the applicable Supplementary General Conditions and unless the Contractor or Subrecipient is in compliance with HUD requirements with regard to accounting and fiscal matters, to the extent they are applicable, and provided that the Agency has completed HUD requirements, including but not limited to environmental certifications pursuant to 24 CFR Part 58.

ARTICLE 10. RECORDS AND AUDITS

[Applicable to Contractors and Subrecipients]

(a) (i) The Subrecipient shall maintain records in accordance with requirements prescribed by or in 2 CFR § 200.333, HUD and/or the City with respect to all matters covered by this Agreement and retained for at least three years after the City makes final payments and all other pending matters concerning this Agreement are closed, subject to the exceptions in 2 CFR § 200.333. (ii) The Contractor shall maintain records in accordance with the requirements elsewhere in this Agreement.

(b) At such times on such forms as HUD and/or the City may require, there shall be furnished to HUD and/or the City such statements, records, reports, data and information, as HUD and/or the City may request pertaining to matters covered by this Agreement. At a minimum, such forms will include the following:

(i) Quarterly Data Collection Report forms for the purpose of including specific Program description, accomplishment, expenditure and beneficiary information in the City's Quarterly Performance Reports.

(ii) Annual Property Register forms for the purpose of tracking the use of CDBG purchased equipment.

(c) At any time during normal business hours and as often as the City, the Agency, HUD, Inspector General, U.S. General Accounting Office, and/or the Comptroller General of the United States may deem necessary, the Contractor or Subrecipient shall make available for examination to the City, HUD, Inspector General, U.S. General Accounting Office and/or representatives of the Comptroller General all of its books, accounts, records, reports, files, and other papers or property with respect to all matters covered by this Agreement and shall permit the City, HUD and/or representatives of the Comptroller General and the U.S. General Accounting Office to audit, examine, make excerpts of, and make transcriptions from such books, accounts, records, reports, files, and other papers or property and to make audits of all contracts, invoices, materials, payrolls, records or personnel, conditions of employment and other data relating to all matters covered by this Agreement.

ARTICLE 11. SUBCONTRACTORS

[Applicable to Contractors and Subrecipients]

(a) The provisions of this Agreement shall apply to Subcontractors and their officers, agents and employees in all respects as if they were employees of the Contractor or Subrecipient. The Contractor or Subrecipient shall not be discharged from its obligations and liabilities, but shall be liable for all acts and negligence of Subcontractors, and their officers, agents and employees, as if they were employees of the Contractor or Subrecipient.

(b) Employees of the Subcontractor shall be subject to the same provisions as employees of the Contractor or Subrecipient.

(c) The services furnished by Subcontractors shall be subject to the provisions hereof as if furnished directly by the Contractor or Subrecipient, and the Contractor or Subrecipient shall remain responsible therefor.

ARTICLE 12. CONFLICTS; EXHIBITS

[Applicable to Contractors and Subrecipients]

(a) If any provision in this CDBG Rider directly conflicts with any other provision in the Agreement, the provision in CDBG Rider shall be controlling.

(b) Federal Exhibits 1 and 2 are attached to, and made a part of this CDBG Rider.

ARTICLE 13. REVERSION OF ASSETS

[Applicable to Subrecipients]

(a) At the Agreement's expiration, the Subrecipient shall transfer to the City all CDBG funds on hand at the time of expiration and any accounts receivable attributable to the use of CDBG funds.

(b) Any real property under the Subrecipient's control that was acquired or improved in whole or in part with Community Development funds in excess of $25,000 must be used to either (i) meet the national objectives in Section 570.208 for a period of five years after acquisition if the property or completion of the improvements, as applicable, or (ii) disposed in a manner which results in the Program being reimbursed in the amount of the current fair market value of the property less any portion thereof attributable to expenditures of non-CDBG funds for acquisition of, or improvements to, the property.

(c) Title to all Equipment in excess of $5,000 purchased pursuant to this Agreement with CDBG funds or furnished by the City shall vest in the City and the same shall be conspicuously labeled as such.

ARTICLE 14. SMALL FIRMS, M/WBE FIRMS, AND LABOR SURPLUS AREA FIRMS

[Applicable to Subrecipients. Contractors must follow section C(11) of the Uniform Federal Contract Provisions Rider for Federally Funded Procurement Contracts.]

Subrecipient shall take the following affirmative steps in the letting of subcontracts, if subcontracts are to be let, in order to ensure that minority firms, women's business enterprises, and labor surplus area firms are used when possible:

(a) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;

(b) Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;

(c) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;

(d) Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises; and

(e) Using the services and assistance of the Small Business Administration, and the Minority Business Development Agency of the Department of Commerce.

ARTICLE 15. INTANGIBLE PROPERTY

[Applicable to Subrecipients. A similar provision for Contractors is included in the Uniform Federal Contract Provisions Rider for Federally Funded Procurement Contracts at section C(12).]

(a) Pursuant to 2 CFR § 200.315(d), the federal Government reserves a royalty-free, non-exclusive, and irrevocable right to obtain, reproduce, publish, or otherwise use, and to authorize others to use, for Government purposes: (a) the copyright in any work developed under the Agreement or subcontract; and (b) any rights of copyright to which a Subrecipient purchases ownership with grant support.

(b) Any reports, documents, data, photographs, deliverables, and/or other materials produced pursuant to the Agreement ("Copyrightable Materials"), and any and all drafts and/or other preliminary materials in any format related to such items produced pursuant to the contract, shall upon their creation become the exclusive property of the City. The Copyrightable Materials shall be considered "work-made-for-hire" within the meaning and purview of Section 101 of the United States Copyright Act, 17 U.S.C. § 101, and the City shall be the copyright owner thereof and of all aspects, elements and components thereof in which copyright protection might exist. To the extent that the Copyrightable Materials do not qualify as "work-made-for-hire," the Subrecipient hereby irrevocably transfers, assigns and conveys exclusive copyright ownership in and to the Copyrightable Materials to the City, free and clear of any liens, claims, or other encumbrances. The Subrecipient shall retain no copyright or intellectual property interest in the Copyrightable Materials. The Copyrightable Materials shall be used by the Subrecipient for no purpose other than in the performance of this Agreement without the prior written permission of the City. The City may grant the Subrecipient a license to use the Copyrightable Materials on such terms as determined by the City and set forth in the license.

(c) The Subrecipient acknowledges that the City may, in its sole discretion, register copyright in the Copyrightable Materials with the United States Copyright Office or any other government agency authorized to grant copyright registrations. The Subrecipient shall fully cooperate in this effort, and agrees to provide any and all documentation necessary to accomplish this.

(d) The Subrecipient represents and warrants that the Copyrightable Materials: (i) are wholly original material not published elsewhere (except for material that is in the public domain); (ii) do not violate any copyright law; (iii) do not constitute defamation or invasion of the right of privacy or publicity; and (iv) are not an infringement, of any kind, of the rights of any third party. To the extent that the Copyrightable Materials incorporate any non-original material, the Subrecipient has obtained all necessary permissions and clearances, in writing, for the use of such non-original material under this Contract, copies of which shall be provided to the City upon execution of this Contract.

(e) The Subrecipient shall promptly and fully report to the City any discovery or invention arising out of or developed in the course of performance of this Agreement and the Contractor shall promptly and fully report to the Government to make a determination as to whether patent protection on such invention shall be sought and how the rights in the invention or discovery, including rights under any patent issued thereon, shall be disposed of and administered in order to protect the public interest.

(f) If the Subrecipient publishes a work dealing with any aspect of performance under this Agreement, or with the results of such performance, the City shall have a royalty-free, non-exclusive irrevocable license to reproduce, publish, or otherwise use such work for City governmental purposes.

ARTICLE 16. HATCH ACT; LOBBYING; CONFLICTS OF INTEREST

[Applicable to Subrecipients.]

(a) Hatch Act: The Subrecipient agrees that no funds provided, nor personnel employed under this Agreement, shall be in any way or to any extent engaged in the conduct of political activities in violation of Chapter 15 of Title V of the U.S.C.

(b) Lobbying: The Subrecipient certifies, to the best of its knowledge and belief, that:

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

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, it will complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," (which is available on the HUD website or here: https://www.hudexchange.info/resources/documents/HUD-Form-Sflll.pdf) in accordance with its instructions; and

3. It will require that the language of this Article 16(b) be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and

contracts under grants, loans, and cooperative agreements) and that all sub-subrecipients shall certify and disclose accordingly.

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

(c) Conflict of Interest: The Subrecipient agrees to abide by the provisions of 2 CFR §§ 200.112 and 200.318(c) and 24 CFR § 570.611.

ARTICLE 17. SUSPENSION AND TERMINATION

[Applicable to Subrecipients.]

(a) The City may take enforcement action against a Subrecipient for non-compliance, as described in 2 CFR §§ 200.338 and 200.339(a)(1) & (2), including suspension or termination.

(b) The City may terminate for convenience pursuant to 2 CFR § 200.339(a)(3).

ARTICLE 18. PERFORMANCE REQUIREMENTS AND REMEDIES

[Applicable to Contractors]

The Disaster Relief Appropriations Act, 2013 (Public L. 113-2) of January 29, 2013, requires contracts to contain "performance requirements and penalties." Accordingly, Contractor shall be subject to any performance requirements and remedial provisions and/or liquidated damages set forth in this Agreement. Contractor acknowledges that negative performance evaluations may impair its ability to win future contracts with the City as follows: Under City Procurement Policy Board (PPB) Rules section 4-01, Contractor is subject to performance evaluations at least once annually. The City shall enter such performance evaluations into the VENDEX system. To the extent allowed by the PPB Rules, such performance evaluations shall be considered by the City in:

(1) making a determination of the Contractor's responsibility or non-responsibility in future City procurements, under PPB Rule section 2-08(g)(1)(ii) and

(2) deciding to renew or not to renew the Agreement, under PPB Rule section 4-04(c)(10).

FED. EXHIBIT 1

NOTICE TO BIDDERS

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246, as amended) FOR ALL HUD COMMUNITY DEVELOPMENT FUNDED CONSTRUCTION CONTRACTS AND SUB-CONTRACTS IN EXCESS OF $10,000.

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth above.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all Construction Work in the covered area, are as follows:

Goals and Timetables for Minorities

Trade	Goal (Percent)		
Electricians	9.0	to	10.2
Carpenters	27.6	to	32.0
Steamfitters	12.2	to	13.5
Metal Lathers	24.6	to	25.6
Painters	28.6	to	26.0
Operating Engineers	25.6	to	26.0
Plumbers	12.0	to	14.5
Iron Workers (structural)	25.9	to	32.0
Elevator Constructors	5.5	to	6.5
Bricklayers	13.4	to	15.5
Asbestos Workers	22.8	to	28.0
Roofers	6.3	to	7.5
Iron Workers (ornamental)	22.4	to	23.0
Cement Masons	23.0	to	27.0
Glazers	16.0	to	20.0
Plasterers	15.8	to	18.0
Teamsters	22.0	to	22.5
Boilermakers	13.0	to	15.5
All Other	16.4	to	17.5

Goals and Timetables for Women

From April 1, 1980 until the present	6.9

These goals are applicable to all the Contractor's Construction Work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs Construction Work in a geographical area located outside of the covered area, it shall apply the goals

established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved Construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall made a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any Construction subcontract in excess of $10,000 at any tier for Construction Work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

4. As used in this Agreement, the "covered area" is the City of New York.

EXHIIBIT 2

EXHIBIT 3

INVESTIGATIONS CLAUSE, CONFLICTS OF INTEREST CLAUSE; AND EXECUTIVE ORDER NO. 50

I. Investigations Clause

A. The Contractor agrees to cooperate fully and faithfully with any investigation, audit or inquiry conducted by a State or City agency or authority that is empowered directly or by designation to compel the attendance of witnesses and to examine witnesses under oath, or conducted by 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.

B. 1. If any person who has been advised that his or her statement, and any information from such statement, will not be used against him or 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 examine witnesses under oath concerning the award of or performance under any transaction, agreement, lease, permit, contract, or license entered into with the City, or 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, or;

2. If any person refuses to testify for a reason other than the assertion of his or her privilege against self-incrimination in an investigation, audit or inquiry conducted by a City or State governmental agency or authority empowered directly or by designation to compel the attendance of witnesses and to take testimony under oath, or by the Inspector General of the governmental agency that is a party in interest in, and is seeking testimony concerning the award of, or performance under, any transaction, agreement, lease, permit, contract, or license entered into with the City, the State, or any political subdivision thereof or any local development corporation within the City, then;

C. 1. The Commissioner or Agency Head 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 (5) days' written notice to the parties involved to determine if any penalties should attach for the failure of a person to testify.

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

D. The penalties that may attach after a final determination by the Commissioner or Agency Head may include but shall not exceed:

1. The disqualification for a period not to exceed five (5) 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 the City; and/or

2. The cancellation or termination of any and all such existing City contracts, leases, permits or licenses that the refusal to testify concerns and that have not been assigned as permitted under this agreement, 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 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 City.

E. The Commissioner or Agency Head shall consider and address in reaching his or her determination and in assessing an appropriate penalty the factors in Paragraphs (1) and (2) below. He or she may also consider, if relevant and appropriate, the criteria established in Paragraphs (3) and (4) below, in addition to any other information that may be relevant and appropriate:

1. 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.

2. 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.

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

4. 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 under Paragraph D above, provided that the party or entity has given actual notice to the Commissioner or Agency Head upon the acquisition of the interest, or at the hearing called for in Paragraph (C)(1) above gives notice and proves that such interest was previously acquired. Under either circumstance, the party or entity must present evidence at the hearing demonstrating the potential adverse impact a penalty will have on such person or entity.

F. Definitions

1. The term "license" or "permit" as used in this Section 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 Section 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 Section shall be defined as any firm, partnership, corporation, association, 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 Section shall be defined as any person associated with another person or entity as a partner, director, officer, principal, or employee.

G. In addition to and notwithstanding any other provision of this agreement, the Commissioner or Agency Head may in his or her sole discretion terminate this agreement upon not less than three (3) Days written notice in the event the Contractor fails to promptly report in writing to the City Commissioner of Investigation any solicitation of money, goods, requests for future employment or other benefits or thing of value, by or on behalf of any employee of the City or other person or entity for any purpose that may be related to the procurement or obtaining of this agreement by the Contractor, or affecting the performance of this agreement.

II. Conflicts of Interest

A. The Contractor represents and warrants that neither it nor any of its directors, officers, members, partners or employees, has any interest nor shall they acquire any interest, directly or indirectly, which conflicts in any manner or degree with the performance of this agreement. The Contractor further represents and warrants that no person having such interest or possible interest shall be employed by or connected with the Contractor in the performance of this agreement.

B. Consistent with Charter § 2604 and other related provisions of the Charter, the Admin. Code and the New York State Penal Law, no elected official or other officer or employee of the City, nor any person whose salary is payable, in whole or in part, from the City Treasury, shall participate in any decision relating to this agreement which affects his or her personal interest or the interest of any corporation, partnership or other entity in which he or she is, directly or indirectly, interested; nor shall any such official, officer, employee, or person have any interest in, or in the proceeds of, this agreement. This Paragraph B shall not prevent directors, officers, members, partners, or employees of the Contractor from participating in decisions relating to this agreement where their sole personal interest is in the Contractor.

C. The Contractor shall not employ a person or permit a person to serve as a member of the Board of Directors or as an officer of the Contractor if such employment or service would violate Chapter 68 of the Charter.

III. Non-Discrimination: E.O. 50 -- Equal Employment Opportunity

A. This agreement is subject to the requirements of City Executive Order No. 50 (1980) ("E.O. 50"), as revised, and the rules set forth at 66 RCNY § 10-01 et seq. No agreement will be awarded unless and until these requirements have been complied with in their entirety. The Contractor agrees that it:

1. Will not discriminate unlawfully against any employee or applicant for employment because of race, creed, color, national origin, sex, age, disability, marital status, sexual orientation or citizenship status 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. Will not discriminate unlawfully in the selection of subcontractors on the basis of the owners', partners' or shareholders' race, color, creed, national origin, sex, age, disability, marital status, sexual orientation, or citizenship status;

3. 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 unlawful discrimination based on race, color, creed, national origin, sex, age, disability, marital status, sexual orientation or citizenship status, and that it is an equal employment opportunity employer;

4. 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;

5. Will furnish before this agreement is awarded all information and reports including an Employment Report which are required by E.O. 50, the rules and regulations promulgated thereunder, and orders of the City Department of Small Business Services, Division of Labor Services ("DLS"); and

6. Will permit DLS to have access to all relevant books, records, and accounts for the purposes of investigation to ascertain compliance with such rules, regulations, and orders.

B. The Contractor understands that in the event of its noncompliance with the nondiscrimination clauses of this agreement or with any of such rules, regulations, or orders, such noncompliance shall constitute a material breach of this agreement 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 Commissioner to impose any or all of the following sanctions:

1. Disapproval of the Contractor; and/or

2. Suspension or termination of the agreement; and/or

3. Declaring the Contractor in default; and/or

4. In lieu of any of the foregoing sanctions, imposition of an employment program.

C. Failure to comply with E.O. 50 and the rules and regulations promulgated thereunder in one or more instances may result in the Department declaring the Contractor to be non-responsible.

D. The Contractor agrees to include the provisions of the foregoing Paragraphs in every subcontract or purchase order in excess of One Hundred Thousand Dollars ($100,000) 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. A supplier of unfinished products to the Contractor needed to produce the item contracted for shall not be considered a subcontractor or vendor for purposes of this Paragraph.

E. The Contractor further agrees that it will refrain from entering into any subcontract or modification thereof 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. A supplier of unfinished products to the Contractor needed to produce the item contracted for shall not be considered a subcontractor for purposes of this Paragraph.

F. Nothing contained in this Section shall be construed to bar any religious or denominational institution or organization, or any organization operated for charitable or educational purposes, that is operated, supervised or controlled by or in connection with a religious organization, from lawfully limiting employment or lawfully giving preference to persons of the same religion or denomination or from lawfully making such selection as is calculated by such organization to promote the religious principles for which it is established or maintained.

Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A. 1. (i) Minimum Wages. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section I(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible, place where it can be easily seen by the workers.

(ii) (a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part

of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work, all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (i) Payrolls and basic records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section l(b)(2)(B) of the Davis-bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section l(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i) except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this subparagraph for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to HUD or its designee. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5 (a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph A.3.(ii)(b).

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under subparagraph A.3.(i) available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant ',to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by

the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under 29 CFR Part 5 shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract

6. Subcontracts. The contractor or subcontractor will insert in any subcontracts the clauses contained in subparagraphs 1 through 11 in this paragraph A and such other clauses as HUD or its designee may by appropriate instructions require, and a copy of the applicable prevailing wage decision, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this paragraph.

7. Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

10. (i) Certification of Eligibility. By entering into this contract the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1 01 0, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of . . . influencing in any way the action of such Administration..... makes, utters or publishes any statement knowing the same to be false..... shall be fined not more than $5,000 or imprisoned not more than two years, or both."

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. Contract Work Hours and Safety Standards Act. The provisions of this paragraph B are applicable where the amount of the prime contract exceeds $100,000. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in sub paragraph (1) of this paragraph.

(3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety. The provisions of this paragraph C are applicable where the amount of the prime contract exceeds $100,000.

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act, (Public Law 91-54, 83 Stat 96). 40 USC 3701 et seq.

(3) The contractor shall include the provisions of this paragraph in every subcontract so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontractor as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

"General Decision Number: NY20200003 05/01/2020

Superseded General Decision Number: NY20190003

State: New York

Construction Types: Building, Heavy, Highway and Residential

Counties: Bronx, Kings, New York, Queens and Richmond Counties in New York.

BUILDING & RESIDENTIAL CONSTRUCTION PROJECTS (includes single family homes and apartments up to and including 4 stories), HEAVY AND HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate,if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/03/2020
1	03/13/2020
2	03/20/2020
3	04/10/2020
4	05/01/2020

ASBE0012-001 12/31/2018

	Rates	Fringes
Asbestos Workers/Insulator Includes application of all insulating materials, protective coverings,		

coatings and finishes to all types of mechanical systems.....$ 67.86 34.06
HAZARDOUS MATERIAL HANDLER.....$ 39.00 12.75

BOIL0005-001 01/01/2017

	Rates	Fringes
BOILERMAKER.....$	55.23	33%+24.12+a

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day, Thanksgiving Day, Memorial Day, Independence Day, Labor Day and Good Friday, Friday after Thanksgiving, Christmas Eve Day and New Year's Eve

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BRNY0001-001 07/01/2019

	Rates	Fringes
BRICKLAYER.....$	62.07	28.51
MASON - STONE.....$	62.67	30.59

BRNY0001-002 07/01/2019

	Rates	Fringes
Pointer, cleaner and caulker.....$	54.65	28.71

BRNY0004-001 07/01/2019

	Rates	Fringes
MARBLE MASON.....$	59.44	36.88

BRNY0007-001 01/01/2020

	Rates	Fringes
TERRAZZO FINISHER.....$	55.21	36.97
TERRAZZO WORKER/SETTER.....$	56.81	36.99

BRNY0020-001 07/01/2019

	Rates	Fringes
MARBLE FINISHER.....$	47.41	34.64

BRNY0024-001 01/01/2018

	Rates	Fringes
BRICKLAYER MARBLE POLISHERS.....$	40.89	26.69

BRNY0052-001 12/03/2018

	Rates	Fringes
Tile Layer	$ 51.40	27.81

BRNY0088-001 07/01/2019

	Rates	Fringes
TILE FINISHER	$ 54.81	36.42

CARP0001-009 01/01/2020

	Rates	Fringes
CARPENTER		
Carpenters	$ 53.50	44.64
Soft Floor Layers	$ 53.50	44.64

CARP0740-001 07/01/2019

	Rates	Fringes
MILLWRIGHT	$ 54.20	53.06

CARP1556-006 07/01/2019

	Rates	Fringes
Dock Builder & Piledrivermen		
DOCKBUILDERS	$ 54.63	50.98

CARP1556-007 07/01/2019

	Rates	Fringes
Diver Tender	$ 49.14	50.98
Diver	$ 69.22	50.98

CARP1556-011 07/01/2019

	Rates	Fringes
Carpenters:		
TIMBERMEN	$ 50.05	50.28

ELEC0003-001 04/11/2019

	Rates	Fringes
ELECTRICIAN		
Electricians	$ 56.00	76.725%+16.25
Jobbing, and maintenance and repair work	$ 28.50	51.243%+7.50+a

PAID HOLIDAYS:

a. New Years Day, Martin Luther King, Jr.'s Birthday, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Columbus Day, Election Day, Thanksgiving Day,

the day after Thanksgiving Day, and Christmas Day

ELEC1049-001 03/31/2019

QUEENS COUNTY

	Rates	Fringes
Line Construction (Substation and Switching structures pipe type cable installation and maintenance jobs or projects; Railroad electrical distribution/transmission systems maintenance (when work is not performed by railroad employees) Overhead and Underground transmission/distribution line work. Fiber optic, telephone cable and equipment)		
Groundman	$ 34.45	23.06
Heavy Equipment Operator	$ 45.93	28.24
Lineman and Cable Splicer	$ 57.41	29.72
Tree Trimmer	$ 30.09	14.12

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* ELEV0001-002 03/17/2018

	Rates	Fringes
ELEVATOR MECHANIC		
Elevator Constructor	$ 64.48	36.21+a+b
Modernization and Repair	$ 50.49	40.399+a+b

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day, Good Friday, President's Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Veteran's Day, Thanksgiving Day, Friday after Thanksgiving, and Christmas Day.

b. PAID VACATION: An employee who has worked less than 5 years shall recieve vacation pay credit on the basis of 4% of his hourly rate for all hours worked; an employee who has worked 5 to 15 years shall receive vacation pay credit on the basis of 6% of his hourly rate for all hours worked; an employee who has worked 15 or more years shall receive vacation pay credit on the basis of 8% of his hourly rate for all hours worked.

ENGI0014-001 07/01/2019

	Rates	Fringes
POWER EQUIPMENT OPERATOR (HEAVY & HIGHWAY)		
GROUP 1	$ 101.71	27.05

GROUP 2	$ 84.01	27.05
GROUP 3	$ 86.69	27.05
GROUP 4	$ 84.62	27.05
GROUP 5	$ 82.96	27.05
GROUP 6	$ 79.68	27.05
GROUP 7	$ 81.17	27.05
GROUP 8	$ 78.85	27.05
GROUP 9	$ 77.19	27.05
GROUP 10	$ 73.82	27.05
GROUP 11	$ 69.01	27.05
GROUP 12	$ 70.53	27.05
GROUP 13	$ 71.06	27.05
GROUP 14	$ 53.74	27.05
GROUP 15	$ 49.99	27.05
POWER EQUIPMENT OPERATOR (PAVEMENT-HEAVY & HIGHWAY)		
Asphalt Plants	$ 65.08	27.05
Asphalt roller	$ 76.83	27.05
Asphalt spreader	$ 78.85	27.05
POWER EQUIPMENT OPERATOR (STEEL ERECTION)		
Compressors, Welding Machines	$ 45.34	31.15
Cranes, Hydraulic Cranes, 2 drum derricks, Forklifts, Boom Trucks	$ 76.43	31.15
Three drum derricks	$ 79.54	31.15
POWER EQUIPMENT OPERATOR (UTILITY)		
Horizontal Boring Rig	$ 75.02	27.05
Off shift compressors	$ 62.44	27.05
Utility Compressors	$ 49.67	27.05

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Tower crane

GROUP 2: Rubber Tire Backhoes over 37,000 lbs, Track Backhoes, power shovel, Hydraulic clam shells, moles and machines of a similar type

GROUP 3: Mine hoists and crane, etc. used as mine hoists

GROUP 4: Gradalls, keystones, cranes (with digging buckets), bridge cranes, trenching machines, vermeer cutter and machines of a similar nature

GROUP 5: Piledrivers, derrick boats, tunnel shovels

GROUP 6: All drills, and machines of a similar nature

GROUP 7: Back filling machines, cranes, mucking machines, dual drum pavers

GROUP 8: Mixers (concrete w/loading attachments), concrete pavers, cableways, land derricks, power house (low pressure units), concrete pumps

GROUP 9: Concrete plants, well drilling machines, stone

crushers double drum hoist, power house (other than above)

GROUP 10: Concrete mixers

GROUP 11: Elevators

GROUP 12: Concrete breaking machine, Hoists (single drum), load masters, locomotive and dinkies over 10 tons

GROUP 13: Vibratory console

GROUP 14: Compressors (portable 3 or more in battery), tugger machine (caissons), well point pumps, chum drill

GROUP 15: Boilers, (high pressure, compressors (portable, single, or 2 in battery, not over 100' apart), pumps (river cofferdam and welding machines (except where arc is operated by members of local 15) push button machines, all engines irrespective of power (power pac) used to drive auxilliary equipment, air, hydraulic etc.

PREMIUMS ON CRANES (Crawler or Truck):
100' to 149' boom - add .50
150' to 249' boom - add .75
250' to 349' boom - add 1.00
350' to 450' boom - add 1.50

Premiums for Cranes on Steel Erection:
100' to 149' boom - add 1.75
150' to 249' boom - add 2.00
250' to 349' boom - add 2.25
350' to 450' boom - add 2.75
Tower crane - add 2.00

FOOTNOTE:
a. Paid Holidays: New Year's Day; Lincoln's Birthday; Washington's Birthday; Memorial Day; Independence Day; Labor Day; Veterans Day; Columbus Day; Election Day; Thanksgiving Day; and Christmas Day; provided the employee works one day the payroll week in which the holiday occurs.

ENGI0014-002 07/01/2019

	Rates	Fringes
Power Equipment Operator		
BUILDING & RESIDENTIAL		
GROUP 1	$ 79.02	27.05
GROUP 2	$ 83.68	27.05
GROUP 3	$ 76.35	27.05
GROUP 4	$ 69.51	27.05
GROUP 5	$ 52.21	27.05

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Double drum

GROUP 2: Stone derrick, cranes, hydraulic cranes, boom

trucks

GROUP 3: 4 pole Hoist, Single Drum Hoists

GROUP 4: Fork lift, house cars, plaster (platform machine), plaster bucket, concrete pump and all other equipment used for hoisting material

GROUP 5: Compressors, welding machines (cutting concrete work), paint spraying, sand blasting, pumps (with the exclusion of concrete pumps), house car (settlement basis only), all engines irrespective of power (power pac) used to drive auxiliary equipment, air, hydraulic, etc., boilers

Premiums for Cranes:
100'-149' boom - add 1.75
150'-249' boom - add 2.00
250'-349' boom - add 2.25
350'-450' boom - add 2.75
Tower cranes add 2.00

FOOTNOTE:
a. PAID HOLIDAYS: New Year's Day, Lincoln's Birthday, Memorial Day, Independence Day, Labor Day, Veteran's Day, Columbus Day, Election Day, Thanksgiving Day, and Christmas Day, provided the employee works one day in the payroll week in which the holiday occurs

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ENGI0015-001 07/01/2019

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
HEAVY AND HIGHWAY		
GROUP 1	$ 70.71	36.75
GROUP 2	$ 68.58	36.75
GROUP 3	$ 65.00	36.75
GROUP 4	$ 61.42	36.75
GROUP 5	$ 42.13	36.75

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Cherrypickers 20 tons and over and loaders (rubber-tired and/or tractor type with a manfufacturer's rated capacity of six cubic yards and over

GROUP 2: Rubber Tire Backhoes up to and including 37,000 lbs, Basin Machines, Groover, Mechanical Sweepers, Bobcat, Boom Truck, Barrier Transport (Barrier Mover) and machines of a similar nature, Boat Captains, Boat Operators, operation of Churn Drills and machines of a similar nature, Stetco Silent Hoist and machines of a similar nature, Vac-alls, Meyers Machines, John Beam and machines of a similar nature, Ross Carriers and Travel Lifts and machines of a similar nature, Bulldozers, Scrapers, and Turn-a Pulls, Tugger Hoist (used exclusively for handling excavated material), Tractors with attachments, Hyster and Roustabout Cranes, Cherrypickers, Austin Western, Grove and machines

of a similar nature, Scoopmobiles, Monorails, Conveyors, Trenchers, Loaders- Rubber-tired and Tractor, Barber Greene, Eimco Loaders and Eimco Backhoes, Mighty Midget and similar breakers and tampers, Curb and Gutter Pavers and Motor Patrol, Motor Graders and all machines of a similar nature, Locomotives ten (10) tons or under, Mini-Max, Break-Tech and machines of a similar nature, Milling Machines, robotic and demolition machines and machines of a similar nature including Bobcat, Pile Rig Rubber-tired Excavator (37,000 lbs. and under), 2 man auger
GROUP 3: Minor Equipment such as Tractors, Post Hole Diggers and Drivers, Ditch Witch (Walk Behind), Road Finishing Machines, Rollers (five (5) tons and under), Tugger Hoists, Dual Purpose Trucks, Fork Lifts and Dempsey Dumpsters

GROUP 4: Oilers for the following equipment: (all gasoline, electric, diesel, or air operated) gradalls and concrete pumps or similarly equipment manned by two-men

GROUP 5: Oilers for the following equipment: (all gasoline, electric, diesel, or air operated) shovels, cranes (draglines), backhoes, pavers, trenching machines, gunite machines, compressors (3 or more in battery)

Premiums for Cranes:
100'-149' boom - add 1.75
150'-249' boom - add 2.00
250'-349' boom - add 2.25
350'-450' boom - add 2.75
Tower cranes add 2.00

FOOTNOTE:
a. PAID HOLIDAYS: New Year's Day, Lincoln's Birthday, Memorial Day, Independence Day, Labor Day, Veteran's Day, Columbus Day, Election Day, Thanksgiving Day, and Christmas Day, provided the employee works one day in the payroll week in which the holiday occurs

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ENGI0015-002 07/01/2016

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
BUILDING		
GROUP 1	$ 65.94	32.95
GROUP 2	$ 63.98	32.95
GROUP 3	$ 57.42	32.95

POWER EQUIPMENT OPERATORS CLASSIFICATIONS
GROUP 1: Oiler
GROUP 2: Oilers on Crawler Cranes, Backhoes, Trenching machines, Gunite machines, Compressors (3 or more in Battery)
GROUP 3: Gradalls: Concrete Pumps, Power Houses - All equipment in same is manned by two (2) men only, Driving Truck Cranes
FOOTNOTE:
a. PAID HOLIDAYS: New Year's Day, Lincoln's Birthday,

Memorial Day, Independence Day, Labor Day, Veteran's Day, Columbus Day, Election Day, Thanksgiving Day, and Christmas Day, provided the employee works one day in the payroll week in which the holiday occurs

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IRON0040-002 07/01/2019

BRONX, NEW YORK, RICHMOND

	Rates	Fringes
IRONWORKER, STRUCTURAL	$ 51.45	78.42

IRON0046-003 07/01/2019

	Rates	Fringes
IRONWORKER METALLIC LATHERS AND REINFORCING IRONWORKERS	$ 44.65	46.67

IRON0197-001 07/01/2019

	Rates	Fringes
IRONWORKER STONE DERRICKMAN	$ 50.91	54.11

IRON0361-002 07/01/2019

KINGS, QUEENS

	Rates	Fringes
Ironworkers: (STRUCTURAL)	$ 51.45	78.42

IRON0580-001 07/01/2019

	Rates	Fringes
IRONWORKER, ORNAMENTAL	$ 45.15	55.62

LABO0006-001 07/01/2016

	Rates	Fringes
LABORER (Cement and Concrete Workers)	$ 42.48	17.35

LABO0029-001 07/01/2017

	Rates	Fringes
Laborers: Heavy Blasters (hydraulic trac drill)	$ 47.15	35.49

Blasters	$ 46.27	35.49
Hydraulic Trac Drill	$ 41.29	35.49
Jackhammers, Chippers, Spaders, Concrete Breakers, All Other Pneumatic Tools, Walk Behind Self-Propelled Hydraulic Asphalt and Concrete Breaker	$ 39.34	35.49
Powder Carriers	$ 35.17	35.49

LABO0078-001 12/01/2016

	Rates	Fringes
LABORERS		
BUILDING CONSTRUCTION ASBESTOS (Removal, Abatement, Encapsulation or Decontamination of asbestos); LEAD; & HAZARDOUS WASTE LABORERS (Hazardous Waste, Hazardous Materials, Biochemical and Mold Remediation, HVAC, Duct Cleaning, Re-spray Fireproofing, etc)	$ 36.00	16.20

LABO0079-001 07/01/2018

	Rates	Fringes
LABORER (Building Construction)		
Demolition Laborers (Interior)		
Tier A	$ 37.44	23.60
Tier B	$ 26.63	17.57
Mason Tender/General Laborer	$ 40.65	28.85

CLASSIFICATIONS

TIER A: Responsible for the removal of all interior petitions and structural petitions that can consist of sheet rock, block or masonry. Also, all structural slab openings for ducts, mechanical, shafts, elevators, slab openings and exterior walls where the building is not being completely demolitioned.

TIER B: Responsible for shoveling of debris into containers, pushing containers from the inside to the outside of the building.

LABO0147-001 07/01/2016

	Rates	Fringes

LABORERS (FREE AIR & TUNNEL).....$ 72.67 47.72

Maintenance Men, Inside Muck Lock Tenders, Pump Men, Electricians, Cement Finishers, Caulkers, Hydraulic Men, Shield Men, Monorail Operators, Motor Men, Conveyor Men, Powder Carriers, Pan Men, Riggers, Chuck Tenders, Track Men Painters, Nippers, Brakemen, Cable Men, Hose Men, Grout Men, Gravel Men, Form Workers, Concrete Workers, Tunnel Laborers, Mole Nipper (one (1) Mole Sipper per Working Shaft per Shift for up to and including Two (2) Moles

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LABO0731-001 07/01/2016

	Rates	Fringes
LABORER		
Building, Heavy and Residential Construction		
LABORER: (Asbestos, Lead, Hazardous Waste Removal (including soil)/CEMENT/CONCRETE.....	$ 41.00	38.53
UTILITY LABORER.....	$ 40.85	38.53

Paid Holidays: Labor Day and Thanksgiving Day

LABO1010-001 07/01/2019

	Rates	Fringes
Laborers:		
HIGHWAY CONSTRUCTION		
Fence Installer & Repairer.	$ 42.98	43.91
FORMSETTERS.....	$ 46.85	43.91
LABORERS.....	$ 42.98	43.91
Landscape Planting & Maintenance.....	$ 42.98	43.91
Maintenance Safety Surface.	$ 42.98	43.91
Slurry/Sealcoater/Play Equipment Installer.....	$ 42.98	43.91
Small Equipment Operator (Not Operating Engineer)...	$ 42.98	43.91
Small Power Tools Operator.	$ 42.98	43.91

FOOTNOTES:

a. PAID HOLIDAYS: Memorial Day, Fourth of July, Labor Day, Columbus Day, Election Day and Thanksgiving Day, provided the employee has worked one (1) day in the calendar week in which the said holiday occurs.

LABO1010-002 07/01/2019

	Rates	Fringes
Laborers-Asphalt Construction:		

Micro Paver	$ 47.45	43.91
Raker	$ 46.85	43.91
Screedperson	$ 47.45	43.91
Shoveler (Production Paving Only)	$ 42.98	43.91
Small Equipment Operator (Asphalt)	$ 42.98	43.91

PAIN0009-001 05/01/2019

	Rates	Fringes
GLAZIER	$ 46.05	43.37
PAINTER		
Painters, Drywall Finishers, Lead Abatement Worker	$ 45.70	27.67
Spray, Scaffold and Sandblasting	$ 48.70	27.67

PAIN0806-001 10/01/2018

	Rates	Fringes
Painters:		
Structural Steel and Bridge	$ 49.50	41.88

PAIN1974-001 06/28/2018

	Rates	Fringes
Painters:		
Drywall Tapers/Pointers	$ 47.82	25.21

PLAS0262-001 08/01/2019

	Rates	Fringes
PLASTERER	$ 45.73	30.37

PLAS0262-002 08/01/2019

KINGS AND QUEENS COUNTIES

	Rates	Fringes
PLASTERER	$ 45.73	30.37

PLAS0780-001 07/01/2018

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 51.97	33.56

PLUM0001-001 10/01/2018

	Rates	Fringes
PLUMBER		

MECHANICAL EQUIPMENT AND SERVICE Any repair and/or replacement of the present plumbing system that does not change the existing roughing	$ 42.30	17.11
PLUMBERS:	$ 68.40	33.80

PLUM0638-001 07/26/2019

	Rates	Fringes
PLUMBER		
SERVICE FITTERS	$ 41.75	14.00
SPRINKLER FITTERS, STEAMFITTERS	$ 57.50	50.39

Service Fitter work shall consist of all repair, service and maintenance work on domestic, commercial and industrial refrigeration, air conditioning and air cooling, stoker and oil burner apparatus and heating apparatus etc., including but not exclusively the charging, evacuation, leak testing and assembling for all machines for domestic, commercial and industrial refrigeration, air conditioning and heating apparatus. Also, work shall include adjusting, including capacity adjustments, checking and repairing or replacement of all controls and start up of all machines and repairing all defects that may develop on any system for domestic, commercial and industrial refrigeration and all air conditioning, air cooling, stoker and oil burner apparatus and heating apparatus regardless of size or type.

ROOF0008-003 07/01/2019

	Rates	Fringes
ROOFER	$ 43.50	33.87

SHEE0028-002 07/31/2014

	Rates	Fringes
SHEET METAL WORKER		
BUILDING CONSTRUCTION	$ 50.91	36.70
RESIDENTIAL CONSTRUCTION	$ 27.22	16.48

TEAM0282-001 07/01/2019

	Rates	Fringes
TRUCK DRIVER		
Asphalt	$ 42.68	46.9025+a
Euclids & Turnapulls	$ 44.40	49.0325+a
High Rise	$ 52.39	47.6925+a

FOOTNOTES:

PAID HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Election Day, Veterans' Day (Armistice Day), Thanksgiving Day, Day after Thanksgiving and Christmas Day. Employees working two (2) days in the calendar week in which a holiday falls are to be paid for such holiday, provided that they shape each remaining workday during such calendar week.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this

classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination

Department of Design and Construction

INFRASTRUCTURE DIVISION
BUREAU OF DESIGN

VOLUME 3 OF 3

PROJECT ID: SANDRESM2

INSTALLATION OF EAST SIDE COASTAL RESILIENCY FROM EAST 15TH STREET TO EAST 25TH STREET

TOGETHER WITH ALL WORK INCIDENTAL THERETO
INCLUDING FLOOD PROTECTION SYSTEM, ROLLER AND SWING GATES, PARK RECONSTRUCTION, SEWER, STREET LIGHTING, AND TRAFFIC WORK

Together With All Work Incidental Thereto
BOROUGH OF MANHATTAN
CITY OF NEW YORK