

REQUEST FOR PROPOSALS

FOR

Pier A Construction Management Services

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I. INTRODUCTION

Battery Park City Authority d/b/a Hugh L. Carey Battery Park City Authority ("BPCA"), a New York State public benefit corporation created pursuant to the New York State Public Authorities Law, is seeking to retain a consultant firm to provide BPCA with construction management ("CM") services in furtherance of several construction-related projects occurring simultaneously at Pier A for structural repairs, railing replacement, and window and door replacement work (the "Project") as more fully set forth in this Request for Proposals and its attachments.

Created in 1968, BPCA is a New York State public benefit corporation responsible for financing, developing, constructing, maintaining, and operating Battery Park City as a richly diversified mixed use community providing residential and commercial space, with related amenities such as parks, plazas, recreational areas, and a waterfront esplanade. A summary of BPCA's structure, mission, and history, as well as the Battery Park City project area, may be viewed at: http://bpca.ny.gov/. Public information regarding BPCA's finances, budget, internal controls, guidelines, and policies may be viewed at: http://bpca.ny.gov/public-information/. New York State-certified Minority-Owned Business Enterprises ("MBE"), Women-Owned Business Enterprises ("WBE"), and Service-Disabled Veteran-Owned Business Enterprises ("SDVOB") are encouraged to submit Proposals.

II. OVERVIEW

In furtherance of the Project, BPCA hereby requests proposals (individually a "Proposal" and collectively the "Proposals") from construction management firms (individually, a "Proposer" and collectively, the "Proposers") to provide BPCA with construction management services (the "CM Services") at Pier A, located at 22 Battery Place in New York City (the "Project Site"). The CM Services will be required for three (3) discrete construction projects which will be performed at Pier A concurrently; these projects have three (3) separate contractors and design teams as follows:

- Pier A Windows and Doors Restoration, Repair and Replacement Project
- Pier A Railings Restoration / Rehabilitation Project
- Pier A Structural Repairs – Phase II Project

The CM Services shall include, but not be limited to:

- Pre-Construction Services (Limited)
- Construction Management
- Meetings and Reporting
- Post-Construction and Close-out

A detailed scope of work for which the selected Proposer will be responsible is attached as Exhibit A-1 ("Scope of Work").

III. GENERAL PROVISIONS

This RFP, including attachments, exhibits, and any amendments or addenda (collectively, the "RFP") is subject to the rights reserved by BPCA – including, but not limited to BPCA's right to:

- reject any or all Proposals received in response to this RFP;
- withdraw the RFP at any time, at BPCA's sole discretion;
- make an award of the resulting contract associated with this RFP (the "Contract"), in whole or in part;
- disqualify any Proposer whose conduct and/or Proposal fails to conform to the requirements of this RFP;
- seek clarifications and/or revisions of a Proposal or any part of a Proposal;
- use information obtained by BPCA through site visits; interviews; investigation of a Proposer's qualifications, experience, ability or financial standing; and any other material or information provided by, or received from, the Proposer during the procurement process;

- prior to BPCA's review of the Proposals, direct Proposers to submit Proposal modifications addressing subsequent amendments to the RFP;
- request that one (1) or multiple Proposers submit best and final offers (BAFOs) subsequent to BPCA's review of the Proposals;
- change any of this RFP's scheduled dates;
- waive any non-material requirements;
- negotiate contract terms with one (1) or multiple Proposers in BPCA's sole discretion;
- utilize any and all ideas submitted in the Proposals received;
- require clarification at any time during the procurement process, and/or require correction of arithmetic or other apparent errors for the purpose of assuring a full and complete understanding of a Proposal and/or to determine a Proposer's compliance with the requirements of the RFP; and,
- Make non-material revisions to the Scope of Work following receipt of Proposals.

BPCA is not liable or responsible in any way for any expenses incurred in the preparation of a Proposal in response to this RFP. All information submitted in response to this RFP is subject to the Freedom of Information Law, Article 6 of the New York State Public Officers Law ("FOIL"), which requires public access to certain documents possessed by BPCA, unless a specific exemption applies. Proposers are responsible for identifying any information in their respective Proposals considered to be confidential and exempt from FOIL. BPCA, however, is obligated to disclose information consistent with the requirements of FOIL, NYS Public Officers Law Section 87.

IV. TIMETABLE & DESIGNATED CONTACT

A. Key Dates

Subject to change at BPCA's discretion, the following are key dates for this RFP:

Procurement Step	Date
RFP Issued	February 14, 2024
Mandatory Pre-Proposal Meeting	February 20, 2024, 10 a.m. at BPCA's Offices (200 Liberty Street, 24th Floor – New York, N.Y. 10281)
Mandatory Project Site Walk-Through	February 20, 2024 (following the Pre-Proposal Meeting)
Deadline to Submit Questions to BPCA*	February 27, 2024 by 5:00 p.m. (by email only)
BPCA's Response to Substantive Questions *Responses will be provided in the form of an addendum to be posted on BPCA's website (https://bpca.ny.gov/apply/rfp-opp/)*	March 6, 2024
PROPOSAL DUE DATE	March 14, 2024 by 3:00 p.m. (the "Due Date")
Contract Start Date	April 2024 *(Approximate)*
*All questions regarding this RFP should be submitted in writing via email to the "Designated Contact": Michael Lamancusa, BPCA's Assistant Contracting Officer, at Michael.Lamancusa@bpca.ny.gov.	

B. Anticipated Contract Term / Right to Terminate

It is anticipated that the Contract's duration will be approximately twelve (12) months. BPCA reserves the right to terminate the Contract at any time, with or without cause, in accordance with the terms of the Contract. BPCA's sample form of contract (the "Standard Form of Contract") is attached as Exhibit D.

V. GENERAL REQUIREMENTS

A. Minimum Qualification Requirements

The following are the minimum qualification requirements for this RFP. Proposals that fail to meet these requirements will be rejected.

1) Proposer must have an office in New York State (a New York City office is preferred);

2) Proposer must be lawfully authorized to do business in the State of New York; and,

3) Proposer must have at least five (5) years of experience in providing CM services, with the Proposer and/or one of its principals or partners having CM experience on at least three (3) marine or waterfront construction projects.

B. MBE/WBE/SDVOB Participation, Joint Ventures, and Sub-consulting Goals

Contractor requirements and procedures for business participation opportunities for New York State certified MBEs/WBEs/SDVOBs and equal employment opportunity requirements relating to minority group members and women are attached as Exhibit F. For questions relating to MBE/WBE/SDVOB participation, joint ventures and sub-contracting goals *only*, please contact the "MBE/WBE/SDVOB Designated Contact" Mr. Thierry Byron at thierry.byron@bpca.ny.gov or 212-417-4415.

C. Restricted Period

New York State's State Finance Law sections 139-j and 139-k apply to this RFP, restricting Proposers' contacts with BPCA. Proposers are restricted from making any contact (defined as oral, written or electronic communications with BPCA under circumstances where a reasonable person would infer that a communication was intended to influence BPCA's conduct or decision with respect to a procurement) relating to this RFP with anyone other than the Designated Contact, as specified in Section IV.A., or MBE/WBE/SDVOB Designated Contact, as specified in Section V.B., from the time of Proposer's receipt of notice of this RFP through the date of the Final Award as defined in BPCA's Procurement Guidelines (the "Restricted Period"). BPCA employees must record certain contacts during the Restricted Period, including, but not limited to, any oral or written communications that could reasonably be seen as intended to influence BPCA's conduct or award of this RFP. Upon notice of an improper contact, BPCA shall make a determination regarding the Proposer's eligibility to continue participating in this RFP.

D. Submission of Proposals

Proposals must be received by BPCA no later than 3:00 p.m. on March 14, 2024.

- Each Proposer must e-mail their Technical Proposal, as defined in Section VI(B) below, to the following e-mail address:
  technicalproposals@bpca.ny.gov The Technical Proposal must be clearly labeled as "Proposal Enclosed – "PIER A CONSTRUCTION MANAGEMENT SERVICES."

- Each Proposer must also e-mail their Cost Proposal, as defined in Section VIII herein, to the following e-mail address:
  costproposals@bpca.ny.gov The Cost Proposal must be separately attached and clearly labeled as "PIER A CONSTRUCTION MANAGEMENT SERVICES".

- **Each Proposer is responsible for the successful delivery and receipt of their Proposal. BPCA is not accepting Proposals sent via messenger, overnight courier, or certified mail to BPCA offices.** If a Proposer has already sent a Proposal via one of these methods, please e-mail the Proposal to the above e-mail address by the Due Date. If a Technical Proposal's file size is too large to submit by e-mail, the Proposer must make alternate electronic accommodations (e.g., linking to a file sharing website), which shall also be transmitted through technicalproposals@bpca.ny.gov. Please contact the Designated Contact prior to the Due Date in order to ensure successful transmission of the documents prior to the Due Date.

  Proposals *must* arrive at the time and place specified herein. Please leave ample time for submission. Late Proposals, no matter the cause of their lateness, will NOT be accepted. Hard copy or faxed Proposals will NOT be accepted. A Proposer may, after submitting a Proposal, amend its Proposal by submitting an amended Proposal, clearly labeled "Amended Proposal - PIER A CONSTRUCTION MANAGEMENT SERVICES," as long as the amended Proposal is submitted by the Due Date.

VI. PROPOSAL FORMAT AND CONTENTS

A. Proposal Format

The submitted Proposal must be organized in accordance with the subheadings of Proposal contents set forth in this Section VI., shall be prepared to be printed on paper size no larger than standard 8 1/2" x 11" with a minimum font size of 11 point, with reasonable exceptions for charts, graphics and financial information. Proposal pages must be numbered, with the Proposer's name and "PIER A CONSTRUCTION MANAGEMENT" clearly marked on the cover of each of the Technical Proposal and the Cost Proposal.

B. Proposal Content

In addition to the separately sealed Cost Proposal, each Proposal must include the following in the order listed (the "Technical Proposal"):

1) Executive Summary.

2) Completed Proposal Submission Packet, attached as Exhibit C.

3) Financial Statements: Provide a copy of your firm's most recent Audited Financial Statements (within the last year) or where an audited financial statement is not available, the most recent tax return. In the event you do not have an audited financial statement you must provide a statement to that effect and summary financial information for the calendar year most recently ended certified by an authorized officer.

4) Appendices:

   a. Attach professional biographies for all key personnel identified in your Proposal.

   b. Objections to BPCA's Standard Form of Contract (as described in Exhibit C, Section II.A.10).

5) Attach a project schedule showing resources based on the staffing required to manage the three (3) projects.

6) Any additional attachments, exhibits or appendices listed herein or in the Proposal Submission Packet.

BPCA reserves the right to reject any Proposals that fail to include any required item described in this Section VI. B., including Cover Letters that are unsigned or fail to include each of the above representations (including an appendix, if applicable). As BPCA is currently only accepting electronic Proposal submissions, scans of documents requiring signatures and/or requiring notarization are acceptable.

VII. INSURANCE REQUIREMENTS

A. General Requirements

The total cost of the required insurance listed in Items B. and C., below, must be incorporated into the Cost Proposal. The additional insured protection afforded BPCA; the Battery Park City Parks Conservancy

("BPCPC"), BPCA's affiliate; and the State of New York must be on a primary and non-contributory basis. All policies must include a waiver of subrogation in favor of BPCA, BPCPC, and the State of New York, and no policies may contain any limitations / exclusions for New York Labor Law claims.

All of the carriers that provide the below required insurance must provide direct written notice of cancellation or non-renewal to BPCA, BPCPC, and the State of New York at least thirty (30) days before such cancellation or non-renewal is effective, except for cancellations due to non-payment of premium, in which case ten (10) days' written notice is acceptable.

B. Insurance Requirements for the Selected Proposer

The selected Proposer will be required to obtain and provide proof of the types and amounts of insurance listed below: (i) as a condition precedent to the award of the Contract; and (ii) continuing throughout the entire term of the Contract. The insurance policies listed below must also conform to the applicable terms of the Contract, as shown in the Standard Form of Contract, attached as Exhibit D.

- **Commercial General Liability Insurance**, written on ISO Form CG 00 01 or its equivalent and with no modification to the contractual liability coverage provided therein, shall be provided on an occurrence basis and limits shall not be less than:
  - $6,000,000 per occurrence
  - $7,000,000 general aggregate, which must apply on a per location/per project basis
  - $7,000,000 products/completed operations aggregate

  BPCA, BPCPC, and the State of New York must be protected as additional insureds on ISO Form CG 2010 (11/85) or its equivalent on policies held by the selected Proposer and any of its subcontractors. Should the Proposer's work include construction activities of any kind, then the Proposer must maintain Products/Completed Operations coverage for no less than three (3) years after the construction work is completed, and continue to include Additional Insured protection for BPCA, BPCPC, and the State of New York for the prescribed timeframe. When providing evidence of insurance, the Proposer must include a completed Acord 855 NY form. Securing the required limits via a combination of primary and umbrella/excess liability policies is allowed. The General Aggregate limit must apply on a per project basis on the primary General Liability policy should a combination of primary and Umbrella/Excess liability policies be utilized to secure the required total limits of coverage.
- **Automobile Liability Insurance** with a combined single limit of not less than $1,000,000. Coverage must apply to the Proposer's owned, hired, and non-owned vehicles and protect BPCA, BPCPC, and the State of New York as additional insureds.
- **Workers' Compensation, Employer's Liability, and Disability Benefits** shall not be less than statutory limits, including United States Longshore and Harbor Workers Act coverage as applicable to the operations of the Proposer.
- **Contractor's Pollution Liability Insurance** covering bodily injury, property damage, clean-up costs/remediation expenses and legal defense costs. Such insurance shall provide coverage for sudden and non-sudden pollution conditions arising out of the proposer's operations in Battery Park City. The limit of coverage shall not be less than $1,000,000 per occurrence. BPCA, BPCPC, and the State of New York must be protected as additional insureds on policies held by the selected Proposer and any of its subcontractors.
- **Comprehensive Marine Liability Insurance** must be maintained at a limit of not less than $1,000,000 per occurrence and include the following coverage:
  - Protection and indemnity
  - General liability
  - Pollution liability

BPCA, BPCPC, and the State of New York must be protected as additional insureds on policies held by the selected Proposer and any of its subcontractors.

C. Insurance Requirements for all Subconsultants

Any subcontractor(s) utilized by the selected Proposer will be required to obtain the types and amounts of insurance listed below: (i) as a condition of commencing any Work; and (ii) continuing throughout the duration of such subcontractor's Work. The insurance policies listed below must also conform to the applicable terms of the Contract, as shown in the Standard Form of Contract, attached as Exhibit D.

- **Commercial General Liability Insurance**, written on ISO Form CG 00 01 or its equivalent and with no modification to the contractual liability coverage provided therein, shall be provided on an occurrence basis and limits shall not be less than:
  - $1,000,000 per occurrence
  - $2,000,000 general aggregate which must apply on a per location / per project basis
  - $2,000,000 products/completed operations aggregate

  BPCA, BPCPC, and the State of New York must be protected as additional insureds on ISO Form CG 2010 (11/85) or its equivalent on policies held by all subcontractors. Should the subcontractor's work include construction activities of any kind then the subcontractor must maintain Products / Completed Operations coverage for no less than three years after the construction work is completed and continue to include additional insured protection for BPCA, BPCPC, and the State of New York for the prescribed timeframe. When providing evidence of insurance the subcontractor must include a completed Acord 855 NY form. Securing the required limits via a combination of primary and umbrella/excess liability policies is allowed.
- **Automobile Liability Insurance** with a combined single limit of not less than $1,000,000. Coverage must apply to the subcontractor's owned, hired, and non-owned vehicles and protect BPCA, BPCPC, and the State of New York as additional insureds.
- **Workers' Compensation, Employer's Liability, and Disability Benefits** shall not be less than statutory limits, including United States Longshore and Harbor Workers Act coverage as applicable to the operations of the subcontractor.

Subconsultants will also be required to obtain all other insurances listed in Section VII. B. (above), unless otherwise approved in writing by BPCA prior to commencement of any Subcontractor's work.

VIII. COST PROPOSAL: FORMAT AND REQUIRED INCLUSIONS

Each Proposer must submit a cost proposal in the forms attached as Exhibits E-1 and E-2 (the "Cost Proposal"). The Cost Proposal shall include:

- A total not-to-exceed fee for performance of all CM Services contemplated herein;
- An itemized proposal showing the cost of each scope item, as delineated in Exhibit A-1;
- A not-to-exceed amount for all reimbursable costs associated with performance of the CM Services, including an allocation as appropriate of such costs between the CM Services associated with Scope of Work;
- Hourly billing rates for each personnel category (including Project team members) that the Proposer proposes to employ for the completion of the CM Services. The Cost Proposal must be submitted per the guidance of Section V. D.

IX. SELECTION PROCESS

A. Evaluation

Each timely submitted Proposal will be reviewed for compliance with the form and content requirements of this RFP. A committee of BPCA employees selected by BPCA (the "Committee") will then review and evaluate the Proposals in accordance with the evaluation criteria set forth below. While only Committee members will score

the evaluation criteria, the Committee may consult an outside expert for advisement on the evaluation of matters requiring technical expertise. Before final selection, BPCA must determine that the proposed selected Proposer is responsible, in accordance with applicable law and BPCA's Procurement Guidelines, which may be viewed at: http://bpca.ny.gov/public-information/.

B. Interviews

BPCA reserves the right to decide whether to interview any or all of the Proposers. The Committee may conduct interviews for many reasons, including to further assess a Proposer's ability to perform the Work or provide specific services, or to seek information related to any other evaluation criteria. The proposed Lead PM, as well all other key personnel proposed to perform the Work, must be available to participate in the interview.

C. Evaluation Criteria for Selection

Selection will be based upon the following criteria:

1) Technical Evaluation:

CRITERIA	Percentage
Experience with, and Expertise in, CM services for Construction Projects Associated with Buildings, Historic Structures, and Public Spaces in Marine Settings	30%
Experience Managing Multiple Concurrent Construction Projects	25%
Experience and Qualifications of Key Personnel	20%
Approach to Staffing, Communication, and Schedule Protocols	15%
Response to Diversity Practices Questionnaire	10%

2) Cost Proposal evaluation.

3) Basis for Contract Award: The Contract will be awarded to the highest technically rated Proposer whose Proposal is determined to be responsive and in the best interests of BPCA – subject to a determination that the Cost Proposal is fair, reasonable, and provides the best value to BPCA given the Project requirements.

X. NON-COLLUSION

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

XI. IRAN DIVESTMENT ACT

By submitting a Proposal or by assuming the responsibility of any Contract awarded hereunder, each Proposer certifies that it is not on the "Entities Determined To Be Non-Responsive Bidders/Offerers Pursuant to The New York State Iran Divestment Act of 2012" list ("Prohibited Entities List") posted on the New York State Office of General Services website at: http://www.ogs.ny.gov/about/regs/docs/ListofEntities.pdf and further certifies that it will not utilize any subcontractor/consultant that is identified on the Prohibited Entities List on this Contract. The selected Proposer agrees that should it seek to renew or extend any Contract awarded hereunder, it must provide the same certification at the time the Contract is renewed or extended. The selected Proposer also agrees that any proposed assignee of the Contract will be required to certify that it is not on the Prohibited Entities List before BPCA may approve a request for assignment of the Contract.

During the term of any Contract awarded hereunder, should BPCA receive information that a person (as defined in State Finance Law §165-a) is in violation of the above-referenced certifications, BPCA will review such information and offer the person an opportunity to respond. If the person fails to demonstrate that it has ceased

its engagement in the investment activity which is in violation of the New York State Iran Divestment Act of 2012 within 90 days after the determination of such violation, then BPCA shall take such action as may be appropriate and provided for by law, rule, or contract, including, but not limited to, seeking compliance, recovering damages, or declaring the selected Proposer in default of the awarded Contract.

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

XII. EXECUTIVE ORDER 16

Pursuant to Executive Order 16 dated March 17, 2022, all New York State agencies and authorities are prohibited from Entering into any new contract or renewing any existing contract with an entity conducting business operations in Russia. As part of this RFP, each firm is required to certify that the firm is not an 'entity conducting business operations in Russia.' Certification under Executive Order No. 16 can be found in Section XV of Exhibit C: Proposal Submission Packet.

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EXHIBIT A
CONSTRUCTION MANAGEMENT SCOPE OF WORK
AND CONSTRUCTION PROJECT OVERVIEWS

EXHIBIT A-1: CONSTRUCTION MANAGEMENT SCOPE OF WORK

OVERVIEW

The selected Proposer will provide CM Services for three (3) discrete construction projects, each with separate designers and contractors (individually, a "Construction Project" and collectively, the "Construction Projects") to be completed within the same overall Project Site at Pier A. The Construction Projects are in various phases of pre-construction planning and construction commencement but are anticipated to be performed concurrently over the Contract term. In addition, the Construction Projects will be performed adjacent to, and in some limited instances overlapping, the construction site for BPCA's South Battery Park City Resiliency Project (the "SBPCR Project"); consequently, site access must be coordinated with the SBPCR Project's construction manager, LiRo Program & Construction Management ("LiRo").

Scopes of work for each Construction Project are attached as Exhibit A-2.

PROJECT	CURRENT PHASE
Pier A Windows and Doors Restoration, Repair and Replacement	Construction Contract Bidding / Procurement Phase in Process
Pier A Railing Restoration / Rehabilitation	Construction Project Awarded, Early Stages of Construction Underway
Pier A Structural Repairs – Phase II	Construction Contract Award Underway

SCOPE OF SERVICES

A. General Responsibilities

The responsibilities of the selected Proposer will generally include overseeing and managing work performed by the Construction Projects' general contractors (the "General Contractors"), each of which will be retained under separate contracts with BPCA. The Construction Projects' construction work will be performed in accordance with the respective Project drawings and specifications (collectively, the "Drawings & Specifications") prepared by the Construction Projects' architects/engineers (collectively, the "Architects/Engineers"), which are attached hereto as part of Exhibit B. The Pier A Structural Repairs Project schedule, which is currently available (the schedules for the other Construction Projects aren't currently available), is attached hereto as part of Exhibit B-3.

The selected Proposer shall provide full construction management services throughout all phases of the Construction Projects, including pre-construction (where applicable), construction, and post-construction/close-out. The CM Services shall include, but are not limited to: constructability reviews, contracting assistance, overall management of the Construction Projects, coordination of the General Contractors and their work, and office engineering and construction inspection services. Specifically, the selected Proposer shall perform the following tasks, among others:

1. Monitor performance of ongoing work associated with the three (3) Construction Projects and their completion by the General Contractors and any Specialty Contractors (as defined in Section B below), all within the footprint of the Project Site –with quality of workmanship and strict adherence to the Construction Projects' schedules and budgets being of critical importance. The selected Proposer shall work with the Architects/Engineers to facilitate the completion of all construction in a carefully coordinated fashion, in accordance with these standards. Consideration must be given to Construction Project logistics including, but not limited to: phasing and sequencing, weather factors, workforce requirements, and staging.

2. Coordinate work between the Construction Projects, prepare an overall coordinated Construction Project schedule, and review/track contractor Critical Path Method ("CPM") schedule.

3. Manage the overall Construction Project schedule, including pre-construction (where applicable) and construction milestone dates.

4. Collect and review all information pertaining to the Project Site and its immediate surroundings, to become familiar with any factors that could interfere with, or affect, the construction progress or pedestrian access.

5. Coordinate in advance with LiRo and the SBPCR Project team, as may be necessary and desirable, to facilitate access to the Project Site for the performance of the Construction Project work and for overall matters of work staging and coordination.

6. Oversee all financial aspects of the Construction Projects including, but not limited to: budgets, cost estimates, change orders, pay applications, and financial reporting (as specified herein).

7. Ensure that all work performed on the Construction Projects adheres to all relevant codes and all Local, City, State, and Federal regulations and guidelines.

B. Pre-Construction Responsibilities (Where Applicable)

1. The selected Proposer shall assist BPCA with questions or issues relating to the General Contractors' contracts or scopes of work, and any additional consultants or construction firms ("Specialty Contractors") necessary to complete the Construction Projects.

2. The selected Proposer shall, at BPCA's request, assist in all aspects of the selection of Specialty Contractors (if any), or any replacement of the General Contractors (if necessary), including but not limited to assisting in the preparation or refinement of work scopes and proposal requests, proposal review and comparison, attendance at related meetings, responding to contractor questions, evaluation of proposer qualifications and reference review, and review and recommendation of proposals or quotes.

3. The selected Proposer shall familiarize itself with the Project Site's access points and space constraints, to facilitate performance and completion of the Construction Projects with the fewest possible impacts to the surrounding areas, public convenience, and the community in general. The selected Proposer shall review and approve the General Contractors' logistics plans before submitting them to BPCA for approval and shall monitor construction activities to verify conformance with the approved logistics plans.

C. Responsibilities throughout Construction

1. The selected Proposer shall monitor and oversee the Construction Projects and the work of the General Contractors – and ensure that the Construction Projects are completed in accordance with the Drawings and Specifications, and in accordance with BPCA's objectives, budgets, schedules, and specified quality standards. The selected Proposer shall coordinate with the General Contractors to perform the work with minimal disruption to the community and general public, including minimal disruption to the areas (public and private) adjacent to the Project site. The selected Proposer will closely monitor and ensure that the General Contractors fulfill their contractual obligations with respect to labor harmony at and within the Project Site.

2. Before construction commences, the selected Proposer is responsible for developing, implementing, and submitting for approval by BPCA, CM procedures for managing the execution of the Construction Projects. This shall include, but not be limited to, general and special conditions, project directory, submittal processing procedures, tracking logs (for all Construction Project costs, submittals, plan & specification changes, change orders, etc.), daily logs and field reports, Project management reports, Project summary reports, meeting minutes, change order requests, requisitions, and site access procedures.

3. The selected Proposer is responsible for monitoring on-site work related to the Construction Projects during the pre-construction phase, where applicable, and for coordination of site access in accordance with BPCA's directives.

4. For the duration of the Project while public access to the Project Site is restricted, the selected Proposer will ensure that the General Contractors maintain adequate fencing, barricades, signage, and safety precautions for the protection of the general public.

5. The selected Proposer shall be responsible for working with the Architects/Engineers and arranging meetings with Specialty Contractors, equipment manufacturers and industry specialists in order to assist in the selection of technically viable solutions, determine the availability of material, and develop and prepare associated cost estimates.

6. The selected Proposer shall provide cost estimating services to BPCA to verify the construction budget and evaluate contractors' prices, unit costs and change orders.

7. The selected Proposer shall track the disposition of all General Contractor submittals including general requirements (bonds, insurance, etc.) schedule, procedures, materials, shop drawings, sub-contractor and supplier qualification submittals in accordance with the Drawings and Specifications.

8. The selected Proposer shall review and approve the General Contractors' payment applications before they are submitted to BPCA for approval and payment, and shall promptly advise BPCA whether those payment applications are complete and accurately reflect work satisfactorily completed and are consistent with the terms of the contracted work. If necessary, the selected Proposer shall coordinate with the General Contractors to revise payment applications before they are submitted to BPCA.

9. The selected Proposer shall review and track the General Contractors' CPM schedules for conformance with contractual milestones and shall promptly notify BPCA and the General Contractors of any actual or anticipated failure to adhere to the CPM schedule. If the General Contractors propose changes to the schedule, the selected Proposer shall review the proposed changes, recommend approval or denial of the revised schedule and, if approved, track the revised schedule and adjust its inspection schedule and staffing accordingly. The selected Proposer shall be prepared to review the General Contractors' proposed schedules in detail at the construction kickoff meetings.

10. The selected Proposer shall review and evaluate all requests for change orders, a) making a determination regarding the validity of the change order request, b) estimating and conducting negotiations with the General Contractors regarding the amounts of the change order requests, and c) providing written recommendations in a form acceptable to BPCA, with complete and appropriate backup and substantiation, for acceptance or rejection of such change order proposals.

11. BPCA shall review and approve the General Contractors' trade payment breakdowns.

D. Meetings and Reporting

1. The selected Proposer shall administer construction kick-off meetings and shall be responsible for the prompt preparation and distribution of meeting minutes.

2. On a daily basis, the selected Proposer shall prepare reports reflecting daily activities, including but not limited to: daily logs of the General Contractors' staffing and hours on-site, weather, deliveries, disposals, special occurrences, photo documentation of work, pre-construction conditions, job progress, contractor equipment, material testing, and work performed and completed. The selected Proposer shall submit daily Project Management reports that reflect such information via email to BPCA's Project Manager, who is responsible for managing the particular Construction Project. Daily reports shall also be retained on site and be readily available to BPCA.

3. On a weekly basis, the selected Proposer shall schedule and conduct a weekly job progress meeting with BPCA and any other relevant parties (as identified by BPCA) in order to provide updates, address BPCA's concerns, describe logistics surrounding the Project, and monitor the Construction Project schedule. The selected Proposer shall be responsible for the prompt preparation and distribution of meeting minutes each week in advance of the following progress meeting.

4. On a monthly basis, the selected Proposer shall issue a monthly Construction Project Report, which shall include a full description of the status of all aspects of the Construction Projects, including but not limited to: a brief narrative of the work status and level of completion, an assessment of whether construction targets will be met, an update on any anticipated delays or issues, project financial status and cost estimates, and tracking reports. The selected Proposer shall also conduct a monthly review of the General Contractors' budgets and expenditures and shall include such information in the Monthly Construction Project Summary Report.

E. Post- Construction & Close-out

1. The selected Proposer shall provide close-out services for the three (3) Construction Projects. The selected Proposer shall submit all Construction Project records, inspection reports, and a final Construction Project summary to BPCA at the time of each Construction Project's completion.

2. The selected Proposer shall determine substantial completion of the Construction Projects' Work and coordinate punch-list inspections.

3. The selected Proposer shall conduct final Construction Project inspections and approvals, and issue work acceptance certificates.

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EXHIBIT A-2
INDIVIDUAL PROJECT OVERVIEWS AND SCOPES OF WORK

The general scopes of work for the Construction Projects are as follows (note that the defined terms in the following scopes of work are specific to those particular Construction Projects and do not apply to the RFP):

Pier A Windows and Doors Restoration, Repair and Replacement Project

Overview

Battery Park City Authority ("BPCA" or the "Authority") has identified the need for upgrades and repairs to the exterior windows and doors (individually, the "Windows" and the "Doors," and collectively, the "Windows and Doors") located along the north and south sides of the building at Pier A (the "Building") located at 22 Battery Place (the "Project Site"), as specified in the Project's Specifications and Drawings (collectively, the "Construction Documents,"). Under this contract (the "Contract"), the firm selected by BPCA (the "Contractor") shall perform all required repairs and upgrades to the Windows and Doors (collectively, the "Work").

General Contractor Scope of Work

Specifically, the Work shall be comprised of the following sets of tasks identified herein – all of which will be performed in accordance with the Construction Documents:

General

- Provision of all labor, equipment, materials, and all services necessary for, and incidental to, the proper execution and completion of the tasks as described herein and in the Construction Documents;
- Provision of a BPCA-approved Project construction schedule; and,
- Ensure that all work performed on the Project adheres to all relevant codes and all Local, City, State, and Federal regulations and guidelines.

Mobilization

Performance of a visual survey of a) the Windows at locations identified on the Drawings; and, b) all Doors located on the Building's first floor, in order to verify existing conditions;

- Mobilization of all personnel, equipment, and materials to the Project Site as needed;
- Storage of all Project-related equipment and materials in the laydown area(s) provided by BPCA (such area may be limited), or as otherwise directed by BPCA; and,
- Provision to BPCA of site safety and site maintenance plans, which plans are subject to review and approval by BPCA prior to commencement of the Work.

Restoration, Repair and Replacement Tasks

- Removal and replacement of the Windows that are double-hung and found to be damaged, at the locations identified on the Drawings (the "Damaged Window Locations," as identified in red in Drawing A001);
- Preparation of rough opening as required, and wrapping of such opening with self-adhering waterproofing membrane;
- At the Damaged Window Locations, performance of the following tasks: a) removal and replacement of wooden sills with new pressure-treated wood blocking; b) wrapping of self-adhering waterproofing membrane; and, c) installation of new aluminum sills, inclusive of application of Kynar® coating (metal finishing);
- At all other Window locations in which the existing sills will remain, encapsulation of wooden sills with aluminum (Kynar® coating) to prevent future deterioration.
- At all Doors located on the Building's exterior, replacement of door hardware to ensure the Building's security (see Specification Division 8 for hardware requirements);

- At all sliding Door locations at the first floor, installation of foot bolts to ensure security; and,
- Patching, repair, and painting of the portions of the Building's interior and exterior walls surrounding the affected Windows as shown in the Construction Documents (color of paint to match that of the existing walls).

Project Completion, Demobilization & Close-Out

- Upon substantial completion of the Work, as verified by a site inspection conducted by the Design Engineer and BPCA and documented by a certificate of substantial completion executed by the Contractor, the Design Engineer and BPCA (the "Inspection"), prompt performance of any remaining punch list items identified by a written punch list provided by the Design Engineer following such Inspection;
- Upon final completion of the Work, inclusive of all punch-list items and based upon acceptance of all Work by BPCA, demobilization from the Project Site entailing leaving of the Site in clean/satisfactory condition; and,
- Submission of as-built drawings to BPCA.

Contractor shall adhere to all of BPCA's safety and security policies at all times and provide and maintain the appropriate safety measures and devices – in order to prevent public access to the Project Site, and otherwise ensure public safety, for the full duration of the Project's construction.

Add-Alternate Scope

If elected by BPCA, evidenced by written notification to Contractor prior to the commencement of the Contract, Contractor shall perform the following additional work scope: Furnishing and installation of all-season, sun control privacy film onto all the first-floor Windows, as well as onto the Building's first-floor sliding and swinging Doors, to provide opacity for security (film shall match existing film located at select locations specified in the Construction Documents). Following Contract award, Contractor will be responsible for the submission of samples and the provision of a mockup for review by BPCA and the Project's design engineer (the "Design Engineer").

Additional Considerations

The Contractor shall remove and properly dispose of, to an off-site location, all debris located within the Project Site that was generated during the performance of the Work – including, but not limited to, broken glass, miscellaneous metals and debris, and other construction debris and miscellaneous trash. In order to ensure compliance with the construction waste protocols set forth in BPCA's Green Guidelines (which may be viewed here: https://bpca.ny.gov/wp-content/uploads/2020/09/BPC-Green-Guidelines.pdf), the Contractor shall develop and submit for BPCA's review and approval an Approach Plan for Construction & Demolition Waste Management Plan ("CDWMP"). Contractor's CDWMP shall ensure that the Work will be undertaken in such a manner as to reduce the amount of waste generated by the Project that is sent to landfill – including but not limited to: providing waste recycling, implementation of salvage or re-use goals, estimated types and quantities of materials and waste, proposed and intended disposal methods for the materials, intended procedures for handling the waste, and detailed instructions for subcontractors and laborers at the Project Site.

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Pier A Railing Restoration / Rehabilitation Project

Overview

Built in 1884-1886, the historic Pier A Site is a designated New York City landmark fronting the Hudson River that is situated just south of Robert F. Wagner Park ("Wagner Park"), and just north and west of Historic Battery Park and the Battery Park departure area for Ellis Island and the Statue of Liberty.

Throughout the area surrounding the building at Pier A (the "Building") at 22 Battery Place (the "Project Site"), there are different types of metal fencing and metal railings, the elements of which include, among other things, vertical posts, horizontal rails, spikes, cables, base plates, alignments, connectors (such as lag bolts, through bolts and anchors), and welds (collectively, the "Railings"). Over time, the condition of the Railings has deteriorated to varying degrees due to corrosion resulting from exposure to the marine elements, damage caused by impact (such as from vehicles), and/or general aging. The objective of the Project is to replace, repair, and refinish the existing metal fencing and metal railings surrounding the building as well as any necessary repairs/replacement to the building's existing lighting fixtures.

Following a visual assessment of the condition of the Railings, BPCA engaged its on-call engineering firm, Urban Engineers of New York, D.P.C., to conduct an inspection in order to enable the formulation of a design scope of work for the maintenance and restoration of the Railings. The Pier A Railings Rehabilitation Drawings and Specifications (collectively, the "Construction Documents,") identifies the existing conditions of each type of Railing, and provides design recommendations for their refinishing, repair, and replacement. A photographic log and site map with a photo location key is also provided as part of the Construction Documents.

General Contractor Scope of Work

General

- Provision of all labor, equipment, materials, and all other services and expenses as may be necessary for, and incidental to, the proper execution and completion of the tasks as described herein.
- Provision of a BPCA-approved Project construction schedule.

Mobilization and Start-up

- Performance of a visual survey of all Railings to verify existing conditions, quantities and dimensions;
- Mobilization of all personnel, equipment and materials to the Project Site as needed. A laydown area for Project-related equipment and materials will be provided by BPCA in the vicinity of the Project Site;
- Storage of all Project-related equipment and materials in the laydown area(s) provided by BPCA, or as otherwise directed by BPCA;
- Installation of all NYC Department of Buildings-required construction fencing and signage, and securing of all permits required for performance of the Work; and,
- Provision to BPCA of site safety and site maintenance plans, which plans are subject to review and approval by BPCA prior to commencement of the Work.

Railing Replacement and Repair Work

- Adherence to the procedures outlined in the Construction Documents to clean and prepare the Railings' surfaces for repair painting;
- Removal of deteriorated Railings, and replacement of such deteriorated Railings with new Railings in accordance with the Construction Documents;
- Fabrication, furnishing and installation of required replacement Railings according to Drawing GA-4 of the Construction Documents, including but not limited to:

  - Perimeter of existing railing cleaning and painting.
  - Installation of new anchor bolts and lag bolts.
- Furnishing and installation of new Railings attachment hardware, anchor bolts and lag bolts as needed;
- Cleaning and preparation of all remaining Railings for painting; and,
- Painting of all railings using three (3) part marine paint in accordance with the Construction Documents.

Electrical Work

- Verification of existing Project Site conditions as compared to that illustrated and/or described in the Construction Documents;
- In coordination with BPCA's Parks Department, shutdown, disconnection, and safely turning off of all electrical services;
- Removal of all existing lighting fixtures, wiring, and other Project Site elements affixed to the Railings (the "Affixed Elements"). Affixed Elements shall be salvaged in accordance with the Construction Documents, and stored off-site during construction in order to protect them from damage in coordination with BPCA's designated third-party engineer for the Project, Urban Engineers of New York, D.P.C. (the "Project Design Engineer"). The Project Design Engineer will coordinate with the Contractor and provide direction as to which, if any, of the Affixed Elements are suitable for reuse and reattachment to the refinished and replaced Railings. Any Affixed Elements not so used will be appropriately disposed of by Contractor; and,
- Adherence to the procedures outlined in the Construction Documents to repair or replace all wires, cables, conduits, raceways, fixtures, grounding conductors, and other items listed in the Construction Documents.

Project Completion, Demobilization & Close-Out

- Upon substantial completion of the Work, as verified by a site inspection by the Project Design Engineer and BPCA and documented by a certificate of substantial completion executed by the Contractor, the Project Design Engineer and BPCA, prompt performance of any remaining punch list items identified by a written punch list provided by the Project Design Engineer following the substantial completion inspection;
- Upon final completion of the Work, inclusive of all punch-list items, and acceptance of all Work by BPCA, demobilization from the Project Site, leaving the Site in a clean and satisfactory condition; and,
- Submission of as-built drawings to BPCA.

Incidental Items

- During all stages of the Work, Contractor shall ensure review of and, where applicable compliance with, all Project-related information available, including, but not limited to:
  - the Construction Documents;
  - drawings illustrating previous repairs;
  - investigation survey report(s);
  - geotechnical investigation/report; and,
  - tides and currents charts.

  Additionally, Contractor shall Adhere to all of BPCA's safety and security policies at all times and, ensure provision and maintenance of safety measures and devices to ensure public safety and prevention of public access to the Project Site, the pedestrian promenade, and the Building for the duration of the Project.

Additional Considerations

The Contractor shall remove and properly dispose of, to an off-site location, all debris located within the Project Site that was generated during the performance of the Work – including, but not limited to, broken concrete, miscellaneous metals and debris, and other construction debris and miscellaneous trash.

In order to ensure compliance with the construction waste protocols set forth in BPCA's Green Guidelines (which may be viewed here: https://bpca.ny.gov/wp-content/uploads/2020/09/BPC-Green-Guidelines.pdf), the Contractor shall develop and submit for BPCA's review and approval an Approach Plan for Construction & Demolition Waste Management Plan ("CDWMP"). Contractor's CDWMP shall ensure that the Work will be undertaken in such a manner as to reduce the amount of waste generated by the Project that is sent to landfill – including but not limited to: providing waste recycling, implementation of salvage or re-use goals, estimated types and quantities of materials and waste, proposed and intended disposal methods for the materials, intended procedures for handling the waste, and detailed instructions for subcontractors and laborers at the Project Site.

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Pier A Structural Repairs – Phase II Project

Overview

This scope of work is intended to clarify, but not limit, the selected Proposer's obligation to complete all Work as indicated in, or inferable from, the Pier A Structural Repairs Phase II Project (the "Project") design drawings ("Drawings") and specifications (collectively, the "Construction Documents"). The purpose of the Project is to restore the structural integrity of a portion of the exterior underside of the Pier Building and an adjacent relieving platform at the Project Site. Prior to commencement of the Work, the selected Proposer shall install a turbidity curtain around the perimeter of the Project Site. The Work will include, but not be limited to:

(1) preparation of timber piles and installation of protective timber pile wrap at the Project Site;

(2) performance of concrete spalling repairs, void repairs, and crack repairs to the underside of the Pier Building and the Project Site's breakwater structure, as needed; and,

(3) performance of a concrete injection at undermined areas of the Pier Building.

General Contractor Scope of Work

A. Installation of the new timber pile wrap which consists of, but is not limited to, the following:
- Preparation of the existing timber piles;
- Removal of protrusions, marine growth, splinters, nails, and other such elements;
- Plugging of all voids; and,
- Application of the protective pile wrap to thirty (30) timber piles, as shown in the Construction Documents.

B. Concrete repairs to previously failed repairs, spalls, voids and areas of undermining which will consist of:
- Removal and disposal of all loose, delaminated concrete;
- Coating of the newly-exposed concrete and any exposed steel with an adhesive coating;
- Placement, by hand, of a non-shrink grout onto any Project Site areas found to be deteriorated;
- Injection, using a tremie, of concrete in undermined areas of the Pier Building; and,
- Application of shotcrete for concrete repairs.

Note that all such undermined areas are shown on the Project Drawings and consist of approximately: a) four-hundred and ninety (490) square feet of spall repair; and b) five-hundred and forty-five (545) cubic feet of void and other undermined area repairs.

C. Crack repairs which will consist of:
- Injection of cracks in the concrete with high-modulus, high-strength, smooth paste adhesive epoxy.

Note that all locations are shown on the Project Drawings and consist of one-thousand, four-hundred and fifty (1,450) feet of cracks.

D. Structural steel repairs which will consist of:
- Steel surface preparation using abrasive blasting and/or wire brushing; and,
- Application of recommended coating to steel using spray on, brush, or roller.

Note that the selected Proposer, in consultation with the Project's Construction Manager and Design Engineer, will be responsible for verifying all quantities in the field prior to its commencement of the Work.

III. General Considerations

Each Contractor will be responsible to remove and properly dispose of all debris located within the Project Site or generated during the performance of their Work – including, but not limited to, broken concrete, miscellaneous metals and debris, and other miscellaneous trash and construction debris.

EXHIBIT B
PIER A CONSTRUCTION PROJECT DOCUMENTS
(FOR REFERENCE)

[NO FURTHER TEXT ON THIS PAGE]

EXHIBIT B-1:
PIER A WINDOWS & DOORS PROJECT DRAWINGS & SPECIFICATIONS

[ATTACHED]

PROJECT MANUAL

Battery Park City Authority
200 Liberty Street, 24th Floor
New York, NY 10281

Project Title:

Pier A
Windows and Door Upgrades and Repairs.

Bid Submission
August 24, 2023

Consultant:

H2M architects + engineers
230 West 38th Street, 14th Floor
New York, New York 10018

SPECIFICATIONS

DIVISION 01 GENERAL REQUIREMENTS

01 11 00 - SUMMARY OF WORK

01 23 00 - ALTERNATES

DIVISION 02 EXISTING CONDITIONS

02 41 19 - SELECTIVE DEMOLITION

DIVISION 06 WOOD, PLASTICS, AND COMPOSITES

06 10 00 - ROUGH CARPENTRY

06 20 00 - FINISH CARPENTRY

DIVISION 07 THERMAL AND MOISTURE PROTECTION

07 13 26 - SELF-ADHERING SHEET WATERPROOFING

07 62 00 - SHEET METAL FLASHING AND TRIM

07 92 00 - JOINT SEALANTS

DIVISION 08 OPENINGS

08 52 10 - ALUMINUM CLAD WOOD WINDOWS

08 71 00 - DOOR HARDWARE

08 87 13 - SUN CONTROL FILMS (ADD ALTERNATE #1)

DIVISION 09 FINISHES

09 91 13 - EXTERIOR PAINTING

09 91 23 - INTERIOR PAINTING

END OF SECTION 00 01 10

SPECIFICATIONS

DIVISION 01 GENERAL REQUIREMENTS

01 11 00 - SUMMARY OF WORK

01 23 00 - ALTERNATES

DIVISION 02 EXISTING CONDITIONS

02 41 19 - SELECTIVE DEMOLITION

DIVISION 06 WOOD, PLASTICS, AND COMPOSITES

06 10 00 - ROUGH CARPENTRY

06 20 00 - FINISH CARPENTRY

DIVISION 07 THERMAL AND MOISTURE PROTECTION

07 13 26 - SELF-ADHERING SHEET WATERPROOFING

07 62 00 - SHEET METAL FLASHING AND TRIM

07 92 00 - JOINT SEALANTS

DIVISION 08 OPENINGS

08 52 13 - DOUBLE-HUNG WINDOWS

08 71 00 - DOOR HARDWARE

08 87 13 - SUN CONTROL FILMS (ADD ALTERNATE #1)

DIVISION 09 FINISHES

09 91 13 - EXTERIOR PAINTING

09 91 23 - INTERIOR PAINTING

END OF SECTION 00 01 10

PART 1 - GENERAL

1.01 BRIEF PURPOSE OF PROJECT / GENERAL

A. The purpose of the project is as follows:
   1. Remove and replace damaged double hung windows at locations identified on drawings; see A001. for locations identified in RED. Prep rough opening as required and wrap opening with self-adhering waterproof membrane.
   2. At these replaced window locations, remove and replace wood sills with new pressure treated wood blocking, wrapped with self adhering waterproofing and install new aluminum sills (kynar finish)
   3. At all other locations of existing sills to remain, encapsulate wood sills with aluminum (kynar finish) to prevent future deterioration.
   4. At all exterior doors, replace door hardware to ensure security of the building. See Div. 08 for hardware requirements.
   5. At all slider window locations at the first floor, install footbolts to ensure security of slide windows and prevent future break-ins
   6. Patch, repair and paint interior and exterior walls only around the affected windows as required, color to match existing walls.

B. All work shown and specified in the Contract Documents shall be the work of this Construction Contract. The Owner does not anticipate awarding other prime contracts for the project as shown.

C. This Section provides an abbreviated summary of the work for the Construction Contract associated with the Owner's program to construct the project.

1.02 PARTIAL LISTING OF OVERALL CONTRACT REQUIREMENTS

A. The Contract Documents detail the work included in the Contract. Related requirements and conditions covered by the Contract Documents include, but is not limited to, the following:
   1. Debris removal and daily and final cleaning up.
   2. Coordination with the Owner and other contractors who have been awarded work by the Owner.
   3. Site utilization and management so as not to disrupt the Owner’s ability to operate the existing facilities in a safe and efficient manner.
   4. Maintain the Owner’s ability to operate the facility at all times during the construction period.
   5. Facilities to be used during the contract period that are to be used by the Owner or his representatives and others involved with constructing the project.
   6. Product and equipment storage and handling requirements.
   7. Starting and adjusting of the equipment and systems required under the project.
   8. Site safety in accordance with all applicable federal, state, and local regulations.
   9. Project submittals, meetings, professional photographs, testing services, work plans, schedules, shop drawings, closeout procedures and documents, manuals, as-built drawings, and final commissioning of the work shall be provided as required by the Contract.

B. The Owner has or will award other construction contracts associated with this project.

1.03 EXISTING CONDITIONS

A. The Drawings show certain information that has been obtained by the Owner regarding various utilities and structures that exist at the location of the project both below and at grade.

B. The Owner and the Architect expressly disclaims all responsibility for the accuracy or completeness of the information given on the Drawings with regard to existing facilities.

C. In the case where the Contractor discovers an obstruction not indicated on the Drawings or not described via specification reference, then the Contractor shall immediately notify the Architect of the obstructions' existence.

D. The Architect will determine if the obstruction is to be relocated or removed.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION 01 11 00

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Submission procedures.

B. Documentation of changes to Contract Sum/Price and Contract Time.

1.02 RELATED SECTIONS

A. Proposal Form.

B. Other sections referencing this section.

C. All contractual requirements outlined in the documents.

1.03 SUBMISSION REQUIREMENTS

A. Submit Alternates on Proposal Forms identifying the effect on adjacent or related components.

B. Alternates will be reviewed and accepted or rejected at the Owner's option.

C. Coordinate related work and modify surrounding work to integrate the Work of each Alternate.

1.04 SELECTION AND AWARD OF ALTERNATES

A. Indicate variation of Bid Price for Alternates listed on the PROPOSAL FORM. This form requests a "difference" in Bid Price by adding to or deducting from the base Bid Price.

B. Alternates quoted on PROPOSAL FORM will be reviewed and accepted or rejected at Owner’s option.

C. Accepted alternates will be identified in Owner-Contractor Agreement.

D. Bids will be evaluated on the base bid price, plus any combination of alternate items.

1.05 WORK FOR ALTERNATES

A. Work for alternate items selected shall include all related materials, labor, equipment and operations necessary to conduct and complete the alternate work and all other affected work or adjacent areas.

B. There shall be no change in time or completion date for the selected alternates, unless specified herein or approved in writing by the Architect and Owner.

C. Alternates and associated work shall meet all standards and specifications delineated in the Contract Documents.

D. Contractor shall coordinate pertinent related Work and modify surrounding Work as required to complete the project under each alternate selected by the Owner.

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section Includes:
   1. Demolition and removal of selected windows, sliders and swinging doors.

1.03 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.

B. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.

C. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.04 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.05 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at Project site.
   1. Inspect and discuss condition of construction to be selectively demolished.
   2. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
   3. Review areas where existing construction is to remain and requires protection.
   4. Review procedures for turning over salvaged materials to the Owner and protected off-site storage of materials to be reused in the work of the project.

1.06 INFORMATIONAL SUBMITTALS

A. Proposed Protection Measures: Submit report, including drawings, that indicates the measures proposed for protecting the public, pedestrian access and circulation areas and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.

B. Schedule of Selective Demolition Activities: Indicate the following:
   1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
   2. Interruption of utility services. Indicate how long utility services will be interrupted.
   3. Use of elevator and stairs.
   4. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

C. Inventory: Submit a list of items to be removed, salvaged and delivered to Owner prior to start of demolition.

D. Pre-demolition Photographs and/or Video: Show existing conditions of adjoining existing construction and site conditions, including finish surfaces that could potentially be construed as having been damaged by Demolition activities. Submit two copies prior to commencing Demolition work.

E. Warranties: Documentation indicated that existing warranties are still in effect after completion of selective demolition.

1.07 FIELD CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Storage or sale of removed items or materials on-site is not permitted.

E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
   1. Maintain fire-protection facilities in service during selective demolition operations.
   2. Do not disable or disrupt building fire or life safety systems without five (5) days prior written notice to Architect.

PART 3 - EXECUTION

2.01 EXAMINATION

A. Review record documents of existing construction provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in record documents.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

C. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.

D. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs.
   1. Inventory and record the condition of items to be removed and salvaged. Provide photographs of conditions that might be misconstrued as damage caused by salvage operations.
   2. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

2.02 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

2.03 PREPARATION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
   1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building. Maintain existing required widths of egress pathways throughout.
   2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
   3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
   4. Cover and protect furniture, furnishings, and equipment that have not been removed.

2.04 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
   1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
   2. Dispose of demolished items and materials promptly.

B. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

2.05 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
   1. Do not allow demolished materials to accumulate on-site.
   2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
   3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

2.06 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

2.07 SELECTIVE DEMOLITION SCHEDULE

A. Remove, store, relocate, salvage and protect the following materials and equipment:
   1. Existing Items to Be Removed: Items indicated on contract drawings and items listed in technical specifications sections.

B. Existing Items to Remain: to complete and conform to the work of the project shall be as indicated on the contract drawings and items listed in the technical specification sections.

END OF SECTION 02 41 19

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section Includes:
   1. Treated Wood Members.
   2. Fasteners.
   3. Wood blocking, cants, and nailers.
   4. Wood furring and grounds.

1.03 REFERENCES:

A. International Code Council (ICC):
   1. ICC IBC - International Building Code

1.04 DEFINITIONS

A. Exposed Framing: Framing not concealed by other construction.

B. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.

1.05 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1.06 QUALITY ASSURANCE

A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Handle, Transport and Store Plywood Panels in accordance with the APA Storage and Handling recommendations.

B. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.01 WOOD PRODUCTS, GENERAL

A. Certified Wood: Materials shall be produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship" for the following:
   1. Dimension lumber framing.

2. Miscellaneous lumber.

B. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
   1. Factory mark each piece of lumber with grade stamp of grading agency.
   2. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece or omit grade stamp and provide certificates of grade compliance issued by grading agency.
   3. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
   4. Provide dressed lumber, S4S, unless otherwise indicated.

C. Maximum Moisture Content of Lumber: 15 percent for 2-inch nominal thickness or less, 19 percent for more than 2-inch nominal thickness 15 percent for 2-inch nominal thickness or less, no limit for more than 2-inch nominal thickness unless otherwise indicated.

2.02 WOOD-PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: AWPA U1; UC2 (Interior Construction - Above Ground - Damp) for interior construction not in contact with the ground, Use Category UC3B (Above Ground Exposed) for exterior construction not in contact with the ground, and UC4B (Ground Contact or Fresh Water - Heavy Duty) for items in contact with the ground.
   1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium. Do not use inorganic boron (SBX) for sill plates.
   2. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
   1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece or omit marking and provide certificates of treatment compliance issued by inspection agency.

D. Application: Treat items indicated on Drawings, and the following:
   1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
   2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.

2.03 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
   1. Blocking.
   2. Nailers.
   3. Grounds.

2.04 MISCELLANEOUS MATERIALS

A. Sill-Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to suit width of sill members indicated.

PART 3 - EXECUTION

3.01 PREPARATION OF SURFACES

A. Surfaces to receive new wood members shall be free of all dirt, debris, and loose materials. Exposed surfaces shall be mechanically scraped if necessary, to remove projections.

B. Surfaces shall have no free water present in any form (rain, dew, frost, snow or ice).

C. Contractor is responsible to inspect all exposed surfaces to see that conditions are satisfactory for installation of new work.

3.02 INSTALLATION, GENERAL

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.

B. Place horizontal members flat, crown side up.

C. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

D. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

END OF SECTION 06 10 00

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Finish carpentry items.

B. Wood casings and moldings.

C. Hardware and attachment accessories.

1.02 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the work with plumbing rough-in, electrical rough-in, installation of associated and adjacent components, and provision of plumbing fixture templates.

1.03 SUBMITTALS

A. See Section 01 33 00 - SUBMITTALS for submittal procedures.

B. Product Data:
   1. Provide data on fire retardant treatment materials and application instructions.
   2. Provide instructions for attachment hardware, finish hardware, and support hardware.

C. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.
   1. Scale of Drawings: 1-1/2 inch to 1 foot (125 mm to 1 m), minimum.
   2. Provide the information required by AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS).
   3. Include certification program label.

D. Samples: Submit two samples of finish plywood, 6 x 6 inch (152 x152 mm) in size illustrating wood grain and specified finish.

E. Samples: Submit two samples of wood trim 6 inch (152 mm) long.

F. Certificate: Submit labels and certificates required by quality assurance and quality control programs.

1.04 QUALITY ASSURANCE

A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.
   1. Accredited participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the project.
   2. Single Source Responsibility: Provide and install this work from single fabricator.

B. Quality Certification:
   1. Provide labels or certificates indicating that the work complies with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade or grades specified.
   2. Provide designated labels on shop drawings as required by certification program.
   3. Provide designated labels on installed products as required by certification program.
   4. Submit certifications upon completion of installation that verifies this work is in compliance with specified requirements.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Protect work from moisture damage.

PART 2 PRODUCTS

2.01 FINISH CARPENTRY ITEMS

A. Quality Standard: Custom Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.

B. Surface Burning Characteristics: Provide materials having fire and smoke properties as required by applicable code.

C. Interior Woodwork Items:
   1. Moldings, Bases, Casings, Crown and Miscellaneous Trim: Maple; prepare for paint finish.
   2. Door, Glazed Light, and Pocket Door Frames: Clear White Pine; prepare for paint finish.
   3. Window Sills: Maple; prepare for paint finish.
   4. Loose Shelving: Red Oak plywood; prepare for paint finish.

2.02 WOOD-BASED COMPONENTS

A. Wood fabricated from old growth timber is not permitted.

B. Provide sustainably harvested wood, certified or labeled as specified in Section 016100 - FIBER CEMENT SIDING (HARDIE).

C. Wood fabricated from timber recovered from riverbeds or otherwise abandoned is permitted, unless indicated otherwise, and provided it is clean and free of contamination, identify source; provide lumber re-graded by an inspection service accredited by the American Lumber Standard Committee, Inc. (ALSC).

2.03 LUMBER MATERIALS

A. Softwood Lumber: Poplar species, Planed, maximum moisture content of 6 percent; with vertical grain, of quality suitable for transparent finish.
   1. Grading: In accordance with rules certified by ALSC; www.alsc.org.

B. Hardwood Lumber: White Oak species, Abrasive Planed, maximum moisture content of 6 percent; with vertical grain, of quality suitable for transparent finish.

2.04 SHEET MATERIALS

A. Softwood Plywood, Not Exposed to View: Any face species, medium density fiberboard core; PS 1 Grade A-B, glue type as recommended for application.

B. Softwood Plywood, Exposed to View: Face species as indicated, plain sawn, medium density fiberboard core; PS 1 Grade A-B, glue type as recommended for application.

C. Hardwood Plywood: Face species as indicated, plain sawn, book matched, medium density fiberboard core; HPVA HP-1, Front Face Grade AA, Back Face Grade 1, glue type as recommended for application.

2.05 FASTENINGS

A. Adhesive for Purposes Other Than Laminate Installation: Suitable for the purpose; not containing formaldehyde or other volatile organic compounds.

B. Concealed Joint Fasteners: Threaded steel.

2.06 ACCESSORIES

A. Lumber for Shimming and Blocking: Softwood lumber of Cedar or Pine species.

B. Primer: As specified in Section 09 91 23.

C. Wood Filler: Solvent base, tinted to match surface finish color.

2.07 WOOD TREATMENT

A. Wood Preservative by Pressure Treatment (PT Type): Provide AWPA U1 treatment using waterborne preservative with 0.25 percent retainage.

B. Deliver fire retardant treated materials cut to required sizes. Minimize field cutting.

C. Redry wood after pressure treatment to maximum 15 percent moisture content.

2.08 FABRICATION

A. Shop assemble work for delivery to site, permitting passage through building openings.

B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

2.09 SHOP FINISHING

A. Sand work smooth and set exposed nails and screws.

B. Apply wood filler in exposed nail and screw indentations.

C. On items to receive transparent finishes, use wood filler that matches surrounding surfaces and is of type recommended for the applicable finish.

D. Finish work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), Section 5 - Finishing for grade specified and as follows:
   1. Transparent:
      a. System - 12, Polyurethane, Water-based.
      b. Stain: As selected by Architect.
      c. Sheen: Flat.

E. Back prime woodwork items to be field finished, prior to installation.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify adequacy of backing and support framing.

B. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.

C. See Section 06 10 00 - Rough Carpentry for installation of recessed wood blocking.

3.02 INSTALLATION

A. Install work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade indicated.

B. Set and secure materials and components in place, plumb and level.

C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch (0.79 mm). Do not use additional overlay trim to conceal larger gaps.

D. Install hardware in accordance with manufacturer's written instructions.

3.03 SITE APPLIED WOOD TREATMENT

A. Apply preservative treatment in accordance with manufacturer's instructions.

B. Brush apply one coat(s) of preservative treatment on wood in contact with cementitious materials. Treat site-sawn cuts.

C. Allow preservative to dry prior to erecting members.

3.04 PREPARATION FOR SITE FINISHING

A. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand work smooth.

B. Before installation, prime paint surfaces of items or assemblies to be in contact with cementitious materials.

3.05 TOLERANCES

A. Maximum Variation from True Position: 1/16 inch (1.6 mm).

B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch (0.79 mm).

END OF SECTION 06 20 00

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section Includes:
   1. Modified bituminous sheet waterproofing. Contractor to wrap perimeter of window openings prior to new window installation.

1.03 REFERENCE STANDARDS

A. ASTM C836/C836M - Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course.

B. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers--Tension.

C. ASTM D5385/D5385M - Standard Test Method for Hydrostatic Pressure Resistance of Waterproofing Membranes.

D. ASTM D570 - Standard Test Method for Water Absorption of Plastics.

E. ASTM D882 - Standard Test Method for Tensile Properties of Thin Plastic Sheeting.

F. ASTM D903 - Standard Test Method for Peel or Stripping Strength of Adhesive Bonds.

G. ASTM D 1876 Standard Test Method for Peel Release of Adhesives (T-Peel).

H. ASTM D 3767 Standard Practice for Rubber - Measurements of Dimensions

1.04 ACTION SUBMITTALS

A. Product Data: For each type of product.
   1. Submit manufacturer’s product data, installation instructions, use limitations and recommendations, include certification of data indicating VOC (Volatile Organic Compound) content of all components of waterproofing system. Include construction details, material descriptions, and tested physical and performance properties of waterproofing.
   2. Submit manufacturer's written instructions for evaluating, preparing, and treating substrate.

1.05 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Sample Warranties: For special warranties.

1.06 QUALITY ASSURANCE

A. Manufacturer: Sheet membrane waterproofing system shall be manufactured and marketed by a firm with a minimum of 20 years experience in the production and sales of self-adhesive sheet membrane waterproofing. Manufacturers proposed for use but not named in these

specifications shall submit evidence of ability to meet all requirements specified, and include a list of projects of similar design and complexity completed within the past 5 years.

B. Materials: For each type of material required for the work of this section, provide primary materials which are the products of one manufacturer.

1.07 DELIVERY, STORAGE AND HANDLING

A. Deliver materials and products in labeled packages. Store and handle in strict compliance with manufacturer's instructions, recommendations and material safety data sheets. Protect materials from sunlight, weather, excessive temperatures and construction operations. Remove damaged material from the site and dispose of in accordance with applicable regulations.
   1. Do not double-stack pallets of membrane on the job site. Provide cover on top and all sides, allowing for adequate ventilation.
   2. Protect mastic and adhesive from moisture and potential sources of ignition.
   3. Store drainage composite or protection board flat and off the ground. Provide cover on top and all sides.
   4. Protect surface conditioner from freezing.

B. Sequence deliveries to avoid delays, but minimize on-site storage.

1.08 FIELD CONDITIONS

A. Environmental Limitations: Apply waterproofing within the range of ambient and substrate temperatures recommended by waterproofing manufacturer. Do not apply waterproofing to a damp or wet substrate.
   1. Do not apply waterproofing in snow, rain, fog, or mist.
   2. Proceed with installation only when substrate construction and preparation work is complete and in condition to receive sheet membrane waterproofing.

B. Maintain adequate ventilation during preparation and application of waterproofing materials.

1.09 WARRANTY

A. Manufacturer's Warranty: Manufacturer's standard materials-only warranty in which manufacturer agrees to furnish replacement waterproofing material for waterproofing that does not comply with requirements or that fails to remain watertight within specified warranty period.
   1. Warranty Period: Five years from date of Substantial Completion.

B. Installer's Special Warranty: Specified form, signed by Installer, covering Work of this Section, for warranty period of two years.
   1. Warranty includes removing and reinstalling protection board, drainage panels, insulation, pedestals, and pavers on plaza decks.

PART 2 - PRODUCTS

2.01 MATERIALS, GENERAL

A. Source Limitations for Waterproofing System: Obtain waterproofing materials, protection course, from single source from single manufacturer.

2.02 MODIFIED BITUMINOUS SHEET WATERPROOFING

A. Modified Bituminous Sheet: Minimum 60-mil (1.5-mm) nominal thickness, self-adhering sheet consisting of 56 mils (1.4 mm) of rubberized asphalt laminated on one side to a 4-mil-(0.10-mm-) thick, polyethylene-film reinforcement, and with release liner on adhesive side;

formulated for application with primer or surface conditioner that complies with VOC limits of authorities having jurisdiction.

1. Products: Subject to compliance with requirements, provide one of the following:
   a. Grace Construction Products; W.R. Grace & Co. -- Conn; Bituthene 4000.
   b. Carlisle Coatings & Waterproofing Inc; CCW MiraDRI 860/861.
   c. Henry Company; Blueskin WP 100/200.
2. Physical Properties:
   a. Tensile Strength, Membrane: 325 psi (1.7 MPa) minimum; ASTM D412, Die C, modified.
   b. Ultimate Elongation: 300 percent minimum; ASTM D412, Die C, modified.
   c. Low-Temperature Flexibility: Pass at minus 45 deg F (minus 43 deg C); ASTM D1970/D1970M.
   d. Crack Cycling: Unaffected after 100 cycles of 1/8-inch (3-mm) movement; ASTM C836/C836M.
   e. Puncture Resistance: 50 lbf (222 N) minimum; ASTM E154/E154M.
   f. Water Absorption: 0.1 percent weight-gain maximum after 48-hour immersion at 70 deg F (21 deg C); ASTM D570.
   g. Water Vapor Permeance: 0.05 perms (2.9 ng/Pa x s x sq. m) maximum; ASTM E96/E96M, Water Method.
   h. Resistance to Hydrostatic Head: 231 ft of water (70 m)

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the waterproofing.
   1. Verify that concrete has cured and aged for minimum time period recommended in writing by waterproofing manufacturer.
   2. Verify that substrate is visibly dry and within the moisture limits recommended in writing by manufacturer. Test for capillary moisture by plastic sheet method according to ASTM D4263.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 SURFACE PREPARATION

A. Clean, prepare, and treat substrates according to manufacturer's written instructions. Surfaces shall be structurally sound and free of voids, spalled areas, loose aggregate and sharp protrusions. Remove contaminants such as grease, oil and wax from exposed surfaces. Provide clean, dust-free, and dry substrates for waterproofing application.

B. Mask off adjoining surfaces not receiving waterproofing to prevent spillage and overspray affecting other construction.

C. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.

D. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and other voids.

E. Prepare, fill, prime, and treat joints and cracks in substrates. Remove dust and dirt from joints and cracks according to ASTM D4258.

F. Bridge and cover expansion joints with overlapping sheet strips of widths according to manufacturer's written instructions.

G. Prepare, treat, and seal vertical and horizontal surfaces at terminations and penetrations through waterproofing and at drains and protrusions according to ASTM D6135.

3.03 MODIFIED BITUMINOUS SHEET-WATERPROOFING APPLICATION

A. Install modified bituminous sheets according to waterproofing manufacturer's written instructions and recommendations in ASTM D6135.

B. Apply primer to substrates at required rate and allow it to dry. Limit priming to areas that will be covered by sheet waterproofing in same day. Reprime areas exposed for more than 24 hours.

C. Apply and firmly adhere sheets over area to receive waterproofing. Accurately align sheets and maintain uniform 2-1/2-inch- (64-mm-) minimum lap widths and end laps. Overlap and seal seams, and stagger end laps to ensure watertight installation.
   1. When ambient and substrate temperatures range between 25 and 40 deg F (minus 4 and plus 5 deg C), install self-adhering, modified bituminous sheets produced for low-temperature application. Do not use low-temperature sheets if ambient or substrate temperature is higher than 60 deg F (16 deg C).

D. Horizontal Application: Apply sheets from low to high points of walls to ensure that laps shed water.

E. Apply continuous sheets over already-installed sheet strips, bridging substrate cracks, construction, and contraction joints.

F. Seal edges of sheet-waterproofing terminations with mastic.

G. Install sheet-waterproofing and auxiliary materials to tie into adjacent waterproofing.

H. Repair tears, voids, and lapped seams in waterproofing not complying with requirements. Slit and flatten fishmouths and blisters. Patch with sheet waterproofing extending 6 inches (150 mm) beyond repaired areas in all directions.

I. Immediately install protection course with butted joints over waterproofing membrane.
   1. Board insulation may be used in place of a separate protection course to vertical applications when approved by waterproofing manufacturer and installed immediately.

3.04 FIELD QUALITY CONTROL

A. Engage a site representative qualified by waterproofing membrane manufacturer to inspect substrate conditions, surface preparation, membrane application, flashings, protection, and drainage components, and to furnish daily reports to Architect.

B. Owner will engage an independent testing agency to observe flood testing and examine underside of decks and terminations for evidence of leaks during flood testing.

C. Prepare test and inspection reports.

3.05 PROTECTION, REPAIR, AND CLEANING

A. Protect waterproofing from damage and wear during remainder of construction period.

B. Protect installed board insulation from damage due to UV light, harmful weather exposures, physical abuse, and other causes. Provide temporary coverings where insulation is subject to

abuse and cannot be concealed and protected by permanent construction immediately after installation.

C. Correct deficiencies in or remove waterproofing that does not comply with requirements; repair substrates, reapply waterproofing, and repair sheet flashings.

D. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 07 13 26

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section Includes:
   1. Drip edges.
   2. Self-Adhering Stainless Steel Fabric Flashing
   3. Window sills

1.03 COORDINATION

A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.

B. Coordinate sheet metal flashing and trim installation with adjoining materials, joints, and seams to provide leakproof, secure, and noncorrosive installation.

1.04 REFERENCES:

A. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

B. ASTM B32 - Standard Specification for Solder Metal.

C. ASTM B370 - Standard Specification for Copper Sheet and Strip for Building Construction.

D. SMACNA (ASMM) - Architectural Sheet Metal Manual.

1.05 ACTION SUBMITTALS

A. Product Data: For each type of product.
   1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each manufactured product and accessory.

B. Shop Drawings: For sheet metal flashing and trim.
   1. Detail fabrication and installation layouts, details. Distinguish between shop- and field-assembled work.
   2. Include identification of material, thickness, weight, and finish for each item and location in Project.
   3. Include details for forming, including profiles, shapes, seams, and dimensions.
   4. Include details for joining, supporting, and securing, including layout and spacing of fasteners, cleats, clips, and other attachments. Include pattern of seams.
   5. Include details of termination points and assemblies.
   6. Include details of special conditions.
   7. Include details of connections to adjoining work.

C. Samples for Verification: For each type of exposed finish.

1.06 INFORMATIONAL SUBMITTALS

A. Qualification Data: For fabricator.

B. Product Test Reports: For each product, for tests performed by a qualified testing agency.

1.07 QUALITY ASSURANCE

A. Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.

B. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for fabrication and installation.

C. Perform work in accordance with SMACNA (ASMM), CDA A4050, and approved manufacturers requirements and standard details, except as otherwise indicated.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal flashing and trim materials away from uncured concrete and masonry.

B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

1.09 WARRANTY

A. Special Warranty on Finishes: Manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.
   1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
      a. Color fading more than 5 Hunter units when tested according to ASTM D2244.
      b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
      c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
   2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. General: Sheet metal flashing and trim assemblies shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.

B. Sheet Metal Standard for Copper: Comply with CDA's "Copper in Architecture Handbook." Conform to dimensions and profiles shown unless more stringent requirements are indicated.

C. Recycled Content of Copper-Sheet Flashing and Trim: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 40 percent.

D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
   1. Temperature Change: 120 deg F, ambient; 180 deg F, material

2.02 SHEET METALS

A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.

B. Aluminum Sheet: ASTM B209, alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required; with smooth, flat surface.
   1. Thickness: 0.040 inch minimum or as indicated on the drawings.
   2. Exposed Coil-Coated Finish:
      a. Two-Coat Fluoropolymer: AAMA 2605. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
      b. Modified Silicone Polyester Coating: Pigmented Organic Coating System, AAMA 2603; baked enamel finish system.
   3. Color: As selected by the Architect from the manufacturer's full range of color offerings.
   4. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with minimum total dry film thickness of 0.5 mil.

C. Self-Adhering Stainless Steel Fabric Flashing: ASTM A240/A240M, ASTM A480/A480M, ASTM A666, Type 304, 0.003 inch Stainless Steel Thickness, 24 inch wide or as required by the drawing details. Clear, non-asphaltic, pressure sensitive, UV (180 days max.) and heat resistive adhesive. Recyclable product with 60% Recycled Content. Material is available in 60 foot rolls. Provide with Stainless Steel Drip Plates and Termination Bars as indicated on the drawings. Provide Primer-SA, HB Sealant and X-SEAL Tape accessories for a complete watertight installation. Warranty: Lifetime. Material/Manufacturer: Mighty-Flash-SA as manufactured by H&B Powered by MiTek or Architect approved equivalent.

2.03 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.
   1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
      a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on weather side of metal.
      b. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.
   2. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.

C. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.

D. Elastomeric Sealant: ASTM C920, elastomeric polyurethane silicone polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

E. Butyl Sealant: ASTM C1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.

2.04 FABRICATION, GENERAL

A. General: Custom fabricate sheet metal flashing and trim to comply with details shown and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required. Fabricate sheet metal flashing and trim in shop to greatest extent possible.
   1. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
   2. Obtain field measurements for accurate fit before shop fabrication.
   3. Form sheet metal flashing and trim to fit substrates without excessive oil canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
   4. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.

B. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

C. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.
   1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.

D. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal to provide for proper installation of elastomeric sealant according to cited sheet metal standard.

E. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, non-corrosive metal.

F. Fabricate cleats and attachment devices of sizes as recommended by cited sheet metal standard and by FM Global Property Loss Prevention Data Sheet 1-49 for application, but not less than thickness of metal being secured.

G. Seams: Fabricate non-moving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.

2.05 GENERAL FINISH REQUIREMENTS

A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.
   1. Verify compliance with requirements for installation tolerances of substrates.
   2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
   3. Verify that air- or water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 UNDERLAYMENT INSTALLATION

A. Self-Adhering Sheet Underlayment: Install self-adhering sheet underlayment, wrinkle free. Prime substrate if recommended by underlayment manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation; use primer for installing underlayment at low temperatures. Apply in shingle fashion to shed water, with end laps of not less than 6 inches staggered 24 inches between courses. Overlap side edges not less than 3-1/2 inches. Roll laps and edges with roller. Cover underlayment within 14 days.

B. Apply slip sheet, wrinkle free, over underlayment before installing sheet metal flashing and trim.

3.03 INSTALLATION, GENERAL

A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
   1. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
   2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
   3. Install Self-adhering Stainless Steel Flashing with woven fabric material facing outward as per manufacturer.
   4. Space cleats not more than 12 inches apart. Attach each cleat with at least two fasteners. Bend tabs over fasteners.
   5. Install exposed sheet metal flashing and trim with limited oil canning, and free of buckling and tool marks.
   6. Torch cutting of sheet metal flashing and trim is not permitted.
   7. Do not use graphite pencils to mark metal surfaces.

B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.
   1. Coat concealed side of sheet metal flashing and trim with bituminous coating where flashing and trim contact wood, ferrous metal, or cementitious construction.
   2. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet.

C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at maximum of 10 feet with no joints within 24 inches of corner or intersection.

D. Fasteners: Use fastener sizes that penetrate wood blocking or sheathing not less than 1-1/4 inches (32 mm) for nails and not less than 3/4 inch (19 mm) for wood screws.

E. Seal joints as required for watertight construction.
   1. Use sealant-filled joints unless otherwise indicated. Embed hooked flanges of joint members not less than 1 inch into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is between 40 and 70 deg F, set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F.
   2. Prepare joints and apply sealants to comply with requirements in Section 07 92 00 - JOINT SEALANTS.

3.04 WALL FLASHING INSTALLATION

A. General: Install sheet metal wall flashing to intercept and exclude penetrating moisture according to cited sheet metal standard unless otherwise indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.

B. Through-Wall Flashing: Installation of through-wall flashing is specified in Division 04.

C. Opening Flashings in Frame Construction: Install continuous head, sill, jamb, and similar flashings to extend 6 inches beyond wall openings.

3.05 ERECTION TOLERANCES

A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

3.06 CLEANING AND PROTECTION

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Soldering operations: Clean and neutralize flux materials. Clean off excess solder.

C. Clean off excess sealants.

D. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions. Upon completion of sheet metal flashing and trim installations, remove unused materials and clean finished surfaces as recommended by sheet metal flashing and trim manufacturer. Maintain sheet metal flashing and trim in clean condition during construction.

E. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 07 62 00

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section Includes:
   1. Silicone joint sealants.
   2. Polyurethane joint sealants.
   3. Preformed joint sealants.

1.03 PRECONSTRUCTION TESTING

A. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.
   1. Use ASTM C1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
   2. Samples for Verification: For each type of sealant submit a color sample board and one sample joint, 1/2" wide by 6" long including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.
   3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
   4. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.
   5. Testing will not be required if joint-sealant manufacturers submit joint preparation data that are based on previous testing, not older than 24 months, of sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.

1.04 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

C. Joint-Sealant Schedule: Include the following information:
   1. Joint-sealant application, joint location, and designation.
   2. Joint-sealant manufacturer and product name.
   3. Joint-sealant formulation.
   4. Joint-sealant color.

1.05 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified Installer and testing agency.

B. Product Certificates: For each kind of joint sealant and accessory, from manufacturer.

C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that sealants comply with requirements.

D. Preconstruction Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:

1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

E. Warranties: Sample of special warranties.

1.06 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project with a minimum of three-years experience in the installation of the work of this section.

B. Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.

C. Product Testing: Test joint sealants using a qualified testing agency.
1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C1021 to conduct the testing indicated.
2. Test according to SWRI's Sealant Validation Program for compliance with requirements specified by reference to ASTM C920 for adhesion and cohesion under cyclic movement, adhesion-in-peel, and indentation hardness.

D. Mockups: Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.

1.07 PROJECT CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:
1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 degrees F.
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.08 WARRANTY

A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
1. Warranty Period: Two years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
1. Warranty Period: Two years from date of Substantial Completion.

C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:
1. Movement of the structure caused by structural settlement or errors attributable to design or construction resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
2. Disintegration of joint substrates from natural causes exceeding design specifications.

3. Mechanical damage caused by individuals, tools, or other outside agents.
4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.01 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

B. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
   1. Architectural Sealants: 250 g/L.
   2. Sealant Primers for Nonporous Substrates: 250 g/L.
   3. Sealant Primers for Porous Substrates: 775 g/L.

C. Liquid-Applied Joint Sealants: Comply with ASTM C920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C920 classifications for type, grade, class, and uses related to exposure and joint substrates.
   1. Suitability for Immersion in Liquids. Where sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247. Liquid used for testing sealants is deionized water, unless otherwise indicated.

D. Stain-Test-Response Characteristics: Where sealants are specified to be non-staining to porous substrates, provide products that have undergone testing according to ASTM C1248 and have not stained porous joint substrates indicated for Project.

E. Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

F. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full color range.

G. Sealant Abbreviations:

   Type
   1. S = Single Component
   2. M = Multi-component
   3. LM = Low Modulus
   4. C = Clear
   5. OP = Opaque

   Grade
   1. NS = Non-Sag
   2. NF = Non-Flexible
   3. P = Pourable
   4. SL = Self-Leveling

   Use (related to Material)
   1. M = Mortar Contact
   2. G = Glass Contact
   3. A = Aluminum Contact

4. O = Other Materials

2.02 SILICONE JOINT SEALANTS

A. Mildew-Resistant, Single-Component, Nonsag, Non-staining, Neutral-Curing Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 50, for Use (application) NT; Use (for materials) M, G, A, and O
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Tremco Incorporated: Tremsil 200.
      b. Pecora Corporation; 898 NST.
      c. GE Advanced Materials; SCS1700 Sanitary.

2.03 POLYURETHANE JOINT SEALANTS

A. Single-Component, Non-sag, non-staining, non-yellowing, moisture curing, paintable, Low VOC, Hybrid Polyurethane (STPU), Joint Sealant: ASTM C920, Type S, Grade NS, Class 50, for Use NT; Use (for materials) M, G, A, and O
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Sika Corporation, Construction Products Division; Sikaflex - 15LM.
      b. Pecora Corporation; Dynatrol I-XL.
      c. Tremco Incorporated; Dymonic 100.

2.04 LATEX JOINT SEALANTS

A. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C834, Type OP, Grade NF.
   1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
      a. BASF; MasterSeal NP 520.
      b. GE Advanced Materials; Ultra Seal.
      c. Pecora Corporation; AC-20+.
      d. Tremco Incorporated; Tremflex 834.
      e. Sherwin Williams Company (SherMax Urethanized Elastomeric Sealant).

2.05 PREFORMED JOINT SEALANTS

A. Preformed Foam Joint Sealant: Manufacturer's standard preformed, precompressed, open-cell foam sealant manufactured from Polyurethane foam with minimum density of 10 lb/cu. ft. (160 kg/cu. m) and impregnated with a nondrying, water-repellent agent. Factory produce in precompressed sizes in roll or stick form to fit joint widths indicated; coated on one side with a pressure-sensitive adhesive and covered with protective wrapping.
   1. Products: Subject to compliance with requirements, provide the following:
      a. Tremco Incorporated; Spectrum SimpleSeal.
      b. Tremco Incorporated; Illmod 600
      c. Emseal Joint Systems, Ltd.; 25V.
      d. Schul International Company; Sealtite Standard.

2.06 JOINT SEALANT BACKING

A. General: Provide sealant backings of material that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C1330, Type C (closed-cell material with a surface skin) Type B (bicellular material with a surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.07 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Non-staining, non-absorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
   1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
   2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
   3. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
      a. Metal.
      b. Glass.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or

by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.03 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
   1. Do not leave gaps between ends of sealant backings.
   2. Do not stretch, twist, puncture, or tear sealant backings.
   3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
   1. Place sealants so they directly contact and fully wet joint substrates.
   2. Completely fill recesses in each joint configuration.
   3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
   1. Remove excess sealant from surfaces adjacent to joints.
   2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
   3. Provide concave joint profile per Figure 8A in ASTM C1193, unless otherwise indicated.
   4. Provide flush joint profile where indicated per Figure 8B in ASTM C1193.
   5. Provide recessed joint configuration of recess depth and at locations indicated per Figure 8C in ASTM C1193.
      a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

3.04 FIELD QUALITY CONTROL

A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:
   1. Extent of Testing: Test completed and cured sealant joints as follows:
      a. Perform 1 test for each 500 feet of joint length thereafter or 1 test per each floor per elevation.
   2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C1193 or Method A, Tail Procedure, in ASTM C1521.
      a. For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
   3. Inspect tested joints and report on the following:
      a. Whether sealants filled joint cavities and are free of voids.
      b. Whether sealant dimensions and configurations comply with specified requirements.

c. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field-adhesion hand-pull test criteria.

4. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.
5. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.

B. Evaluation of Field-Adhesion Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.05 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.06 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.07 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal non-traffic surfaces.
   1. Joint Locations:
      a. Joints between different materials listed above.
      b. Perimeter joints between materials listed above and frames of doors windows and louvers.
      c. Control and expansion joints in ceilings and other overhead surfaces.
   2. Sealant Types:
      a. Silicone Joint Sealant: Single component, non-sag, neutral curing, Class 100/50.
      b. Polyurethane Joint Sealant: Single component, non-sag, Class 100/50.
   3. Joint-Sealant Colors: As selected by Architect from manufacturer's full range of colors.

B. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal non-traffic surfaces.
   1. Joint Locations:
      a. Perimeter joints of exterior openings where indicated.
      b. Vertical joints on exposed surfaces of walls and partitions.
      c. Perimeter joints between interior wall surfaces and frames of interior doors windows and entrances.
   2. Sealant Type:
      a. Latex Acrylic based Joint Sealant.
   3. Joint-Sealant Colors: As selected by Architect from manufacturer's full range of colors.

C. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal non-traffic surfaces.
   1. Sealant Type:
      a. Silicone Joint Sealant: Mildew resistant, single component, non-sag, neutral curing.
   2. Joint-Sealant Colors: As selected by Architect from manufacturer's full range of colors.

3.08 SEALANT INSTALLATION LOG

A. A tabular log of all sealant installations on the project shall be be keep and submitted with the O & M manuals at the completion of the project.

B. Tabular log shall have columns for:
   1. Sealant type
   2. Sealant installation location
   3. Temperature during installation
   4. Date of Installation
   5. Manufacturer
   6. Sealant color installed.

END OF SECTION 07 92 00

Part 1 General

1.1 Section Includes

A. Ultimate Double Hung G2, Single Hung, Transom, Picture window complete with hardware, glazing, certified mulls, weather strip, insect screen, grilles-between-the-glass, simulated divided lite, jamb extension, combination storm/screen, and standard or specified anchors, trim, attachments, factory-applied historic casing(s) and accessories

B. Ultimate Double Hung G2 Bay, Bow window complete with hardware, glazing, weather strip, insect screen, grilles-between-the-glass, simulated divided lite, jamb extension, combination storm/screen, head/seat board, and standard or specified anchors, trim attachments, and accessories

1.2 Related Sections

A. Division 06 - Wood, Plastics, and Composites

B. Section 07 92 00 – Joint Sealant: Sill sealant and perimeter caulking

1.3 References

A. American Society for Testing Materials (ASTM):

1. E283: Standard Test method for Rate of Air Leakage through Exterior Windows, Curtain Walls and Doors

2. E330: Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls and Door by Uniform Static Air Pressure Difference

3. E547: Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls and Doors by Cyclic Static Air Pressure Differential

4. E2190: Specification for Sealed Insulated Glass Units

5. C1036: Standard Specification for Flat Glass

6. E2068: Standard Test Method for Determination of Operating Force of Sliding Windows and Doors

7. E 1996: Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Storm Shutters Impacted by Windborne Debris in Hurricanes

8. E 1886: Standard Test method for Performance of Exterior Windows, curtain Walls, and Storm Shutters Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials

9. F 2090-17: Standard Specifications for Windows Fall Prevention Devices with Emergency Escape (egress) Release Mechanisms

B. American Architectural Manufacturer's Association/Window and Door Manufacturer's Association (AAMA/WDMA/CSA):

1. AAMA/WDMA/CSA 101/I.S.2/A440-08, Standard/Specification for windows, doors and skylights

2. AAMA/WDMA/CSA 101/I.S.2/A440-11, Standard/Specification for windows, doors and skylights

3. AAMA 450-10, Voluntary Performance Rating Method for Mulled Fenestration Assemblies

C. WDMA I.S.4: Industry Standard for Water Repellant Preservative Treatment for Millwork

D. Window and Door Manufacturer's Association (WDMA): 101/I.S.2 WDMA Hallmark Certification Program

E. Sealed Insulating Glass Manufacturer's Association/Insulating Glass Certification Council (SIGMA/IGCC)

F. American Architectural Manufacturer's Association (AAMA): 2605: Voluntary Specification for High Performance Organic Coatings on Architectural Extrusions and Panels

G. National Fenestration Rating Council (NFRC):

1. 101: Procedure for Determining Fenestration Product thermal Properties

2. 200: Procedure for Determining Solar Heat Gain Coefficients at Normal Incidence

H. Window Covering Manufacturer's Association

1. A100.1: American National Standard for Safety of Corded Window Coverings Products

1.4 System Description

A. Design and Performance Requirements:

Product	Air Test to PSF	Water Tested to psf	Structural Tested to psf	Certification Rating	Design Pressure	Overall Width		Overall Height	
						in	mm	in	mm
Ultimate Double Hung G2 (4040)	1.57	7.5	75	LC-PG50	DP50	45 1/4	(1149)	87 1/2	(2223)
Ultimate Double Hung G2 (4044)	1.57	7.5	75	LC-PG50	DP50	45 1/4	(1149)	95 1/2	(2426)
Ultimate Double Hung G2 (4450)	1.57	7.5	75	LC-PG50	DP50	49 1/4	(1251)	107 1/2	(2731)

Ultimate Double Hung G2 (5044) *	1.57	6	60	LC-PG35	DP35	55 1/4	(1403)	95 1/2	(2426)
Ultimate Double Hung G2 (5456)	1.57	6	60	LC-PG35	DP35	59 1/4	(1505)	119 1/2	(3035)
Ultimate Double Hung G2 (6060)	1.57	7.5	45	LC-PG30	DP30	65 1/4	(1657)	127 1/2	(3239)
Ultimate Double Hung G2 Picture (6668)	1.57	7.5	75	CW-PG50	DP50	67 1/4	(1708)	69 1/2	(1765)
Ultimate Double Hung G2 Picture (60102)	1.57	7.5	75	CW-PG50	DP50	61 1/4	(1556)	103 1/2	(2629)
Ultimate Double Hung G2 Transom (4020)	1.57	7.5	75	LC-PG50	DP50	45 1/4	(1149)	27 11/16	(703)
Ultimate Double Hung G2 Transom (6820)	1.57	7.5	75	LC-PG50	DP50	73 1/4	(1861)	27 11/16	(703)
Ultimate Double Hung G2 Transom (6820)	1.57	7.5	75	LC-PG50	DP50	73 1/4	(1861)	27 11/16	(703)
Ultimate Double Hung G2 (5044) *	1.57	6	60	LC-PG35	DP35	55 1/4	(1403)	95 1/2	(2426)
Ultimate Double Hung G2 (4826) CW Performance	1.57	7.5	75	CW-PG50	DP50	53 1/4	(1353)	59 1/2	(1511)
Ultimate Double Hung G2 (4848) CW Performance	1.57	7.5	75	CW-PG50	DP50	53 1/4	(1353)	103 1/2	(2629)
Ultimate Double Hung G2 (5056) CW Performance	1.57	7.5	60	CW-PG40	DP40	55 1/4	(1403)	119 1/2	(3035)
Ultimate Double Hung G2 (5456) CW Performance	1.57	7.5	45	CW-PG30	DP30	59 1/4	(1505)	119 1/2	(3035)

*Tested with the Performance Bracket Removed

1.5 Submittals

A. Shop Drawings: Submit shop drawings

B. Product Data: Submit catalog data

C. Samples:

1. Submit corner section

2. Include glazing system, quality of construction and specified finish

D. Quality Control Submittals: Certificates: submit manufacturer's certification indicating compliance with specified performance and design requirement

1.6 Quality Assurance

A. Requirements: consult local code for IBC [International Building Code] and IRC [International Residential Code] adoption year and pertinent revisions for information on:

1. Egress, emergency escape and rescue requirements

2. Basement window requirements

3. Windows fall prevention and/or window opening control device requirements.

1.7 Delivery

A. Deliver in original packaging and protect from weather.

1.8 Storage and Handling

A. Prime and seal wood surfaces, including to be concealed by wall construction, if more than thirty (30) days will expire between delivery and installation.

B. Store window units in an upright position in a clean and dry storage area above ground to protect from weather.

1.9 Warranty

Complete and current warranty information is available at marvin.com/warranty. The following summary is subject to the terms, condition, limitations and exclusions set forth in the Marvin Windows and Door Limited Warranty and Products in Coastal Environments Limited Warranty Supplement:

A. Clear insulating glass with stainless steel spacers is warranted against seal failure caused by manufacturing defects and resulting in visible obstruction through the glass for twenty (20) years from the original date of purchase. Glass is warranted against stress cracks caused by manufacturing defects from ten (10) years from the original date of purchase.

B. Standard exterior aluminum cladding finish is warranted against manufacturing defects resulting in chalk, fade and loss of adhesion (peel) per the American Architectural Manufacturer's Association (AAMA) Specification 2605-11 Section 8.4 and 8.9 for twenty (20) years from the original date of purchase.

C. Factory-applied interior finish is warranted to be free from finish defects for a period of five (5) years from the original date of purchase.

D. Hardware and other non-glass components are warranted to be free from manufacturing defects for ten (10) years from the original date of purchase.

Part 2 Products

2.1 Manufactured Units

A. Description: Basis of Design is the Ultimate Double Hung G2 (and related stationary units) as manufactured by Marvin, Warroad, Minnesota.

B. Description: Basis of Design is the Ultimate Double Hung G2 Bow unit, (and related stationary units) as manufactured by Marvin Windows and Door, Warroad, Minnesota.

1. Available in 3, 4, 5, and 6 wide assemblies

2. 6 degree angle

3. With and w/out head and seat board

C. Description: Basis of Design is the Ultimate Double Hung G2 Bay Assemblies as manufactured by Marvin, Warroad, Minnesota

1. Available 30 degree, 45 degree, and 90 degree

2. With and w/out head and seat board

d. or Approved Equal.

2.2 Frame Description

A. Interior: Non Finger-Jointed Pine or finger-jointed core with non finger-jointed Pine veneer; optional non finger-jointed Douglas Fir or finger-jointed core with non finger-jointed Douglas Fir veneer; optional non finger-jointed White Oak or finger-jointed with non finger-jointed Oak veneer; non finger-jointed Cherry or finger-jointed core with Cherry veneer; non finger-jointed Mahogany or finger-jointed core with non finger-jointed Mahogany veneer; non finger-jointed Vertical Grain Douglas Fir or finger-jointed with non finger-jointed Vertical Grain Douglas Fir veneer

1. Kiln-dried to moisture content no greater than 12 percent at the time of fabrication
2. Water repellant, preservative treated in accordance with ANSI/WDMA I.S.4.

B. Frame exterior aluminum clad with 0.050” (1.3mm) thick extruded aluminum

C. Frame thickness: 11/16” (17mm) head and jambs

D. Frame depth: Frame depth had an overall 5 21/32” jamb (144mm). 4 9/16” (116mm) jamb depth from the nailing fin plane to the interior face of the frame for new construction.

E. Sill assembly including the sill liner: 2 7/32” (56mm)

F. Factory-applied historic profile extrusion

2.3 Sash Description

A. Interior: Non Finger-Jointed Pine or finger-jointed core with non finger-jointed Pine veneer; optional non finger-jointed Douglas Fir or finger-jointed core with non finger-jointed Douglas Fir veneer; optional non finger-jointed White Oak or finger-jointed with non finger-jointed Oak veneer; non finger-jointed Cherry or finger-jointed core with Cherry veneer; non finger-jointed Mahogany or finger-jointed core with non finger-jointed Mahogany veneer; non finger-jointed Vertical Grain Douglas Fir or finger-jointed with non finger-jointed Vertical Grain Douglas Fir veneer

1. Kiln-dried to moisture content no greater than 12 percent at the time of fabrication
2. Water repellant preservative treated with accordance with WDMA I.S.4.

B. Sash exterior aluminum clad with 0.050” (1.3mm) thick extruded aluminum

C. Sash thickness: 1 3/4” (44mm). Corner slot and tenoned.

D. Operable sash tilt to interior for cleaning or removal

E. Sash to match existing

F. Exterior Cope Profile: Putty

G. Interior Sash Sticking

1. Standard: Ogee
2. Optional: Square

2.4 Glazing

A. Select quality complying with ASTM C1036. Insulating glass SIGMA/IGCC certified to performance level CBA when tested in accordance with ASTM E2190.

B. Glazing method: Insulating glass

C. Glazing seal: Silicone bedding on interior and exterior

D. Glass Type: Clear, Bronze, Gray, Reflective Bronze, Tempered, Obscure, Laminated, Low E2 with or without Argon, Low E3 with or without Argon, Low E1 with or without Argon, Low E2/ERS Argon or air, Low E3/ERS Argon or air,

E. TriPane Glass(TG): Tripane Low E1 Argon, Tripane Low E2 Argon, Tripane Low E3 Argon.

2.5 Certified Mulling

A. Directional mull limits: 1 High (can be 2 or more units wide in an assembly)

1. Max mullion span is 71 ½” (1816mm); max tributary width 45 ¼” (1149mm)
2. CUDH NG 2.0 to CUDH NG 2.0 only
3. Certified to Design Pressure 50

B. Directional mull limits: 1 Wide (can be 2 or more units high in an assembly)

1. Max mullion span is 69 ¼” (1759mm); max tributary height 53 19/32” (1361mm)
2. CUDH NG 2.0 over CUDH NG 2.0 only
3. Certified to Design Pressure 50

C. Multiple Wide x Multiple High assemblies with 1” LVL

1. Max mullion span is 75 11/16” (1922mm); max tributary width is 45 1/4” (1149mm)
2. LVL must be in vertical mull
3. Certified to Design Pressure 50

D. Multiple Wide x Multiple High assemblies with 3/8” (10mm) MRF

1. Max mullion span is 83 11/16” (2125mm); max tributary width 45 1/4” (1149mm)
2. CUDH NG 2.0 over CUDH NG 2.0 only
3. Certified to Design Pressure 65

E. If any units have a lower design pressure the entire assembly will have the lowest design pressure of any unit or mull in the assembly.

2.6 Finish

A. Exterior: Aluminum clad. Fluoropolymer modified acrylic topcoat over a primer. Meets AAMA 2605 requirements.

1. Aluminum clad color options: Bahama Brown, Bronze, Cadet Gray, Cascade Blue, Cashmere, Clay, Coconut Cream, Ebony, Evergreen, Gunmetal, Hampton Sage, Pebble Gray, Sierra White, Stone White, Suede, Wineberry, Bright Silver (pearlescent), Copper (pearlescent), Liberty Bronze (pearlescent)

2. Custom colors: Contact your Marvin representative

B. Interior Finish options:

1. Prime: Factory-applied water-borne acrylic primer. Meets WDMA TM-11 requirements.

2. Painted Interior Finish. Factory-applied water-borne acrylic enamel. Available on Pine product only. Available in White or Designer Black. Meets WDMA TM-14 requirements.

3. Factory-applied water-borne acrylic enamel clear coat. Applied in two separate coats with light sanding between coats. Available on Pine, Mahogany, Mixed Grain Douglas Fir, Vertical Grain Douglas Fir, Cherry, or White Oak. Meets WDMA TM-14 requirements.

4. Factory-applied water-borne urethane stain. Stain applied over a wood (stain) conditioner. A water-borne acrylic enamel clear coat applied in two separate coats, with light sanding between coats, applied over the stain. Available on Pine, Mahogany Mixed Grain Douglas Fir, Vertical Grain Douglas Fir, Cherry, or White Oak. Colors available: Wheat, Honey, Hazelnut, Leather, Cabernet, and Espresso. Meets WDMA TM-14 requirements.

2.7 Hardware

A. Locking system that provides locking, unlocking, balancing, and tilting of the sash members

B. Lock Actuator Assembly

1. Material

a. Zinc die-cast

b. Available finishes: Satin Taupe, White, Bronze, Matte Black, Brass, Antique Brass, Polished Chrome, Satin Chrome, Oil Rubbed Bronze, or Satin Nickel

2. Design Feature and Components

a. To unlock unit, turn the handle 135°

b. Lock automatically locks when both sash are closed.

c. To tilt the bottom sash for wash mode, the bottom sash must be unlocked and raised a few inches; push the button on top of the lock handle and rotate the handle 180°

d. To tilt the top sash for wash mode, the bottom sash must be tilted and/or removed from the frame; lower the top sash to a good working height, retract the tilt latches on the top rail and tilt sash inward out of the frame

e. Custodial hardware colors: Satin Taupe, White, Bronze, Matte Black

C. Bottom Rail Lock Actuator Assembly - Lift Lock

1. Material

a. Zinc die-cast
b. Available finishes: Satin Taupe, White, Bronze, Matte Black, Brass, Antique Brass, Polished Chrome, Satin Chrome, Oil Rubbed Bronze, or Satin Nickel

2. Design Feature and Components

a. Does not contain Check Rail Lock Actuator Assembly or Strike Assembly

b. Available in Traditional and Contemporary designs

c. To unlock unit, lift the lock

d. Lock automatically locks when bottom sash is closed.

e. To tilt the bottom sash for wash mode, raise the bottom sash and manually retract the latches.

f. Custodial hardware colors (available with traditional design): Satin Taupe, White, Bronze, Matte Black

D. Latches

1. Bottom sash latch

a. Material

i. Bolt: Glass-filled nylon

ii. Latch housing: Acetal

iii. Sash latch reinforcement: Stainless steel

2. Top sash tilt latch

a. Material

i. Bolt: Glass-filled nylon

ii. Latch housing: Glass-filled nylon

3. Latches accommodate travel of sash in frame, and tilting into wash-mode

4. Color: Beige (manual latch for Lift Lock also available in White and Black)

E. Strike Assembly

1. Material

f. Zinc die-cast strike plate and injection-molded Acetal housing and button

g. Available finishes: Satin Taupe, White, Bronze, Matte Black, Brass, Antique Brass, Polished Chrome, Satin Chrome, Oil Rubbed Bronze, or Satin Nickel

2. Strike assembly accommodates locking/unlocking

F. Balance System (balance system determined by sash weight)

1. Block & tackle balances

2. Hybrid spiral balances

G. Factory-applied Window Opening Control Device (WOCD) is a sash limiter that prevents the window opening more than 4” vertically. It meets ASTM F2090-17 specifications for window fall prevention standards. The system consists of two single action devices that allows for egress (when applied to an egress size window) by bypassing the 4” stop feature.

1. Material

a. WOCD device: zinc die-cast

b. WOCD strike plate: nylon

2. 2 WOCD’s applied to each double and single hung window and will be recessed into the stiles of the top sash

3. Default color matches lock handle

4. Strike plate mounted to the bottom sash check rail

5. Strike plate color to match weather strip

H. Sash Limiter

1. Bottom Sash Limiter (Acetal)

a. Available on all operator configurations, and StormPlus IZ3

b. Selectable bottom sash locations, 4", 6" or 8" Net Clear Opening (NCO)

c. Non-tilt hardware is default, and a sash removal tool is required in order to by-pass the Sash limiter for sash removal (tilt wash mode)

d. Standard application is factory applied. Available for field retrofit applications.

e. Color: Will align with the Exterior Weather Strip Package selection

2. Top Sash Limiter (Extruded PVC)

a. Available on all operator configurations, with the exception Single Hung configurations. This includes StormPlus IZ3

b. Standard application is factory applied. Available for field applications

c. Color: Will align with the Interior Weather Strip Package selection

2.8 Weather Strip

A. Operating units:

1. Jambs: Foam-filled bulb

2. Header: Continuous dual leaf

3. Bottom rail and check rail: Hollow bulb

B. Stationary units:

1. Jambs: Foam for picture units; foam-filled bulb for transom unit

2. Header and bottom rail: Hollow bulb

2.9 Jamb Extension

A. Jamb extensions are available for various wall thickness factory-applied up to a 14” (356mm) wide

B. Finish: Match interior frame finish

2.10 Head/Seat Board (For use with Bow and Bay units)

A. Factory-installed (head board) (seat board) for wall thickness indicated or required

B. Finish: Match interior finish

2.11 Insect Screen

A. Factory-installed full or half screen. Half screen covers sash opening.

1. Screen Mesh: Marvin Bright View™

2. Optional Screen mesh: Charcoal Aluminum Wire, Black Aluminum Wire, Bright Bronze Aluminum Wire, Bright Aluminum Wire

B. Screen Frame

1. Window frame height less than or equal to 54 ½” Aluminum Screen Frame. Option: Extruded Aluminum Screen Frame.

2. Window frame height greater than 54 ½” Extruded Screen Frame. Option: None.

C. Aluminum frame finish:

1. Color: Matches exterior aluminum clad color

2.12 Combination Storm Sash and Screen

A. Frame: Exterior extruded aluminum 0.050” (1.3mm) thick

B. Finish: Fluoropolymer modified acrylic topcoat applied over Fluoropolymer primer. Meets AAMA 2605 requirements

1. Finish: Stone White, Bahama Brown, Bronze, Evergreen, Pebble Gray

C. Hardware: Spring loaded locking pins to hold movable storm panel in position. Heavy metal clips to lock upper and lower storm panels together

D. Weather strip: Dual durometer weather strip on center cross rail seals against operating panel in closed position

E. Storm panel: Select quality glass in aluminum frame

1. Frame finish: Standard color: Stone White, Bahama Brown, Bronze, Evergreen, Pebble Gray

F. Insect screen panel:

1. Extruded aluminum surround

2. Screen mesh: Standard is Marvin Bright View™. Optional Charcoal Aluminum Wire, Black Aluminum Wire, Bright Bronze Aluminum Wire, Bright Aluminum Wire

3. Aluminum frame finish: Bronze, White

2.13 Simulated Divided Lites (SDL)

A. 5/8” (16mm) wide, 7/8” (22mm) wide, 1 1/8” (29mm) wide, 1 3/4” (44mm) wide, 1 15/16” (49mm) wide, 2 13/32” (61mm) wide with or w/out internal spacer bar

B. Exterior muntins: 0.050” (1.3mm) thick extruded aluminum

C. Interior muntins: Pine, Mixed Grain Douglas Fir, White Oak, Cherry, Mahogany Vertical Grain Douglas Fir

D. Muntins adhere to glass with closed-cell copolymer acrylic foam tape

E. Exterior sticking: Putty

F. Interior Sticking:

1. Standard: Ogee

2. Optional: Square

G. Patterns: Rectangular, diamond, custom lite cut

H. Finish – exterior matches exterior aluminum clad colors, interior matches interior wood species and color

2.14 Grilles-Between-the–Glass (GBG)

A. 23/32” (18mm) contoured aluminum bar

1. Exterior Colors: Exterior matches exterior aluminum clad colors. The exterior GBG color is designed to best match the Marvin aluminum clad color when used with Low E glass. The use of different types of glazing may alter the exterior GBG color appearance

2. Interior Colors: White is the default color. Optional colors: Bronze, Pebble Gray, Sierra, White

B. Optional flat aluminum spacer bar. Contact your Marvin representative.

C. Pattern: Rectangular, Cottage, Custom lite layout

2.15 Accessories and Trim

A. Installation Accessories:

1. Factory-installed vinyl nailing/drip cap

2. Installation brackets: 6 3/8” (162mm), 9 3/8” (283mm), 15 3/8” (390mm)

3. Masonry brackets: 6” (152mm), 10” (254mm)

B. Aluminum Extrusions:

1. Casing Profile: Brick Mould Casing (BMC), Flat Casing, Columbus Casing, Grayson Casing, Ridgeland Casing, Stratton Casing, Thorton Casing, Potter Casing

2. Aluminum clad Extrusion: Frame Expander, Jamb Extender, Mullion Cover, Mullion Expander, Subsill, Subsill End Cap and Lineal Cap

3. Finish: Fluoropolymer modified acrylic topcoat applied over primer. Meets AAMA 2605 requirements

4. Available in all exterior aluminum clad colors

C. Historic casing, factory-applied profiles: Ridgeland, Flat, BMC, Custom
   a. Subsills factory-applied

D. Exterior Sash Lugs – Standard Option

1. Standard Profile: Ogee
2. Available on Top Sash
3. Color: Available in all exterior clad color options
    a. Color shall be the same as top sash clad color
4. Standard application is factory applied. Available for field applications

Part 3 Execution

3.1 Examination

A. Verification of Condition: Before installation, verify openings are plumb, square and of proper dimensions. Report frame defects or unsuitable conditions to the General contractor before proceeding.

B. Acceptance of Condition: Beginning on installation confirms acceptance of existing conditions.

3.2 Installation

A. Assemble and install window/door unit(s) according to manufacturer's instruction and reviewed shop drawing.

B. Install sealant and related backing materials at perimeter of unit or assembly in accordance with Section 07 92 00 Joint Sealants.

C. Install accessory items as required.

D. Use finish nails to apply wood trim and mouldings.

3.3 Field Quality Control

A. Remove visible labels and adhesive residue according to manufacturer's instruction.

B. Unless otherwise specified, air leakage resistance tests shall be conducted at a uniform static pressure of 75 Pa (~1.57 psf). The maximum allowable rate of air leakage shall not exceed 2.3 L/sm^2 (~0.45 cfm/ft^2).

C. Unless otherwise specified, water penetration resistance testing shall be conducted per AAMA 502 and ASTM E1105 at 2/3 of the fenestration products design pressure (DP) rating using "Procedure B" – cyclic static air pressure difference. Water penetration shall be defined in accordance with the test method(s) applied.

3.4 Cleaning

A. Remove visible labels and adhesive residue according to manufacturer's instruction.

B. Leave windows and glass in a clean condition. Perform final cleaning.

3.5 Protecting Installed Construction

A. Protecting windows from damage by chemicals, solvents, paint or other construction operations that may cause damage.

End of Section

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. This Section includes commercial door hardware for the following:
   1. Exterior swinging doors.
   2. Sliding windows

B. Door hardware includes, but is not necessarily limited to, the following:
   1. Mechanical door hardware.

C. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
   1. ICC A117.1 - Accessible and Usable Buildings and Facilities.
   2. ICC (IBC) - International Building Code.
   3. NFPA 101 - Life Safety Code.
   4. State Building Codes, Local Amendments.

D. Standards: All hardware specified herein shall comply with the following industry standards as applicable. Any undated reference to a standard shall be interpreted as referring to the latest edition of that standard:
   1. ANSI/BHMA A156.29 Certified Product Standards - A156 Series.
   2. UL 10C - Positive Pressure Fire Tests of Door Assemblies.
   3. UL 294 - Access Control System Units.
   4. UL 305 - Panic Hardware.
   5. UL 437 - Key Locks.

1.03 SUBMITTALS

A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
   1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
   2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
   3. Content: Include the following information:
      a. Type, style, function, size, label, hand, and finish of each door hardware item.
      b. Manufacturer of each item.
      c. Fastenings and other pertinent information.
      d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
      e. Explanation of abbreviations, symbols, and codes contained in schedule.

f. Mounting locations for door hardware.
g. Door and frame sizes and materials.
h. Warranty information for each product.

4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

C. Shop Drawings: Details of electrified access control hardware indicating the following:
1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:
a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.
b. Complete (risers, point-to-point) access control system block wiring diagrams.
c. Wiring instructions for each electronic component scheduled herein.
2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.

D. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.

E. Informational Submittals:
1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

F. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.

1.04 QUALITY ASSURANCE

A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.

B. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).

C. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware 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.

D. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified

Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.

E. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
   1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
   2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.

F. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.

G. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
   1. Function of building, purpose of each area and degree of security required.
   2. Plans for existing and future key system expansion.
   3. Requirements for key control storage and software.
   4. Installation of permanent keys, cylinder cores and software.
   5. Address and requirements for delivery of keys.

H. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
   1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
   2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
   3. Review sequence of operation narratives for each unique access controlled opening.
   4. Review and finalize construction schedule and verify availability of materials.
   5. Review the required inspecting, testing, commissioning, and demonstration procedures

I. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.

B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.

C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.06 COORDINATION

A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

B. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.07 WARRANTY

A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
   1. Structural failures including excessive deflection, cracking, or breakage.
   2. Faulty operation of the hardware.
   3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
   4. Electrical component defects and failures within the systems operation.

C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.

D. Special Warranty Periods:
   1. Ten years for mortise locks and latches.
   2. Five years for exit hardware.
   3. Twenty five years for manual overhead door closer bodies.
   4. Five years for motorized electric latch retraction exit devices.

1.08 MAINTENANCE SERVICE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 PRODUCTS

2.01 SCHEDULED DOOR HARDWARE

A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.

B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
   1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.

C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.02 DOOR OPERATING TRIM

A. Flush Bolts and Surface Bolts: ANSI/BHMA A156.3 and A156.16, Grade 1, certified.
   1. Flush bolts to be furnished with top rod of sufficient length to allow bolt retraction device location approximately six feet from the floor.
   2. Furnish dust proof strikes for bottom bolts.
   3. Surface bolts to be minimum 8” in length and U.L. listed for labeled fire doors and U.L. listed for windstorm components where applicable.
   4. Provide related accessories (mounting brackets, strikes, coordinators, etc.) as required for appropriate installation and operation.
   5. Manufacturers:
      a. Door Controls International (DC).
      b. Rockwood (RO).
      c. Trimco (TC).

B. Door Push Plates and Pulls: ANSI/BHMA A156.6 certified door pushes and pulls of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.
   1. Push/Pull Plates: Minimum .050 inch thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
   2. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.
   3. Manufacturers:
      a. Hiawatha, Inc. (HI).
      b. Rockwood (RO).
      c. Trimco (TC).

2.03 CYLINDERS AND KEYING

A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.

B. Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.

C. Cylinder Types: Original manufacturer cylinders able to supply the following cylinder formats and types:
   1. Threaded mortise cylinders with rings and cams to suit hardware application.
   2. Rim cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
   3. Bored or cylindrical lock cylinders with tailpieces as required to suit locks.
   4. Tubular deadlocks and other auxiliary locks.
   5. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
   6. Keyway: Manufacturer’s Standard.

D. Patented Cylinders: ANSI/BHMA A156.5, Grade 1 Certified Products Directory (CPD) listed cylinders employing a utility patented and restricted keyway requiring the use of a patented key. Cylinders are to be protected from unauthorized manufacture and distribution by manufacturer’s

United States patents. Cylinders are to be factory keyed with owner having the ability for on-site original key cutting.
1. Patented key systems shall not be established with products that have an expired patent. Expired systems shall only be specified and supplied to support existing systems.
2. Manufacturers:
   a. Corbin Russwin (RU) - Access 3 AP.
   b. Sargent (SA) - Degree DG1.

E. Keying System: Each type of lock and cylinders to be factory keyed.
1. Supplier shall conduct a "Keying Conference" to define and document keying system instructions and requirements.
2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
3. New System: Key locks to a new key system as directed by the Owner.

F. Key Quantity: Provide the following minimum number of keys:
1. Change Keys per Cylinder: Three (3).
2. Master Keys (per Master Key Level/Group): Five (5).
3. Construction Keys (where required): Ten (10).

G. Construction Keying: Provide construction master keyed cylinders.

H. Key Registration List (Bitting List):
1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
2. Provide transcript list in writing or electronic file as directed by the Owner.

2.04 KEY CONTROL

A. Key Control Cabinet: Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet. Key control cabinet shall have expansion capacity of 150% of the number of locks required for the project.
1. Manufacturers:
   a. Lund Equipment (LU).
   b. MMF Industries (MM).
   c. Telkee (TK).

2.05 MECHANICAL LOCKS AND LATCHING DEVICES

A. Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 Certified Products Directory (CPD) listed. Locksets are to be manufactured with a corrosion resistant steel case and be field-reversible for handing without disassembly of the lock body.
1. Where specified, provide status indicators with highly reflective color and wording for “locked/unlocked” or “vacant/occupied” with custom wording options if required. Indicator to be located above the cylinder with the inside thumb-turn not blocking the visibility of the indicator status. Indicator window size to be a minimum of 2.1” x 0.6” with a curved design allowing a 180 degree viewing angle with protective covering to prevent tampering.
2. Manufacturers:
   a. Corbin Russwin Hardware (RU) - ML2000 Series.
   b. Sargent Manufacturing (SA) - 8200 Series.
   c. Schlage (SC) - L9000 Series.

B. Multi-Point Locksets: ANSI/BHMA A156.37, Certified Products Directory (CPD) listed vertical rod locking devices designed for openings requiring multiple latching points within one locking mechanism. Rods are retracted by dual mounted outside lever trim controls available in a

variety of ANSI/BHMA operational functions. Option for single top latching only eliminates the need for bottom strikes.

1. Manufacturers:
    a. Corbin Russwin Hardware (RU) - MP9800 Series.
    b. Sargent Manufacturing (SA) - 7000 Series.
    c. Schlage (SC) - LM9200 Series.

2.06 AUXILIARY LOCKS

A. Mortise Deadlocks, Small Case: ANSI/BHMA A156.36, Grade 1, small case mortise type deadlocks constructed of heavy gauge wrought corrosion resistant steel. Steel or stainless steel bolts with a 1" throw and hardened steel roller pins. Deadlocks to be products of the same source manufacturer and keyway as other specified locksets.
    1. Manufacturers:
        a. Corbin Russwin Hardware (RU) - DL4000 Series.
        b. Sargent Manufacturing (SA) - 4870 Series.
        c. Schlage (SC) - L460 Series.

2.07 LOCK AND LATCH STRIKES

A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
    1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
    2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
    3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
    4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

B. Standards: Comply with the following:
    1. Strikes for Mortise Locks and Latches: BHMA A156.13.
    2. Strikes for Bored Locks and Latches: BHMA A156.2.
    3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
    4. Dustproof Strikes: BHMA A156.16.

2.08 CONVENTIONAL EXIT DEVICES

A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:
    1. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
    2. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer’s catalog and template book for specific requirements.
    3. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
    4. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.

5. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.
    a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
    b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.
6. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
7. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2” wide stiles.
8. Dummy Push Bar: Non-functioning push bar matching functional push bar.
9. Rail Sizing: Provide exit device rails factory sized for proper door width application.
10. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.

B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.
    1. Manufacturers:
        a. Corbin Russwin Hardware (RU) - ED4000 / ED5000 Series.
        b. Sargent Manufacturing (SA) - 80 Series.
        c. dormakaba Precision (PR) - Apex 2000 Series.

2.09 DOOR CLOSERS

A. All door closers specified herein shall meet or exceed the following criteria:
    1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.
    2. Standards: Closers to comply with UL 10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
    3. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the Americans with Disabilities Act, provide units complying with ICC A117.1.
    4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
    5. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
    6. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

B. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units standard.
    1. Manufacturers:
        a. Norton Rixson (NO) - 7500 Series.
        b. Sargent Manufacturing (SA) - 351 Series.
        c. Yale Commercial(YA) - 4400 Series.

2.10 DOOR STOPS AND HOLDERS

A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.

B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.
   1. Manufacturers:
      a. Hiawatha, Inc. (HI).
      b. Rockwood (RO).
      c. Trimco (TC).

C. Overhead Door Stops and Holders: ANSI/BHMA A156.8, Grade 1 Certified Products Directory (CPD) listed overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.
   1. Manufacturers:
      a. dormakaba (DO).
      b. Norton Rixson (RF).
      c. Rockwood (RO).

2.11 ARCHITECTURAL SEALS

A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

C. Manufacturers:
   1. National Guard Products (NG).
   2. Pemko (PE).
   3. Reese Enterprises, Inc. (RE).

2.12 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.13 FINISHES

A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware

C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.02 PREPARATION

A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.

3.03 INSTALLATION

A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
   1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.

B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
   1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
   2. DHI TDH-007-20: Installation Guide for Doors and Hardware.
   3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
   4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."

E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.04 FIELD QUALITY CONTROL

A. Field Inspection (Punch Report): Reference Division 01 Sections “Closeout Procedures”. Produce project punch report for each installed door opening indicating compliance with

approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the Work to be incomplete or rejected.

1. Organization of List: Include separate Door Opening and Deficiencies and Corrective Action Lists organized by Mark, Opening Remarks and Comments, and related Opening Images and Video Recordings.

3.05 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.06 CLEANING AND PROTECTION

A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

B. Clean adjacent surfaces soiled by door hardware installation.

C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.07 DEMONSTRATION

A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.08 DOOR HARDWARE SETS

A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.
   1. Quantities listed are for each pair of doors, or for each single door.
   2. The supplier is responsible for handing and sizing all products.
   3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.
   4. At existing openings with new hardware the supplier shall field inspect existing conditions prior to the submittal stage to verify the specified hardware will work as required. Provide alternate solutions and proposals as needed.

3.09 HARDWARE SCHEDULE

A. Harware Set 1 - Swinging doors
   1. Push Bars: Mortise ED3600 exit device
   2. Surface vertical rods: ED3400
   3. Lockset: ED3000, Newport N33
   4. Closer: Norton Rixson 7500, regular arm
   5. Custom Vertical Rod Strikes ar Top and Bottom, similar to 787F42 but 4" deep min.
   6. Accessories:

a. thresholds
b. weatherstripping and gasketing
c. astagrals
d. Filler plates over previously cored hardware locations, 334F99-8 600 or sim.

B. Harware Set 2 - Sliding Windows along first floor
1. Footbolts - OBZMD003 Pella footblt with strike, DS pre 5/16, AS pre 6/17
a. Viewed from exterior, rough opening is approx. 10" x 10.5" VIF.
b. Color: champagne

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Sun control window films of the following types:
   1. Provide all Season sun control film at all first floor windows, sliders and exterior swinging doors.

1.02 REFERENCES

A. ASHRAE - American Society for Heating, Refrigeration, and Air Conditioning Engineers; Handbook of Fundamentals.

B. ASTM International (ASTM):
   1. ASTM D882 - Standard Test Method for Tensile Properties of Thin Plastic Sheeting.
   2. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers -- Tension.
   3. ASTM D624 - Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers
   4. ASTM D1004 - Standard Test Method for Tear Resistance (Graves Tear) of Plastic Film and Sheeting.
   5. ASTM D 1044 - Standard Method of Test for Resistance of Transparent Plastics to Surface Abrasion (Taber Abrader Test).
   6. ASTM D2240 - Standard Method for Rubber Property - Durometer Hardness.
   7. ASTM D 2582 - Standard Test Method for Puncture-Propagation Tear Resistance of Plastic Film and Thin Sheeting.
   8. ASTM D 5895 - Standard Test Methods for Evaluating Drying or Curing During Film Formation of Organic Coatings Using Mechanical Recorders.
   9. ASTM E84 - Standard Method of Test for Surface Burning Characteristics of Building Materials.
   10. ASTM E308 - Standard Recommended Practice for Spectrophotometry and Description of Color in CIE 1931 System.
   11. ASTM E1886 - Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.
   12. NFRC 100 / NFRC 200 - Standard Methods of Test for Solar Absorbence, Reflectance and Transmittance of Materials Using Integrating Spheres.

C. Window 6.3 - A Computer Tool for Analyzing Window Thermal Performance; Lawrence Berkeley Laboratory.

D. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test.

E. IES LM-83-12: IES Spatial Daylight Autonomy (sDA) and Annual Sunlight Exposure.

F. Consumer Products Safety Commission 16 CFR, Part 1201 - Safety Standard for Architectural Glazing Materials.

G. Underwriters Laboratories Inc. (UL): UL 972 - Burglary Resisting Glazing Material.

1.03 DEFINITIONS

A. Light to Solar Gain Ratio: The ratio of visible light transmission to Solar Heat Gain Coefficient.

1.04 PERFORMANCE REQUIREMENTS

A. Fire Performance: Surface burning characteristics when tested in accordance ASTM E84:

B. Abrasion Resistance: Film must have a surface coating that is resistant to abrasion such that, less than 5 percent increase of transmitted light haze will result in accordance with ASTM D 1044 using 50 cycles, 500 grams weight, and the CS10F Calbrase Wheel.

1.05 SUBMITTALS

A. Submit under provisions of Section 01 33 00 - SUBMITTALS.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

C. Verification Samples: For each finish product specified, two samples representing actual product, color, and patterns.

D. Performance Submittals: Provide laboratory data of emissivity and calculated window U-Factors for various outdoor temperatures based upon established calculation procedure defined by the ASHRAE Handbook of Fundamentals, Chapter 29, or Lawrence Berkeley Laboratory Window 5.2 Computer Program.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of ten (10) years experience.
   1. Provide documentation that the adhesive used on the specified films is a Pressure Sensitive Adhesive (PSA).

B. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five (5) years demonstrated experience in installing products of the same type and scope as specified.
   1. Provide documentation that the installer is authorized by the Manufacturer to perform Work specified in this section.
   2. Provide a commercial building reference list of 5 properties where the installer has applied window film. This list will include the following information:
      a. Name of building.
      b. The name and telephone number of a management contact.
      c. Type of glass.
      d. Type of film and/or film attachment system.
      e. Amount of film and/or film attachment system installed.
      f. Date of completion.

C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
   1. Finish areas designated by Architect.
   2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
   3. Refinish mock-up area as required to produce acceptable work.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Follow manufacturer's instructions for storing and handling.

B. Store products in manufacturer's unopened packaging until ready for installation.

1.08 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.09 WARRANTY

A. At project closeout, provide to Owner or Owners Representative an executed current copy of the manufacturer's standard limited warranty against manufacturing defect, outlining its terms, conditions, and exclusions from coverage.

B. In order to validate warranty, installation must be performed by an Authorized 3M dealer and according to Manufacturer's installation instructions. Verification of Authorized 3M dealer can be confirmed by submission of active 3M dealer code number.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Manufacturer: 3M Commercial Solutions, which is located at: 3M Center Bldg. 220-12-E-04; St. Paul, MN 55144-1000; Toll Free Tel: 888-650-3497; Tel: 651-737-1081; Fax: 651 737 8241; Email: request info (tdjohnson3@mmm.com).|
   1. Area authorized 3M Dealer: Layr: Tel: 888-888-8000; Email: info@layr.com; Web: www.layr.com

B. Substitutions: or approved equal substitutions may be submitted.

2.02 3M PRESTIGE SUN CONTROL FILM

A. Physical Properties:
   1. Composition: Optically clear polyester film containing at least 220 layers and incorporating pressure sensitive adhesive on one side and an acrylic abrasion resistant coating on the other. nanotechnology represents a breakthrough in technology due to the enhanced heat, UV and IR rejection, without the presence of any metals. The film does not contain dyes.
   2. Uniformity: No noticeable pin holes, streaks, thin spots, scratches, banding or other optical defects.
   3. Variation in Total Transmission across the Width: Less than 2 percent over the average at any portion along the length.
   4. Thickness: Nominal 2.0 mils (0.1mm) with no evidence of coating voids.
   5. Identification: Labeled as to Manufacturer as listed in this Section.
   6. Visible Light Transmission, color and opacity to match existing.

PART 3 EXECUTION

3.01 EXAMINATION

A. Film Examination:

1. If preparation of glass surfaces is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.
    a. Glass surfaces receiving new film should first be examined to verify that they are free from defects and imperfections, which will affect the final appearance.
2. Do not proceed with installation until glass surfaces have been properly prepared and deviations from manufacturer's recommended tolerances are corrected. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result under the project conditions.
3. Commencement of installation constitutes acceptance of conditions.

3.02 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Refer to Manufacturer's installation instructions for methods of preparation for Impact Protection Adhesive or Impact Protection Profile film attachment systems

3.03 INSTALLATION, GENERAL

A. General: Install in accordance with manufacturer's instructions and the following.
    1. Cut film edges neatly and square at a uniform distance of 1/8 inch (3 mm) to 1/16 inch (1.5 mm) of window sealant.
    2. Spray the slip solution, composed of one capful of baby shampoo or dishwashing liquid to 1 gallon of water, on window glass and adhesive to facilitate proper positioning of film.
    3. Apply film to glass and lightly spray film with slip solution.
    4. Squeegee from top to bottom of window.
    5. Bump film edge with lint-free towel wrapped around edge of a 5-way tool.
    6. Upon completion of film application, allow 30 days for moisture from film installation to dry thoroughly, and to allow film to dry flat with no moisture dimples when viewed under normal viewing conditions.
    7. If completing an exterior application, check with the manufacturer as to whether edge sealing is required.
        a. Daylight Redirection Film Installation:
    8. Install in accordance with manufacturer's instructions.
        a. Film is intended for installation in clerestory windows, minimum 7 feet (2.13m) above finished floor space.
        b. This film is directional - it has a top and a bottom. Identify and mark the top of the film.

3.04 CLEANING AND PROTECTION

A. Remove left over material and debris from Work area. Use necessary means to protect film before, during, and after installation.

B. Touch-up, repair or replace damaged products before Substantial Completion.

C. After application of film, wash film using common window cleaning solutions, including ammonia solutions, 30 days after application. Do not use abrasive type cleaning agents and bristle brushes to avoid scratching film. Use synthetic sponges or soft cloths.

END OF SECTION 08 87 13

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes surface preparation and the application of paint systems on the following exterior substrates:

1.02 DEFINITIONS

A. Gloss Level 1: Not more than 5 units at 60 degrees and not more than 10 units at 85 degrees, according to ASTM D523.

B. Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D523.

C. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D523.

D. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D523.

E. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D523.

F. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D523.

G. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D523.

1.03 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Samples for Initial Selection: For each type of topcoat product.

C. Product List: For each product indicated, include the following:
   1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
   2. Printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
   3. VOC content.

1.04 CLOSEOUT SUBMITTALS

A. Coating Maintenance Manual: Upon conclusion of the project, the Contractor or paint manufacturer/supplier shall furnish a coating maintenance manual, such as Sherwin-Williams “Custodian Project Color and Product Information report or equal. Manual shall include an Area Summary with finish schedule, Area Detail designating where each product/color/finish was used, product data pages, Material Safety Data Sheets, care and cleaning instructions, touch-up procedures, and color samples of each color and finish used.

1.05 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
   1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.06 QUALITY ASSURANCE

A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
   1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.
   2. Final approval of color selections will be based on mockups.
      a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
      b. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
      c. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
   1. Maintain containers in clean condition, free of foreign materials and residue.
   2. Remove rags and waste from storage areas daily.

B. Delivery and Handling: Deliver products to Project site in an undamaged condition in manufacturer's original sealed containers, complete with labels and instructions for handling, storing, unpacking, protecting, and installing. Packaging shall bear the manufacture’s label with the following information:
   1. Product name and type (description).
   2. Batch date.
   3. Color number.
   4. VOC content.
   5. Environmental handling requirements.
   6. Surface preparation requirements.
   7. Application instructions.

1.08 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.01 PAINT, GENERAL

A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."

B. Material Compatibility:
   1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.

2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

C. VOC Content: Provide materials that comply with VOC limits of authorities having jurisdiction.

D. Colors: All colors and glosses shall be as selected by the Architect and will not be limited to manufacturer's standard colors. Certain colors will require paint manufacturer to prepare special factory mixes to match colors selected by the Architect. Color schedule (with gloss) shall match existing conditions.
1. The Architect reserves the right to change the finishes within the range of flat, semi-gloss, or gloss, without additional cost to the Owner.

E. Material Quality: Provide manufacturer's best-quality trade sale paint material of various coating types specified. All paints shall be new, free from defects, and of recent manufacture.

F. Ready-Mixed Formulations: Wherever a ready-mixed product is specified for use, containers shall bear labels giving exact formula of mixture. Formula shall be guaranteed by manufacturer and subject to analysis by a laboratory selected by Architect. Paint material containers not displaying manufacturer's product identification will not be acceptable.

G. Thinners: Use only thinners approved by paint manufacturer for each specific coating and use only within recommended limits and when approved in advance by Architect.

H. Pigments: Pure, non-fading, mildew-proof, sun-proof, finely ground in approved medium and of applicable types to suit substrates and service indicated as furnished by or approved by manufacturer of approved coating in each case.

I. Pre-Mixed Coatings: All finish paints shall be delivered to site "ready-mixed" matching approved colors. Paint for under-coats may be tinted slightly on site.

2.02 SOURCE QUALITY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:
1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
2. Testing agency will perform tests for compliance with product requirements.
3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers. Where acceptability of substrate conditions is in question, apply samples and perform in-situ testing to verify compatibility, adhesion, and film integrity of new paint application.
1. Report, in writing, conditions that may affect application, appearance, or performance of paint.

B. Substrate Conditions:
   1. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
      a. Wood: 15 percent.
      b. Portland Cement Plaster: 12 percent.
      c. Gypsum Board: 12 percent.
   2. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
   3. Proceed with coating application only after unsatisfactory conditions have been corrected.
      a. Application of coating indicates acceptance of surfaces and conditions.

3.02 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates and paint systems indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
   1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
   1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

D. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer but not less than the following:
   1. SSPC-SP 3, "Power Tool Cleaning."
   2. SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."
   3. SSPC-SP 11, "Power Tool Cleaning to Bare Metal."

E. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

F. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

G. Aluminum Substrates: Remove loose surface oxidation.

H. Wood Substrates:
   1. Scrape and clean knots. Before applying primer, apply coat of knot sealer recommended in writing by topcoat manufacturer for exterior use in paint system indicated.
   2. Sand surfaces that will be exposed to view, and dust off.
   3. Stain edges, ends, faces, undersides, and backsides of wood.
   4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

I. Plastic Trim Fabrication Substrates: Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

3.03 APPLICATION

A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Manual."
   1. Use applicators and techniques suited for paint and substrate indicated.
   2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
   3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
   4. Paint entire exposed surface of window frames and sashes.
   5. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
   6. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

B. Tint undercoats same color as topcoat, but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.04 FIELD QUALITY CONTROL

A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
   1. Contractor shall touch up and restore painted surfaces damaged by testing.
   2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.05 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.06 EXTERIOR PAINTING SCHEDULE

A. Galvanized-Metal Substrates:
   1. Exterior Sheet Metal Siding and Trim:

a. Prime Coat: “RD-Elastometal,” manufactured by RDCoatings, Assesse, Belgium, and distributed by RD Coatings, 167 Avon St., Stratford, CT (203-380-9477). Provide at 5 to 7 mil dry film thickness.
b. Intermediate Coat: Exterior matching topcoat.
c. Topcoat: “Series 1071 Fluoronar,” manufactured by Tnemec Company Inc., 6800 Corporate Drive, Kansas City, MO 64120 (800-863-6321).

END OF SECTION 09 91 13

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes surface preparation and the application of paint systems on interior substrates.
   1. Gypsum board.
   2. Wood.

1.02 DEFINITIONS

A. Flat: Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D523.

B. Matte: Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D523.

C. Eggshell: Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D523.

D. Satin: Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D523.

E. Semi-Gloss: Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D523.

F. Gloss: Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D523.

G. High Gloss: Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D523.

1.03 REFERENCES

A. GreenSeal GS-11 - Standard for Paints, Coatings, Stains, and Sealers.

B. GreenSeal GS-11GreenSeal GS-11; Latest Version.

C. Occupational Safety and Health Act (OSHA) - Safety Standards.

D. American National Standards Institute (ANSI) - Performance Standards.

E. Paint Decorating Contractors of America (PDCA) - Application Standard.

F. National Paint and Coatings Association (NPCA) - Gloss Standard.

G. American Society for Testing Materials (ASTM) - Testing Methods.

H. Master Paint Institute (MPI #) - Established paint categories and standards.

I. Ozone Transmission Commission (OTC) - Established levels of Volatile Organic Compounds. OTC II.

J. SCAQMD 1168 - South Coast Air Quality Management District Rule #1168 with latest amendments.

K. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.

1.04 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.
   1. Manufacturer's name, product name and/or catalog number, and general product category.
   2. Cross-reference to specified paint system(s) that the product is to be used in; include description of each system.

B. Submit for each type of topcoat product.
   1. Product List: For each product indicated, include the following:
   2. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
   3. VOC content.

C. Samples: Submit three paper samples, 5 inches by 7 inches (127mm x 178mm) in size, illustrating selected colors for each color and system selected with specified coats cascaded.

D. Manufacturer's Instructions: Indicate special surface preparation procedures.

E. Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

1.05 CLOSEOUT SUBMITTALS

A. Coating Maintenance Manual: Upon conclusion of the project, the Contractor or paint manufacturer/supplier shall furnish a coating maintenance manual, such as “Custodian Project Color and Product Information" report or equal. Manual shall include an Area Summary with finish schedule, Area Detail designating where each product/color/finish was used, product data pages, Material Safety Data Sheets, care and cleaning instructions, touch-up procedures, and color samples of each color and finish used.

1.06 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
   1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.07 QUALITY ASSURANCE

A. Manufacturer Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of ten years experience.

B. Installer Qualifications: All products listed in this section are to be applied by a Painting Contractor with a minimum of five (5) years demonstrated experience in surface preparation and field application of the same type and scope as specified.

C. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
   1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.
      a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft..
      b. Other Items: Architect will designate items or areas required.
   2. Final approval of color selections will be based on mockups.

a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
b. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.

3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

B. Delivery and Handling: Deliver products to Project site in an undamaged condition in manufacturer's original sealed containers, complete with labels and instructions for handling, storing, unpacking, protecting, and installing. Packaging shall bear the manufacturer’s label with the following information:
1. Product name and type (description).
2. Batch date.
3. Color number.
4. VOC content.
5. Surface preparation requirements.
6. Application instructions.

C. Disposal:
1. Never pour leftover coating down any sink or drain. Use up material on the job or seal can and store safely for future use.
2. Do not incinerate closed containers.
3. For specific disposal or recycle guidelines, contact the local waste management agency or district. Recycle whenever possible.

1.09 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

C. Lead Paint: It is not expected that lead paint will be encountered in the Work.

1.10 WARRANTY

A. Inspection of all surfaces to be coated must be done by the manufacturer's representative to insure proper preparation prior to application. All thinners, fillers, primers and finish coatings shall be from the same manufacturer to support a product warranty. Products other than those submitted shall be accompanied by a letter stating its fitness for use and compatibility.

B. At project closeout, provide to the Owner or owner's representative an executed copy of the Manufacturer's standard form outlining the terms and conditions of and any exclusions to their Limited Warranty against Manufacturing Defect.

PART 2 - PRODUCTS

2.01 PAINT, GENERAL

A. Material Compatibility:
   1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
   2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

B. VOC Content: Products shall comply with VOC limits of authorities (OTC II) having jurisdiction and, for interior paints and coatings applied at Project site, the following VOC limits, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

1.	Flat Paints and Coatings:	50 g/L.
2.	Non-Flat Paints and Coatings:	100 g/L.
3.	Non-Flat High Gloss	150 g/L
4.	Primers, Sealers, and Undercoaters:	100 g/L.
5.	Stains	250 g/L.
6.	Varnish	275 g/L.

C. Colors: To match existing.

2.02 MIXING AND TINTING

A. Except where specifically noted in this section, all paint shall be ready-mixed and pre-tinted. Agitate all paint prior to and during application to ensure uniform color, gloss, and consistency.

B. Thinner addition shall not exceed manufacturer's printed recommendations. Do not use kerosene or other organic solvents to thin water-based paints.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers. Where acceptability of substrate conditions is in question, apply samples and perform in-situ testing to verify compatibility, adhesion, and film integrity of new paint application.
   1. Report in writing conditions that may affect application, appearance, or performance of paint.

B. Substrate Conditions:
   1. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
      a. Wood: 15 percent.
      b. Gypsum Board: 12 percent.
   2. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.02 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
   1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
   1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

D. Wood Substrates:
   1. Scrape and clean knots and apply coat of knot sealer before applying primer.
   2. Sand surfaces that will be exposed to view and dust off.
   3. Prime edges, ends, faces, undersides and backsides of wood.
   4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

3.03 APPLICATION

A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."
   1. Use applicators and techniques suited for paint and substrate indicated.
   2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
   3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
   4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
   5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.04 FIELD QUALITY CONTROL

A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
   1. Contractor shall touch up and restore painted surfaces damaged by testing.

2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.05 PROTECTION

A. Protect all exterior surfaces and areas, including landscaping, walks, drives, all adjacent building surfaces (including glass, aluminum surfaces, etc.) and equipment and any labels and signage from painting operations and damage by drop cloths, shields, masking, templates, or other suitable protective means and make good any damage caused by failure to provide such protection.

B. Protect all interior surfaces and areas, including glass, aluminum surfaces, etc. and equipment and any labels and signage from painting operations and damage by drop cloths, shields, masking, templates, or other suitable protective means and make good any damage caused by failure to provide such protection.

C. Erect barriers or screens and post signs to warn of or limit or direct traffic away or around work area as required.

3.06 CLEANING

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site. Keep work area free from an unnecessary accumulation of tools, equipment, surplus materials and debris.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Remove combustible rubbish materials and empty paint cans each day and safely dispose of same in accordance with requirements of authorities having jurisdiction.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.07 INTERIOR PAINTING SCHEDULE

A. WOOD - (Walls, Ceilings, Doors, Trim):
1.
   a. Sealer (First Coat): GF Sanding Sealer, manufactured by General Finishes, 2462 Corporate Circle, East Troy, WI 53120 (800-783-6050), or approved equal.
   b. Top (Second, Third, and Fourth) Coats: GF High Performance Polyurethane. Top Coat, manufactured by General Finishes, 2462 Corporate Circle, East Troy, WI 53120 (800-783-6050), or approved equal.

B. GYPSUM BOARD - (Walls, Ceilings, Gypsum Board and similar items) to match existing

END OF SECTION 09 91 23

NEW YORK
STATE OF
OPPORTUNITY.

Battery Park City Authority

BATTERY PARK CITY AUTHORITY

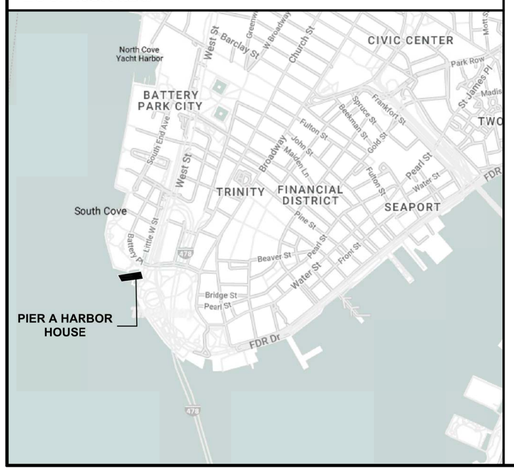
PIER A HARBOR HOUSE

WINDOWS AND DOORS UPGRADES AND REPAIRS

22 BATTERY PLACE, NEW YORK, NY 10004

SEPTEMBER 2023

LOCATION MAP



SYMBOL LEGEND

- OFFICE 101 — Room Designation
- 11 — Wall Type
- 1 — Window Elevation Key
- 0 — Column Grid
- 101 — Door Number
- Elevation Line
- 1 / A101 SIM — Building Section Cut (SIM = Similar)
- 1 TITLE 1/8" = 1'-0" — Drawing Title
- 1 / A101 — Wall Section Cut
- 1 — Revision Tag
- 1 / A101 — Detail Key
- Batt Insulation
- Stud & Gypsum Board
- Plywood
- Wood Blocking
- Wood

ABBREVIATIONS (ALL ABBREVIATIONS NOT USED IN PROJECTS - ONLY REFERENCE AS NOTED ON DRAWINGS

A.B.	ANCHOR BOLT
ABV.	ABOVE
A/C	AIR CONDITIONING
ACI	AMERICAN CONCRETE INSTITUTE
ACST.	ACOUSTIC
A.C.P.	ACOUSTICAL CEILING PANEL
A.C.U.	AIR CONDITIONING UNIT
A.D.	ACCESS DOOR
ADAPT.	ADAPTATION
ADH.	ADHESIVE
ADJ.	ADJUSTABLE
ADMIN.	ADMINISTRATION
A.D.O.	AUTOMATIC DOOR OPERATOR
A/E	ARCHITECT/ENGINEER
A.F.F.	ABOVE FINISH FLOOR
ALT.	ALTERNATE
ALUM.	ALUMINUM
ANCH.	ANCHOR
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
A.P.	ACCESS PANEL
APPROX.	APPROXIMATE
ASPH.	ASPHALT
ASPP.K.	ASPHALT PLANK
ASSIST.	ASSISTANT
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS
A.T.	ACOUSTICAL TILE
AWS	AMERICAN WELDING SOCIETY
BAL.	BALANCE
B.B.	BULLETIN BOARD
B.C.	BRICK COURSE
BRD.	BOARD
BLDG	BUILDING
BLK.	BLOCK
BLKG.	BLOCKING
BM.	BEAM
B.O.	BOTTOM OF
B.O.L.	BOTTOM OF LINTEL
BOT.	BOTTOM
B.R.	BUMPER RAIL
BRKT.	BRACKET
B/U	BUILT-UP
CAB.	CABINET
C.B.	CATCH BASIN
C.C.	CONSTRUCTION CONTRACTOR
CLG.	CEILING
CEM.	CEMENT
CER.	CERAMIC
C.FL.	CONDUCTIVE FLOORING
CG	CORNER GUARD
CIP	CAST-IN-PLACE
C.J.	CONTROL JOINT
CL.G.	CEILING
CL.GL.	CLEAR GLASS
CLO.	CLOSER
CMU	CONCRETE MASONRY UNIT
C.O.	CLEAN OUT
COL.	COLUMN
CONC.	CONCRETE
CONST.	CONSTRUCTION
CONT.	CONTINUOUS
CONTR.	CONTRACTOR
CORR.	CORRIDOR
CPT.	CARPET
C.R.	CARD READER
C.R.S.	CORROSION-RESISTANT STEEL
CRSI	CONCRETE REINFORCING STEEL INSTITUTE
C/S	COUNTERSUNK
C.T.	CERAMIC TILE
CTG.	COATING
CTR.	CENTER
CU.	COPPER
C.W.	COLD WATER
DBL.	DOUBLE
DET.	DETAIL
D.F.	DRINKING FOUNTAIN
DIA.	DIAMETER
DIAG.	DIAGONAL
DIM.	DIMENSION
DISP.	DISPENSER
DN.	DOWN
DRSG.	DRESSING
D.S.	DOWNSPOUT
DRWG.	DRAWING
DWR.	DRAWER
E.	ELECTRICAL
EA	EACH
E.J.	EXPANSION JOINT
EL.	ELEVATION
ELEC.	ELECTRIC/ELECTRICAL
ELEV.	ELEVATION
ENG	ENGINEER
EP	ELECTRICAL PANEL
EPY	EPOXY COATING
EQ	EQUAL
EQUIP	EQUIPMENT
E.S.	EACH SIDE
EXAM	EXAMINATION
EXIST	EXISTING
EXST	EXHAUST
EXP	EXPOSED
EXPN.	EXPANSION
EXT.	EXTERIOR
F.A.I.	FRESH AIR INTAKE
F.C.	FIRE CODE
F.B.O.	FURNISHED BY OTHERS
F.C.	FILING CABINET
F.C.U.	FAN COIL UNIT
F.D.	FLOOR DRAIN
FE.	FIRE EXTINGUISHER
F.F.	FINISH FLOOR
F.H.C.	FIRE HOUSE CABINET
FHMS	FLAT HEAD MACHINE SCREW
FIN.	FINISH
FLAM	FLAMMABLE
FLR.	FLOOR
FLSHG.	FLASHING
FDN.	FOUNDATION
F.P.	FIRE PARTITION
F.R.	FIRE RETARDANT
F.SP.	FIRE STANDPIPE
FTG.	FOOTING
F.GL.	FIXED GLASS
FURG	FURRING
G.	GAS
GA.	GAUGE
GALV.	GALVANIZED
G.B.	GRAB BAR
GEN.	GENERAL
GL.	GLASS, GLAZED
GR.	GRADE
GRT.	GROUT
G.W.B.	GYPSUM WALL BOARD
GYP.	GYPSUM
GYP.BD.	GYPSUM BOARD
H.C.	HANDICAPPED
HDBD.	HARDBOARD
HDWD.	HARDWOOD
HDWE.	HARDWARE
H.M.	HOLLOW METAL
HOR.	HORIZONTAL
H.R.	HANDRAIL
HT.	HEIGHT
HTG	HEATING
H.W.	HOT WATER
INSUL.	INSULATION/INSULATING
INT.	INTERIOR
JNT.	JOINT
JST.	JOIST
K.P.	KICK PLATE
LAM.	LAMINATE
LAV.	LAVATORY
LDR.	LEADER
LKR.	LOCKER
L.L.H.	LONG LEG HORIZONTAL
L.L.V.	LONG LEG VERTICAL
LOC.	LOCATION
L.P.	LOW POINT
LMSTN.	LIMESTONE
LT.	LIGHT
M.	MECHANICAL
MANUF.	MANUFACTURER
MATL.	MATERIAL
MAX.	MAXIMUM
M.B.	MODIFIED BITUMEN
MECH.	MECHANICAL
M.E.P.	MECHANICAL, ELECTRICAL, PLUMBING
MET.	METAL
MFD.	MANUFACTURED
MFR.	MANUFACTURER
MGR.	MANAGER
MID.	MIDDLE
MIN.	MINIMUM
MISC.	MISCELLANEOUS
MLDG.	MOLDING
MTD.	MOUNTED
M.O.	MASONRY OPENING
MOIST.	MOISTURE
M.P.E.	MECHANICAL, PLUMBING, ELECTRICAL
M.R.	MOISTURE RESISTANT
M.T.	METAL THRESHOLD
MTL.	METAL
M.T.P.	METAL TOILET PARTITION
MULT.	MULTIPLE
NBS	NATIONAL BUREAU OF STANDARDS
N.I.C.	NOT IN CONTRACT
N.L.	NEOPRENE LATEX
NO.	NUMBER
NRCA	NATIONAL ROOFING CONTRACTORS ASSOC.
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
OHD.	OVERHEAD DOOR
OPG.	OPENING
OPP.	OPPOSITE
O.W.	OBSERVATION WINDOW
O.W.S.J.	OPEN WEB STEEL JOIST
P.	PLUMBING
PAR.	PARALLEL
P.C.	POURED CONCRETE
PERP.	PERPENDICULAR
PL.	PLATE OR PLASTIC
PLAS.	PLASTIC
P.LAM.	PLASTIC LAMINATED
PLBG.	PLUMBING
PLYWD.	PLYWOOD
PNL.	PANEL
PNTD.	PAINTED
PORT.	PORTABLE
PROJ.	PROJECTION
P.S.	PRODUCT STANDARD
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT.	PAINT
PTD.	PAINTED
PTN.	PARTITION
P.V.C.	POLYVINYL CHLORIDE
P.W.	PASS WINDOW
QA.	QUALITY ASSURANCE
Q.T.	QUARRY TILE
R	RADIUS OR RISER
(R)	RELOCATED ITEM
RBR.	RUBBER BASE
R&C	RECEPTION & CONTROL
R.P.	REFLECTED CEILING PLAN
R.D.	ROOF DRAIN
R.D.L.	ROOF DRAIN LEADER
REC.	RECEPTION
REINF.	REINFORCED
REF.	REFRIGERATION
REG.	REGLET
REHAB.	REHABILITATION
REPRO.	REPRODUCTION
REQ.	REQUIREMENT
RESIL.	RESILIENT
RM.	ROOM
R.O.	ROUGH OPENING
R.P.	RETRACTABLE PARTITION
RST.	RESISTANCE
R.T.	RUBBER TILE
S.C.	SPECIAL COATING
SCHED.	SCHEDULE
SECT.	SECTION
S.G.F.U.	STRUCTURAL GLAZED FACING UNITS
SH.	SHELVING, SHELF
SIM.	SIMILAR
S.J.C.	SEISMIC JOINT CEILING
S.J.F.	SEISMIC JOINT FLOORING
S.J.W.	SEISMIC JOINT WALL
SPEC.	SPECIFICATIONS
SQ.	SQUARE
S&R	SHELF & ROD
S.S.	SERVICE SINK
ST. STL.	STAINLESS STEEL
STA.	STATION
STL.	STEEL
STOR.	STORAGE
STR.	STRUCTURE
STRUC.	STRUCTURAL
SUB.	SUBCONTRACTOR
SUPER.	SUPERVISOR
SUSP.	SUSPEND
S.V.F.	SHEET VINYL FLCORING
SW.	SIDEWALK
SYM.	SYMMETRICAL
T.	TOILET
TECH.	TECHNICIAN
TEL.	TELEPHONE
TEM.	TEMPERED
TEMP.	TEMPERATURE
TEMPY	TEMPORARY
TERR.	TERRAZZO
THK.	THICK
T.O.M.	TOP OF MASONRY
T.O.S.	TOP OF STEEL
TOX.	TOXIC
TR.	TREAD
TRTD.	TREATED
TRTMT.	TREATMENT
TV.C.TV	SCREEN OR MONITOR, CEILING MOUNTED
TV.W.TV	SCREEN OR MONITOR, WALL MOUNTED
TYP.	TYPICAL
UBC	UNIFORM BUILDING CODE
UNAS.	UNASSIGNED
U.N.O.	UNLESS NOTED OTHERWISE
UNPT.	UNPAINTED
U.P.S.	UNINTERRUPTIBLE POWER SUPPLY
UR.	URINAL
UTIL.	UTILITY
V.	VACUUM
V.B.	VAPOR BARRIER
VCT	VINYL COMPOSITION TILE
VERT.	VERTICAL
VEST.	VESTIBULE
V.H.	VINYL HOMOGENEOUS
VIN.	VINYL
V.T.R.	VENT THRU ROOF
V.W.C.	VINYL WALL COVERING
W.	WALL COVERING
W/	WITH
W.C.	WATER CLOSET
W/C	WHEEL CHAIR
WD.	WIDTH OR WOOD
W.HTR.	WATER HEATER
W.I	WROUGHT IRON
W.W.F.	WELDED WIRE FABRIC
W/O	WITHOUT
W.P.	WATERPROOFING
W.R.	WASTE RECEPTACLE
WSCT.	WAINSCOT
W.T.	WALL TILE
W.V.F.	WELDED VINYL FLOORING

LIST OF DRAWINGS

1	T-001.00	TITLE SHEET, GENERAL NOTES, ABBREVIATIONS & LEGENDS
2	A-001.00	EXISTING ELEVATIONS, WINDOW REPLACEMENT, LEGEND
3	A-002.00	WINDOW SCHEDULE
4	A-003.00	DOOR AND HARDWARE SCHEDULE

SCOPE:

Remove and replace damaged windows and wood sills at locations identified on drawings. At all other locations, existing sills are to be encapsulated to prevent future deterioration.
All exterior doors and slider windows are to receive new hardware to ensure security and egress of the building as specified.
All interior and exterior work is to match existing conditions.

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REGISTERED ARCHITECT
KEVIN MARK PAIK
023976
STATE OF NEW YORK

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DESIGNED BY:	DRAWN BY:	CHECKED BY:	REVIEWED BY:
KEG	JB/EJA	KEG	KMP

PROJECT No.:	DATE:	SCALE:
BPCA2201	SEPTEMBER 2023	AS SHOWN

CLIENT

BATTERY PARK CITY AUTHORITY

Pier A Harbor House
Windows And Doors Upgrades

22 Battery Place
New York, NY, 10004

STATUS

BID SUBMISSION

DRAWING No.

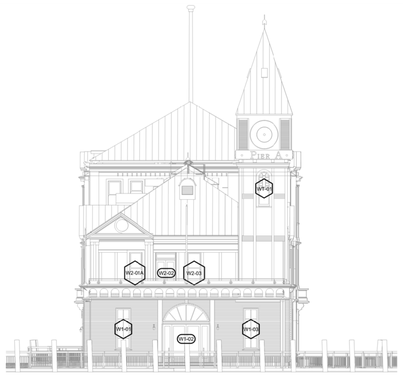
T-001.00

SHEET No. 01 OF 04

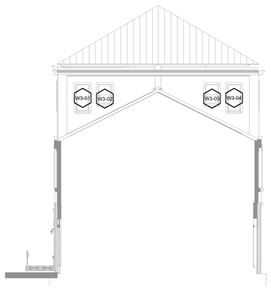
GENERAL NOTES

THE FOLLOWING NOTES SHALL APPLY THROUGHOUT. EXCEPTIONS ARE SPECIFICALLY NOTED ON EACH DRAWING.

1. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND CONDITIONS OF THE SITE AND/OR BUILDING.
2. COORDINATION OF ALL WORK UNDER THIS CONTRACT SHALL BE MAINTAINED TO ENSURE THE QUALITY AND TIMELY COMPLETION OF THE WORK/PROJECT.
3. THE CONTRACTOR SHALL PERFORM ALL CUTTING AND PATCHING REQUIRED TO COMPLETE THE WORK OR TO MAKE ITS PARTS FIT TOGETHER PROPERLY WITHOUT COMPROMISING THE QUALITY OF THE WORK.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY BRACING AND PROTECTING ALL WORK DURING CONSTRUCTION AGAINST DAMAGE, BREAKAGE, COLLAPSE, DISTORTIONS, AND OFF ALIGNMENTS ACCORDING TO CODES AND STANDARDS OF GOOD PRACTICE.
5. THE CONTRACTOR SHALL PATCH AND REPAIR ALL FLOORS, WALLS CEILINGS, ETC.. DAMAGED OR EXPOSED DUE TO WORK OR REMOVALS AND FINISH TO MATCH ADJOINING SURFACES.
6. WHERE MANUFACTURES' NAMES AND PRODUCT NUMBERS ARE INDICATED ON THE DRAWINGS, IT SHALL BE CONSTRUED TO MEAN THE ESTABLISHING OF QUALITY AND PERFORMANCE STANDARDS OF SUCH ITEMS. ALL OTHER PRODUCTS MUST BE SUBMITTED TO THE ARCHITECT FOR APPROVAL BEFORE THEY SHALL BE DEEMED EQUAL.
7. FIRE STOPPING SHALL BE INSTALLED AT ALL PENETRATIONS OF FIRE-RATED CONSTRUCTION AS PER SPECIFICATIONS. FIRESTOPPING MATERIALS ARE TO BE APPROPRIATE FOR, AND BE PART OF A LISTED AND LABELED ASSEMBLY IN ACCORDANCE WITH THE BUILDING CODE OR HAVE OTCR OR MEA APPROVAL.
8. SIZE OF WOOD MEMBERS ON PLANS, ELEVATIONS AND SECTIONS ARE SHOWN AS NOMINAL SIZE.
9. ADDITIONAL NOTES THAT ARE APPLICABLE TO THIS PROJECT MAY BE FOUND THROUGHOUT THE CONTRACT DRAWINGS AND SPECIFICATIONS.



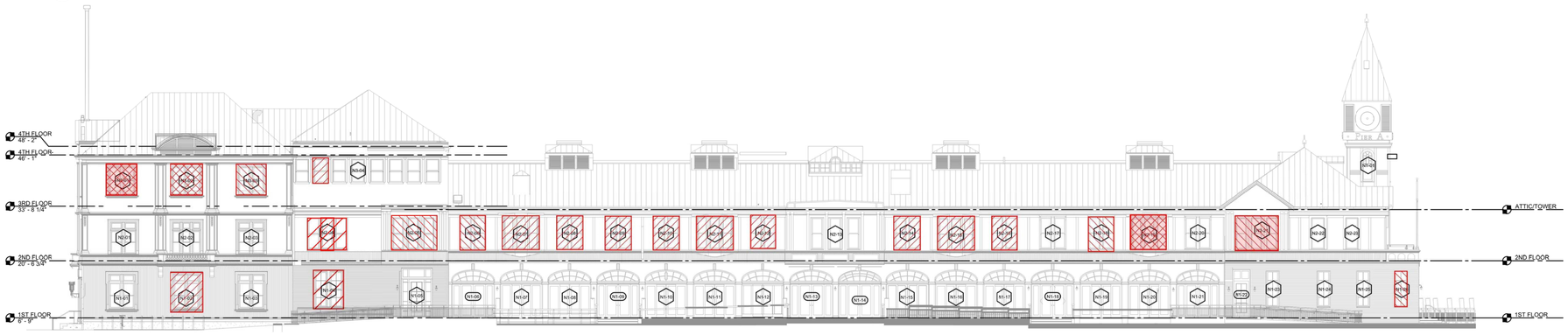
1 OUTSHORE - WEST ELEVATION
SCALE: NTS



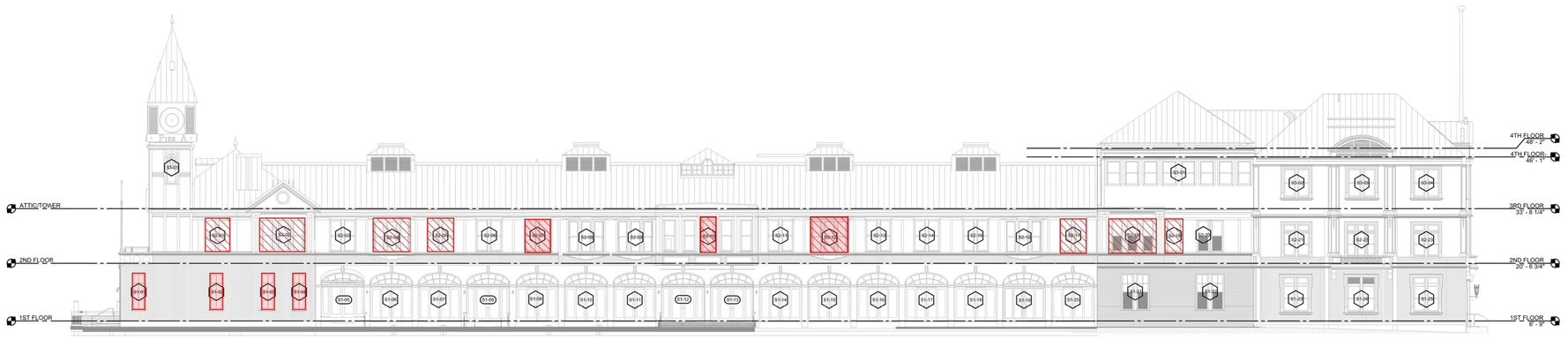
2 INSHORE - WEST ELEVATION
SCALE: NTS



3 HEADHOUSE - EAST ELEVATION
SCALE: NTS

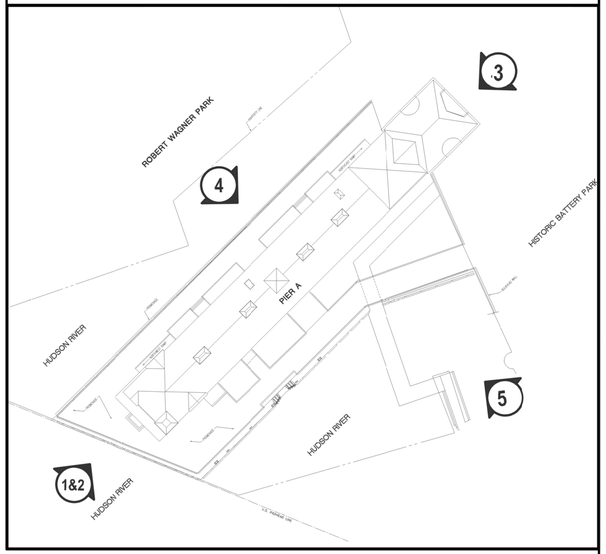


4 NORTH ELEVATION - OUTSHORE BUILDING AND PIERSHED
SCALE: NTS



5 SOUTH ELEVATION - OUTSHORE BUILDING AND PIERSHED
SCALE: NTS

KEY MAP



NOTES TO CONTRACTOR:

1. CONTRACTOR TO REMOVE SHEETROCK BLOCKING WINDOWS AT 2ND FLOOR WITHIN THE KITCHEN AREA. WINDOWS ARE TO REMAIN OPEN.
2. PATCH, REPAIR AND PAINT INTERIOR AND EXTERIOR WALLS ONLY AROUND THE AFFECTED WINDOWS AS REQUIRED. COLOR TO MATCH EXISTING WALLS. SEE SPECIFICATIONS DIVISION 9 FOR ADDITIONAL INFORMATION

ALTERNATE 1:

PROVIDE FILM TO ALL FIRST FLOOR WINDOWS, SLIDERS, AND EXTERIOR SWINGING DOORS TO PROVIDE LEVEL OF OPACITY FOR SECURITY.
IF AWARDED, GC TO SUBMIT SAMPLES AND PROVIDE MOCKUP FOR CLIENT AND AOR REVIEW.
FILM SHALL MATCH EXISTING FILM LOCATED AT SELECT LOCATIONS.
SEE SPECIFICATIONS SECTION 088713 FOR ADDITIONAL INFORMATION

WINDOW REPLACEMENT LEGEND

- 2017 MCLAREN DAMAGE
- H2M INTERIOR DAMAGE
- H2M EXTERIOR DAMAGE

NOTE:
1. REPLACE ALL WINDOWS WITH THESE HATCHES WITH NEW ALUMINUM CLAD WOOD WINDOWS. SEE SPECIFICATIONS SECTION 085210
2. ENCAPSULATE ALL EXISTING SILLS TO REMAIN. SEE SPECIFICATIONS SECTION 076200 FOR ADDITIONAL REQUIREMENTS

LEGEND

- (x) WINDOW DESTINATION
- x DOOR DESTINATION

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CONSULTANTS:

MARK	DATE	DESCRIPTION
	09/29/2023	BID SUBMISSION

REGISTERED ARCHITECT KEVIN MARK PAKE STATE OF NEW YORK 023976

DESIGNED BY:	DRAWN BY:	CHECKED BY:	REVIEWED BY:
KEG	JB/EJA	KEG	KMP

PROJECT No.:	DATE:	SCALE:
BPCA2201	APRIL 2023	AS SHOWN

CLIENT
BATTERY PARK CITY AUTHORITY
Pier A Harbor House
Windows And Doors Upgrades
NEW YORK STATE OF OPPORTUNITY.
Battery Park City Authority
22 Battery Place
New York, NY, 10004

CONTRACT
GENERAL CONSTRUCTION

STATUS
BID SUBMISSION

SHEET TITLE
EXISTING ELEVATIONS
WINDOW REPLACEMENT LEGEND

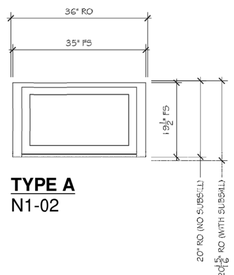
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A-001.00	02 OF 04

WINDOW NOTES

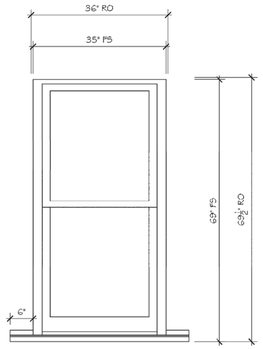
1. INTERIOR WINDOW SILL STOOLS AND APRONS SHALL HAVE CLOSED END CAPS, FABRICATED OF THE SAME GAUGE MATERIAL AS THE STOOLS.
2. THE CONTRACTOR SHALL PROVIDE AND INSTALL CLOSED CELL INJECTION FOAM INSULATION TO FILL **ALL** VOIDS UB ALL HEADS, JAMBS, SILLS MULLIONS AND STOOLS.
3. PROVIDE LOCKABLE STOPS TO LIMIT TRAVEL OF LOWER SASH TO 5" AT ALL EXISTING WINDOWS BEING INSTALLED.
4. DURING CONSTRUCTION, TEMPORARY SEAL OPENINGS TO PREVENT DUST AND DIRT FROM FILTERING INTO AREAS ARE TO BE PROVIDED BY CONTRACTOR.
5. DESIGN OF WINDOW FASTENERS TO BE PERFORMED BY N.Y. STATE LICENSED ENGINEER (TYPICAL FOR ALL WINDOW ANCHORAGE.)
6. ALL WINDOW AIR CONTIDIONER UNITS ARE TO BE REMOVED AND TURNED OVER TO BATTERY PARK CITY AUTHORITY.
7. REFER TO DIVISIONS 6 FOR ROUGH AND FINISH CARPENTARY FOR BLOCKING AND SILLS.

FLASHING NOTES:
(SEE SPECIFICATIONS SECTION 071326 FOR ADDITIONAL INFORMATION)

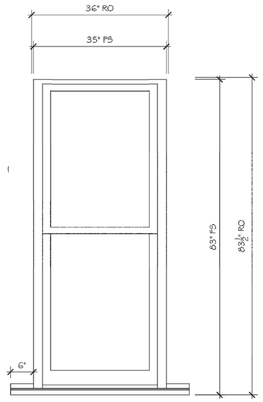
1. INSTALL 4" WIDE PEEL & STICK MEMEBRANE FLASHING AT RCLL WITH A NYLON ROLLER TO ENSURE COMPLETE BOND.
2. APPLY A CONTINUOUS HEAVY (MIN. 1/4") BEAD OF SEALANT AT THE INSTALL WINDOW ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS INTO THE ROUGH OPENING. PROVIDE SHIMS BEHIND BOTTOM WINDOW FLANGE TO ALLOW FOR DRAINAGE.
3. PROVIDE A HEAVY BEAD OF SEALANT ALL AROUND THE ENTIRE PERIMETER OF THE WINDOW TO PROVIDE A COMPLETE AIR BARRIER AND BACK DAM TO WINDOW.



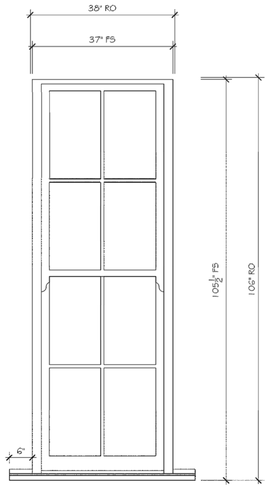
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N1-02



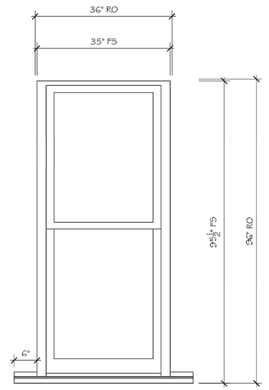
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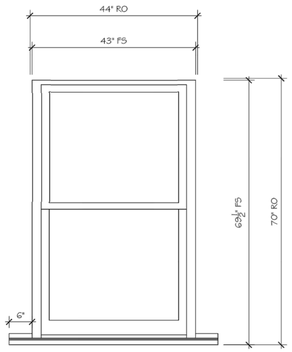
TYPE C
N3-01, 02, 03



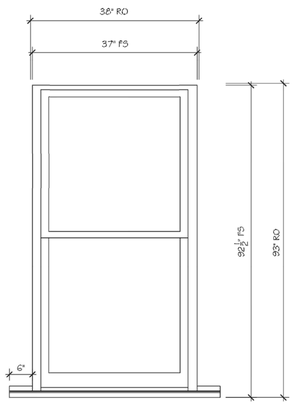
TYPE D
N1-04, 26 & S1-01,02,03,04



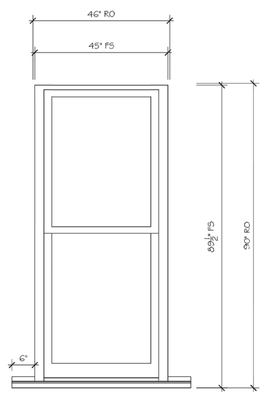
TYPE E
N2-05,06,07,08,09,10,11,12,14, 15,16,18,19,21
S2-01,02,04,05,07,10,12,17,18,19



TYPE G
N3-04



TYPE F
N2-04



TYPE H
E3-02

WINDOW SCHEDULE			(APPROX. ROUGH OPENING DIMENSIONS)		
North Elev	**Type**	**Style**	**QTY**	**RO height**	**RO length**
N1-02	A/B	Double Hung w/transom ⚠	2	89.5	36"
N1-04	D	Single Hung	2	106"	38"
N1-26	D	Single Hung	1	106"	38"
N2-04	F	Double Hung ⚠	3	93"	38"
N2-05	E	Double Hung	3	96"	36"
N2-06	E	Double Hung	2	96"	36"
N2-07	E	Double Hung	3	96"	36"
N2-08	E	Double Hung	2	96"	36"
N2-09	E	Double Hung	2	96"	36"
N2-10	E	Double Hung	2	96"	36"
N2-11	E	Double Hung	3	96"	36"
N2-12	E	Double Hung	2	96"	36"
N2-14	E	Double Hung	2	96"	36"
N2-15	E	Double Hung	3	96"	36"
N2-16	E	Double Hung	2	96"	36"
N2-18	E	Double Hung	2	96"	36"
N2-19	E	Double Hung	3	96"	36"
N2-21	E	Double Hung	3	96"	36"
N3-01	C	Double Hung	2	83.5"	36"
N3-02	C	Double Hung	2	83.5"	36"
N3-03	C	Double Hung	2	83.5"	36"
N3-04	G	Double Hung	1	70"	44"

South Elev	**Type**	**Style**	**QTY**	**RO height**	**RO length**
S1-01	D	Single Hung	1	106"	38"
S1-02	D	Single Hung	1	106"	38"
S1-03	D	Single Hung	1	106"	38"
S1-04	D	Single Hung	1	106"	38"
S2-01	E	Double Hung ⚠	2	96"	36"
S2-02	E	Double Hung	3	96"	36"
S2-04	E	Double Hung	3	96"	36"
S2-05	E	Double Hung	2	96"	36"
S2-07	E	Double Hung	2	96"	36"
S2-10	E	Double Hung	1	96"	36"
S2-12	E	Double Hung	3	96"	36"
S2-17	E	Double Hung	2	96"	36"
S2-18	E	Double Hung	3	96"	36"
S2-19	E	Double Hung	1	96"	36"

East Elev	**Type**	**Style**	**QTY**	**RO height**	**RO length**
E3-02	H	Single Hung	3	90"	46"

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CONSULTANTS:

MARK	DATE	DESCRIPTION
⚠	12/22/2023	ADDENDUM 3
	09/29/2023	BID SUBMISSION

REGISTERED ARCHITECT · KEVIN MARK PAUL · 023976 · STATE OF NEW YORK

DESIGNED BY:	DRAWN BY:	CHECKED BY:	REVIEWED BY:
KEG	JB/EJA	KEG	KMP
PROJECT No.:	DATE:	SCALE:	
BPCA2201	APRIL 2023	AS SHOWN	

CLIENT
BATTERY PARK CITY AUTHORITY
Pier A Harbor House
Windows And Doors Upgrades

NEW YORK STATE OF OPPORTUNITY.

Battery Park City Authority

22 Battery Place
New York, NY, 10004

CONTRACT
GENERAL CONSTRUCTION

STATUS
BID SUBMISSION

SHEET TITLE
WINDOW SCHEDULE

DRAWING No.
A-002.00

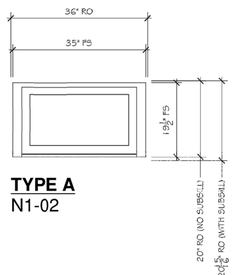
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03 OF 04

WINDOW NOTES

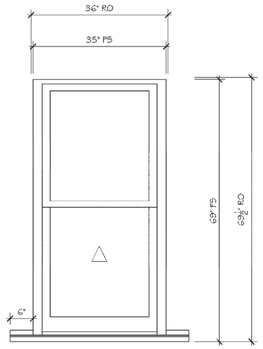
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2. THE CONTRACTOR SHALL PROVIDE AND INSTALL CLOSED CELL INJECTION FOAM INSULATION TO FILL **ALL** VOIDS UB ALL HEADS, JAMBS, SILLS MULLIONS AND STOOLS.
3. PROVIDE LOCKABLE STOPS TO LIMIT TRAVEL OF LOWER SASH TO 5" AT ALL EXISTING WINDOWS BEING INSTALLED.
4. DURING CONSTRUCTION, TEMPORARY SEAL OPENINGS TO PREVENT DUST AND DIRT FROM FILTERING INTO AREAS ARE TO BE PROVIDED BY CONTRACTOR.
5. DESIGN OG WINDIW FASTENERS TO BE PERFORMED BY N.Y. STATE LICENSED ENGINEER (TYPICAL FOR ALL WINDOW ANCHORAGE.)
6. ALL WINDOW AIR CONTIDIONER UNITS ARE TO BE REMOVED AND TURNED OVER TO LOCATIONS OF WINDOW DEMOLTION.
7. REFER TO DIVISIONS 6 FOR ROUGH AND FINISH CARPENTARY FOR BLOCKING AND SILLS.

FLASHING NOTES:
(SEE SPECIFICATIONS SECTION 071326 FOR ADDITIONAL INFORMATION)

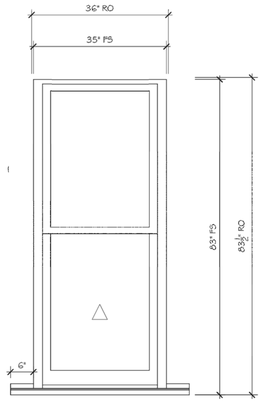
1. INSTALL 4" WIDE PEEL & STICK MEMEBRANE FLASHING AT RCLL WITH A NYLON ROLLER TO ENSURE COMPLETE BOND.
2. APPLY A CONTINUOUS HEAVY (MIN. 1/4") BEAD OF SEALANT AT THE INSTALL WINDOW ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS INTO THE ROUGH OPENING. PROVIDE SHIMS BEHIND BOTTOM WINDOW FLANGE TO ALLOW FOR DRAINAGE.
3. PROVIDE A HEAVY BEAD OF SEALANT ALL AROUND THE ENTIRE PERIMETER OF THE WINDOW TO PROVIDE A COMPLETE AIR BARRIER AND BACK DAM TO WINDOW.



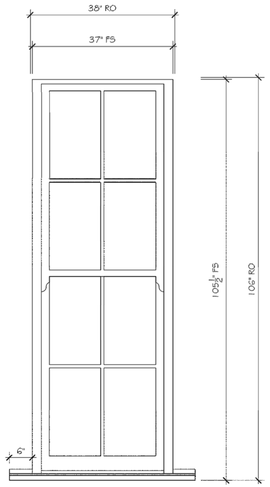
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N1-02



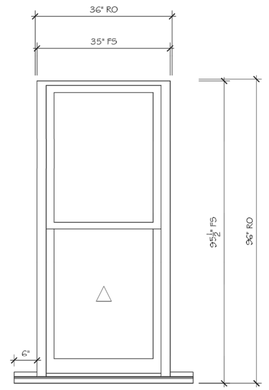
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N1-02



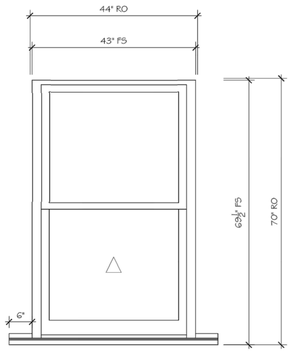
TYPE C
N3-01, 02, 03



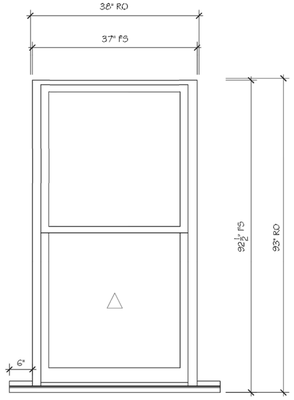
TYPE D
N1-04, 26 & S1-01,02,03,04



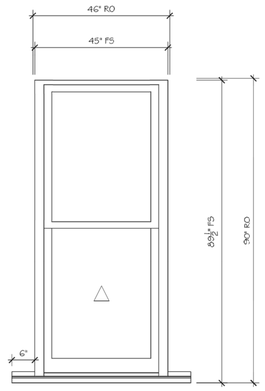
TYPE E
N2-05,06,07,08,09,10,11,12,14, 15,16,18,19,21
S2-01,02,04,05,07,10,12,17,18,19



TYPE G
N3-04



TYPE F
N2-04



TYPE H
E3-02

WINDOW SCHEDULE			(APPROX. ROUGH OPENING DIMENSIONS)		
North Elev	**Type**	**Style**	**QTY**	**RO height**	**RO length**
N1-02	A/B	Single Hung w/transom	2	89.5	36"
N1-04	D	Single Hung	2	106"	38"
N1-26	D	Single Hung	1	106"	38"
N2-04	F	Single Hung	3	93"	38"
N2-05	E	Single Hung	3	96"	36"
N2-06	E	Single Hung	2	96"	36"
N2-07	E	Single Hung	3	96"	36"
N2-08	E	Single Hung	2	96"	36"
N2-09	E	Single Hung	2	96"	36"
N2-10	E	Single Hung	2	96"	36"
N2-11	E	Single Hung	3	96"	36"
N2-12	E	Single Hung	2	96"	36"
N2-14	E	Single Hung	2	96"	36"
N2-15	E	Single Hung	3	96"	36"
N2-16	E	Single Hung	2	96"	36"
N2-18	E	Single Hung	2	96"	36"
N2-19	E	Single Hung	3	96"	36"
N2-21	E	Single Hung	3	96"	36"
N3-01	C	Single Hung	2	83.5"	36"
N3-02	C	Single Hung	2	83.5"	36"
N3-03	C	Single Hung	2	83.5"	36"
N3-04	G	Single Hung	1	70"	44"

South Elev	**Type**	**Style**	**QTY**	**RO height**	**RO length**
S1-01	D	Single Hung	1	106"	38"
S1-02	D	Single Hung	1	106"	38"
S1-03	D	Single Hung	1	106"	38"
S1-04	D	Single Hung	1	106"	38"
S2-01	E	Single Hung	2	96"	36"
S2-02	E	Single Hung	3	96"	36"
S2-04	E	Single Hung	3	96"	36"
S2-05	E	Single Hung	2	96"	36"
S2-07	E	Single Hung	2	96"	36"
S2-10	E	Single Hung	1	96"	36"
S2-12	E	Single Hung	3	96"	36"
S2-17	E	Single Hung	2	96"	36"
S2-18	E	Single Hung	3	96"	36"
S2-19	E	Single Hung	1	96"	36"

East Elev	**Type**	**Style**	**QTY**	**RO height**	**RO length**
E3-02	H	Single Hung	3	90"	46"

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CONSULTANTS:

MARK	DATE	DESCRIPTION
	09/29/2023	BID SUBMISSION

REGISTERED ARCHITECT KEVIN MARK PAUL 023976 STATE OF NEW YORK

DESIGNED BY:	DRAWN BY:	CHECKED BY:	REVIEWED BY:
KEG	JB/EJA	KEG	KMP

PROJECT No.:	DATE:	SCALE:
BPCA2201	APRIL 2023	AS SHOWN

CLIENT
BATTERY PARK CITY AUTHORITY
Pier A Harbor House
Windows And Doors Upgrades

NEW YORK STATE OF OPPORTUNITY.

Battery Park City Authority

22 Battery Place
New York, NY, 10004

CONTRACT
GENERAL CONSTRUCTION

STATUS
BID SUBMISSION

SHEET TITLE
WINDOW SCHEDULE

DRAWING No.
A-002.00

SHEET No.
03 OF 04

DOOR SCHEDULE

(APPROX. ROUGH OPENING DIMENSIONS)

North Elev	Style	QTY	RO height	RO length	Hardware Set
N1-05	Swing Door	1	±159"	± 65"	Set 1
N1-06	Swing Door	2	±144"	±54"	Set 1
N1-09	Swing Door	2	±144"	±54"	Set 1
N1-13	Swing Door	2	±144"	±54"	Set 1
N1-14	Swing Door	2	±144"	±54"	Set 1
N1-18	Swing Door	2	±144"	±54"	Set 1
N1-21	Swing Door	2	±144"	±54"	Set 1
N1-22	Swing Door	1	±152"	± 65"	Set 1
N1-07	Sliding Door	2	±144"	±88"	Set 2
N1-08	Sliding Door	2	±144"	±88"	Set 2
N1-10	Sliding Door	2	±144"	±86"	Set 2
N1-11	Sliding Door	2	±144"	±86"	Set 2
N1-12	Sliding Door	2	±144"	±86"	Set 2
N1-15	Sliding Door	2	±144"	±86"	Set 2
N1-16	Sliding Door	2	±144"	±86"	Set 2
N1-17	Sliding Door	2	±144"	±88"	Set 2
N1-19	Sliding Door	2	±144"	±86"	Set 2
N1-20	Sliding Door	2	±144"	±86"	Set 2

South Elev	Style	QTY	RO height	RO length	Hardware Set
S1-05	Swing Door	2	±144"	±54"	Set 1
S1-08	Swing Door	2	±144"	±54"	Set 1
S1-12	Swing Door	2	±144"	±54"	Set 1
S1-13	Swing Door	2	±144"	±54"	Set 1
S1-06	Sliding Door	2	±144"	±86"	Set 2
S1-07	Sliding Door	2	±144"	±86"	Set 2
S1-09	Sliding Door	2	±144"	±86"	Set 2
S1-10	Sliding Door	2	±144"	±86"	Set 2
S1-11	Sliding Door	2	±144"	±86"	Set 2
S1-14	Sliding Door	2	±144"	±86"	Set 2
S1-15	Sliding Door	2	±144"	±86"	Set 2
S1-16	Sliding Door	2	±144"	±86"	Set 2
S1-17	Sliding Door	2	±144"	±86"	Set 2
S1-18	Sliding Door	2	±144"	±86"	Set 2
S1-19	Sliding Door	2	±144"	±88"	Set 2
S1-20	Sliding Door	2	±144"	±86"	Set 2

West Elev	Style	QTY	RO height	RO length	Hardware Set
W1-02	Swing Door	2	±144"	±54"	Set 1
W2-02	Swing Door	2	±126"	±36"	Set 1

East Elev	Style	QTY	RO height	RO length	Hardware Set
E1-01	Swing Door	2	±126"	±42"	Set 1
E1-02	Swing Door	2	±144"	±51"	Set 1
E1-03	Swing Door	1	±126"	±42"	Set 1

SEE SPECIFICATIONS SECTION 087100 FOR
HARDWARE SET REQUIREMENT5S

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BATTERY PARK CITY AUTHORITY

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Windows And Doors Upgrades

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Battery Park City Authority

22 Battery Place
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CONTRACT

GENERAL CONSTRUCTION

STATUS

BID SUBMISSION

SHEET TITLE

DOOR AND HARDWARE SCHEDULE

DRAWING No.

A-003.00

SHEET No.

04 OF 04

EXHIBIT B-2:
PIER A RAILINGS PROJECT DRAWINGS & SPECIFICATIONS

[ATTACHED]

Battery Park City Authority

Pier A Railings Rehabilitation

TECHNICAL SPECIFICATIONS

Issue for Bid

April 2022

Prepared for:

Battery Park City Authority
200 Liberty St, 24th FL
New York, NY 10281

Prepared By:

Urban Engineers of New York, D.P.C
7 Penn Plaza, Suite 1800
New York, NY 10001

Battery Park City Authority

Pier A Handrails Maintenance and Restoration

22 Battery Pl., New York, NY

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260553 Identification for Electrical Systems

265619 LED Exterior Lighting

SECTION 011100 - SUMMARY OF WORK

PART 1 - GENERAL

1.1 GENERAL PROJECT AND SITE DESCRIPTION

A. The project is located on the Battery Park Terminal on the eastern shore of the Hudson River in New York, NY.

B. The objective of the project is to replace, repair, and refinish the existing metal fencing and metal railings surrounding the Pier A Building as directed.

C. Recent surveys indicate that a portion of the railings and their components, connectors, and welds, are exhibiting signs of moderate to serious deterioration.

1.2 WORK INCLUDED IN THE CONTRACT

A. GENERAL

i. Provide all labor, equipment, materials, and all other services and expenses as may be necessary for, and incidental to, the proper execution and completion of the tasks as described herein.

B. MOBILIZATION & STARTUP

i. Perform a survey of the all railings to verify conditions, quantities and dimensions.

ii. Mobilize all personnel, equipment and materials to the site as needed. A laydown area for equipment and materials will be provided for by the Owner in the vicinity of the work site.

iii. All equipment and materials shall be located in the laydown area(s) provided by the Owner, or as otherwise directed by the Owner. Bids shall include any specific laydown requirements required to perform the work.

iv. Install all construction fencing, signage, and materials to comply with all permits and site maintenance plans.

C. REPLACEMENT OF RAILING AND REPAIR EXISTING RAILING WORK

i. Follow the procedures outlined on the drawings to clean and prepare the surfaces for repair painting and install the new railing components according to drawing sheet GA-4.

a. Perimeter of existing railing cleaning and painting.

b. Installation new anchor bolts and lag bolts.

c. Removing deteriorated railings and replacing with new railings.

D. DEMOBILIZATION & CLOSE-OUT

i. Demobilize from the site and leave the facility in a clean and satisfactory condition.

ii. Submit as-built drawings to the Owner.

1.3 INCIDENTAL ITEMS

A. Review the information available relating to the project, including, but not limited to, the construction drawings, drawings indicating previous repairs, investigation survey report(s), geotechnical investigation/report, tides and currents.

B. Adhere to and abide by all the Owner's safety and security policies at all times.

C. Provide and maintain all safety measures and devices to ensure public safety and prevent public access to the structure throughout construction.

D. Include all required insurance documents with Bid.

1.4 EXCLUSIONS

A. All exclusions shall be specifically stated in the Bid and shall become the basis for the Contract.

B. No additional exclusions or modifications will be accepted after the award of work.

1.5 PERMITS

A. Obtain all permits required for performing the work under the Contract.

1.6 SCHEDULE

A. Bids shall include an approximate schedule of duration for the completion of the construction and associated activities.

END OF SECTION 011100

SECTION 013300 – SUBMITTAL PROCEDURES

PART 1: GENERAL

1.01 SCOPE

A. The provisions of this section apply to the submittal of all information by the Contractor to the Engineer / Owner.

PART 2: PRODUCTS

Not used.

PART 3: SUBMITTALS

As specified in related sections.

PART 4: QUALITY ASSURANCE

Not used.

PART 5: EXECUTION

5.01 SUBMITTAL PROCEDURES

A. Make Submissions in a timely manner. Do not initiate a construction activity prior to receiving ALL the submittals, reviewed by the Engineer, related to the construction activity, indicating an authorization to proceed with the construction activity. Any construction activity performed without this authorization shall be at Contractor's risk and cost. Delays arising due to the failure in making timely submittals shall be at Contractor's cost. No compensation will be paid for construction activities performed without the authorization of the Engineer.

B. Submit a Submittal Log, documenting the list of submittals to be made during the project, prior to mobilization.

C. Transmit each submittal with a letter of transmittal indicating the content of the submittal, quantity of submitted items and any special instructions.

D. Submittals are to be sequentially numbered. Mark revised submittals with original number and sequential alphabetic suffix.

E. Identify Project, Contractor, Subcontractor and Supplier; pertinent drawing and detail number, and specification section number, appropriate to submittal.

F. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with requirements of the Work and Contract Documents.

G. Schedule submittals to expedite Project. All materials shall be submitted electronically either through email or other media. The Contractor shall coordinate with the Engineer and Owner as to the preferred submission procedures for the project.

I. For each submittal, allow for a 10-working-day review period excluding delivery time to and from Contractor.

J. Identify with highlighter and/or red ink variations from Contract Documents and product or system limitations, which may alter or be detrimental to successful performance of completed Work. Contractor shall provide an estimated cost for any proposed alternates.

K. Allow space on submittals for Contractor and Engineer review stamps.

L. When revised for resubmission, identify changes made since previous submission.

M. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report inability to comply with requirements.

N. Submittals not requested will not be recognized or processed.

O. No materials, supplies, equipment or labor shall be ordered for an item until the Engineer has reviewed the submittal.

P. Update the submittal log and submit to the Engineer every month at a minimum.

5.02. SUBMITTAL DATA

A. Product Data: Submit to the Engineer, for the purpose of review and checking the conformance with information given and design concept expressed in Contract Documents.

B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project. Record this information in the submittal matrix.

END OF SECTION 013300

SECTION 055213 – PIPE AND TUBE RAILINGS

PART 1: GENERAL

1.1 SCOPE

A. Provisions of this section apply to furnishing stainless steel pipe and tube railings indicated on the Drawings, described in these Specifications, or otherwise required for proper completion of the Work

1.2 PERFORMANCE REQUIREMENTS

A. Delegated Design: Where the drawings call for delegated design, or where member sizes, wall thicknesses, and connection details are not provided, design railings, including comprehensive engineering analysis by a qualified professional engineer, using the performance requirements and design criteria indicated on the Drawings and in this Section.

B. General: In engineering railings to withstand structural loads indicated, determine allowable design working stresses of railing materials based on the following:

1. Steel: 72 percent of minimum yield strength.
2. Stainless Steel: 60 percent of minimum yield strength.

C. Structural Performance: Railings shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

1. Handrails and Top Rails of Guards:

a. Uniform load of 50 lbf/ ft. (0.73 kN/m) applied in any direction.
b. Concentrated load of 200 lbf (0.89 kN) applied in any direction.
c. Uniform and concentrated loads need not be assumed to act concurrently.

2. Infill Panels:

a. Concentrated load of 50 lbf (0.22 kN) applied horizontally on an area of 1 sq. ft. (0.093 sq. m).
b. Infill load and other loads need not be assumed to act concurrently.

D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.

1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

PART 2: PRODUCTS

2.2 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. HSS round Railings:

a. Atlas Tube Inc.
b. Independence Tube Corp. or
c. Approved Equal.

2.3 METALS, GENERAL

A. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.

B. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails unless otherwise indicated.

2.4 PLAIN STEEL AND IRON

A. Recycled Content of Steel Products: Provide products with average recycled content of steel products so postconsumer recycled content plus one-half of preconsumer recycled content is not less than 25 percent.

B. Tubing: ASTM A 500 (cold formed) or ASTM A 513.

C. Plates, Shapes, and Bars: ASTM A 36/A 36M.

2.5 FASTENERS

A. General: Provide the following:
1. Ungalvanized-Steel Railings: Plated steel fasteners complying with ASTM B 633 or ASTM F 1941 (ASTM F 1941M), Class Fe/Zn 5 for zinc coating.

B. Fasteners for Anchoring Railings to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings to other types of construction indicate and capable of withstanding design loads.

C. Fasteners for Interconnecting Railing Components:
1. Provide concealed fasteners for interconnecting railing components and for attaching them to other work, unless exposed fasteners are unavoidable or are the

standard fastening method for railings indicated.

2. Provide tamper-resistant machine screws for exposed fasteners unless otherwise indicated.

2.6 MISCELLANEOUS MATERIALS

A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

1. For stainless-steel railings, provide type and alloy as recommended by producer of metal to be welded and as required for color match, strength, and compatibility in fabricated items.

B. Etching Cleaner for Galvanized Metal: Complying with MPI#25.

C. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

D. Shop Primers: Provide primers that comply with Division 09 painting Sections.

E. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible material.

F. Intermediate Coats and Topcoats: Provide products that comply with Division 09 painting Sections.

G. Non-shrink, Nonmetallic Grout: Factory-packaged, non-staining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

H. Anchoring Cement: Factory-packaged, non-shrink, non-staining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound.

1. Water-Resistant Product: At exterior locations and where indicated 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.

PART 3: SUBMITTALS

3.1 MANUFACTURERS

A. Product Data: For the following:

1. Manufacturer's product lines of mechanically connected railings.
2. Railing brackets.
3. Grout, anchoring cement, and paint products.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

C. Delegated-Design Submittal: Submit certification that the delegated design products have been designed in accordance with the specified design criteria and meet the performance requirements. Include calculations signed and sealed by the qualified professional engineer responsible for their preparation.

D. Qualification Data: For qualified professional engineer or testing agency.

E. Mill Certificates: Signed by manufacturers of stainless-steel products certifying that products furnished comply with requirements.

F. Welding certificates.

G. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers certifying that shop primers are compatible with topcoats.

H. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, according to ASTM E 894 and ASTM E 935.

PART 4: QUALITY ASSURANCE

4.1 MANUFACTURERS

A. Source Limitations: Obtain each type of railing from single source from single manufacturer.

B. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."

4.2 SPECIAL INSPECTIONS

A. Where fabrication of steel assemblies shall be performed offsite, the manufacturer shall:

1. Be accredited by International Accreditation Services under its Fabricator Inspection Accreditation Program and hold a current certificate of accreditation indicating the scope of fabrication accreditation.

OR

2. Obtain approval from the Department of Licenses and Inspections as a fabricator that is exempt from special inspections at its fabrication facility, in accordance with Chapter 17 of the IBC.

PART 5: EXECUTION

5.1 PROJECT CONDITIONS

E. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication.

5.2 FABRICATION

A. General: Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.

B. Assemble railings in the shop to greatest extent possible to minimize field splicing 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. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm) unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

D. Form work true to line and level with accurate angles and surfaces.

E. Fabricate connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

F. Cut, reinforce, drill, and tap as indicated to receive finish hardware, screws, and similar items.

G. Connections: Fabricate railings with either welded or non-welded connections unless otherwise indicated.

H. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.

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.

I. Non-welded Connections: Connect members with concealed mechanical fasteners and fittings. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.

J. Form changes in direction as follows:

1. As detailed.
2. By flush bends or by inserting prefabricated flush-elbow fittings.

K. Bend members in jigs to produce uniform curvature for each configuration required; maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.

L. Close exposed ends of railing members with prefabricated end fittings.

M. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other work unless otherwise indicated.

N. Provide inserts and other anchorage devices for connecting railings to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by railings. Coordinate anchorage devices with supporting structure.

1. Orient wire mesh with wires horizontal and vertical.

5.3 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Provide exposed fasteners with finish matching appearance, including color and texture, of railings.

5.4 INSTALLATION, GENERAL

A. Fit exposed connections together to form tight, hairline joints.

B. Perform cutting, drilling, and fitting required for installing railings. Set railings accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.

1. Do not weld, cut, or abrade surfaces of railing components that have been coated or 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 rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet (5 mm in 3 m).

C. Corrosion Protection: Coat concealed surfaces of aluminum that will be in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

D. Adjust railings before anchoring to ensure matching alignment at abutting joints.

E. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing railings and for properly transferring loads to in-place construction.

5.5 RAILING CONNECTIONS

A. Non-welded Connections: Use mechanical or adhesive joints for permanently connecting railing components. Seal recessed holes of exposed locking screws using plastic cement filler colored to match finish of railings.

B. Welded Connections: Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in "Fabrication" Article whether welding is performed in the shop or in the field.

C. Expansion Joints: Install expansion joints at locations indicated but 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.

5.6 ANCHORING POSTS

A. Cover anchorage joint with flange of same metal as post, welded to post after placing

anchoring material.

B. Anchor posts to metal surfaces with plates as required by conditions, connected to posts and to metal supporting members as follows:
   1. For stainless-steel pipe railings, weld plate to post and bolt to supporting surfaces.

5.7 ADJUSTING AND CLEANING

A. Clean stainless steel by washing thoroughly with clean water and soap and rinsing with clean water.

B. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

   1. Apply by brush or spray to provide a minimum 2.0-mil (0.05-mm) dry film thickness.

C. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Division 09 painting Sections.

5.8 PROTECTION

A. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.

END OF SECTION 055213

SECTION 099000 - PAINTING & COATING

PART 1: GENERAL

1.01 SCOPE

A. Work Included

Paint and finish all surfaces listed in the Painting Schedule, Part Five of this Section. Provide all touch up and remedial painting as required until the work is accepted by the Engineer.

B. Work Not Included

1. Painting specified under other sections.

2. Unless otherwise indicated, painting is not required on surfaces in concealed areas and inaccessible areas.

3. Metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze, and similar finished materials will not require painting under this Section except as may be specified herein.

4. Do not paint any moving parts of operating units; mechanical or electrical parts such as valve operators, linkages, sensing devices, and motor shafts, unless otherwise indicated.

5. Do not paint over any required labels or equipment identification, performance rating, name, or nomenclature plates.

C. Definitions

The term "paint", as used herein, means all coating systems materials including primers, emulsions, epoxy, enamels, sealers, fillers, and other applied materials whether used as prime, intermediate, or finish coats.

PART 2: PRODUCTS

2.01 MATERIAL

A. Design

Design is based on use of paint products manufactured by Glidden or Rustoleum, and the materials of those manufacturers are named in the Painting Schedule. Equal products of Sherwin-Williams or other manufacturers may be used if approved by Engineer.

B. General

Provide the best quality grade of the various types of coatings as regularly manufactured by paint materials manufacturers approved by Engineer. Materials not displaying the manufacturer's identification as a standard best-grade product will not be acceptable.

C. Durability

Provide paints of durable and washable quality. Do not use paint materials which will not withstand normal washing as required to remove pencil marks, ink, ordinary soil, and similar material without showing discoloration, loss of gloss, staining, or other damage.

D. Colors and Glosses

Paint colors shall be as specified below, or Owner approved equal, unless noted otherwise on the Contract Drawings:

- Handrail - Sherwin Williams Safety Yellow (SW 4084)
- Cleats - Sherwin Williams Safety Yellow (SW 4084)
- Bollards - Sherwin Williams Safety Yellow (SW 4084)
- Walkway Stringers - Sherwin Williams Blueprint (SW 4058)
- All other structural steel - Primer only.

The Construction Manager will be the sole judge of the acceptability of the various glosses obtained from the materials supposed to be used in the Work.

E. Undercoats and Thinners

Provide undercoat paint produced by the same manufacturer as the finish coat. Use only the thinners recommended by the paint manufacturer and use only to the recommended limits. Insofar as practicable, use undercoat, finish coat, and thinner material as parts of a unified system of paint finish.

F. Standards

Provide paint materials, which meet or exceed the standards listed for each application in the Painting Schedule in Part Five of this Section.

2.02 APPLICATION EQUIPMENT

A. General

For application of the approved paint, use only such equipment as is recommended for application of the particular paint by the manufacturer of the particular paint, and as approved by Engineer.

B. Compatibility

Prior to actual use of application equipment, use all means necessary to verify that the proposed equipment is actually compatible with the material to be applied and that the integrity of the finish will not be jeopardized by use of the proposed application equipment.

2.03 OTHER MATERIALS

A. All other materials, not specifically described but required for a complete and proper installation of the work of this Section, shall be new, first-quality of their respective kinds, and as selected by the Contractor subject to the approval of the Engineer.

PART 3: SUBMITTALS

3.01 Contractor shall submit the following in accordance with Section 013300, Submittal Procedures:

A. Submit recommended color, paint specifications, proposed application procedure, and manufacturer contact number three weeks prior to painting.

PART 4: QUALITY ASSURANCE

4.01 QUALIFICATIONS

A. Qualification of Manufacturer
Products used in the work of this Section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the Engineer.

B. Qualifications of Workmen

1. Provide and identify by name, at least one person who shall be present at all times during execution of the work of this Section, who shall be thoroughly familiar with the specified requirements and the materials and

methods needed for their execution, and who shall direct all work performed under this Section.

2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the methods and materials to be used.

3. In acceptance or rejection of the work of this Section, the Engineer will make no allowance for lack of skill on the part of workmen.

C. Paint Coordination

1. Provide finished coats, which are compatible with the prime coats used.

2. Review other Sections of these Specifications as required, verifying the prime coats to be used and assuring compatibility of the total coating system for the various substrata.

3. Upon request, furnish information on the characteristics of the specific finish materials to ensure that compatible prime coats are used.

4. Provide barrier coats over non-compatible primers, or remove the primer and reprime as required.

5. Notify the Engineer in writing of anticipated problems in using the specified coating systems over prime coating supplied under other Sections.

D. In addition to complying with all pertinent codes and regulations, comply with all pertinent recommendations contained in the latest revision of the following publications of the Steel Structures Painting Council:

1. SSPC-SP-l Solvent Cleaning

2. SSPC-SP-2 Hand Tool Cleaning

3. SSPC-SP-3 Power Tool Cleaning

4. SSPC-SP-4 Flame Cleaning

5. SSPC-SP-5 White Metal Blast Cleaning

6. SSPC-SP-6 Commercial Blast Cleaning

7. SSPC-SP-7 Brush Off Blast Cleaning

8. SSPC-SP-8 Pickling

9. SSPC-SP-9 Weathering Blast Cleaning

10. SSPC-SP-10 Near White Metal Cleaning

PART 5: EXECUTION

5.01 PRODUCT HANDLING

A. Delivery of Materials

Deliver all materials to the painting site in original, new, and unopened containers bearing the manufacturer's name and label showing at least the following information:

1. Name or title of the material

2. Fed. Spec. number, if applicable

3. Manufacturer's stock number

4. Manufacturer's name

5. Contents by volume for major constituents

6. Thinning instructions

7. Application instructions

B. Do not bring to the job site any paint or solvent containers bearing the name of a material that has not been specified.

C. Storage of Materials

Provide proper storage to prevent damage to and deterioration of, paint materials in accordance with manufacturer recommendations.

D. Protection

Use all means necessary to protect the materials of this Section before, during, and after installation and to protect the work and materials of all other trades.

E. Replacements

In the event of damage, immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Owner.

5.02 JOB CONDITIONS

A. Surface Temperatures

Do not apply any paints when the temperature of surfaces to be painted or the surrounding air temperature are below 45 degrees F, unless otherwise permitted by the manufacturer's printed instructions as approved by the Engineer. Do not apply any paints when the temperature of the surfaces to be painted or the surrounding air temperature is above 99 degrees F.

B. Weather Conditions

Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85%; or to damp or wet surfaces; unless otherwise permitted by the manufacturer's printed instructions as approved by the Engineer. Applications may be continued during inclement weather within the temperature limits specified by the paint manufacturer during application and drying periods.

5.03 SURFACE CONDITIONS

A. Inspection

Prior to installation of the work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence. Verify that painting may be completed in strict accordance with the original design and with the manufacturer's recommendations as approved by the Engineer.

B. Discrepancies

Do not proceed in areas of discrepancy until all such discrepancies have been fully resolved.

5.04 MATERIALS PREPARATION

A. General

1. Mix and prepare painting materials in strict accordance with the manufacturer's recommendations as approved by the Engineer.

2. Store materials not in actual use in tightly covered containers.

3. Maintain containers used in storage, mixing, and application of paint in a clean condition, free from foreign materials and residue.

B. Stirring

Stir all materials before application to produce a mixture of uniform density, and as required during the application of materials. Do not stir into the material any film, which may form on the surface. Remove the film and, if necessary, strain the material before using.

5.05 SURFACE PREPARATION

A. General

1. Perform all preparation and cleaning procedures in strict accordance with the paint manufacturer's recommendations, federal, state, local environmental regulations and as approved by the Engineer.

2. Remove all removable items, which are in place and not scheduled to receive paint finish, or provide surface-applied protection prior to surface preparation and painting operations.

3. Following completion of painting in each space or area, reinstall the removed items by using workmen skilled in the necessary trades.

4. Clean each surface to be painted prior to applying paint or surface treatment.

5. Remove oil and grease with clean cloths and cleaning solvents. Change rags as they become dirty. Unless otherwise specified, the general purpose solvent to be used for cleaning under normal conditions shall be aliphatic or aromatic solvents, alcohol esters, chlorinated hydrocarbons, or mixtures of these substances, with a minimum flash point of 100 F. In hot weather (temperatures between 80 and 95 F) a solvent that has a minimum flash point of 120 F shall be used. In very hot weather (temperatures over 95 F) solvent with a flash point over 140 F shall be used.

6. Schedule the cleaning and painting so that dust and other contaminants from the cleaning process will not fall onto wet newly painted surfaces.

B. Preparation of Wood Surfaces

Not applicable

C. Preparation of Metal Surfaces

1. Thoroughly clean all surfaces until they are completely free from dirt, oil, and grease.

2. On galvanized surfaces, use solvent for the initial cleaning and then treat the surface thoroughly with phosphoric acid etch. Remove all etching solution before proceeding.

3. Allow to dry thoroughly before the application of paint.

1

4. Remove all deposits of oil and grease by the methods described in SSPC-SP-l.

5. Clean in compliance with the provisions of SSPC-SP-2 or SSPC-SP-3.

5.06 PAINT APPLICATION

A. General

1. Slightly vary the color of succeeding coats. Do not apply additional coats until the completed coat has been inspected and approved. Only the inspected and approved coats of paint will be considered in determining the number of coats applied.

2. Sand and dust between enamel coats to remove all defects visible to the unaided eye from a distance of five feet.

3. On all removable panels and all hinged panels, paint the back sides to match the exposed sides.

4. Prime all blasted surfaces as soon as possible within the same working day and before any visual rusting, blushing, or blooming occurs. Should any of these conditions develop before the paint is applied, these areas must be reblasted.

B. Drying

1. Allow sufficient drying time between coats. Modify the period as recommended by the material manufacturer to suit adverse weather conditions.

2. Oil-base and oleo-resinous solvent-type paints shall be considered dry for recoating when the paint feels firm, does not deform or feel sticky under moderate pressure of the thumb, and the application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

C. Brush Application

Brush out and work all brush coats onto the surfaces in an even film. Cloudiness, spotting, laps, brush marks, runs, sags, and other surface imperfections will not be acceptable.

D. Spray Application

1. Confine spray application to metal framework and similar surfaces where hand brush work would be inferior.

2. Wherever spray application is used, apply each coat to provide the equivalent hiding of brush applied coats. Do not double back with spray equipment for the purpose of building up film thickness of two coats in one pass.

E. Completed Work

Shall match the approved Samples for color, texture, and coverage. Remove, refinish, or repaint all work not in compliance with specified requirements.

F. Finish Paint

Finish paint on all structural steel shall be accomplished in the shop prior to shipment to the job site. Touch up all abrasions, welds, connections and other bare metals with primer and finish coats after erection.

G. Overspray

Overspray will not be permitted. Should overspray occur, remove the overspray with a stiff wire brush or by sanding. Air-blow the affected area to remove all traces of overspray and repaint as necessary.

5.07 PAINTING SCHEDULE

A. Provide a three-coat system, prime coat of compatible Zinc Primer, 3 to 5 mils total dry thickness.

B. Provide an Intermediate epoxy coat of 3 to 5 mils total dry thickness.

C. Provide a finish coat of acrylic urethane with a minimum total dry film thickness of 2 to 4 mils.

D. Color Chart

The color of the coatings shall be per Owner's requirements. The contractor shall obtain Owner's approval of the color two weeks prior to the purchase of the coatings. The handrail and guardrail shall be painted safety yellow.

5.08 PAINTED PRODUCT HANDLING

A. After a product is painted, the Contractor and painting Subcontractor shall protect the coating from chipping, abrasion, or other damage during storage, transport, placement, and subsequent construction. Any damage to the coating system shall be repaired at the Contractor's expense.

END OF SECTION 099000

SECTION 260500 - COMMON WORK RESULTS FOR ELECTRICAL

PART 1: GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section Includes:

1. Electrical equipment coordination and installation.
2. Grout.
3. Common electrical installation requirements.

1.03 DEFINITIONS

A. EPDM: Ethylene-propylene-diene terpolymer rubber.

B. NBR: Acrylonitrile-butadiene rubber.

1.04 COORDINATION

A. Coordinate arrangement, mounting, and support of electrical equipment:

1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
2. To provide for ease of disconnecting the equipment with minimum interference to other installations.
3. To allow right of way for piping and conduit installed at required slope.
4. So connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.

B. Coordinate installation of required supporting devices.

C. Coordinate location of access panels and doors for electrical items that are behind finished surfaces or otherwise concealed. Access doors and panels are specified in Division 08 Section "Access Doors and Frames."

PART 2: PRODUCTS

2.01 GROUT

A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

PART 3: SUBMITTALS

3.01 SHOP DRAWING SUBMITTALS AND PRODUCT SUBSTITUTION

A. The following shall be considered an amendment to Specification section 012500 – SUBSTITUTION PROCEDURES.

B. If the Contract Documents state "basis of design product shall be used" the Contractor shall provide the specified or scheduled material or equipment.

C. If the Contract Documents list two or more acceptable products for an item of work, the choice shall be up to the contractor. However, should any product other than the specified or scheduled "Basis of Design" be submitted, the contractor shall be responsible for making any and all changes to the project required to accommodate that product. He shall also be responsible for paying all associated costs necessitated by the change including the costs incurred by other trades on the project, the fees for the Design Professionals for reviewing the product and performing any design work necessitated by the change, and for costs caused by schedule delays caused by the change.

D. If a Contractor intends to substitute an "or equal" that is not listed by name on the documents, he must do so at the time of bid. If the required notice is not provided and an "or equal" substitution is requested, the Design Professional and Owner, at their sole discretion, may refuse to consider the substitution unless the product specified is no longer commercially available. If the Design Professional and Owner allow the substitution to be proposed despite the lack of proper notice, the Contractor will be back-charged the professional fees incurred by the Design Professional and Owner in reviewing the proposed substitution.

E. Whenever in the Contract Documents any specific article, device, equipment, product, material, fixture, patented process, form, method, or type of construction is indicated or specified by name, make, trade name, or catalogue number, with or without the words "or equal", such specifications shall be used for the purpose of facilitating description of material, process, or article desired, and shall be deemed to be followed by the words "or equal". Contractor may, unless it is specifically stated that the basis of design shall be used, offer any

material, process, or article which shall be substantially equal or better in every respect to that so indicated or specified, which will completely accomplish the purpose of the Contract Documents.

F. The Owner shall not incur additional responsibilities, including but not limited to, additional compensation to the Design Professional for redesign and evaluation services, increased cost of other construction to the Owner, or similar considerations as all such costs shall be borne by the Contractor proposing the change.

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

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
2. Name file with submittal number or other unique identifier, including revision identifier.
3. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number. Resubmittals shall include an alphabetic suffix after another decimal point.
4. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Design Professional.
5. Metadata: Include the following information as keywords in the electronic submittal file metadata:
    a. Project name.
    b. Number and title of appropriate Specification Section.
    c. Manufacturer name.
    d. Product name.

PART 4: QUALITY ASSURANCE

PART 5: EXECUTION

5.01 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

A. Comply with NECA 1.

B. Measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounting items.

C. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom consistent with these requirements.

D. Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.

E. Right of Way: Give to piping systems installed at a required slope.

- END OF SECTION -

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1: GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section Includes:

1. Copper building wire rated 600 V or less.
2. Connectors, splices, and terminations rated 600 V and less.

PART 2: MATERIALS

2.01 COPPER BUILDING WIRE

A. Description: Flexible, insulated and uninsulated, drawn copper current-carrying conductor with an overall insulation layer or jacket, or both, rated 600 V or less.

B. Manufacturers:
1. General Cable.
2. Southwire.
3. Okonite.

C. Standards:

1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
2. RoHS compliant.
3. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."

D. Conductors: Copper, complying with ASTM B3 for bare annealed copper and with ASTM B8 and/or ASTM B496 for stranded conductors.

E. Conductor Insulation:
1. Type THHN and Type THWN-2: Comply with UL 83.
2. Type XHHW-2: Comply with UL 44.

2.02 CONNECTORS AND SPLICES

A. Description: Factory-fabricated connectors, splices, and lugs of size, ampacity rating, material, type, and class for application and service indicated; listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.

B. Manufacturers
   1. Hubbell/Burndy.
   2. 3M
   3. Thomas & Betts/Blackburn.
   4. Tyco Electronic.
   5. Ideal.

C. Inline Resin Power Cable Splice Kit
   1. Material: Epoxy.
   2. Rated for single or multiple conductor, non-shielded cables
   3. Listed for submerged locations.

D. Connectors
   1. Pressure type
   2. Material: Rigid thermoplastic
   3. Solid or stranded wire
   4. Waterproof and corrosion proof (UL 486D listed) where applicable

E. Lugs: One piece, seamless, designed to terminate conductors specified in this Section.

   1. Material: Copper.
   2. Type: One or Two hole with standard barrels.
   3. Termination: Compression.

PART 3: SUBMITTALS

3.01 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Product Schedule: Indicate type, use, location, and termination locations.

3.02 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

PART 4: QUALITY ASSURANCE

4.01 QUALITY ASSURANCE

A. Testing Agency Qualifications: Member company of NETA.

1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

PART 5: EXECUTION

5.01 CONDUCTOR MATERIAL APPLICATIONS

A. Feeders: Copper; solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

5.02 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Exposed Feeders: THWN-2, single conductors in raceway.

B. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type XHHW-2, single conductors in raceway.

C. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: Type XHHW-2, single conductors in raceway.

5.03 INSTALLATION OF CONDUCTORS AND CABLES

A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.

B. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.

C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

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

E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

F. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."

5.04 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors].

1. Use oxide inhibitor in each splice, termination, and tap for aluminum conductors.

C. Splices at or below the dock and gangway shall be listed for submersible applications.

1. Use an inline resin power cable splice kit

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

5.05 IDENTIFICATION

A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."

B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

5.06 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

B. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

C. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

D. Perform tests and inspections.

1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors for compliance with requirements.

2. Perform each of the following visual and electrical tests:

   a. Inspect exposed sections of conductor and cable for physical damage and correct connection according to the single-line diagram.
   b. Test bolted connections for high resistance using one of the following:

      1) A low-resistance ohmmeter.
      2) Calibrated torque wrench.
      3) Thermographic survey.

   c. Inspect compression-applied connectors for correct cable match and indentation.
   d. Inspect for correct identification.
   e. Inspect cable jacket and condition.
   f. Insulation-resistance test on each conductor for ground and adjacent conductors. Apply a potential of 500-V dc for 300-V rated cable and 1000-V dc for 600-V rated cable for a one-minute duration.
   g. Continuity test on each conductor and cable.
   h. Uniform resistance of parallel conductors.

3. Initial Infrared Scanning: After Substantial Completion, but before Final Acceptance, perform an infrared scan of each splice in conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner. Correct deficiencies determined during the scan.

   a. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
   b. Record of Infrared Scanning: Prepare a certified report that identifies switches checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

4. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each switch 11 months after date of Substantial Completion.

E. Cables will be considered defective if they do not pass tests and inspections.

F. Prepare test and inspection reports to record the following:

1. Procedures used.
2. Results that comply with requirements.
3. Results that do not comply with requirements, and corrective action taken to achieve compliance with requirements.

- END OF SECTION -

SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1: GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section includes grounding and bonding systems and equipment.

B. Section includes grounding and bonding systems and equipment, plus the following special applications:

1. Foundation steel electrodes.

PART 2: MATERIALS

2.01 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with UL 467 for grounding and bonding materials and equipment.

2.02 MANUFACTURERS

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

1. Burndy; Part of Hubbell Electrical Systems.
2. ERICO International Corporation.
3. Harger Lightning & Grounding.
4. Thomas & Betts Corporation; A Member of the ABB Group.

2.03 CONDUCTORS

A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

B. Bare Copper Conductors:

1. Solid Conductors: ASTM B 3.
2. Stranded Conductors: ASTM B 8.

2.04 CONNECTORS

A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.

B. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

C. Beam Clamps: Mechanical type, terminal, ground wire access from four directions, with dual, tin-plated or silicon bronze bolts.

D. Cable-to-Cable Connectors: Compression type, copper or copper alloy.

E. Conduit Hubs: Mechanical type, terminal with threaded hub.

PART 3: SUBMITTALS

3.01 ACTION SUBMITTALS

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

3.02 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Plans showing dimensioned locations of grounding features specified in "Field Quality Control" Article, including the following:

1. Grounding Arrangements and Connections

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

C. Field quality-control reports.

3.03 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For grounding to include in emergency, operation, and maintenance manuals.

1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:

a. Plans showing as-built, dimensioned locations of grounding features specified in "Field Quality Control" Article, including the following:
   1) Grounding Arrangements and Connections

b. Instructions for periodic testing and inspection of grounding features at test wells and ground rings based on NETA MTS and NFPA 70B.

   1) Tests shall determine if ground-resistance or impedance values remain within specified maximums, and instructions shall recommend corrective action if values do not.
   2) Include recommended testing intervals.

PART 4: QUALITY ASSURANCE

4.01 QUALITY ASSURANCE

A. Testing Agency Qualifications: Certified by NETA.

PART 5: EXECUTION

5.01 APPLICATIONS

A. Conductors: Install solid conductor for No. 10 AWG and smaller, and stranded conductors for No. 8 AWG and larger unless otherwise indicated.

B. Conductor Terminations and Connections:

   1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
   2. Connections to Structural Steel: Welded connectors.

5.02 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with all feeders and branch circuits.

B. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:

   1. Feeders and branch circuits.

5.03 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Ground Bonding Common with Lightning Protection System: Comply with NFPA 780 and UL 96 when interconnecting with lightning protection system. Bond electrical power system ground directly to lightning protection system grounding conductor at closest point to electrical service grounding electrode. Use bonding conductor sized same as system grounding electrode conductor, and install in conduit.

5.04 FIELD QUALITY CONTROL

A. Testing Agency: Contractor shall perform tests and inspections.

B. Perform tests and inspections

C. Tests and Inspections:

1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.

D. Grounding system will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

F. Report measured ground resistances that exceed the following values:

1. Power Equipment: 0.25 ohms.

G. Excessive Resistance: If resistance to ground exceeds specified values, notify Engineer promptly and include recommendations to reduce ground resistance.

- END OF SECTION -

SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1: GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section Includes:

1. Hangers and supports for electrical equipment and systems.

PART 2: MATERIALS

2.01 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design hanger and support system.

B. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Flame Rating: Class 1.
2. Self-extinguishing according to ASTM D 635.

2.02 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

A. Steel Slotted Support Systems: Comply with MFMA-4 factory-fabricated components for field assembly.

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

a. ERICO International Corporation.
b. Thomas & Betts Corporation; A Member of the ABB Group.
c. Unistrut; Part of Atkore International.

2. Material: Galvanized steel.

3. Channel Width: 1-5/8 inches

4. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
5. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane, or polyester coating applied according to MFMA-4.
6. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
7. Protect finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
8. Channel Dimensions: Selected for applicable load criteria.

B. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

C. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for nonarmored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be made of malleable iron.

D. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M steel plates, shapes, and bars; black and galvanized.

E. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:

1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.

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

        1) Hilti, Inc.
        2) ITW Ramset/Red Head; Illinois Tool Works, Inc.
        3) MKT Fastening, LLC.

2. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use in hardened portland cement concrete, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.

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

        1) B-line, an Eaton business.
        2) Hilti, Inc.

3) ITW Ramset/Red Head; Illinois Tool Works, Inc.

3. Concrete Inserts: Steel or malleable-iron, slotted support system units are similar to MSS Type 18 units and comply with MFMA-4 or MSS SP-58.

4. Clamps for Attachment to Steel Structural Elements: MSS SP-58 units are suitable for attached structural element.
5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
6. Toggle Bolts: All-steel springhead type.
7. Hanger Rods: Threaded steel.

2.03 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

A. Description: Welded or bolted structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.

B. Materials: Comply with requirements in Section 055000 "Metal Fabrications" for steel shapes and plates.

PART 3: SUBMITTALS

3.01 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:

a. Hangers.
b. Steel slotted support systems.
c. Nonmetallic support systems.
d. Trapeze hangers.
e. Clamps.
f. Turnbuckles.
g. Sockets.
h. Eye nuts.
i. Saddles.
j. Brackets.

2. Include rated capacities and furnished specialties and accessories.

B. Shop Drawings: For fabrication and installation details for electrical hangers and support systems.

1. Trapeze hangers. Include product data for components.

2. Steel slotted-channel systems.
3. Nonmetallic slotted-channel systems.
4. Equipment supports.
5. Vibration Isolation Base Details: Detail fabrication, including anchorages and attachments to structure and to supported equipment. Include adjustable motor bases, rails, and frames for equipment mounting.

C. Delegated-Design Submittal: For hangers and supports for electrical systems.

1. Include design calculations and details of trapeze hangers.
2. Include design calculations for seismic restraints.

PART 4: QUALITY ASSURANCE

4.01 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M and AWS D1.2/D1.2M.

B. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M.
2. AWS D1.2/D1.2M.

PART 5: EXECUTION

5.01 APPLICATION

A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems unless requirements in this Section are stricter.

B. Comply with requirements for raceways and boxes specified in Section 260533 "Raceways and Boxes for Electrical Systems."

C. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMTs, IMCs, and RMCs as required by NFPA 70. Minimum rod size shall be 1/4 inch in diameter.

D. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted or other support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.

1. Secure raceways and cables to these supports with two-bolt conduit clamps

5.02 SUPPORT INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this article.

B. Raceway Support Methods: In addition to methods described in NECA 1, EMTs, IMCs, and RMCs may be supported by openings through structure members, according to NFPA 70.

C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.

D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:

1. To Wood: Fasten with lag screws or through bolts.
2. To New Concrete: Bolt to concrete inserts.
3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
4. To Existing Concrete: Expansion anchor fasteners.
5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches (100 mm) thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches thick.
6. To Steel: Beam clamps (MSS SP-58, Type 19, 21, 23, 25, or 27), complying with MSS SP-69.
7. To Light Steel: Sheet metal screws.
8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.

E. Drill holes for expansion anchors in concrete at locations and to depths that avoid the need for reinforcing bars.

5.03 INSTALLATION OF FABRICATED METAL SUPPORTS

A. Comply with installation requirements in Section 055000 "Metal Fabrications" for site-fabricated metal supports.

B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.

C. Field Welding: Comply with AWS D1.1/D1.1M.

D. Anchor equipment to concrete base as follows:

1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
2. Install anchor bolts to elevations required for proper attachment to supported equipment.
3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

- END OF SECTION -

SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1: GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section Includes:

1. Metal conduits, tubing, and fittings.
2. Nonmetal conduits, tubing, and fittings.
3. Surface raceways.
4. Boxes, enclosures, and cabinets.
5. Handholes and boxes for exterior underground cabling.

1.03 DEFINITIONS

A. ARC: Aluminum rigid conduit.

B. GRC: Galvanized rigid steel conduit.

C. IMC: Intermediate metal conduit.

PART 2: MATERIALS

2.01 METAL CONDUITS, TUBING, AND FITTINGS

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

1. Allied Tube & Conduit; a part of Atkore International.
2. Calconduit.
3. Thomas & Betts Corporation; A Member of the ABB Group.
4. Wheatland Tube Company.

B. Listing and Labeling: Metal conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. GRC: Comply with ANSI C80.1 and UL 6.

D. ARC: Comply with ANSI C80.5 and UL 6A.

E. PVC-Coated Steel Conduit: PVC-coated rigid steel conduit.

1. Comply with NEMA RN 1.
2. Coating Thickness: 0.040 inch, minimum.

F. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.

G. Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.

1. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 886 and NFPA 70.

2. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.
3. Coating for Fittings for PVC-Coated Conduit: Minimum thickness of 0.040 inch, with overlapping sleeves protecting threaded joints.

H. Joint Compound for IMC, GRC, or ARC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.02 BOXES, ENCLOSURES, AND CABINETS

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

1. Hoffman
2. Crouse-Hinds, an Eaton business.
3. Hubbell Incorporated.
4. RACO; Hubbell.
5. Thomas & Betts Corporation; A Member of the ABB Group.
6. Wiremold / Legrand.

B. Exterior boxes shall be NEMA type 4X, 304 stainless steel. Coordinate finish with owner.

C. Interior small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

D. Device Box Dimensions: 4 inches square by 2-1/8 inches deep (100 mm square by 60 mm deep).

E. Gangable boxes are not allowed.

F. Wireways shall be painted & galvanized, lay-in type with removable front quick connect hinge cover and include barriers for normal/emergency wiring separation.

G. Cabinets

1. NEMA 250, Type 4X stainless steel box with two-door front and removable interior panel.
2. 12 gauge Type 304 stainless steel.
3. Removable centerpost for easy panel installation.
4. Type 316L stainless steel lifting eyes.
5. Collar studs provided for mounting interior panels.
6. Provide accessories per enclosure detail in bid drawings.

2.03 SOURCE QUALITY CONTROL FOR UNDERGROUND ENCLOSURES

A. Handhole and Pull-Box Prototype Test: Test prototypes of handholes and boxes for compliance with SCTE 77. Strength tests shall be for specified tier ratings of products supplied.

1. Tests of materials shall be performed by an independent testing agency.
2. Strength tests of complete boxes and covers shall be by either an independent testing agency or manufacturer. A qualified registered professional engineer shall certify tests by manufacturer.
3. Testing machine pressure gages shall have current calibration certification complying with ISO 9000 and ISO 10012 and traceable to NIST standards.

PART 3: SUBMITTALS

3.01 ACTION SUBMITTALS

A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

B. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, and attachment details. Detailed elevations shall include dimensions of equipment and devices.

PART 4: QUALITY ASSURANCE

PART 5: EXECUTION

5.01 RACEWAY APPLICATION

A. Outdoors: Apply raceway products as specified below unless otherwise indicated:

1. Exposed Conduit: PVC Coated Steel.
2. Concealed Conduit, Aboveground: PVC Coated Steel.
3. Underground Conduit: Type EPC-40-PVC, except that elbows, bends and stub-ups shall be GRC.
4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
5. Boxes and Enclosures, Aboveground: NEMA 250, Type 4X.

B. Minimum Raceway Size: 3/4-inch trade size.

C. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
2. PVC Externally Coated, Rigid Steel Conduits: Use only fittings listed for use with this type of conduit. Patch and seal all joints, nicks, and scrapes in PVC coating after installing conduits and fittings. Use sealant recommended by fitting manufacturer and apply in thickness and number of coats recommended by manufacturer.
3. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.

D. Do not install aluminum conduits, boxes, or fittings in contact with concrete or earth.

E. Install surface raceways only where indicated on Drawings.

F. Do not install nonmetallic conduit where ambient temperature exceeds 120 deg F.

5.02 INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.

B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

C. Complete raceway installation before starting conductor installation.

D. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for hangers and supports.

E. Arrange stub-ups so curved portions of bends are not visible above finished slab.

F. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inch of changes in direction.

G. Install conduits parallel or perpendicular to building lines.

H. Support conduit within 12 inches of enclosures to which attached.

I. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.

J. Coat field-cut threads on PVC-coated raceway with a corrosion-preventing conductive compound prior to assembly.

K. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.

L. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.

M. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.

N. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.

O. Cut conduit perpendicular to the length. For conduits 2-inch trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.

P. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.

Q. Surface Raceways:

1. Install surface raceway with a minimum 2-inch radius control at bend points.
2. Secure surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inches and with no less than two supports per straight raceway section. Support surface raceway according to manufacturer's written instructions. Tape and glue are not acceptable support methods.

R. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings according to NFPA 70.

S. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where an underground service raceway enters a building or structure.
3. Where otherwise required by NFPA 70.

T. Comply with manufacturer's written instructions for solvent welding RNC and fittings.

U. Expansion-Joint Fittings:

1. Install in each run of aboveground RNC that is located where environmental temperature change may exceed 30 deg F and that has straight-run length that exceeds 25 feet. Install in each run of aboveground RMC conduit that is located where environmental temperature change may exceed 100 deg F and that has straight-run length that exceeds 100 feet.
2. Install type and quantity of fittings that accommodate temperature change listed for each of the following locations:

    a. Outdoor Locations Not Exposed to Direct Sunlight: 125 deg F temperature change.
    b. Outdoor Locations Exposed to Direct Sunlight: 155 deg F temperature change.

c. Indoor Spaces Connected with Outdoors without Physical Separation: 125 deg F temperature change.

3. Install fitting(s) that provide expansion and contraction for at least 0.00041 inch per foot of length of straight run per deg F of temperature change for PVC conduits. Install fitting(s) that provide expansion and contraction for at least 0.000078 inch per foot of length of straight run per deg F of temperature change for metal conduits.
4. Install expansion fittings at all locations where conduits cross building or structure expansion joints.
5. Install each expansion-joint fitting with position, mounting, and piston setting selected according to manufacturer's written instructions for conditions at specific location at time of installation. Install conduit supports to allow for expansion movement.
6. Use LFMC in damp or wet locations subject to severe physical damage.
7. Use LFMC or LFNC in damp or wet locations not subject to severe physical damage.

V. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between box and cover plate or supported equipment and box.

W. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.

X. Locate boxes so that cover or plate will not span different building finishes.

Y. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.

Z. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.

AA. Set metal floor boxes level and flush with finished floor surface.

BB. Set nonmetallic floor boxes level. Trim after installation to fit flush with finished floor surface.

5.03 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

5.04 PROTECTION

A. Protect coatings, finishes, and cabinets from damage and deterioration.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

- END OF SECTION -

SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1: GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Identification for raceways.
2. Identification of power and control cables.
3. Identification for conductors.
4. Underground-line warning tape.
5. Warning labels and signs.
6. Instruction signs.
7. Equipment identification labels.
8. Miscellaneous identification products.

1.3 COORDINATION

A. Coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual; and with those required by codes, standards, and 29 CFR 1910.145. Use consistent designations throughout Project.

B. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

C. Coordinate installation of identifying devices with location of access panels and doors.

D. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2: MATERIALS

2.1 POWER AND CONTROL RACEWAY IDENTIFICATION MATERIALS

A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway size.

B. Colors for Raceways Carrying Circuits at 600 V or Less:

1. Black letters on an orange field.
2. Legend: Indicate voltage and system or service type.

C. Vinyl Labels for Raceways Carrying Circuits at 600 V or Less: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound clear adhesive tape for securing ends of legend label.

D. Metal Tags: Brass or aluminum, 2 by 2 by 0.05 inch (50 by 50 by 1.3 mm), with stamped legend, punched for use with self-locking cable tie fastener.

2.2 ARMORED AND METAL-CLAD CABLE IDENTIFICATION MATERIALS

A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each cable size.

B. Colors for Cables Carrying Circuits at 600 V and Less:

1. Black letters on an orange field.
2. Legend: Indicate voltage and system or service type.

C. Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound clear adhesive tape for securing ends of legend label.

D. Heat-Shrink Preprinted Tubes: Flame-retardant polyolefin tube with machine-printed identification label. Sized to suit diameter of and shrinks to fit firmly around cable it identifies. Full shrink recovery at a maximum of 200 deg F (93 deg C). Comply with UL 224.

2.3 POWER AND CONTROL CABLE IDENTIFICATION MATERIALS

A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each cable size.

B. Self-Adhesive, Self-Laminating Polyester Labels: Preprinted, 3-mil- (0.08-mm-) thick flexible label with acrylic pressure-sensitive adhesive that provides a clear, weather- and chemical-resistant, self-laminating, protective shield over the legend. Labels sized to fit the cable diameter such that the clear shield overlaps the entire printed legend.

C. Heat-Shrink Preprinted Tubes: Flame-retardant polyolefin tube with machine-printed identification label. Sized to suit diameter of and shrinks to fit firmly

around cable it identifies. Full shrink recovery at a maximum of 200 deg F (93 deg C). Comply with UL 224.

2.4 CONDUCTOR IDENTIFICATION MATERIALS

A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils (0.08 mm) thick by 1 to 2 inches (25 to 50 mm) wide.

B. Self-Adhesive, Self-Laminating Polyester Labels: [Preprinted] [Write-on], 3-mil-(0.08-mm-) thick flexible label with acrylic pressure-sensitive adhesive that provides a clear, weather- and chemical-resistant, self-laminating, protective shield over the legend. Labels sized to fit the conductor diameter such that the clear shield overlaps the entire printed legend.

C. Heat-Shrink Preprinted Tubes: Flame-retardant polyolefin tube with machine-printed identification label. Sized to suit diameter of and shrinks to fit firmly around conductor it identifies. Full shrink recovery at a maximum of 200 deg F (93 deg C). Comply with UL 224.

D. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.

2.5 FLOOR MARKING TAPE

A. 2-inch- (50-mm-) wide, 5-mil (0.125-mm) pressure-sensitive vinyl tape, with yellow and black stripes and clear vinyl overlay.

2.6 WARNING LABELS AND SIGNS

A. Comply with NFPA 70 and 29 CFR 1910.145.

B. Baked-Enamel Warning Signs:

1. Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for application.
2. 1/4-inch (6.4-mm) grommets in corners for mounting.
3. Nominal size, 7 by 10 inches (180 by 250 mm).

C. Warning label and sign shall include, but are not limited to, the following legends:

1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES (915 MM)."

2.7 INSTRUCTION SIGNS

A. Engraved, laminated acrylic or melamine plastic, minimum 1/16 inch (1.6 mm) thick for signs up to 20 sq. inches (129 sq. cm) and 1/8 inch (3.2 mm) thick for larger sizes.

1. Engraved legend with black letters on white face.
2. Punched or drilled for mechanical fasteners.
3. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

2.8 EQUIPMENT IDENTIFICATION LABELS

A. Engraved, Laminated Acrylic or Melamine Label: Punched or drilled for screw mounting. White letters on a dark-gray background. Minimum letter height shall be 3/8 inch (10 mm).

2.9 CABLE TIES

A. UV-Stabilized Cable Ties: Fungus inert, designed for continuous exposure to exterior sunlight, self extinguishing, one piece, self locking, Type 6/6 nylon.

1. Minimum Width: 3/16 inch (5 mm).
2. Tensile Strength at 73 deg F (23 deg C), According to ASTM D 638: 12,000 psi (82.7 MPa).
3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).
4. Color: Black.

2.10 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Paint: Comply with requirements in painting Sections for paint materials and application requirements. Select paint system applicable for surface material and location (exterior or interior).

B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3: SUBMITTALS

3.1 ACTION SUBMITTALS

A. Product Data: For each electrical identification product indicated.

PART 4: QUALITY ASSURANCE

4.1 QUALITY ASSURANCE

A. Comply with ANSI A13.1.

B. Comply with NFPA 70.

C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.

D. Comply with ANSI Z535.4 for safety signs and labels.

E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

PART 5: EXECUTION

5.1 INSTALLATION

A. Verify identity of each item before installing identification products.

B. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

C. Apply identification devices to surfaces that require finish after completing finish work.

D. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.

E. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.

F. Attach plastic raceway and cable labels that are not self-adhesive type with clear vinyl tape with adhesive appropriate to the location and substrate.

G. Cable Ties: For attaching tags. Use general-purpose type, except as listed below:

1. Outdoors: UV-stabilized nylon.

5.2 IDENTIFICATION SCHEDULE

A. Accessible Raceways and Metal-Clad Cables, 600 V or Less, for Service, Feeder, and Branch Circuits More Than 30 A, and 120 V to ground: Identify with self-adhesive vinyl label. Install labels at 10-foot (3-m) maximum intervals.

B. Accessible Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive vinyl labels with the wiring system legend and system voltage. System legends shall be as follows:

1. Emergency Power.
2. Normal Power.

C. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coding conductor tape to identify the phase.

1. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded service, feeder and branch-circuit conductors.

a. Color shall be factory applied or field applied for sizes larger than No. 8 AWG, if authorities having jurisdiction permit.
b. Colors for 208/120-V Circuits:

1) Phase A: Black.
2) Phase B: Red.
3) Phase C: Blue.
4) Neutral: White.

c. Colors for 480/277-V Circuits:

1) Phase A: Brown.
2) Phase B: Orange.
3) Phase C: Yellow.
4) Neutral: Gray

d. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches (150 mm) from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.

D. Control-Circuit Conductor Identification: For conductors and cables in pull and junction boxes, manholes, and handholes, use self-adhesive, self-laminating polyester labels with the conductor or cable designation, origin, and destination.

E. Control-Circuit Conductor Termination Identification: For identification at terminations provide self-adhesive, self-laminating polyester labels with the conductor designation.

F. Conductors to Be Extended in the Future: Attach write-on tags to conductors and list source.

G. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.

1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual.

H. Workspace Indication: Install floor marking tape to show working clearances in the direction of access to live parts. Workspace shall be as required by NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces.

I. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Baked-enamel warning signs.

1. Comply with 29 CFR 1910.145.
2. Identify system voltage with black letters on an orange background.
3. Apply to exterior of door, cover, or other access.
4. For equipment with multiple power or control sources, apply to door or cover of equipment including, but not limited to, the following:

    a. Power transfer switches.
    b. Controls with external control power connections.

J. Operating Instruction Signs: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.

K. Emergency Operating Instruction Signs: Install instruction signs with white legend on a red background with minimum 3/8-inch- (10-mm-) high letters for emergency instructions at equipment used for power transfer.

L. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting,

control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.

1. Labeling Instructions:

    a. Indoor Equipment: Engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide a single line of text with 1/2-inch- (13-mm-) high letters on 1-1/2-inch- (38-mm-) high label; where two lines of text are required, use labels 2 inches (50 mm) high.
    b. Outdoor Equipment: Engraved, laminated acrylic or melamine label.
    c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
    d. Unless provided with self-adhesive means of attachment, fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.

2. Equipment to Be Labeled:

    a. Enclosures and electrical cabinets.
    b. Switchgear.
    c. Switchboards.
    d. Emergency system boxes and enclosures.
    e. Power transfer equipment.
    f. Power-generating units.
    g. Monitoring and control equipment.

- END OF SECTION -

SECTION 265619 - LED EXTERIOR LIGHTING

PART 1: GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section Includes:
   1. Luminaire types.

1.03 DEFINITIONS

A. CCT: Correlated color temperature.

B. CRI: Color rendering index.

C. Fixture: See "Luminaire."

D. IP: International Protection or Ingress Protection Rating.

E. Lumen: Measured output of lamp and luminaire, or both.

F. Luminaire: Complete lighting unit, including lamp, reflector, and housing.

PART 2: MATERIALS

2.01 LUMINAIRE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. NRTL Compliance: Luminaires shall be listed and labeled for indicated class and division of hazard by an NRTL.

C. FM Global Compliance: Luminaires for hazardous locations shall be listed and labeled for indicated class and division of hazard by FM Global.

D. UL Compliance: Comply with UL 1598 and listed for wet location.

E. CRI of minimum 80. CCT of 3000 K.

F. L90 lamp life of 35,000 hours.

G. Lamps dimmable from 100 percent to 15 percent of maximum light output.

H. In-line Fusing: Separate in-line fuse for each luminaire.

I. Source Limitations:

1. Obtain luminaires from single source from a single manufacturer.
2. For luminaires, obtain each color, grade, finish, type, and variety of luminaire from single source with resources to provide products of consistent quality in appearance and physical properties.

2.02 LUMINAIRE TYPES

A. HIVOLT ARCH IP65 Tape Light (Handrail Lighting Application)

1. Manufacturers:
   a. Refer to fixture schedule
2. Luminaire Shape: Linear/Tape.
3. Max continuous lengths: 160 ft minimum.
4. Pre-assembled to specific lengths with factory attached flexible jumpers between sections – min lengths at 3.92 inch increments.
5. Mounting: Bracket with adjustable clip system under handrail.
6. Diffusers: Opaque.
7. Housings:

   a. Anodized aluminum.
8. Power Requirement: 120VAC.
9. Temperature Range: -40 degree F through 120 degree F
10. Product Rating: IP65.
11. CRI: Ra+90 min.
12. Efficacy Lm/Wt: 86 min.
13. Viewing angle: 110 degrees
14. Dimming: 10% with ELV 120V dimming standard.
15. Warranty: 5 years.
16. Listings: cULus Listed / UL1598 / UL2388

2.03 MATERIALS

A. Metal Parts: Free of burrs and sharp corners and edges.

B. Lens and Refractor Gaskets: Use heat- and aging-resistant resilient gaskets to seal and cushion lenses and refractors in luminaire doors.

C. Reflecting surfaces shall have minimum reflectance as follows unless otherwise indicated:

1. White Surfaces: 85 percent.
2. Specular Surfaces: 83 percent.
3. Diffusing Specular Surfaces: 75 percent.

D. Housings:

1. Luminaire housing shall be fabricated and integrated into the dock and gangway handrail to form a weather-tight and light-tight enclosure that will not warp, sag, or deform in use.

2.04 FINISHES

A. Variations in Finishes: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

B. Luminaire Finish: Match finish process and color of handrail materials.

2.05 LUMINAIRE SUPPORT COMPONENTS

A. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for channel and angle iron supports and nonmetallic channel and angle supports.

PART 3: SUBMITTALS

3.01 ACTION SUBMITTALS

A. Product Data: For each type of luminaire, including associated drivers and inverters.

1. Arrange in order of luminaire designation.
2. Contractor to field measure and submit continuous to fixture manufacturer to coordinate continuous lengths with flexible jumpers per field conditions and accommodate handrail gates and offsets.
3. Include data on features, accessories, and finishes.
4. Include physical description and dimensions of luminaire.
5. Lamps, include life, output (lumens, CCT, and CRI), and energy-efficiency data.

6. Photometric data and adjustment factors based on laboratory tests, complying with IES Lighting Measurements Testing and Calculation Guides, of each luminaire type.

    a. Manufacturer's Certified Data: Photometric data certified by manufacturer's laboratory with a current accreditation under the NVLAP for Energy Efficient Lighting Products.
    b. Testing Agency Certified Data: For indicated luminaires, photometric data certified by a qualified independent testing agency. Photometric data for remaining luminaires shall be certified by manufacturer.

7. Wiring diagrams for power, control, and signal wiring.
8. Means of attaching luminaires to supports and indication that the attachment is suitable for components involved.

B. Shop Drawings:

1. Include plans, elevations, sections, and mounting and attachment details.
2. Include details of luminaire assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Include diagrams for power, signal, and control wiring.

C. Product Schedule: For luminaires. Use same designations indicated on Drawings.

3.02 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Luminaires.
2. Structural members to which equipment and luminaires will be attached.
3. Vertical and horizontal information.

B. Qualification Data: For testing laboratory providing photometric data for luminaires.

C. Product Certificates: For each type of the following:

1. Luminaire.

D. Product Test Reports: For each luminaire, for tests performed by a qualified testing agency.

E. Source quality-control reports.

F. Sample warranty.

3.03 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For luminaires to include in operation and maintenance manuals.

PART 4: QUALITY ASSURANCE

4.01 QUALITY ASSURANCE

A. Luminaire Photometric Data Testing Laboratory Qualifications:

1. Luminaire manufacturers' laboratory that is accredited under the NVLAP for Energy Efficient Lighting Products.
2. Provided by an independent agency, with the experience and capability to conduct the testing indicated, that is an NRTL as defined by OSHA in 29 CFR 1910.7, accredited under the NVLAP for Energy Efficient Lighting Products and complying with applicable IES testing standards.

B. Provide luminaires from a single manufacturer for each luminaire type.

C. Each luminaire type shall be binned within a three-step MacAdam Ellipse to ensure color consistency among luminaires.

D. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

4.02 DELIVERY, STORAGE, AND HANDLING

A. Protect finishes of exposed surfaces by applying a strippable, temporary protective covering prior to shipping.

4.03 FIELD CONDITIONS

A. Verify existing and proposed utility structures prior to the start of work associated with luminaire installation.

4.04 WARRANTY

A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

    a. Structural failures, including luminaire support components.
    b. Faulty operation of luminaires and accessories.
    c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

2. Warranty Period: 5 year(s) from date of Substantial Completion.

PART 5: EXECUTION

5.01 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Examine roughing-in for luminaire electrical conduit to verify actual locations of conduit connections before luminaire installation.

C. Examine handrail for suitable conditions where luminaires will be installed.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

5.02 GENERAL INSTALLATION REQUIREMENTS

A. Comply with NECA 1.

B. Use fastening methods and materials selected to resist seismic forces defined for the application and approved by manufacturer.

C. Fasten luminaire to structural support.

D. Supports:

1. Sized and rated for luminaire weight.
2. Able to maintain luminaire position after cleaning and relamping.
3. Support luminaires without causing deflection of finished surface.
4. Luminaire-mounting devices shall be capable of supporting a horizontal force of 100 percent of luminaire weight and a vertical force of 400 percent of luminaire weight.

E. Wiring Method: Install cables in raceways and handrails. Conceal raceways and cables.

F. Coordinate layout and installation of luminaires with other construction.

G. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables" and Section 260533 "Raceways and Boxes for Electrical Systems" for wiring connections and wiring methods.

5.03 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

5.04 FIELD QUALITY CONTROL

A. Inspect each installed luminaire for damage. Replace damaged luminaires and components.

B. Perform the following tests and inspections:

1. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.
2. Verify operation of photoelectric and time clock controls.

C. Illumination Tests:

1. Measure light intensities at night. Use photometers with calibration referenced to NIST standards. Comply with the following IES testing guide(s):

    a. IES LM-5.
    b. IES LM-50.
    c. IES LM-52.
    d. IES LM-64.
    e. IES LM-72.

2. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.

D. Luminaire will be considered defective if it does not pass tests and inspections.

E. Prepare a written report of tests, inspections, observations, and verifications indicating and interpreting results. If adjustments are made to lighting system, retest to demonstrate compliance with standards.

SECTION 265619 - LED EXTERIOR LIGHTING

- END OF SECTION -

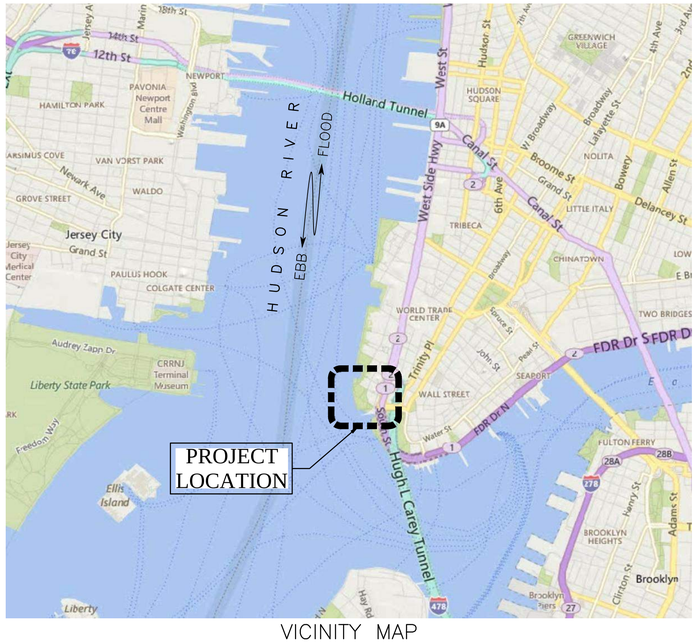
PIER A RAILINGS REHABILITATION

22 BATTERY PL., NEW YORK, NY 10004

FOR

BATTERY PARK CITY AUTHORITY

200 LIBERTY STREET, 24TH FLOOR,
NEW YORK, NY 10281



VICINITY MAP



DRAWING INDEX	
SHEET NUMBER	SHEET TITLE
GS–1	COVER SHEET
GN–1	GENERAL NOTES
GA–1	EXISTING HANDRAILS PLAN
GA–2	EXIST. HANDRAILS CONDITION PHOTOS–1 OF 2
GA–3	EXIST. HANDRAILS CONDITION PHOTOS–2 OF 2
GA–4	HANDRAILS REPLACEMENT LOCATION PLAN
S–1	NORTH APRON HANDRAILS REPLACEMENT DETAILS
S–2	SOUTH APRON HANDRAILS REPLACEMENT DETAILS
S–3	TYPICAL HANDRAILS DETAILS 1 OF 2
S–4	TYPICAL HANDRAILS DETAILS 2 OF 2
E–0	ELECTRICAL GENERAL NOTES & LEGENDS
E–1	ELECTRICAL WORK DEMOLITION PLAN
E–2	NEW LIGHITNG PLAN
E–3	ELECTRICAL WORK SCHEDULES
E–4	LIGHTING DETAILS



LOCATION MAP

ISSUE FOR BID

DATE: 04/20/22

NEW YORK STATE OF OPPORTUNITY. | Battery Park City Authority

BATTERY PARK CITY AUTHORITY
200 LIBERTY STREET, 24TH FLOOR,
NEW YORK, NY 10281
T: 212.417.2000

Urban Engineers of New York, D.P.C.
7 Penn Plaza, Suite 1800
New York, NY 10001
o. 212.736.9100

SEAL

BY:

DATE:

REV	DATE	DESCRIPTION	BY	CKD	APP'D
0	04/20/22	ISSUE FOR BID	AK	CFK	REM

NEW YORK, NY
BATTERY PARK CITY AUTHORITY
PIER A RAILINGS REHABILITATION

COVER SHEET

SCALE: AS NOTED	DESIGN BY: AK
DATE: 04/20/22	APPROVED BY: REM
PROJECT NO.: 2020200179.007	DRAWN BY: FYC
SHEET NUMBER: GS-1	CHECKED BY: AK
SHT. NO.: 1 OF 15	
DRAWING FILE NO.: GS-1 COV... .DWG	REV. NO.: 0

ISSUE FOR BID

DATE PRINTED: 4/20/2022 5:12:46 PM

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GENERAL NOTES

1. ALL WORK SHALL CONFORM WITH ALL FEDERAL, STATE, COUNTY AND LOCAL CODES HAVING JURISDICTION OVER SUCH WORK. ANY DISCREPANCY SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THAT PORTION OF WORK
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING A SAFE CONSTRUCTION AREA, AND PROVIDING FOR UNOBSTRUCTED SAFE PEDESTRIAN FLOW AROUND THE CONSTRUCTION SITE.
3. THE CONTRACTOR SHALL PERFORM ON–SITE SAFETY INSPECTIONS THROUGHOUT THE FULL PROJECT DURATION AND REMEDY ANY SAFETY CONCERNS IMMEDIATELY.
4. DIMENSIONS SHOWN ON THESE CONTRACT PLANS HAVE BEEN OBTAINED FROM LIMITED FIELD SURVEY AND MAY NOT ACCURATELY REFLECT ACTUAL FIELD CONDITIONS. ACCORDINGLY, THE CONTRACTOR WILL BE RESPONSIBLE FOR MAKING FIELD MEASUREMENTS OF ALL EXISTING STRUCTURES IMPACTED BY THE NEW WORK TO ASSURE CONSISTENCY WITH THE PROPOSED CONSTRUCTION PLANS. THE CONTRACTOR SHALL FIELD VERIFY ACTUAL CONDITIONS, DIMENSIONS, CLEARANCES, ELEVATIONS, AND OTHER INFORMATION INDICATED IN THE DOCUMENTS PRIOR TO ORDERING ANY MATERIALS, COMMENCING ANY FABRICATIONS, OR PERFORMING ANY WORK. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY FIELD CONDITIONS WHICH MAY DIFFER FROM THAT REPRESENTED PRIOR TO COMMENCING WORK.
5. REQUEST BY THE CONTRACTOR FOR CHANGES TO THE LOCATION OR INSTALLATION OF STRUCTURES AS SHOWN ON THE PLANS AND DETAILED IN THE SPECIFICATIONS MUST BE MADE IN WRITING TO THE ENGINEER. SUCH CHANGES SHALL NOT BE APPROVED WHEN, IN THE SOLE JUDGMENT OF THE ENGINEER, FIELD CONDITIONS ALLOW THE WORK TO BE PERFORMED WITHIN THE LIMITS SPECIFIED OR WHEN SUCH REQUEST WOULD IMPACT ADJACENT UTILITIES (PUBLIC OR PRIVATE) WHOSE SUPPORT AND PROTECTION ARE PART OF THIS CONTRACT. APPROVAL WILL ONLY BE GIVEN AT NO EXTRA COST TO THE OWNER.
6. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS BEFORE CONSTRUCTION BEGINS.
7. HOURS OF WORK SHALL BE DEFINED IN THE CONTRACT DOCUMENTS. BATTERY PARK CITY AUTHORITY RESERVES THE RIGHT TO ADJUST THESE HOURS IN THE INTEREST OF PUBLIC SAFETY.
8. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE OSHA REGULATIONS AND SAFETY PROCEDURES TO ENSURE PERSONNEL HEALTH AND SAFETY. THE CONTRACTOR MUST MAINTAIN A SAFE AND CLEAN WORKING ENVIRONMENT AND SHALL ASSURE PROPER PERSONAL PROTECTIVE EQUIPMENT FOR ALL PERSONAL AT ALL TIMES. IN AREAS WHERE PEDESTRIAN AND/OR VEHICULAR TRAFFIC MAY BE AFFECTED BY THE WORK, THE CONTRACTOR SHALL CORDON OFF THE WORK AREA.
9. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT ANY CONSTRUCTION DEBRIS FROM FALLING INTO THE WATER. ANY DEBRIS FALLING INTO THE WATER SHALL BE RECOVERED AND DISPOSED PROMPTLY AND PROPERLY.
10. ALL DRAWINGS INCLUDED MAY NOT ACCURATELY REFLECT ALL THE CURRENT CONDITIONS AT THE SITE. THE DETAILS PROVIDED ARE FOR GENERAL INFORMATION ONLY. BID PRICE FOR CONTRACT WORK SHALL BE BASED ON ACTUAL CONDITIONS TO BE VERIFIED BY THE CONTRACTOR IN FIELD.
11. WHERE THE PHRASE "EXISTING TO BE REMOVED" OR SIMILAR TERMINOLOGY IS IN CONTRACT DRAIWNGS, IT SHALL BE CONSTRUED TO MEAN "REMOVED BY CONTRACTOR".
12. EMPLOY CONSTRUCTION METHODS THAT KEEP DUST TO MINIMUM. SWEEP, VACUUM AND SPRINKLE WATER ON AFFECTED AREAS AS NEEDED TO ELIMINATE DUST LEAVING THE PROJECT AREA
13. IMMEDIATELY RESTORE ALL AREAS OUTSIDE THE LIMITS OF CONSTRUCTION, WHICH ARE DAMAGED BY THE CONTRACTORS OPERATIONS TO THEIR ORIGINAL CONDITION AND TO THE SATISFACTION OF THE ENGINEER AT NO COST TO THE OWNER.
14. CONTRACTOR SHALL ESTABLISH A STAGING AND STORAGE AREA THAT IS APPROVED BY BPCA. ALL MATERIAL AND EQUIPMENT SHALL BE STORED ONLY IN THE DESIGNATED STAGING AREA.
15. STAGING AREAS SHALL INCLUDE SILT FENCING AROUND THE PERIMETER, AND MEASURES TO PREVENT SEDIMENT TRACKING BY VEHICLES AND WORKERS OUTSIDE THE STAGING AREA
16. THE CONTRACTOR IS RESPONSIBLE FOR THE TIMELY SUBMISSION OF ALL APPLICABLE SUBMITTALS, SHOP DRAWINGS AND MOCK UP'S PRIOR TO COMMENCEMENT OF WORK. WORK PERFORMED WITHOUT THE ENGINEERS APPROVAL MAY BE SUBJECT TO REJECTION AT NO COST TO THE OWNER.

TIMBER

1. REPLACEMENT TIMBER SHALL BE SOUTHERN PINE – SELECT STRUCTURAL.
2. LEAD HOLES FOR LAG SCREW SHALL BE BORED AS FOLLOWS:
   A. THE CLEARANCE HOLE FOR THE SHANK SHALL HAVE THE SAME DIAMETER AS THE SHANK, AND THE SAME DEPTH OF PENETRATION AS THE LENGTH OF UNTHREADED SHANK. THE DRILL BIT LENGTH SHALL BE ⅛" LESS IN LENGTH AS IS REQUIRED TO ACCOMMODATE SHANK DEPTH.
   B. THE LEAD HOLE FOR THE THREADED PORTION SHALL HAVE A DIAMETER EQUAL TO 70% OF THE SHANK DIAMETER.
   C. THIS EQUIPMENT SHALL BE SUBMITTED EACH DAY TO THE FIELD ENGINEER FOR REVIEW PRIOR TO USE.
2. THE THREADED PORTION OF THE LAG SCREW SHALL BE INSERTED IN ITS LEAD HOLE BY TURNING WITH A WRENCH OR BY ROTATING EQUIPMENT, NOT BY DRIVING WITH A HAMMER.
3. SOAP OR OTHER LUBRICANT SHALL BE USED ON THE LAG SCREWS OR IN THE LEAD HOLES TO FACILITATE INSERTION AND PREVENT DAMAGE TO THE LAG SCREW.

STEEL AND MISCELLANEOUS STEEL

1. ALL STEEL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF AISC SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL. DESIGN, FABRICATION, AND ERECTION ARE TO BE GOVERNED BY THE LATEST REVISIONS OF:
   A. AISC STEEL CONSTRUCTION MANUAL
   B. AISC CODE OF STANDARD PRACTICE
   C. AWS D1.1 STRUCTURAL WELDING CODE
   D. RCSC SPECIFICATIONS FOR STRUCTURAL JOINTS USING HIGH STRENGTH BOLTS
2. STRUCTURAL AND MISCELLANEOUS STEEL MATERIALS SHALL CONFORM TO THE FOLLOWING, U.N.O.:

HOLLOW STRUCTURAL SECTIONS (HSS):	ASTM A 500, MIN. FY=35 KSI
OTHER SHAPES, BARS AND PLATES:	ASTM A 36, Fy = 36 KSI
HEADED BOLTS:	ASTM A 325
ANCHOR BOLTS:	ASTM A 449
NUTS:	ASTM A 563
WASHERS:	ASTM F 436

3. IF OVERSIZED HOLES ARE USED, WASHERS MUST BE EXTRA THICK, AND MAY REQUIRE WELDING AS DIRECTED BY THE FIELD ENGINEER.
4. ALL MISCELLANEOUS METALS INCLUDING BOLTS, WASHERS, NUTS, ANGLES, INSERTS, PLATES, AND OTHER FABRICATIONS SHALL BE PAINTED.
5. THE TYPE, SIZE, SPACING, AND ALIGNMENT OF CONNECTING HARDWARE SHOWN ARE CRITICAL AND MUST BE MAINTAINED.
6. ALL WELDING SHALL CONFORM TO THE LATEST EDITION OF AWS D.1.1, U.N.O. ALL WELDS SHALL BE MADE WITH E70XX ELECTRODES, UNLESS HIGHER STRENGTH ELECTRODES ARE REQUIRED BY AWS D1.1. GENERALLY, ELECTRODES SHALL BE NEW OR BAKED AT THE START OF EACH SHIFT. FOLLOW THE ATMOSPHERIC EXPOSURE LIMITS AND BAKING REQUIREMENTS OF CLAUSE 5 OF AWS D1.1.
7. WELDING PERSONNEL AND PROCEDURES ARE TO BE QUALIFIED PER AWS D1.1, U.N.O.
8. MINIMUM SIZE OF FILLET WELDS SHALL BE $\frac{3}{16}$" U.N.O.
9. WHEN THE 'ALL–AROUND' WELDING SYMBOL IS USED AT AN END CONNECTION OF A ROLLED SHAPE, THE CONTRACTOR SHALL TERMINATE THE WELD AT EACH OF THE FLANGE EDGES, AND ONE WELD THICKNESS AWAY FROM EACH INTERSECTION OF THE WEB AND FLANGE, U.N.O.
10. DOWELS, BOLTS, REINFORCEMENT OR OTHER STEEL TO BE EMBEDDED IN CONCRETE SHALL BE INSTALLED USING HILTI KWIK HUS STEEL SCREW ANCHOR, OR APPROVED EQUAL.

PAINTING AND SURFACE PREPARATION

PAINT SYSTEM SHALL BE A THREE COAT SYSTEM CONSISTING OF ONE PRIMER COAT, INTERMEDIATE COAT AND TOP COAT. RUST–OLEUM HIGH PERFORMANCE 9800 SYSTEM, DTM URETHANE MASTIC CONJUNCTION WITH PRODUCT RECOMMENDED PRIMER.

1

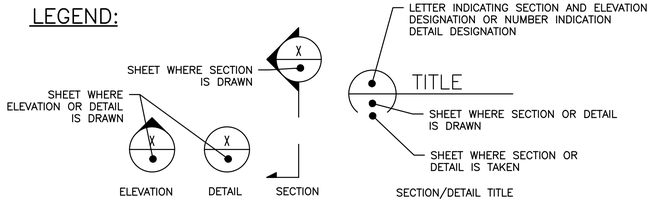
1. BARE STEEL SURFACE PREPARATION

(SSPC–SP–1) REMOVE ALL DIRT, GREASE, OIL, SALT AND CHEMICAL CONTAMINANTS BY WASHING THE SURFACE WITH KRUD KUTTER® ORIGINAL CLEANER DE–GREASER OR OTHER SUITABLE CLEANER. MOLD AND MILDEW AREAS MUST BE CLEANED WITH A CHLORINATED CLEANER OR BLEACH SOLUTION. RINSE WITH FRESH WATER AND ALLOW TO DRY. HAND TOOL (SSPC–SP–2) OR POWER TOOL (SSPC–SP–3) CLEAN TO REMOVE LOOSE RUST, SCALE, AND DETERIORATED PREVIOUS COATINGS TO OBTAIN A SOUND RUSTED SURFACE.

2. EXISTING GALVANIZED STEEL SURFACE PREPARATION PAINT SYSTEM

(SSPC–SP–1) REMOVE ALL DIRT, GREASE, OIL, SALT AND CHEMICAL CONTAMINANTS BY WASHING THE SURFACE WITH KRUD KUTTER® ORIGINAL CLEANER DE–GREASER OR OTHER SUITABLE CLEANER. MOLD AND MILDEW AREAS MUST BE CLEANED WITH A CHLORINATED CLEANER OR BLEACH SOLUTION. RINSE WITH FRESH WATER AND ALLOW TO DRY.

LEGEND:



DEMOLITION NOTES:

1. ELECTRICAL – THE EXISTING LIGHTING FIXTURES – ALL EXISTING FIXTURES, WIRING ETC. SHALL BE REMOVED AND STORED PROPERLY TO PREVENT DAMAGE. CONTRACTOR SHALL SHUTDOWN AND DISCONNECT SERVICES PRIOR TO REMOVAL. THE CONTRACTOR SHALL RESUME SERVICES AFTER RE–INSTALLATION IS COMPLETED.
2. RAILING AND FASTENERS – THE EXISTING METAL RAILING TO BE REUSED, REMOVED AND RE–FINISHED IN SHOP. PAINT COLOR TO BE SELECTED BY BPCA. CONTRACTOR TO PROVIDE DETAILS FOR REINSTALLATION TO BE REVIEWED BY ENGINEER.
3. WHERE AN EXISTING UTILITY, SERVICE, EQUIPMENT, OR FACILITY IS DAMAGED, THE SAME SHALL BE REPAIRED TO ITS ORIGINAL CONDITION AT NO COST TO THE OWNER.
4. THE CONTRACTOR SHALL EXERCISE CARE WHEN HANDLING AND STORING EXISTING MATERIALS WHICH ARE CALLED OUT FOR TEMPORARY REMOVAL FOR THE PURPOSE OF CONDUCTING CONTRACT WORK. MATERIALS DAMAGED BY THE CONTRACTOR'S REMOVAL PROCESS SHALL BE FIXED OR REPLACED AT THE CONTRACTOR'S COST.
5. THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER TO IDENTIFY MATERIALS TO BE REMOVED FROM THE PROJECT SITE AND SAVED BY THE OWNER. THE CONTRACTOR SHALL INCLUDE THE COST OF THIS COORDINATING WITH THE OWNER FOR HANDLING THESE MATERIALS IN THE BASE BID.
6. DISPOSE AND RECORD ALL EXTRACTED MATERIAL, WHICH IS NOT TO BE REUSED OR SAVED BY THE OWNER, OFF THE SITE IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS UNLESS OTHERWISE SPECIFIED ELSEWHERE IN THE CONTRACT DOCUMENTS OR PLANS
7. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE SAFETY OF PERSONNEL. DURING DEMOLITION OPERATIONS.

SURVEY NOTES

1. EXISTING UNDERGROUND AND OVERHEAD UTILITIES AS SHOWN HEREIN HAVE BEEN DETERMINED BY STANDARD SURVEYING METHODS AND AVAILABLE RECORDS. NEITHER THE EXACT LOCATION NOR THE INFORMATION OF THESE EXISTING UTILITIES IS GUARANTEED TO BE COMPLETE OR CORRECT.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CHECK AND VERIFY ALL SITE CONDITIONS, BOTH ABOVE AND BELOW THE SURFACE, PRIOR TO COMMENCING WORK, ANY DISCREPANCIES BETWEEN INFORMATION SHOWN ON THE DRAWINGS AND ACTUAL FIELD CONDITIONS SHOULD BE BROUGHT TO THE ATTENTION OF BPCA AND THE ENGINEER IN WRITING, PRIOR TO THE COMMENCEMENT OF WORK.
3. THE EXISTING SUBSURFACE UTILITIES SHOWN ON THE CONTRACT PLANS ARE BASED ON AVAILABLE RECORDS AND SURVEY AND ARE NOT GUARANTEED AS TO ACCURACY OR COMPLETENESS. ADDITIONAL UTILITIES (ELECTRIC, GAS, TELEPHONE, ETC.) MAY HAVE BEEN INSTALLED PRIOR TO CONSTRUCTION OF THIS PROJECT. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING SUBSURFACE UTILITIES PRIOR TO THE START OF WORK. NO SEPARATE PAYMENT SHALL BE MADE FOR THIS WORK.
4. THE CONTRACTOR IS ALERTED TO THE RULES AND REGULATIONS OF INDUSTRIAL CODE RULE 53 AND IS DIRECTED TO COMPLY. THE CITY SHALL NOT BE LIABLE FOR ANY COSTS INCURRED BY THE CONTRACTOR AS A RESULT OF THE COMPLIANCE, NONCOMPLIANCE OR IMPROPER COMPLIANCE, BY THE FRANCHISED OPERATORS OF UNDERGROUND FACILITIES, WITH SUB–PART 53–3 OF RULE 53 OF THE INDUSTRIAL CODE.
5. THE CONTRACTOR SHALL COORDINATE ACTIVITIES WITH ALL UTILITY COMPANIES WHOSE FACILITIES ARE LOCATED WITHIN THE PROJECT AREA.

ABBREVIATIONS

V.I.F. = VERIFY IN FIELD
U.N.O. = UNLESS NOTED OTHERWISE
N.I.C. = NOT IN CONTRACT
O.C. = ON CENTER

SUBMITTALS

CONTRACTOR SHALL SUPPLY ALL SUBMITTALS AS STATED IN THE PROJECT SPECIFICATIONS INCLUDING BUT NOT LIMITED TO:

1. HANDRAIL COMPONENTS DATA
2. BOLTS, NUTS AND WASHERS PRODUCT DATA
3. WELDING PRODUCT DATA
4. PAINTING SYSTEM PROCEDURES AND DATA

NEW YORK STATE OF OPPORTUNITY. Battery Park City Authority
BATTERY PARK CITY AUTHORITY
200 LIBERTY STREET, 24TH FLOOR, NEW YORK, NY 10281
T: 212.417.2000

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o. 212.736.7100

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BY:

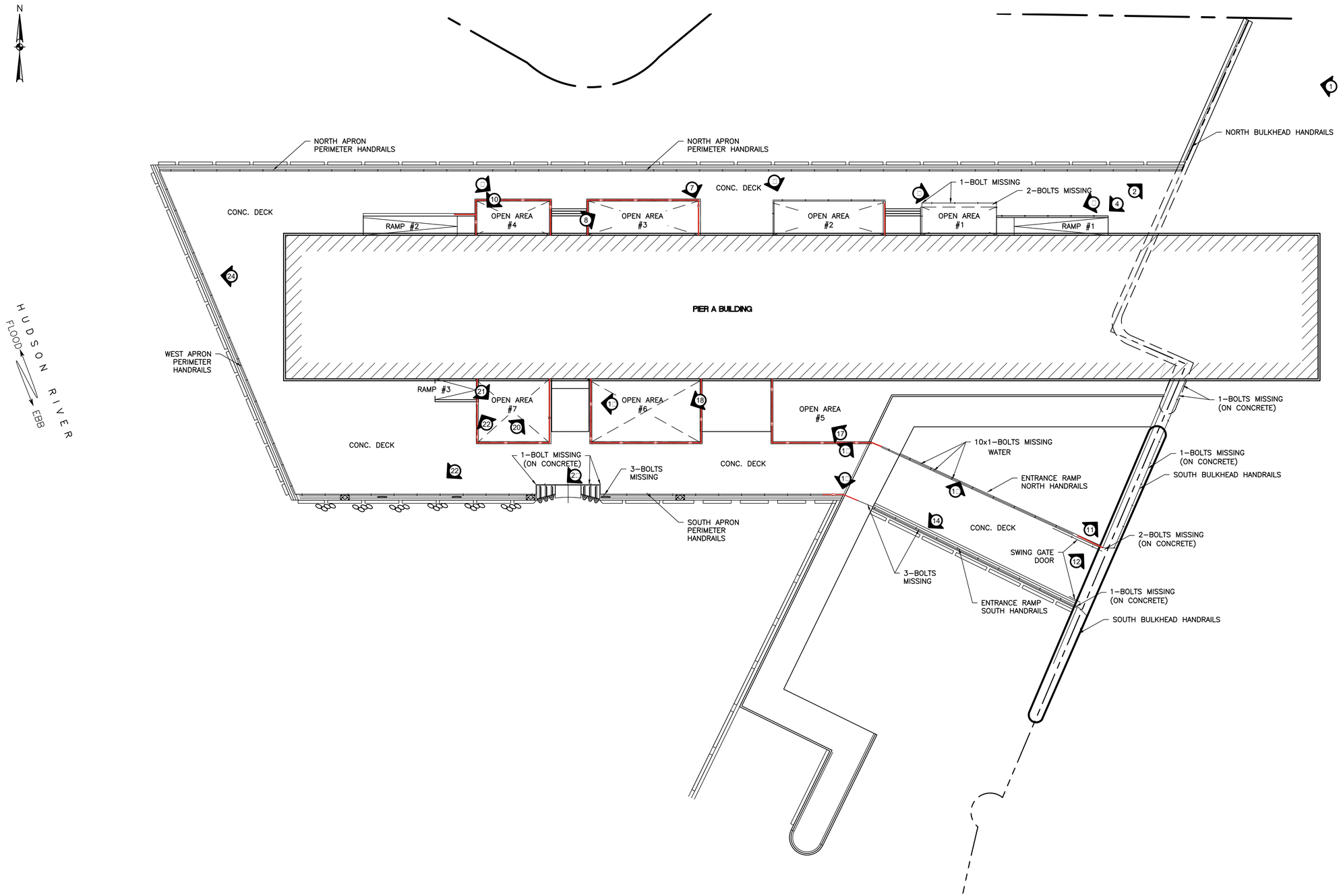
DATE:

REV	DATE	DESCRIPTION	APD	CKD	CFK	AK	BY
1	07/17/23	ADDENDUM–1	AK	CFK	REM	CFK	AK
0	04/20/22	ISSUE FOR BID					

NEW YORK, NY
BATTERY PARK CITY AUTHORITY
PIER A RAILINGS REHABILITATION
GENERAL NOTES

SCALE: AS NOTED	DESIGN BY: AK
DATE: 04/20/22	APPROVED BY: REM
	DRAWN BY: FYC
	CHECKED BY: CFK
PROJECT NO: 2020200179.007	
SHEET NUMBER: GN-1	
SHT. NO.: 2 OF 15	
DRAWING FILE NO.: GN-1 GEN... .DWG	REV. NO.: 0

DATE PRINTED: 7/17/2023 8:59:43 AM
ISSUE FOR BID
S:\2020200179.007 PIER A RAILINGS\DWG\CURRENT\GN-1 GENERAL NOTES.DWG



LEGEND:

DETERIORATED HANDRAILS

PHOTO LOCATION

EXISTING HANDRAILS PLAN

0 8' 16' 32'

NOTES:

1. FOR GENERAL NOTES SEE SHEET GN–1
2. ALL INDICATED EXISTING HANDRAILS CONDITION PHOTOS ON SHEET GA–2 & GA–3.
3. ALL MISSING BOLTS SHALL BE INSTALLED.
4. REPLACEMENT HANDRAILS LOCATIONS AND DETAIL ARE SHOWN IN SHEET GA–4, S–01 TO S–03.

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BY:

DATE:

REV	DATE	DESCRIPTION	BY	CKD	APP'D
0	04/20/22	ISSUE FOR BID	AK	CFK	REM

NEW YORK, NY

BATTERY PARK CITY AUTHORITY

PIER A RAILINGS REHABILITATION

EXISTING HANDRAILS PLAN

SCALE: AS NOTED
DATE: 04/20/22
DESIGN BY: AK
APPROVED BY: REM
DRAWN BY: FYC
CHECKED BY: CFK
PROJECT NO.: 2020200179.007
SHEET NUMBER: **GA-1**
SHT. NO.: 3 OF 15
DRAWING FILE NO.: GA-1 EXI... .DWG
REV. NO.: 0

S:\2020200179.007 PIER A RAILINGS\DWG\CURRENT\GA-1 EXISTING PIER & REPAIR PLAN.DWG

DATE PRINTED: 4/14/2022 1:27:04 PM

ISSUE FOR BID

NORTH APRON HANDRAILS



PHOTO NO.1 NORTH BULKHEAD HANDRAILS



PHOTO NO.2 NORTH APRON PERIMETER HANDRAILS



PHOTO NO.3 RAMP#1 HANDRAILS



PHOTO NO.4 RAMP#1 HANDRAIL SUPPORT CRACKED TIMBER BOARD

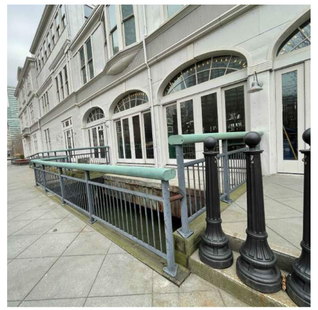


PHOTO NO.5 OPEN AREA #1 HANDRAILS



PHOTO NO.6 OPEN AREA #2 CORRODED HANDRAILS

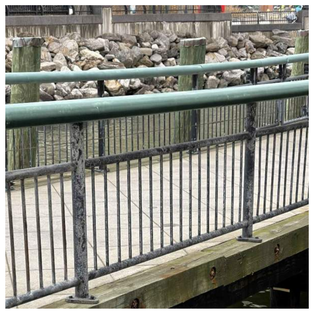


PHOTO NO.7 OPEN AREA #3 CORRODED HANDRAILS

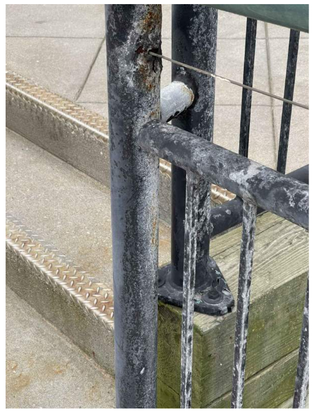


PHOTO NO.8 OPEN AREA #3 DETERIORATED HANDRAILS



PHOTO NO.9 OPEN AREA #4 CORRODED HANDRAILS



PHOTO NO.10 RAMP #2 CORRODED HANDRAILS

NOTES:

1. FOR GENERAL NOTES SEE SHEET GN-1
2. EXISTING HANDRAILS CONDITION PHOTOS ARE INDICATED ON SHEET GA-1.

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URBAN ENGINEERS

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DATE:

REV	DATE	DESCRIPTION	BY	CKD	APD
0	04/20/22	ISSUE FOR BID	AK	CFK	REM

NEW YORK, NY

BATTERY PARK CITY AUTHORITY

PIER A RAILINGS REHABILITATION

EXISTING HANDRAILS CONDITION PHOTOS-1 OF 2

SCALE: AS NOTED
DESIGN BY: AK
APPROVED BY: REM
DATE: 04/20/22
DRAWN BY: FYC
CHECKED BY: CFK
PROJECT NO.: 2020200179.007
SHEET NUMBER: GA-2
SHT. NO.: 4 OF 15
DRAWING FILE NO.: GA-1 EXI... .DWG
REV. NO.: 0

S:\2020200179.007 PIER A RAILINGS\DWG\CURRENT\GA-1 EXISTING PIER & REPAIR PLAN.DWG

DATE PRINTED:4/14/2022 1:27:04 PM

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ENTRANCE RAMP AND SOUTH APRON HANDRAILS

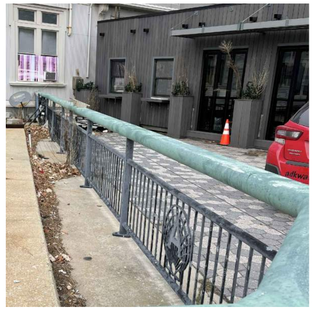


PHOTO NO.11 SOUTH BULKHEAD HANDRAILS



PHOTO NO.12 ENTRANCE RAMP NORTH CORRODED HANDRAIL



PHOTO NO.13 ENTRANCE RAMP NORTH ONE BOLT MISSED IN TEN COLUMN BASE PLATES



PHOTO NO.14 ENTRANCE TAMP SOUTH
THREE BOLT MISSED IN TWO COLUMN BASE PLATES



PHOTO NO.15 ENTRANCE RAMP SOUTH DAMAGED AND DETERIORATED HANDRAIL



PHOTO NO.16 OPEN AREA #5
DETERIORATED HANDRAILS

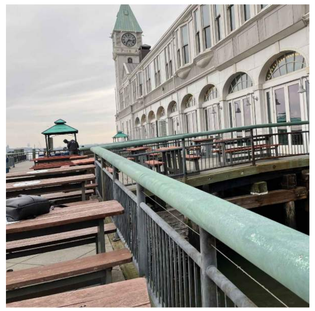


PHOTO NO.17 OPEN AREA #5 CORRODED HANDRAIL



PHOTO NO.18 OPEN AREA #6 DETERIORATED HANDRAIL



PHOTO NO.19 OPEN AREA #6 CORRODED HANDRAIL

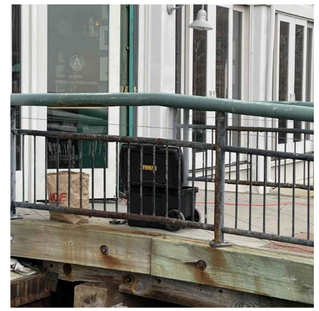


PHOTO NO.20 OPEN AREA #7 CORRODED HANDRAIL

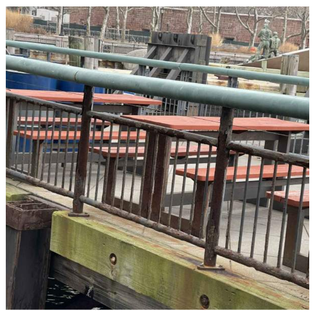


PHOTO NO.21 OPEN AREA #7
DETERIORATED HANDRAIL



PHOTO NO.22 OPEN AREA #7 CORRODED HANDRAIL



PHOTO NO.23 SOUTH PERIMETER HANDRAILS
DEFORMED PIPE TOP RAIL

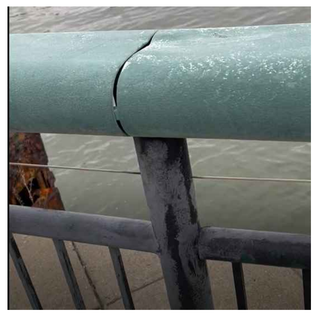


PHOTO NO.24 SOUTH PERIMETER HANDRAILS
DEFORMED PIPE TOP RAIL NEAR FENDERS



PHOTO NO.25 WEST PERIMETER HANDRAILS
LOSE AND LOST TENSION CABLE

NOTES:

1. FOR GENERAL NOTES SEE SHEET GN-1
2. EXISTING HANDRAILS CONDITION PHOTOS ARE INDICATED ON SHEET GA-1.

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REV	DATE	DESCRIPTION	BY	CKD	APD
0	04/20/22	ISSUE FOR BID	AK	CFK	REM

NEW YORK, NY
BATTERY PARK CITY AUTHORITY
PIER A RAILINGS REHABILITATION

EXISTING HANDRAILS CONDITION PHOTOS-2 OF 2

SCALE: AS NOTED
DESIGN BY: AK
APPROVED BY: REM
DATE: 04/20/22
DRAWN BY: FYC
CHECKED BY: CFK
PROJECT NO: 2020200179.007
SHEET NUMBER: GA-3
SHT. NO.: 5 OF 15
DRAWING FILE NO.: GA-1 EXI... .DWG
REV. NO.: 0

S:\2020200179.007 PIER A RAILINGS\DWG\CURRENT\GA-1 EXISTING PIER & REPAIR PLAN.DWG

DATE PRINTED:4/14/2022 1:27:04 PM

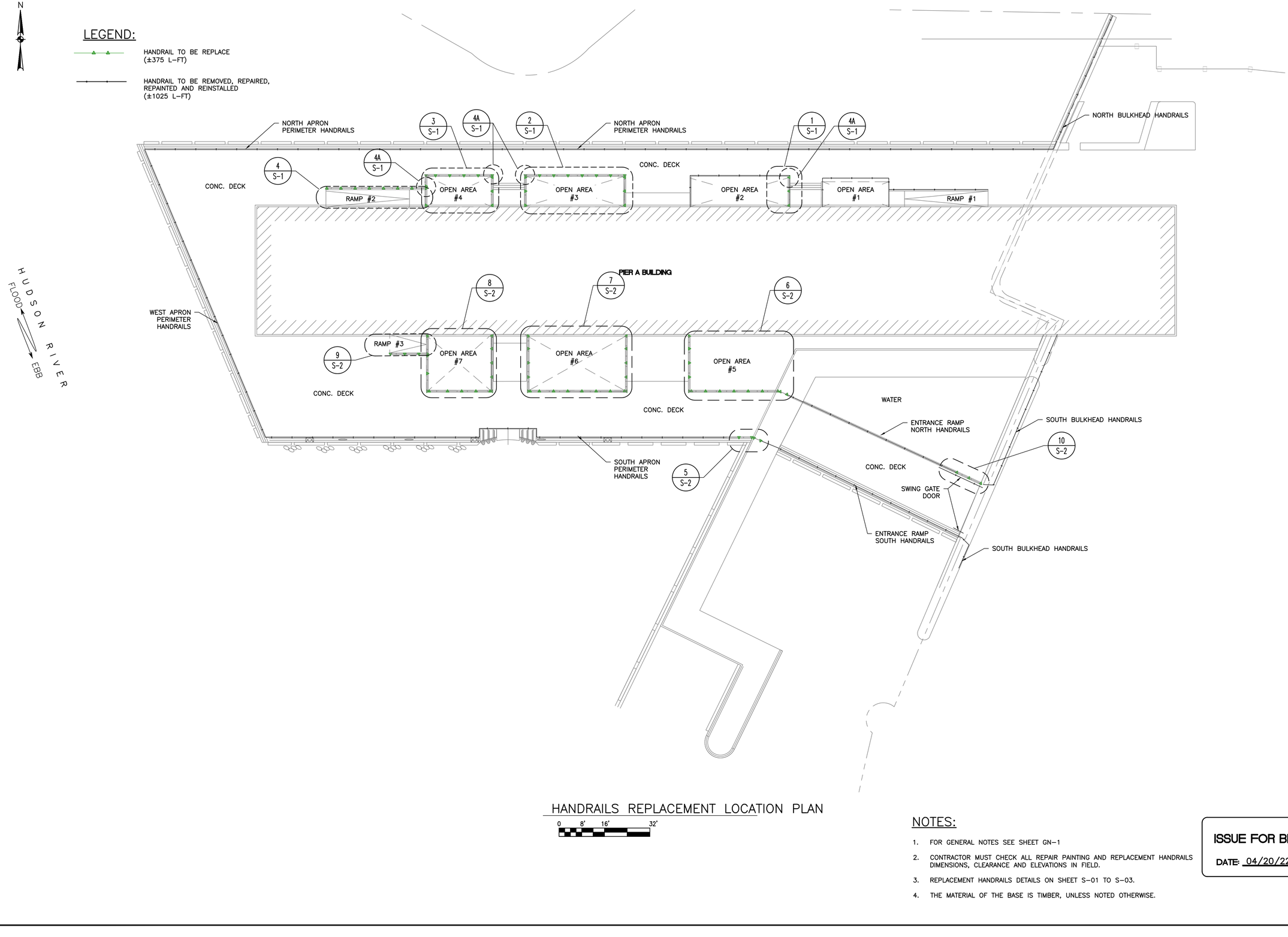
ISSUE FOR BID

N

LEGEND:

HANDRAIL TO BE REPLACE (±375 L–FT)

HANDRAIL TO BE REMOVED, REPAIRED, REPAINTED AND REINSTALLED (±1025 L–FT)



HANDRAILS REPLACEMENT LOCATION PLAN

0 8' 16' 32'

NOTES:

1. FOR GENERAL NOTES SEE SHEET GN–1
2. CONTRACTOR MUST CHECK ALL REPAIR PAINTING AND REPLACEMENT HANDRAILS DIMENSIONS, CLEARANCE AND ELEVATIONS IN FIELD.
3. REPLACEMENT HANDRAILS DETAILS ON SHEET S–01 TO S–03.
4. THE MATERIAL OF THE BASE IS TIMBER, UNLESS NOTED OTHERWISE.

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BATTERY PARK CITY AUTHORITY

PIER A RAILINGS REHABILITATION

HANDRAILS REPLACEMENT LOCATION PLAN

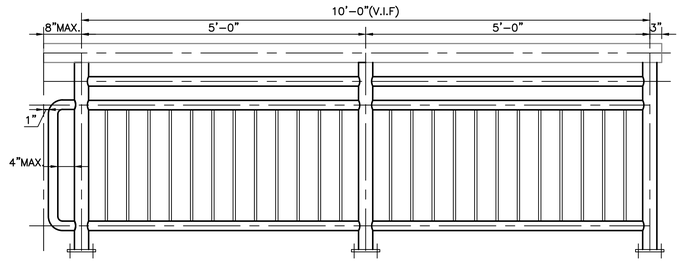
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DATE: 04/20/22	APPROVED BY: REM
PROJECT NO: 2020200179.007	DRAWN BY: FYC
SHEET NUMBER: GA-4	CHECKED BY: CFK
SHT. NO.: 6 OF 15	
DRAWING FILE NO.: GA-1 EXI... .DWG	REV. NO.: 0

S:\2020200179.007 PIER A RAILINGS\DWG\CURRENT\GA-1 EXISTING PIER & REPAIR PLAN.DWG

DATE PRINTED:4/14/2022 1:27:04 PM

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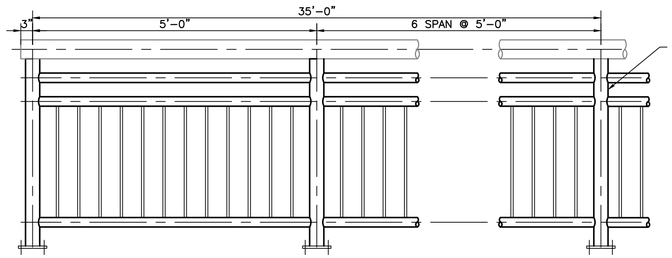
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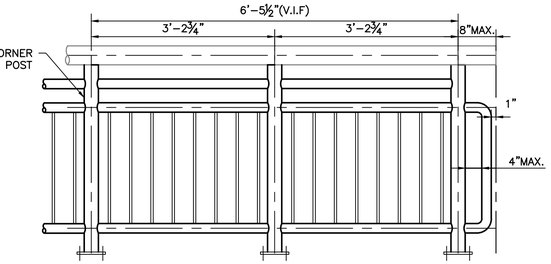
1 S-1 GA-4 — OPENING #2 HANDRAILS ELEVATION

0 1' 2'

NORTH



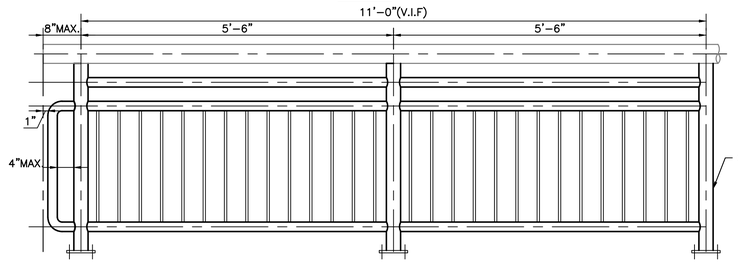
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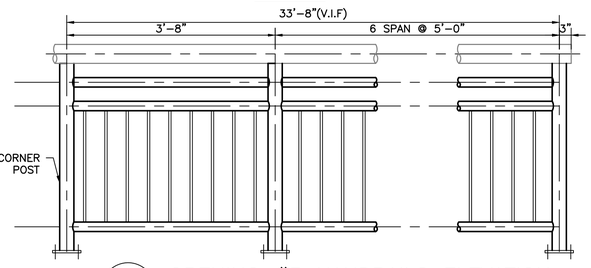
4 S-1 GA-4 — RAMP #2 HANDRAILS ELEVATION

0 1' 2'

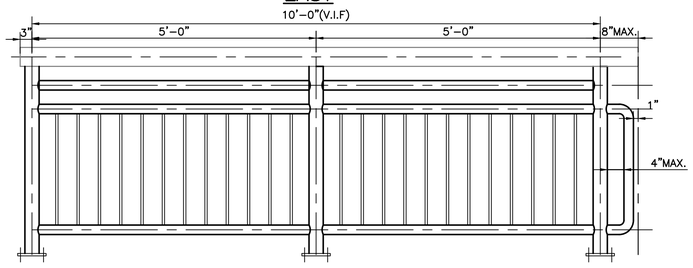
WEST



NORTH



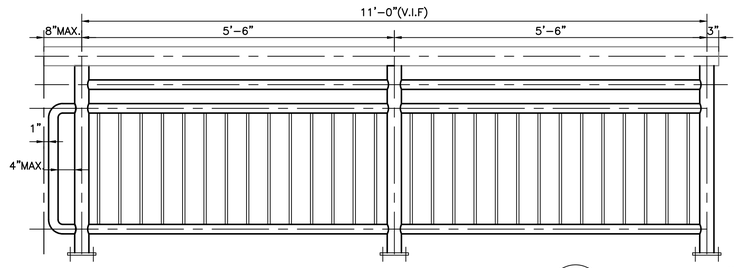
EAST



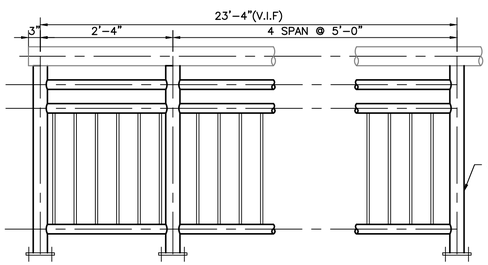
2 S-1 GA-4 — OPENING #3 HANDRAILS ELEVATION

0 1' 2'

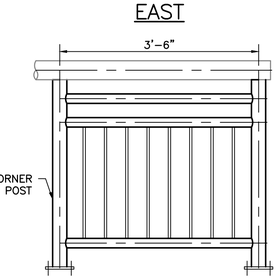
WEST



NORTH

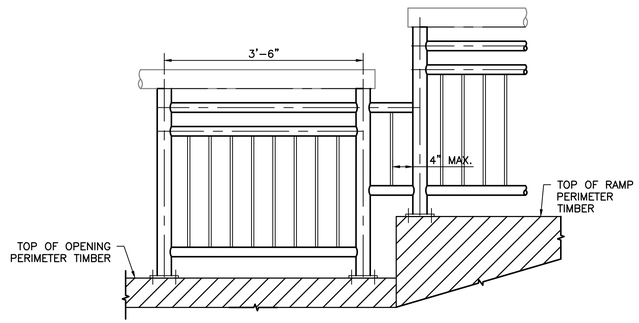


EAST



3 S-1 GA-4 — OPENING #4 HANDRAILS ELEVATION

0 1' 2'



4A S-1 GA-4 — HANDRAIL BETWEEN DIFFERENT ELEVATIONS

0 1' 2'

NOTES:

1. FOR GENERAL NOTES SEE SHEET GN-1
2. CONTRACTOR MUST CHECK ALL REPLACEMENT HANDRAILS DIMENSIONS, CLEARANCE AND ELEVATIONS IN FIELD.
3. HANDRAILS REPLACEMENT LOCATIONS ARE INDICATED IN SHEET GA-4.
4. TYPICAL RAILING ELEVATION, DIMENSIONS, MATERIALS, AND CONNECTION DETAILS ARE INDICATED IN SHEET S-03 AND TECHNICAL SPECIFICATIONS.
5. THE MATERIAL OF THE BASE IS EXISTING TIMBER, UNLESS NOTED OTHERWISE.

ISSUE FOR BID

DATE: 04/20/22

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BY:

DATE:

REV	DATE	DESCRIPTION	BY	CKD	APP'D
0	04/20/22	ISSUE FOR BID	AK	CFK	REM

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BATTERY PARK CITY AUTHORITY
PIER A RAILINGS REHABILITATION

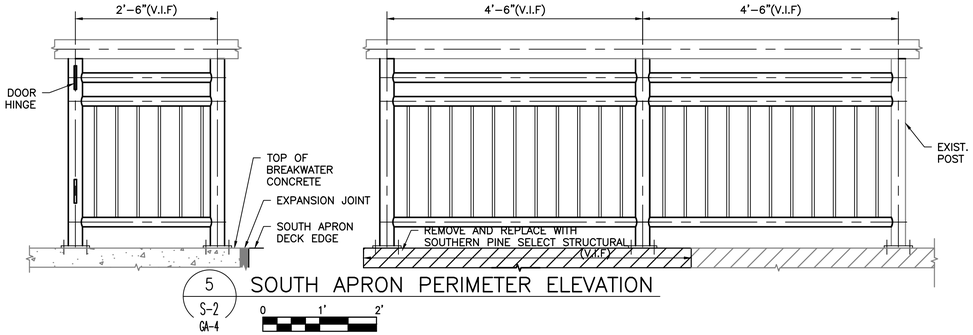
NORTH APRON HANDRAILS REPLACEMENT DETAILS

SCALE: AS NOTED	DESIGN BY: AK
DATE: 04/20/22	APPROVED BY: REM
PROJECT NO.: 2020200179.007	DRAWN BY: FYC
SHEET NUMBER: S-1	CHECKED BY: CFK
SHT. NO.: 7 OF 15	
DRAWING FILE NO.: S-1 REPA... .DWG	REV. NO.: 0

DATE PRINTED: 11/11/2021 10:31:23 AM

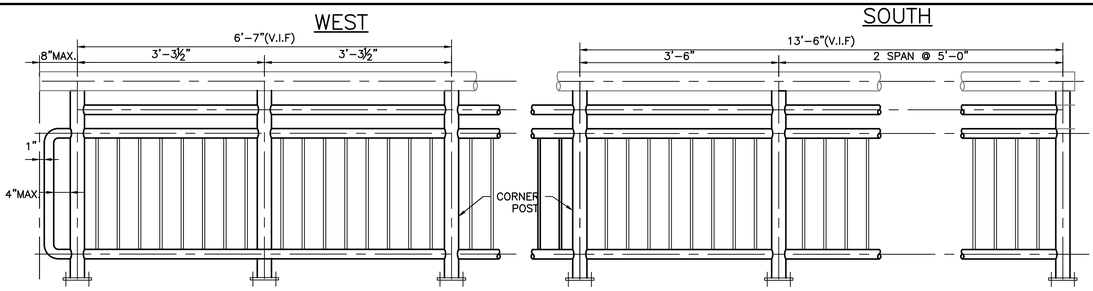
ISSUE FOR BID

S:\2020\2020179.007 PIER A RAILINGS\DWG\CURRENT\S-1 REPAIR DETAILS.DWG



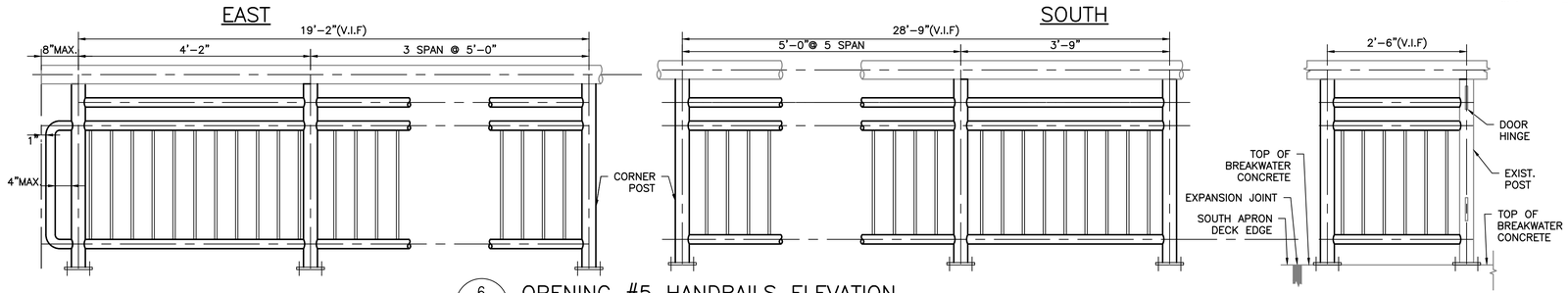
5 S-2 GA-4 SOUTH APRON PERIMETER ELEVATION

0 1' 2'



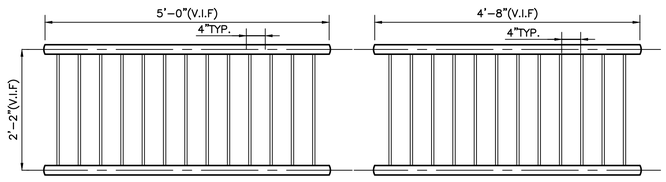
9 S-2 GA-4 RAMP #3 HANDRAILS ELEVATION

0 1' 2'



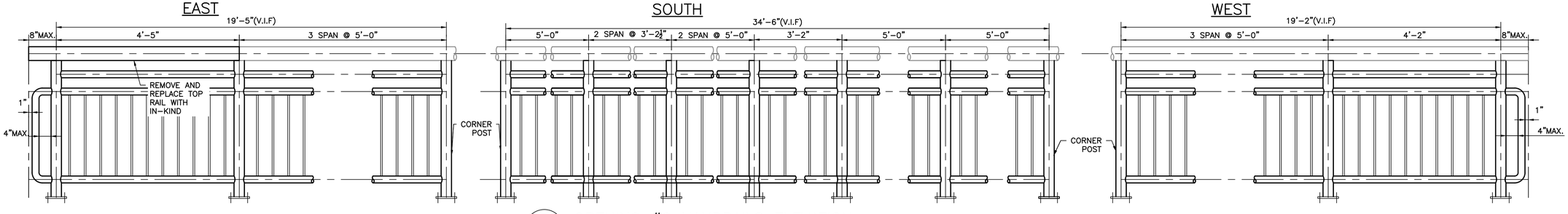
6 S-2 GA-4 OPENING #5 HANDRAILS ELEVATION

0 1' 2'



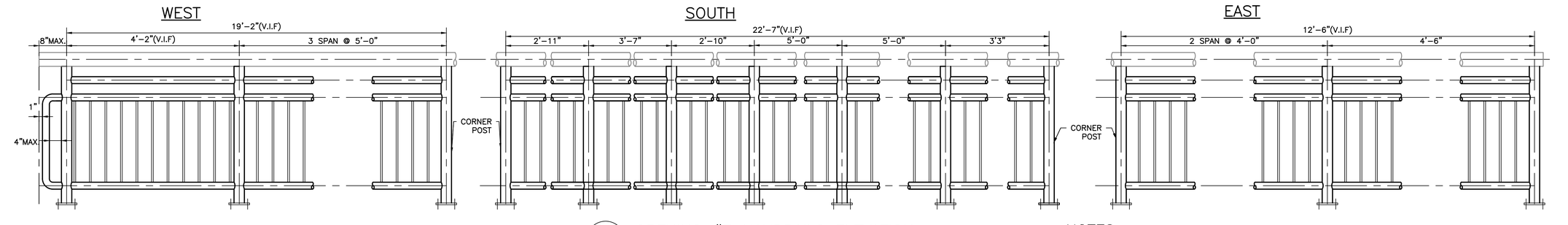
10 S-2 GA-4 ENTRANCE RAMP (NORTH)

0 1' 2'



7 S-2 GA-4 OPENING #6 HANDRAILS ELEVATION

0 1' 2'



8 S-2 GA-4 OPENING #7 HANDRAILS ELEVATION

0 1' 2'

NOTES:

1. FOR GENERAL NOTES SEE SHEET GN-1
2. CONTRACTOR MUST CHECK ALL REPLACEMENT HANDRAILS DIMENSIONS, CLEARANCE AND ELEVATIONS IN FIELD.
3. HANDRAILS REPLACEMENT LOCATIONS ARE INDICATED IN SHEET GA-4.
4. TYPICAL RAILING ELEVATION, DIMENSIONS, MATERIALS, AND CONNECTION DETAILS ARE INDICATED IN SHEET S-03 AND TECHNICAL SPECIFICATIONS.
5. THE MATERIAL OF THE BASE IS TIMBER, UNLESS NOTED OTHERWISE.

ISSUE FOR BID

DATE: 04/20/22

NEW YORK STATE OF OPPORTUNITY. Battery Park City Authority

BATTERY PARK CITY AUTHORITY
200 LIBERTY STREET, 24TH FLOOR,
NEW YORK, NY 10281
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BY:

DATE:

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0	04/20/22	ISSUE FOR BID	AK	CFK	REM

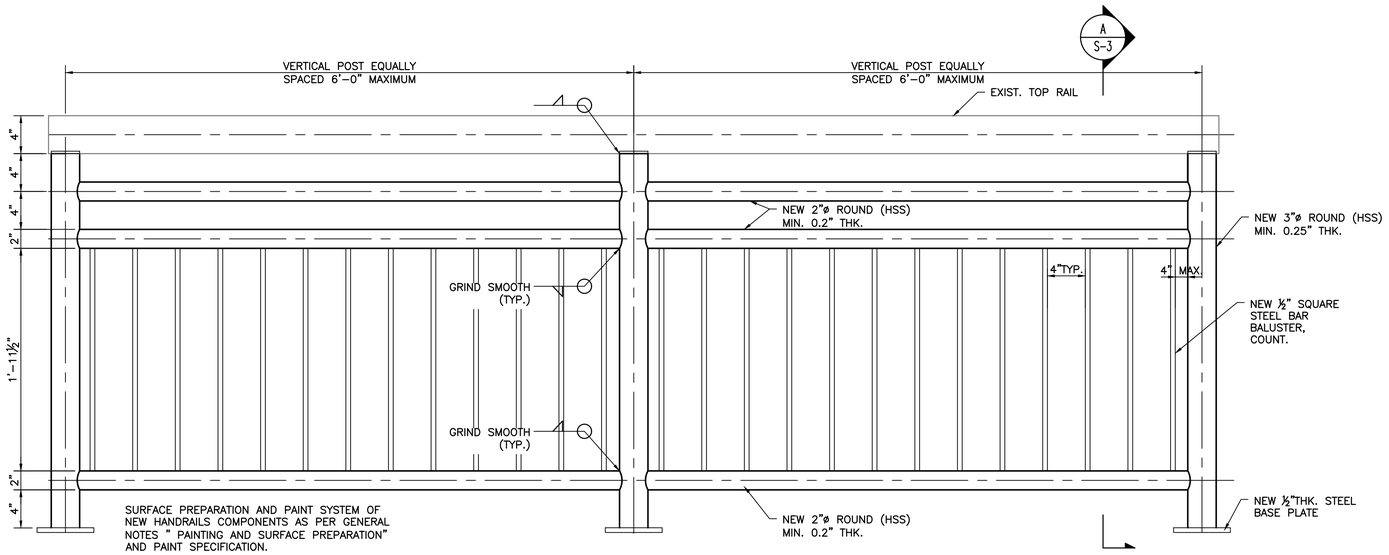
NEW YORK, NY
BATTERY PARK CITY AUTHORITY
PIER A RAILINGS REHABILITATION

SOUTH APRON HANDRAILS REPLACEMENT DETAILS

SCALE: AS NOTED	DESIGN BY: AK
DATE: 04/20/22	APPROVED BY: REM
PROJECT NO.: 2020200179.007	DRAWN BY: FYC
SHEET NUMBER: S-2	CHECKED BY: CFK
SHT. NO.: 8 OF 15	
DRAWING FILE NO.: S-1 REPA... .DWG	REV. NO.: 0

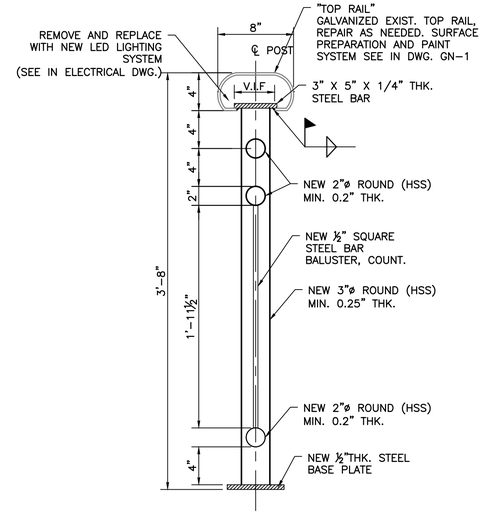
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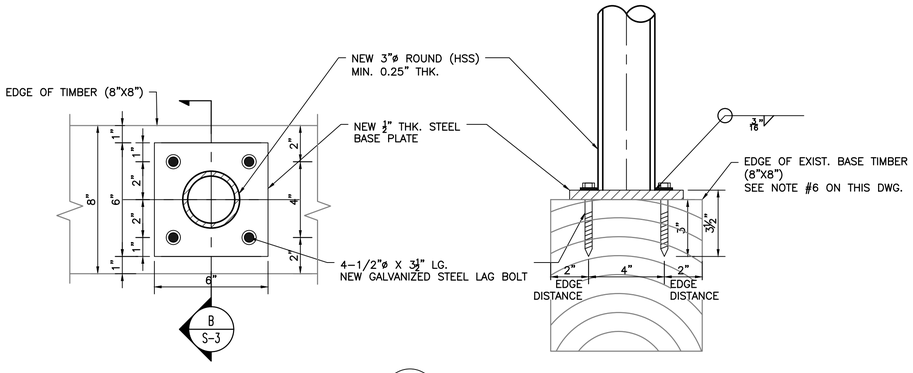
TYPICAL NEW RAILING ELEVATION

0 1/2' 1' 1 1/2'



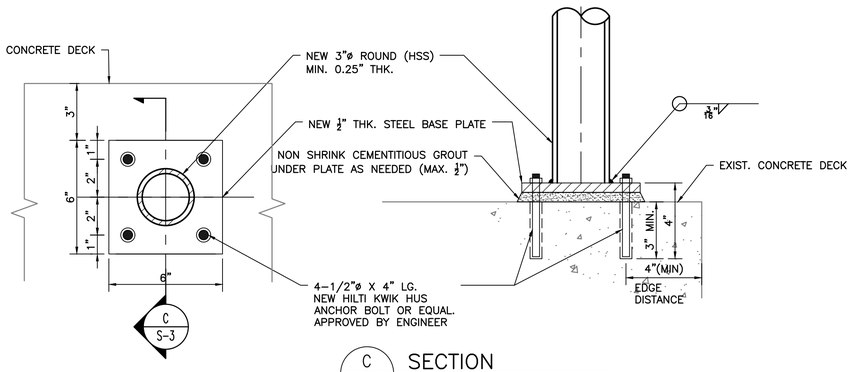
A S-3 / S-3 SECTION

0 1/2' 1' 1 1/2'



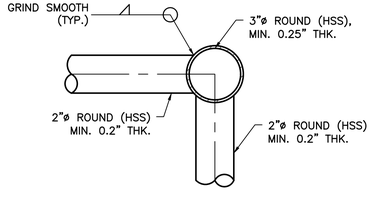
B S-3 / S-3 SECTION

0 3" 6" 1'



C S-3 / S-3 SECTION

0 3" 6" 1'



CORNER POST CONNECTION DETAILS

0 3" 6" 1'

BASE PLATE CONNECTION DETAILS

0 3" 6" 1'

NOTES:

1. FOR GENERAL NOTES SEE SHEET GN-1
2. CONTRACTOR MUST CHECK ALL REPLACEMENT HANDRAILS DIMENSIONS, CLEARANCE AND ELEVATIONS IN FIELD.
3. HANDRAILS REPLACEMENT LOCATIONS ARE INDICATED IN SHEET GA-4.
4. REPLACEMENT HANDRAILS DETAIL DIMENSION ON SHEET S-01 & S-02.
5. ALL WELDS SIZE ARE 3/16" FILLET WELD UNLESS OTHERWISE NOTED. WELDER QUALIFICATIONS AND INSTALLATION MUST FOLLOW AWS STANDARD AND TECHNICAL SPECIFICATIONS.
6. DAMAGED TIMBER BASE SHALL BE REPLACED WITH SOUTHERN PINE SELECT STRUCTURAL AT DIRECTION OF THE ENGINEER.

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DATE: 04/20/22

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200 LIBERTY STREET, 24TH FLOOR,
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7 Penn Plaza, Suite 1800
New York, NY 10001
o. 212.736.7100

URBAN ENGINEERS

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PIER A RAILINGS REHABILITATION

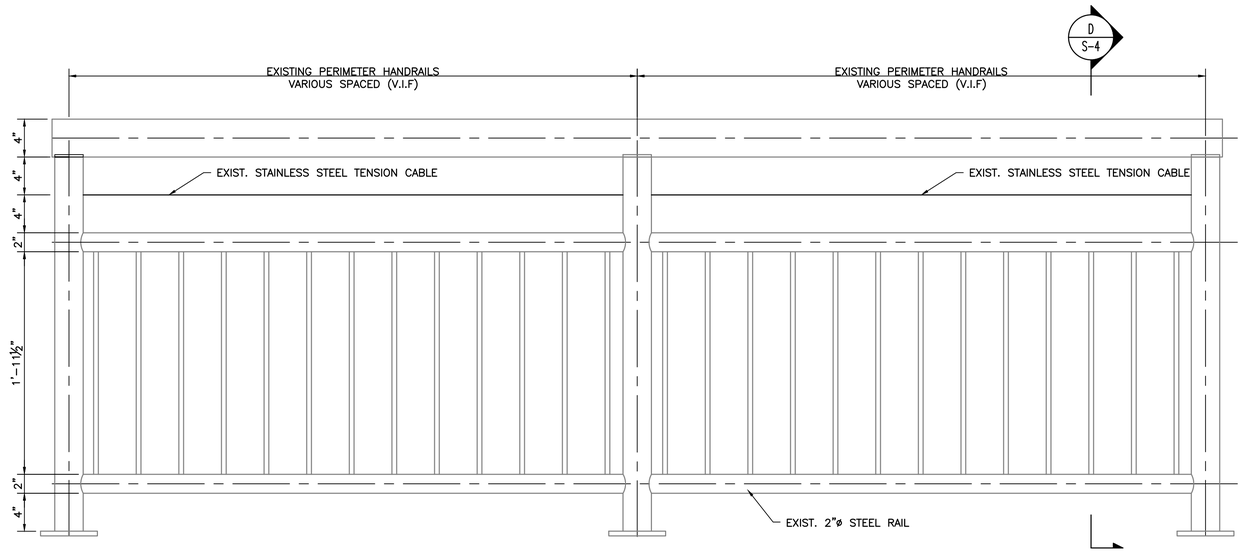
TYPICAL HANDRAILS DETAILS 1 OF 2

SCALE: AS NOTED
DATE: 04/20/22
PROJECT NO: 2020200179.007
SHEET NUMBER: S-3
SHT. NO.: 9 OF 15
DRAWING FILE NO.: S-1 REPA... .DWG
DESIGN BY: AK
APPROVED BY: REM
DRAWN BY: FYC
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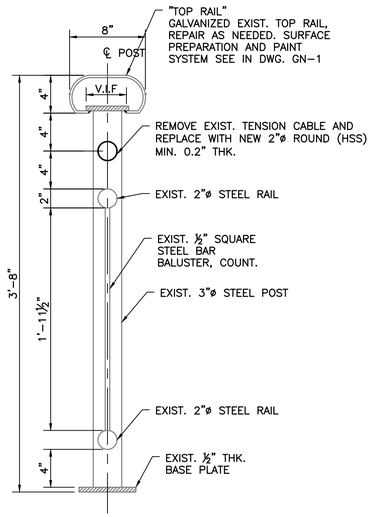
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EXIST. PERIMETER HANDRAILS ELEVATION

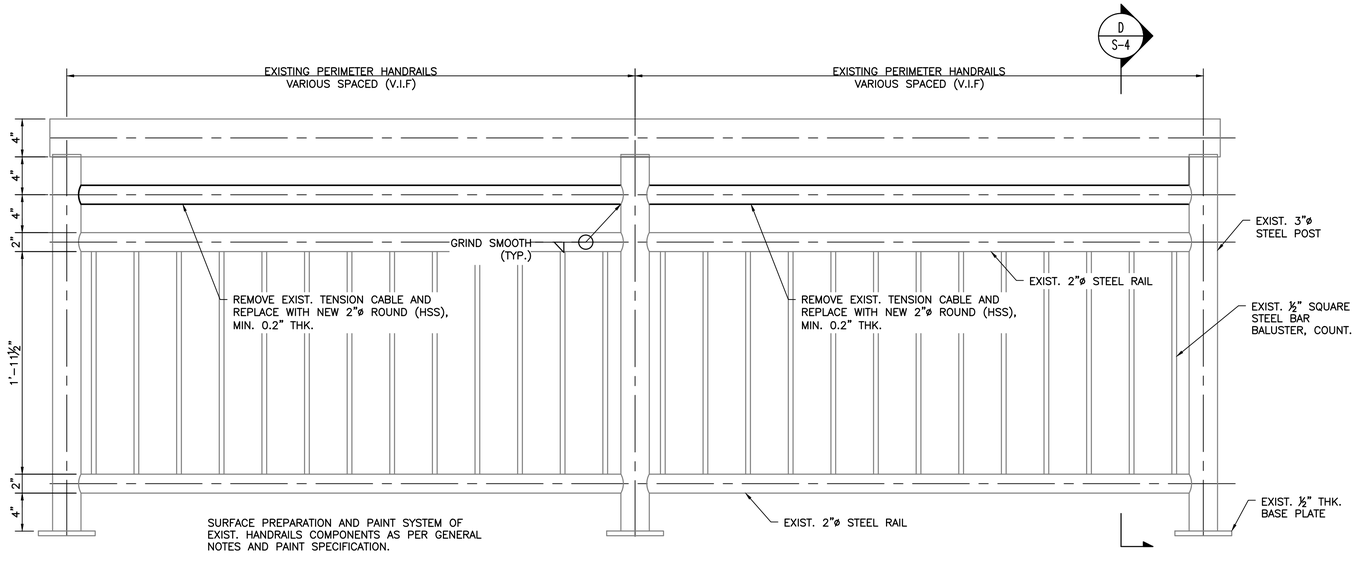
0 1/2' 1' 1 1/2'



D
S-4
S-4

SECTION

0 1/2' 1' 1 1/2'



REPLACEMENT OF TENSION CABLE ELEVATION

0 1/2' 1' 1 1/2'

NOTES:

1. FOR GENERAL NOTES SEE SHEET GN-1
2. CONTRACTOR MUST CHECK ALL PERIMETER HANDRAILS SPAN DIMENSIONS BEFORE FABRICATE REPLACEMENT RAILS AT TENSION CABLE.
3. HANDRAILS REPLACEMENT LOCATIONS ARE INDICATED IN SHEET GA-4.
4. ALL WELDS SIZE ARE 3/16" FILLET WELD UNLESS OTHERWISE NOTED. WELDER QUALIFICATIONS AND INSTALLATION MUST FOLLOW AWS STANDARD AND TECHNICAL SPECIFICATIONS.

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PIER A RAILINGS REHABILITATION

TYPICAL HANDRAILS DETAILS 2 OF 2

SCALE: AS NOTED	DESIGN BY: AK
DATE: 04/20/22	APPROVED BY: REM
	DRAWN BY: FYC
	CHECKED BY: CFK
PROJECT NO.: 2020200179.007	
SHEET NUMBER: S-4	
SHT. NO.: 10 OF 15	
DRAWING FILE NO.: S-4 TYPI... .DWG	REV. NO.: 0

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POWER DEVICE SYMBOLS

- SINGLE RECEPTACLE, NEMA 5–20R
- DUPLEX RECEPTACLE, NEMA 5–20R
  - IG ISOLATED GROUND
  - SP TVSS SURGE SUPPRESSOR
- FLOOR BOX WITH DUPLEX RECEPTACLE, NEMA 5–20R
- CEILING MOUNTED DUPLEX RECEPTACLE, NEMA 5–20R
- QUADRUPLEX RECEPTACLE, NEMA 5–20R
- FLOOR BOX WITH QUADRUPLEX RECEPTACLE, NEMA 5–20R
- CEILING MOUNTED QUADRUPLEX RECEPTACLE, NEMA 5–20R
- DUPLEX RECEPTACLE, GROUND FAULT CIRCUIT INTERRUPTER
- DUPLEX RECEPTACLE ON EMERGENCY POWER, NEMA 5–20R
- QUADRUPLEX RECEPTACLE ON EMERGENCY POWER, NEMA 5–20R
- NON–LOCKING SPECIAL PURPOSE RECEPTACLE 5–20R — NEMA CONFIGURATION AS INDICATED
- LOCKING SPECIAL PURPOSE RECEPTACLE L5–20R — NEMA CONFIGURATION AS INDICATED
- WALL MOUNTED JUNCTION BOX
- JUNCTION BOX
- PB — PULL BOX
- GS — PUSHBUTTON
  - GS GENERATOR SHUTDOWN
  - ES EMERGENCY STOP
  - PB GENERAL PUSHBUTTON
  - AD ADA ACCESS

POWER EQUIPMENT SYMBOLS

- MOTOR — SIZE AS INDICATED IN HORSEPOWER
- UNFUSED SAFETY DISCONNECT SWITCH 30A — SIZE AS INDICATED IN AMPS
- FUSED SAFETY DISCONNECT SWITCH 30A — SIZE AS INDICATED IN AMPS
- CIRCUIT BREAKER 30A — SIZE AS INDICATED IN AMPS
- MOTOR STARTER 1 — NEMA SIZE AS INDICATED
- COMBINATION MOTOR STARTER AND CIRCUIT BREAKER 30A — SIZE AS INDICATED IN AMPS
- COMBINATION MOTOR STARTER AND FUSED DISCONNECT SWITCH 30A — SIZE AS INDICATED IN AMPS
- ELECTRICAL PANEL – SURFACE MOUNTED
- ELECTRICAL PANEL – FLUSH MOUNTED
- DISTRIBUTION PANEL
- T — TRANSFORMER
- M — ELECTRICITY METER BY UTILITY COMPANY
- M — ELECTRICITY METER BY OWNER

GROUNDING SYMBOLS

- G — GROUNDING CABLE (EXPOSED)
- GROUNDING CABLE (BURIED OR CONCEALED)
- GB — GROUNDING BUS BAR
- GROUND CONNECTION POINT

CONDUIT AND WIRING SYMBOLS

- LP–7 — BRANCH CIRCUIT CONDUIT & WIRE, HOMERUN TO PANELBOARD PANELBOARD AND CIRCUIT NUMBER INDICATED
- CONCEALED CONDUIT & WIRE OR ITEM RUN AT OR ABOVE ELEVATION SHOWN
- EXPOSED CONDUIT & WIRE OR ITEM RUN AT OR ABOVE ELEVATION SHOWN
- OR — EQUIPMENT ON SAME CIRCUIT BUT SEPARATELY CONTROLLED
- LIQUID–TIGHT FLEXIBLE METAL (LMFC) CONDUIT
- E — UNDERGROUND CONDUIT & WIRE
- CONDUIT BENDS TOWARD OBSERVER (UP)
- CONDUIT BENDS AWAY FROM OBSERVER (DOWN)
- CONDUIT STUBBED OUT AND CAPPED FOR FUTURE USE

LIGHTING SYMBOLS

- F1 / LP–7 — LIGHT FIXTURE, CIRCUIT, SWITCH, FIXTURE TYPE
- RECESSED OR SURFACE MOUNTED FIXTURE
- RECESSED OR SURFACE MOUNTED FIXTURE WITH EMERGENCY BALLAST
- INDUSTRIAL, UNDERCOUNTER, STRIP, OR CASEWORK FIXTURE
- INDUSTRIAL OR STRIP FIXTURE WITH EMERGENCY BALLAST
- DOWNLIGHT FIXTURE
- DOWNLIGHT FIXTURE WITH EMERGENCY BALLAST
- DIRECTIONAL DOWNLIGHT FIXTURE
- WALL OR SURFACE MOUNTED FIXTURE
- WALL OR SURFACE MOUNTED FIXTURE WITH EMERGENCY BALLAST
- EXIT FIXTURE – CEILING MOUNTED – ARROWS AS INDICATED
- EXIT FIXTURE – WALL OR SURFACE MOUNTED – ARROWS AS INDICATED
- EMERGENCY BATTERY UNIT WITH ADJUSTABLE HEAD(S)
- EMERGENCY BATTERY UNIT FOR REMOTE EMERGENCY FIXTURES
- REMOTE EMERGENCY FIXTURE SINGLE HEAD
- REMOTE EMERGENCY FIXTURES DUAL HEAD
- TRACK LIGHTING SYSTEM
- PC — PHOTOCELL
- S — SINGLE POLE SWITCH
- S_2 — DOUBLE POLE SWITCH
- S_3 — THREE WAY SWITCH
- S_4 — FOUR WAY SWITCH
- S_M — MANUAL STARTER SWITCH
- S_{MS} — OCCUPANCY SENSOR SWITCH
- CORNER MOUNTED MOTION SENSOR
- CEILING MOUNTED MOTION SENSOR
- TC — TIME CLOCK

SINGLE LINE DIAGRAM SYMBOLS

- 100AF / 30AT — CIRCUIT BREAKER; AF, FRAME RATING IN AMPS; AT, TRIP RATING IN AMPS
- DISTRIBUTION TRANSFORMER — SIZE AS INDICATED
- DELTA
- WYE
- WIREWAY
- 25 — ELECTRIC MOTOR — HORSEPOWER AS INDICATED
- 20A — FUSE — SIZE AS INDICATED IN AMPS
- M — ELECTRIC METER
- N O E L — AUTOMATIC TRANSFER SWITCH
- AUTOMATIC TRANSFER SWITCH – SERVICE ENTRANCE RATED
- ABCNG — PORTABLE GENERATOR CONNECTION
- G — STANDBY GENERATOR — SIZE AS INDICATED
- PANELBOARD — SIZE AS INDICATED
- PANELBOARD WITH INTEGRAL TRANSFORMER — SIZE AS INDICATED

ABBREVIATIONS

AF	AMP FRAME
AFF	ABOVE FINISHED FLOOR
AMP/A	AMPERE
AT	AMP TRIP
ATS	AUTOMATIC TRANSFER SWITCH
BKR	BREAKER
C/COND	CONDUIT
CAT	CATEGORY
CB, C/B	CIRCUIT BREAKER
CKT	CIRCUIT
CLG	CEILING
CT	CURRENT TRANSFORMER
CU	COPPER
DEMO	DEMOLITION
DISC	DISCONNECT
DWG	DRAWING
(E)	EXISTING
EC	ELECTRICAL CONTRACTOR
ELEC	ELECTRICAL
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
(ER)	EXISTING RELOCATED
EUH	ELECTRIC UNIT HEATER
EX	EXISTING
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FAAP	FIRE ALARM ANNUNCIATOR PANEL
GFCI, GFI	GROUND FAULT CIRCUIT INTERRUPTER
GFSC	GROUND FAULT SENSING RELAY
G/GND	GROUND
INCAND	INCANDESCENT
IMC	INTERMEDIATED METAL CONDUIT
ISC	SHORT CIRCUIT CURRENT
KVA	KILOVOLT AMPERE
KW	KILOWATT
KWH	KILOWATT HOUR
LTG	LIGHTING
MC	MECHANICAL CONTRACTOR
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUGS ONLY
MFR	MANUFACTURER
MH	MANHOLE
MCC	MOTOR CONTROL CENTER
MTD	MOUNTED
(N)	NEW
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NIC	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
P	POLE
PF	POWER FACTOR
PH	PHASE
PL	PILOT LIGHT
PNL	PANEL
PRI	PRIMARY
(R)	REMOVE
RECEPT	RECEPTACLE(S)
RGS	RIGID GALVANIZED STEEL
RTD	RESISTANCE TEMPERATURE DETECTOR
SEC	SECONDARY
SIG	SIGNAL
SPEC	SPECIFICATION
ST	SHUNT TRIP
STD	STANDARD
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UL	UNDERWRITERS LABORATORY
V	VOLT
W	WATT
WP	WATERPROOF
XFR	TRANSFER
ø	PHASE

GENERAL NOTES

1. THIS IS A STANDARD SYMBOL LIST. ALL DEVICE SYMBOLS AND ABBREVIATIONS MAY NOT NECESSARILY APPEAR ON THE FLOOR PLANS OR DETAIL SHEET. ONLY THOSE SYMBOLS INDICATED ON THE FLOOR PLANS ARE USED FOR THIS PROJECT. ALL OTHERS ARE TO BE CONSIDERED NOT USED AND SHOULD BE DISREGARDED.
2. REFER TO ELECTRICAL SPECIFICATIONS SECTION 260000.
3. ABBREVIATIONS NOT SHOWN ARE DERIVED FROM ASME Y1.1 1989 ABBREVIATIONS FOR USE ON DRAWINGS AND IN TEXT.
4. DIMENSIONS MARKED ± ARE TO BE VERIFIED IN THE FIELD. THOSE MARKED N.T.S. ARE SHOWN NOT TO SCALE, ALL OTHERS ASSUMED TO BE CORRECT AND SHOULD BE CHECKED WITH OTHER TRADE DRAWINGS AND VERIFIED BY THE CONTRACTOR.
5. ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS AND WITH THE LATEST REVISIONS OF THE NATIONAL ELECTRICAL CODE, WITH THE LOCAL CODES WHICH HAVE PRECEDENCE.
6. CONDUIT AND WIRE ARE SHOWN DIAGRAMMATICALLY ON THE DRAWINGS. EXACT LOCATIONS AND ROUTING IS TO BE DETERMINED IN THE FIELD. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL ELECTRICAL WORK WITH ALL OTHER TRADES.
7. MINIMUM CONDUIT SIZE SHALL BE 3/4" ABOVE GRADE AND 1" BELOW GRADE UNLESS OTHERWISE NOTED.
8. ALL CONDUIT SHALL BE GALVANIZED STEEL ABOVE GRADE AND PVC BELOW GRADE.
9. ALL MOUNTING HARDWARE (PIPE STRAPS, V–BOLTS, ETC.) MUST BE HOT DIPPED GALVANIZED.
10. CONDUIT SHALL BE RUN NEAT AND IN A WORKMAN LIKE MANNER, AT 90 DEGREE ANGLES WERE POSSIBLE.
11. CONDUIT RUNS SHALL BE KEPT AT LEAST 12" FROM STEAM OR OTHER HOT LINES. WHERE CROSSINGS ARE UNAVOIDABLE, CONDUIT SHALL BE KEPT AT LEAST 6" FROM COVERING OF SUCH LINES.
12. ALL LIGHTING FIXTURE ELEVATIONS ARE TAKEN FROM FINISHED FLOOR ELEVATION, PLATFORM ELEVATION OR GRADE TO BOTTOM OF GLOBE.
13. FINAL CONNECTIONS TO EQUIPMENT SHALL BE MADE BY FLEXIBLE CONDUIT.
14. INSTRUMENT SIGNAL AND CONTROL WIRES SHALL NOT BE SPLICED.
15. ALL ELECTRICAL WIRES AND CABLES FOR POWER, CONTROL AND INSTRUMENTATION SHALL BE TAGGED AT BOTH ENDS.
16. MULTIPLE "HOME RUN" CIRCUITS MAY BE COMBINED BY THE CONTRACTOR INTO A SINGLE CONDUIT/CABLE USING THE FOLLOWING GUIDELINES:
    - A. NO MORE THAN (8) SINGLE PHASE OR (3) THREE PHASE CIRCUITS MAY BE COMBINED.
    - B. WIRE SIZES MUST BE INCREASED PER N.E.C. ARTICLE 310 NOTE #8 TO AMPACITY TABLES (AS REQUIRED).
    - C. CONDUITS SIZES MUST BE ADJUSTED TO MAINTAIN A MAXIMUM OF 40% FILL.
    - D. ONLY CIRCUITS ORIGINATING AT A COMMON PANEL, MCC, ETC. MAY BE COMBINED.
    - E. LOW LEVEL SIGNAL CIRCUITS SHALL NOT BE COMBINED WITH ALTERNATING CURRENT CIRCUITS.
17. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY RACEWAY SUPPORTS. SUPPORTS SHALL BE FABRICATED FROM GALVANIZED STEEL STRUCTURAL SHAPES OR UNISTRUT.
18. NEUTRAL AND GROUND CONDUCTORS SHALL BE OF THE SAME AWG AS CURRENT CARRYING CONDUCTORS. (UNLESS OTHERWISE NOTED).
19. GROUNDING AND BONDING OF ELECTRICAL EQUIPMENT AND PIPING SHALL BE IN ACCORDANCE WITH NEC SECTION 250 AND 501, NFPA 54–1988, AND ANSI 2223.1–1988.
21. WIRE AND CABLE
    - A. FEEDER CABLES AND BRANCH CIRCUIT WIRING AT INTERIOR, DRY LOCATIONS, UP TO 500MCM SHALL BE TYPE THWN/THHN THERMOPLASTIC 600 VOLT INSULATED COPPER CONDUCTOR. MINIMUM SIZE IS #12 AWG (#14 MAY BE USED FOR CONTROL CIRCUITS ONLY). ALL UNDERGROUND SERVICE CABLES SHALL HAVE THW – THERMOPLASTIC, 600 VOLT INSULATION COPPER CONDUCTOR.
    - B. VFD LOAD SIDE WIRING SHALL BE TYPE XHHW–2 THERMOSET 600 VOLT INSULATED COPPER CONDUCTOR. MINIMUM SIZE IS #12 AWG.
22. RACEWAYS
    - A. CONDUCTORS SHALL BE INSTALLED IN RGS WHERE SUBJECT TO PHYSICAL DAMAGE, EMT MAY BE USED IN OTHER LOCATIONS AS ALLOWED BY CODE.
23. BRANCH WIRING
    - A. PROVIDE ALL CIRCUITING OF GENERAL, HVAC AND LIGHTING CIRCUITS TO THE PANELS
    - B. ACTUAL CIRCUIT NUMBERS MAY BE ALTERED DURING CONSTRUCTION. HOWEVER, THE DESIGN INTENT MUST BE MAINTAINED. THE EC WILL ACCURATELY REFLECT ALL CIRCUIT NUMBERS ON THE AS–BUILT DRAWINGS.
    - C. BASE BUILDING LIGHTING AND GENERAL CONVENIENCE RECEPTACLE CIRCUITS SHALL BE NETWORKED WITH (3) SINGLE PHASE CONDUCTORS SHARING (1) NEUTRAL CONDUCTOR (4#12 AWG.). ONLY AT 3–PHASE PANELS.
    - D. ALL 120 VOLT, 20 AMP BRANCH WIRING EXCEEDING 120 FEET SHALL BE INCREASED TO #10 AWG.
    - E. NO MORE THAN 1,920 WATTS SHALL BE CONNECTED TO ANY (1) 20AMP, 120 VOLT
    - F. ALL FLUORESCENT LIGHTING CIRCUITS SHALL BE PROVIDED WITH 20AMP CIRCUIT BREAKER WITH A MAXIMUM OF 1,250 WATTS.
    - G. TANDEM WIRING OF GFI RECEPTACLES SHALL BE PERMITTED IF INSTALLED PER CODE.

STANDARD MOUNTING HEIGHTS

9" BELOW FINISHED CEILING	WALL–MOUNTED CLOCKS, PROGRAM BELLS, (OR AS SHOWN ON ARCHITECTURAL DETAILS).
6" ABOVE FIRE HOUSE CABINET	BLUE SIGNAL LIGHT
10'–0"	BATTERY LIGHTING UNITS AND REMOTE WALL MOUNTED LIGHTHEADS (OR 1'–0" BELOW FINISHED CEILING OF TOP OF UNIT)
8'–6"	PENDANT–HUNG INDUSTRIAL AND STRIP LIGHTING FIXTURES
CENTERED ABOVE DOOR OR WINDOW	WARNING AND SIGNALING FIXTURES/SIGNS
6'–8" – TO BOTTOM OF DEVICE	OR 6" BELOW FINISHED CEILING WHICHEVER IS LOWER. FIRE ALARM SIGNAL DEVICES AND ILLUMINATED FIRE SIGNALS.
6'–6"	TOP OF FLUSH AND SURFACE MOUNTED ELECTRICAL LIGHTING OR POWER PANELBOARDS AND TELEPHONE CABINETS.
6'–3"	TOP OF BACK–MOUNTED WALL EXIT FIXTURES (NOT MOUNTED ABOVE DOORS).
6'–0"	TOP OF HIGHEST ELECTRICAL SAFETY DISCONNECT SWITCHES, MAGNETIC STARTERS, CONTACTORS.
4'–6"	WALL MOUNTED INTERCOM, TELEPHONE AND PAY STATIONS. (MAXIMUM SIDE REACH HEIGHT ADA).
4'–0"	WALL MOUNTED ELECTRICAL DEVICE LIGHTING SWITCHES, MANUAL MOTOR STARTERS, THERMOSTATS, WALL–MOUNTED WIREMOLD AND G.F.I. RECEPTACLES IN TOILET ROOMS OR FOR SEPERATE SINKS NOT IN CASEWORK (MAXIMUM SIDE REACH HEIGHT ADA).
3'–6"	FIRE ALARM PULL STATIONS, ADA COMPLIANT DEVICE ROUGH IN.
2'–0"	ELECTRICAL RECEPTACLES WITHIN MECHANICAL SPACES, ELECTRICAL AND ELEVATOR ROOMS.
18"	ELECTRICAL RECEPTACLES, TELEPHONE JACKS, COAXIAL JACKS, AND DATA JACKS FOR DESKS.
00"	FINISHED FLOOR

MOUNTING HEIGHT NOTES

1. STANDARD MOUNTING HEIGHTS: (COORDINATE WITH ARCHITECTURAL DRAWINGS) ALL MOUNTING HEIGHTS SHALL BE AS INDICATED BY ARCHITECT. IF NOT INDICATED BY ARCHITECT THEN PROVIDE AS NOTED ABOVE.
2. MOUNTING HEIGHTS TO CENTER OF OUTLETS UNLESS OTHERWISE NOTED. IN MASONRY CONSTRUCTION THE ABOVE MOUNTING HEIGHTS SHALL BE USED FOR REFERENCE TO NEAREST BLOCK OR BRICK COURSING.
3. THE ABOVE MOUNTING HEIGHTS SHALL BE ADHERED TO UNLESS SPECIFICALLY NOTED OR DETAILED OTHERWISE ON THE DRAWING OR SPECIFICATIONS.
4. INDICATION (+) NEXT TO A DEVICE INDICATES THAT DEVICE IS MOUNTED ABOVE A COUNTER OR CASEWORK. COORDINATE WITH ARCHITECTURAL DETAILS AND CASEWORK CONTRACTOR.
5. 3'–6" FOR ADA COMPLIANT DEVICES VERIFY EXACT HEIGHT WITH ARCHITECT PRIOR TO ROUGH IN.

DRAWING LIST

E–00	ELECTRICAL COVER SHEET
E–01	ELECTRICAL DEMO PLAN
E–02	ELECTRICAL PROPOSED PLAN – LIGHTING
E–03	ELECTRICAL SCHEDULES
E–04	ELECTRICAL DETAILS

NOTE:

NOT ALL SYMBOLS AND ABBREVIATIONS INDICATED APPEAR ON THESE DOCUMENTS.

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DATE: 04/20/22

NEW YORK STATE OF OPPORTUNITY. Battery Park City Authority

BATTERY PARK CITY AUTHORITY
200 LIBERTY STREET, 24TH FLOOR,
NEW YORK, NY 10281
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URBAN ENGINEERS
Urban Engineers of New York, D.P.C.
7 Penn Plaza, Suite 1800
New York, NY 10001
o. 212.736.7100

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BY:

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PIER A RAILINGS REHABILITATION

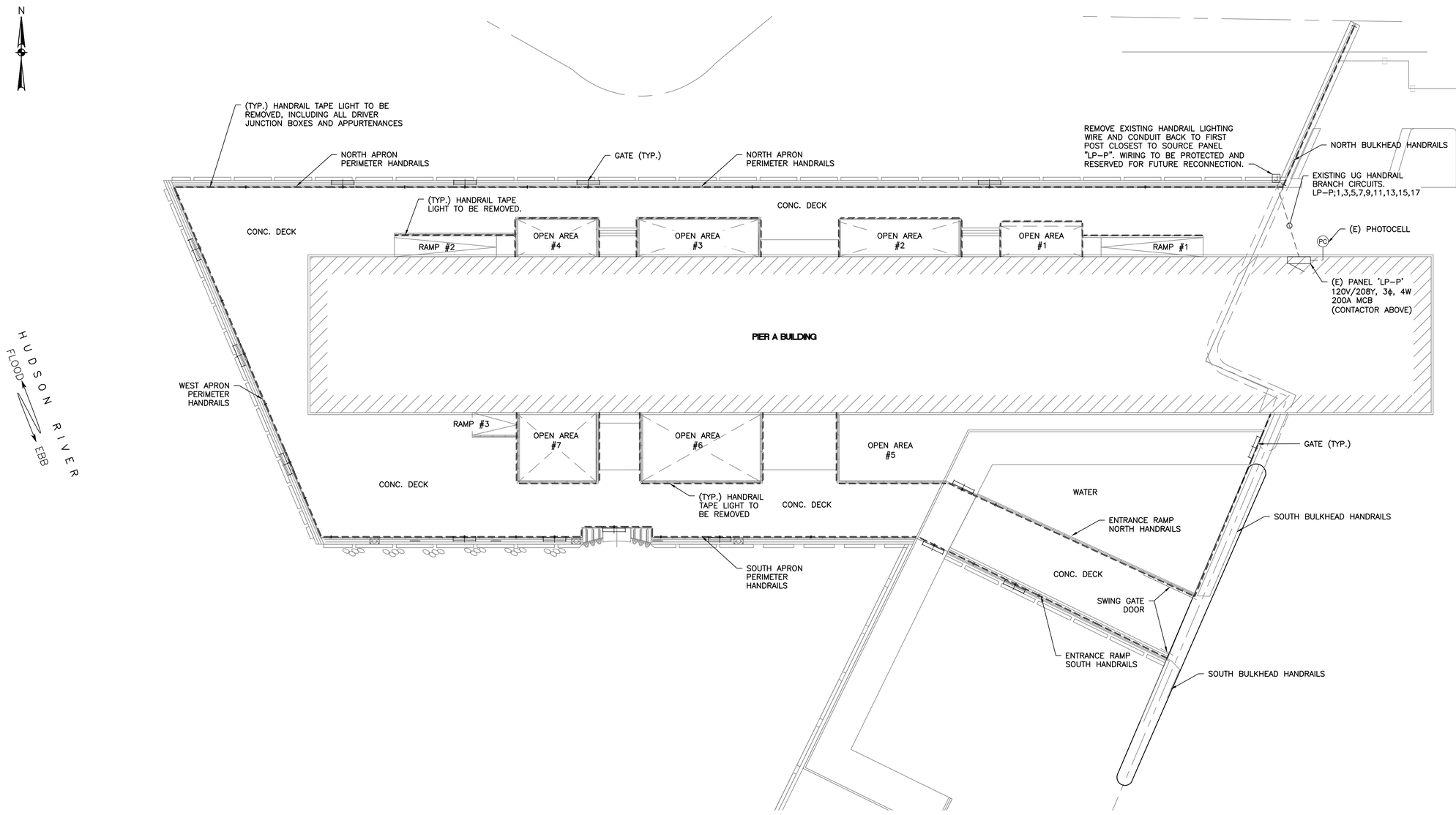
ELECTRICAL GENERAL NOTES & LEGENDS

SCALE: AS NOTED	DESIGN BY: SJI
DATE: 04/22/22	APPROVED BY: REM
	DRAWN BY: SJI
	CHECKED BY: GTH
PROJECT NO.: 2020200179.007	
SHEET NUMBER: E-0	
SHT. NO.: 11 OF 15	
DRAWING FILE NO.: GN-2 GEN... .DWG	REV. NO.: 0

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LIGHTING PLAN

0 8' 16' 32'

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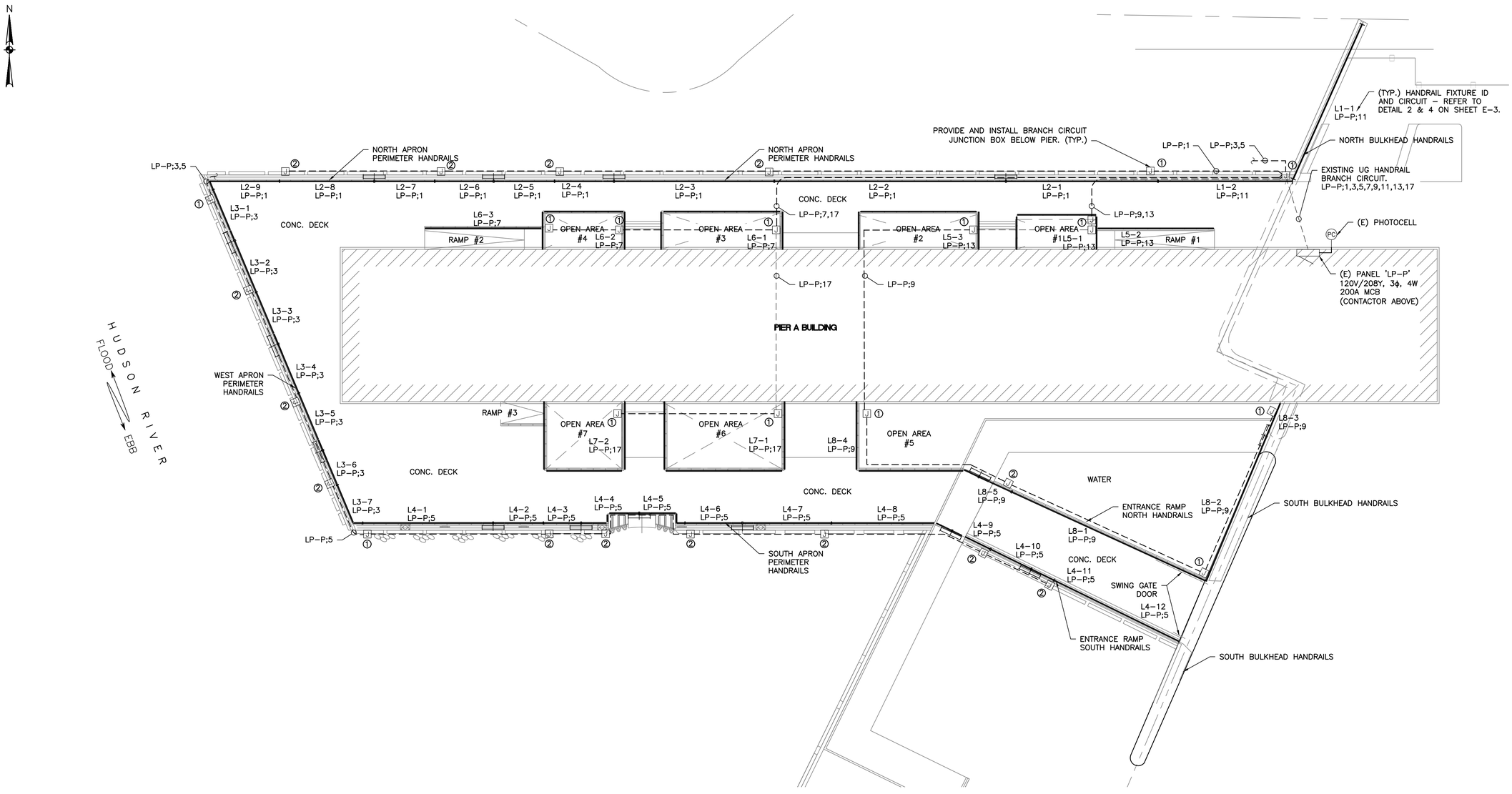
ELECTRICAL WORK DEMOLITION PLAN

SCALE: AS NOTED
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DRAWN BY: SJI
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PROJECT NO.: 2020200179.007
SHEET NUMBER: E-1
SHT. NO.: 12 OF 15
DRAWING FILE NO.: E-1 LIGH... .DWG
REV. NO.: 0

S:\2020200179.007 PIER A RAILINGS\DWG\CURRENT\ELECTRICAL DWG\SIE-1 LIGHTING PLAN - DEMO.DWG

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GENERAL NOTES:

1. HANDRAIL LIGHTING FIXTURE CONNECTION JUNCTION BOXES NOT SHOWN FOR CLARITY.
2. ALL CONDUITS SHALL BE ROUTED BELOW PIER. ROUTING TO MATCH EXISTING INSTALLATION, WHERE FEASIBLE.
3. ALL LIGHTING BRANCH CIRCUIT SHALL BE FED FROM PANEL 'LP–P'
4. ALL EXTERIOR JUNCTION BOXES SHALL BE GASKETED WATERPROOF TYPE. ALL CONDUITS RUN SHALL BE PVC COATED RGS.
5. ALL HANDRAIL FIXTURES ARE CONTROLLED VIA EXISTING CONTACTOR AND PHOTOCELL.
6. REFER TO E–3 FOR ELECTRICAL SCHEDULES
7. REFER TO E–4 FOR ELECTRICAL DETAILS.

LIGHTING PLAN

0 8' 16' 32'

KEY NOTES:

1. CONNECTION TO ONE HANDRAIL FIXTURE (I.E.;L2–1). CONTRACTOR TO PROVIDE AND INSTALL ONE LIGHT FIXTURE CONNECTION JUNCTION BOX WITH LMFC CONNECTIONS ADJACENT TO BRANCH CIRCUIT JUNCTION BOX. ROUTE FIXTURE'S FACTORY ATTACHED SINGLE LEAD CABLE THROUGH VERTICAL HANDRAIL POST DOWN TO FIXTURE CONNECTION JUNCTION BOX AND SPLICE WITH ASSOCIATED BRANCH CIRCUIT WIRING. INSTALL FIXTURE MANUFACTURER PROVIDED JUNCTION BOX COVER.

2. CONNECTION TO TWO HANDRAIL FIXTURES (I.E.;L2–2,3). CONTRACTOR TO PROVIDE AND INSTALL TWO LIGHT FIXTURE CONNECTION JUNCTION BOXES WITH LMFC CONNECTIONS ADJACENT TO BRANCH CIRCUIT JUNCTION BOX. ROUTE BOTH FIXTURES' FACTORY ATTACHED SINGLE LEAD CABLES THROUGH VERTICAL HANDRAIL POST DOWN TO EACH FIXTURE CONNECTION JUNCTION BOX AND SPLICE WITH ASSOCIATED BRANCH CIRCUIT WIRING. INSTALL FIXTURE MANUFACTURER PROVIDED JUNCTION BOX COVERS.

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BPCA CONTRACT #19-2855

Urban Engineers of New York, D.P.C.
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NEW LIGHITNG PLAN

SCALE: AS NOTED
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PROJECT NO.: 2020200179.007
SHEET NUMBER: E-2
SHT. NO.: 13 OF 15
DRAWING FILE NO.: E-2 LIGH... .DWG
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TABLE–1 EXISTING PANEL 'LP–P' SCHEDULE

JOB NAME: BPCA-PIER A HANDRAIL LIGHTING PANEL NAME: (E) LP-P	NOTES: SQUARE D POWERLINK PANEL * - INDICATED CONTROLLABLE CIRCUIT BREAKER	VOLTAGE: 208Y/120V PHASE: 3 WIRE: 4 BUS: 225A MAINS: 200A MCB AIC RATING: 22KAIC ENCLOSURE: NEMA 1 MOUNTING: SURFACE

	CONN. AMPS	DESCRIPTION	BRANCH CIRCUIT	BKR	CKT	PH	CKT	BKR	BRANCH CIRCUIT	DESCRIPTION	CONN. AMPS
	3.67	*RAIL LIGHTS - NORTH APRON	EXISTING WIRE AND CONDUIT	20	1	A	2	20	EXISTING WIRE AND CONDUIT	(4) GFCI RECPT. (NORTHERNMOST PLANTERS)	0.00
	1.46	*RAIL LIGHTS - WEST APRON	EXISTING WIRE AND CONDUIT	20	3	B	4	20	EXISTING WIRE AND CONDUIT	(3) GFCI RECPT. (SOUTHERNMOST PLNTRS)	0.00
	3.40	*RAIL LIGHTS - SOUTH APRON	EXISTING WIRE AND CONDUIT	20	5	C	6	20	EXISTING WIRE AND CONDUIT	(3) GFCI RECPT. (POLE LIGHTS, NOT AT PLNTRS)	0.00
	2.26	*RAIL LIGHTS - NORTHWEST INTERIOR	EXISTING WIRE AND CONDUIT	20	7	A	8	20	EXISTING WIRE AND CONDUIT	SPARE	0.00
	1.53	*RAIL LIGHTS - EAST SIDE	EXISTING WIRE AND CONDUIT	20	9	B	10	20	EXISTING WIRE AND CONDUIT	SPARE	0.00
	1.33	*RAIL LIGHTS - NORTHEAST PERIMETER	EXISTING WIRE AND CONDUIT	20	11	C	12	50/2	EXISTING WIRE AND CONDUIT	RECPT. (AT THE SOUTHERNMOST PLANTERS)	0.00
	2.26	*RAIL LIGHTS - NORTHEAST INTERIOR	EXISTING WIRE AND CONDUIT	20	13	A	14				0.00
SEE NOTE 1 →	0.16	*RAIL LIGHTS - SMALL SECTION NEAR EAST SIDE	EXISTING WIRE AND CONDUIT	20	15	B	16	50/2	EXISTING WIRE AND CONDUIT	RECPT. (AT BUILDING WALL)	0.00
	2.99	*RAIL LIGHTS - SOUTHWEST INTERIOR	EXISTING WIRE AND CONDUIT	20	17	C	18				0.00
	0.00	*(3) POLE LIGHTS (2 FIXTURES EACH)	EXISTING WIRE AND CONDUIT	20	19	A	20	50/2	EXISTING WIRE AND CONDUIT	RECPT. (AT THE NORTHERNMOST PLANTERS)	0.00
	0.00	*(4) PLANTER LIGHTS (NORTHERNMOST)	EXISTING WIRE AND CONDUIT	20	21	B	22				0.00
	0.00	*(2) PLANTER LIGHTS (SOUTHERNMOST)	EXISTING WIRE AND CONDUIT	20	23	C	24			SPACE	0.00
	0.00	*PHOTO-ELECTRIC EYE FOR OUTDOOR LIGHTING	EXISTING WIRE AND CONDUIT	20	25	A	26			SPACE	0.00
	0.00	*SPARE	--	20	27	B	28			SPACE	0.00
	0.00	*SPARE	--	20	29	C	30			SPACE	0.00
	0.00	*SPARE	--	20	31	A	32			SPACE	0.00
	0.00	*SPARE	--	20	33	B	34			SPACE	0.00
	0.00	*SPARE	--	20	35	C	36			SPACE	0.00
	0.00	SPACE			37	A	38			SPACE	0.00
	0.00	SPACE			39	B	40			SPACE	0.00
	0.00	SPACE			41	C	42			SPACE	0.00
		PHASE A CONNECTED AMPS	8.19				8.19		PHASE A DEMAND AMPS		
		PHASE B CONNECTED AMPS	3.15				3.15		PHASE B DEMAND AMPS		
		PHASE C CONNECTED AMPS	7.72				7.72		PHASE C DEMAND AMPS		
		TOTAL CONNECTED AMPS	6.35				6.35		TOTAL DEMAND AMPS		
		TOTAL CONNECTED KVA	2.29				2.29		TOTAL DEMAND KVA		

NOTES:

1. REMOVE WIRE BACK TO SOURCE AND RENAME BREAKER AS SPARE.

TABLE–2 PROPOSED PANEL 'LP–P' SCHEDULE

JOB NAME: BPCA-PIER A HANDRAIL LIGHTING PANEL NAME: (E) LP-P	NOTES: SQUARE D POWERLINK PANEL * - INDICATED CONTROLLABLE CIRCUIT BREAKER	VOLTAGE: 208Y/120V PHASE: 3 WIRE: 4 BUS: 225A MAINS: 200A MCB AIC RATING: 22KAIC ENCLOSURE: NEMA 1 MOUNTING: SURFACE

CONN. AMPS	DESCRIPTION	BRANCH CIRCUIT	BKR	CKT	PH	CKT	BKR	BRANCH CIRCUIT	DESCRIPTION	CONN. AMPS
8.43	*HANDRAIL LIGHTS (ZONE 2)	2#12 + 1#12GND, 3/4"C	20	1	A	2	20	EXISTING WIRE AND CONDUIT	(4) GFCI RECPT. (NORTHERNMOST PLANTERS)	0.00
3.47	*HANDRAIL LIGHTS (ZONE 3)	2#10 + 1#10GND, 3/4"C	20	3	B	4	20	EXISTING WIRE AND CONDUIT	(3) GFCI RECPT. (SOUTHERNMOST PLNTRS)	0.00
7.31	*HANDRAIL LIGHTS (ZONE 4)	2#12 + 1#12GND, 3/4"C	20	5	C	6	20	EXISTING WIRE AND CONDUIT	(3) GFCI RECPT. (POLE LIGHTS, NOT AT PLNTRS)	0.00
4.75	*HANDRAIL LIGHTS (ZONE 6)	2#12 + 1#12GND, 3/4"C	20	7	A	8	20	EXISTING WIRE AND CONDUIT	SPARE	0.00
5.64	*HANDRAIL LIGHTS (ZONE 8)	2#12 + 1#12GND, 3/4"C	20	9	B	10	20	EXISTING WIRE AND CONDUIT	SPARE	0.00
2.70	*HANDRAIL LIGHTS (ZONE 1)	2#12 + 1#12GND, 3/4"C	20	11	C	12	50/2	EXISTING WIRE AND CONDUIT	RECPT. (AT THE SOUTHERNMOST PLANTERS)	0.00
4.81	*HANDRAIL LIGHTS (ZONE 5)	2#8 + 1#8GND, 3/4"C	20	13	A	14				0.00
0.00	*SPARE	--	20	15	B	16	50/2	EXISTING WIRE AND CONDUIT	RECPT. (AT BUILDING WALL)	0.00
4.32	*HANDRAIL LIGHTS (ZONE 7)	2#12 + 1#12GND, 3/4"C	20	17	C	18				0.00
0.00	*(3) POLE LIGHTS (2 FIXTURES EACH)	EXISTING WIRE AND CONDUIT	20	19	A	20	50/2	EXISTING WIRE AND CONDUIT	RECPT. (AT THE NORTHERNMOST PLANTERS)	0.00
0.00	*(4) PLANTER LIGHTS (NORTHERNMOST)	EXISTING WIRE AND CONDUIT	20	21	B	22				0.00
0.00	*(2) PLANTER LIGHTS (SOUTHERNMOST)	EXISTING WIRE AND CONDUIT	20	23	C	24			SPACE	0.00
0.00	*PHOTO-ELECTRIC EYE FOR OUTDOOR LIGHTING	EXISTING WIRE AND CONDUIT	20	25	A	26			SPACE	0.00
0.00	*SPARE	--	20	27	B	28			SPACE	0.00
0.00	*SPARE	--	20	29	C	30			SPACE	0.00
0.00	*SPARE	--	20	31	A	32			SPACE	0.00
0.00	*SPARE	--	20	33	B	34			SPACE	0.00
0.00	*SPARE	--	20	35	C	36			SPACE	0.00
0.00	SPACE			37	A	38			SPACE	0.00
0.00	SPACE			39	B	40			SPACE	0.00
0.00	SPACE			41	C	42			SPACE	0.00
	PHASE A CONNECTED AMPS	17.99				17.99		PHASE A DEMAND AMPS		
	PHASE B CONNECTED AMPS	9.11				9.11		PHASE B DEMAND AMPS		
	PHASE C CONNECTED AMPS	14.33				14.33		PHASE C DEMAND AMPS		
	TOTAL CONNECTED AMPS	13.80				13.80		TOTAL DEMAND AMPS		
	TOTAL CONNECTED KVA	4.97				4.97		TOTAL DEMAND KVA		

TABLE–3 LIGHTING FIXTURE SCHEDULE

LIGHTING FIXTURE SCHEDULE								
TYPE	MANUFACTURER	MODEL NO.	COLOR TEMP	LENGTH	VOLTAGE	WATTAGE	LUMENS	MOUNTING
LED TAPE	DURALAMP – TARGETTI	DLHV37–0–30–"JCVR65"–"PRAP–U"–"OR–DEV"–"KTORDEV–U"	3000K	VARIES – REFER TO TABLE 4/E–3	120V	3.7W/FT	320 LM/FT	ADJUSTABLE MOUNTING BRACKET

NOTES:

1. **PROVIDE AND INSTALL ASSOCIATED MOUNTING HARDWARE. REFER TO E–4 FOR MOUNTING HARDWARE DETAILS.**
2. **FACTORY ATTACHED 60" SINGLE LEAD CABLE AND IP65 RATED OUTDOOR JUNCTION BOX COVER. CONTRACTOR TO CONFIRM LEAD LENGTHS REQUIRED PER FIELD INSTALLED JUNCTION BOXES PRIOR TO FIXTURE ORDERING.**
3. **ELECTRICAL CONTRACTOR TO PROVIDE FIXTURE CONNECTION JUNCTION BOX(S).**
4. **FACTORY INSTALLED 6" FLEXIBLE CABLE JUMPERS BETWEEN CONTINUOUS SECTIONS OF TAPE LIGHTING, AS REQUIRED, TO ROUTE BETWEEN HANDRAIL AND GATE SECTIONS.**

TABLE–4 FIXTURE LENGTH SCHEDULE

Fixture ID	Zone ID	Length (approx.) - ft	# of 6" Jumper	Wattage (W)
L1-1	1	47	1	172
L1-2	1	41	0	152
L2-1	2	45	1	165
L2-2	2	60	1	220
L2-3	2	60	1	220
L2-4	2	17	1	61
L2-5	2	17	1	61
L2-6	2	17	1	61
L2-7	2	17	1	61
L2-8	2	23	1	83
L2-9	2	22	1	80
L3-1	3	21	1	76
L3-2	3	17	1	61
L3-3	3	17	1	61
L3-4	3	17	1	61
L3-5	3	17	1	61
L3-6	3	12	1	43
L3-7	3	15	1	54
L4-1	4	38	1	139
L4-2	4	11	1	39
L4-3	4	13	1	46
L4-4	4	14	4	44
L4-5	4	15	3	50
L4-6	4	16	1	57
L4-7	4	26	1	94
L4-8	4	37	2	133
L4-9	4	12	1	43
L4-10	4	14	1	50
L4-11	4	8	1	28
L4-12	4	41	0	152
L5-1	5	49	2	178
L5-2	5	47	0	174
L5-3	5	62	2	226
L6-1	6	62	2	226
L6-2	6	49	2	178
L6-3	6	45	0	167
L7-1	7	77	2	281
L7-2	7	65	2	237
L8-1	8	65	0	241
L8-2	8	45	1	165
L8-3	8	11	1	39
L8-4	8	55	3	198
L8-5	8	10	1	35

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PIER A RAILINGS REHABILITATION

ELECTRICAL WORK SCHEDULES

SCALE: AS NOTED	DESIGN BY: SJI
DATE: 04/22/22	APPROVED BY: REM
	DRAWN BY: SJI
PROJECT NO.: 2020200179.007	CHECKED BY: GTH

SHEET NUMBER: **E-3**

SHT. NO.: 14 OF 15

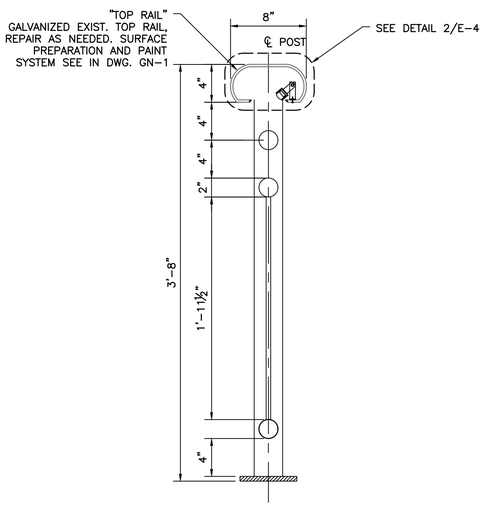
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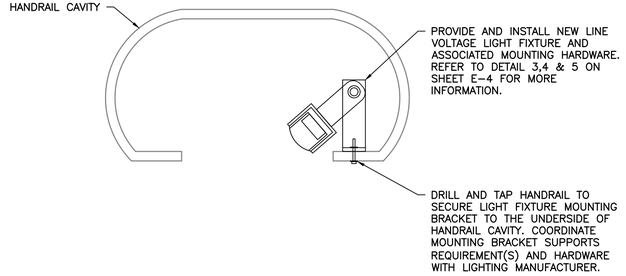
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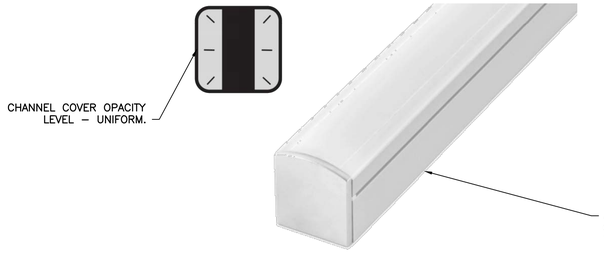
1 E-4 E-2 HANDRAIL ELEVATION – LIGHTING

0 1/2' 1' 1 1/2'



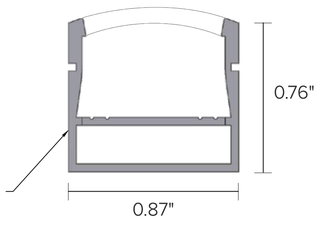
2 E-4 ENLARGED HANDRAIL ELEVATION

N.T.S.



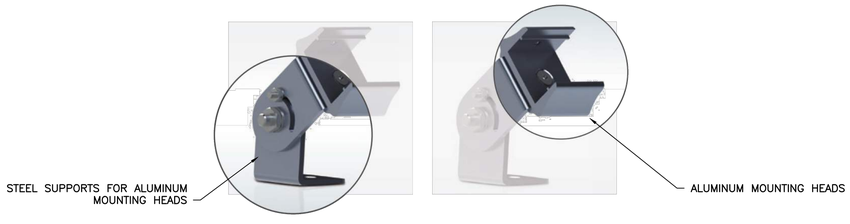
3 E-4 LIGHTING FIXTURE CHANNEL DETAIL

N.T.S.



4 E-4 LIGHTING FIXTURE CHANNEL SECTION

N.T.S.



5 E-4 MOUNTING BRACKET DETAIL

N.T.S.

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PIER A RAILINGS REHABILITATION

LIGHTING DETAILS

SCALE: AS NOTED
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PROJECT NO.: 2020200179.007
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EXHIBIT B-3:
PIER A STRUCTURAL REPAIRS PROJECT DRAWINGS & SPECIFICATIONS, AND PROJECT SCHEDULE

[ATTACHED]

PIER A REHABILITATION

22 BATTERY PL., NEW YORK, NY 10004

FOR

BATTERY PARK CITY AUTHORITY

200 LIBERTY STREET, 24TH FLOOR,
NEW YORK, NY 10281

VICINITY MAP

N

DRAWING INDEX

SHEET NUMBER	SHEET TITLE
GS-1	COVER SHEET
GN-1	GENERAL NOTES
GN-2	GENERAL NOTES
GA-1	EXISTING PIER PLAN
GA-2	EXISTING SECTIONS
S-1	APRON PILES AND PIER STEMS REPAIR PLAN
S-2	BREAKWATER PLAN AND SECTIONS
S-3	BREAKWATER ELEVATION & TYPICAL REPAIR DETAILS
S-4	UNDER DECK REPAIR PLAN – SPAN 1
S-5	UNDER DECK REPAIR PLAN – SPAN 2 & 3
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S-8	CONCRETE REPAIR DETAILS
S-9	PILE AND STEEL REPAIR DETAILS

LOCATION MAP

CONFORMED DOCUMENT
DATE: 12/08/23

URBAN PROJECT NO. 2020200179.001

NEW YORK STATE OF OPPORTUNITY | Battery Park City Authority

BATTERY PARK CITY AUTHORITY
200 LIBERTY STREET, 24TH FLOOR,
NEW YORK, NY 10281
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URBAN ENGINEERS

SEAL

BY:

DATE:

REV	DATE	DESCRIPTION	CK	MGW	APP'D
1	12/08/23	CONFORMED DOCUMENT SUBMISSION	CK	SMM	CKD
0	11/11/21	100% DESIGN SUBMISSION	PJD	AK	BY

NEW YORK, NY

BATTERY PARK CITY AUTHORITY

PIER A REHABILITATION

COVER SHEET

SCALE: AS NOTED

DESIGN BY: AK
APPROVED BY: MGW
DRAWN BY: VKR
CHECKED BY: AK

DATE: 12/08/23

PROJECT NO.: 2020200179.001

SHEET NUMBER: **GS-1**

SHT. NO.: SHT 0 OF 14

DRAWING FILE NO.: GS-1 COV... .DWG

REV. NO.: 0

DATE PRINTED: 2/5/2022 11:24:26 AM

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Y:\PHL\MARINE\PROJECTS\ON-GOING\2020 PROJECTS\2020200179.001 - BPCA PIER A\WORK\DRAWINGS\WORKING DRAWINGS\CURRENT\GS-1 COVER SHEET.DWG

GENERAL NOTES

1. DESIGN AND CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE STATE AND LOCAL CODES AND STANDARDS, THE PROJECT SPECIFICATIONS, AND DRAWINGS. NOTES ON DRAWINGS SHALL TAKE PRECEDENCE OVER PROJECT SPECIFICATIONS. SPECIFIC NOTES ON DETAIL DRAWINGS TAKE PRECEDENCE OVER GENERAL NOTE DRAWINGS. STATE AND LOCAL CODES SHALL TAKE PRECEDENCE OVER PROJECT SPECIFICATIONS AND NOTES ON DRAWINGS.

2. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO MOBILIZING. ALL EXISTING & PROPOSED DIMENSIONS AND ELEVATIONS SHOWN ON THE DRAWINGS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ANY FABRICATION OR ERECTION. NOTIFY THE ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.

3. THE CONTRACTOR SHALL REMOVE FROM THE SITE ALL WASTE MATERIAL, DEMOLISHED MATERIAL AND DEBRIS GENERATED DURING THE COURSE OF THE WORK, U.N.O. DISPOSAL OF ALL GENERATED WASTE MATERIAL, DEMOLISHED MATERIAL AND DEBRIS IS THE CONTRACTOR'S RESPONSIBILITY. DISPOSE OF ALL MATERIAL IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL RULES AND REGULATIONS.

4. THE CONTRACTOR SHALL PLACE SEDIMENT CONTROL DEVICES, BOOMS, TARPAULINS, FLOATS, STAGING, TURBIDITY BARRIERS, AND OTHER DEVICES AS NECESSARY TO PREVENT CONSTRUCTION MATERIALS FROM ENTERING THE WATER AND LEAVING THE IMMEDIATE VICINITY OF THE SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANUP OF ALL MATERIALS.

5. THE CONTRACTOR SHALL ABIDE BY ALL APPLICABLE ENVIRONMENTAL PROTECTION STANDARDS, CODES, LAWS, REGULATIONS, AND PERMITS.

6. THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS SO AS TO NOT INTERFERE WITH, OR BE DETRIMENTAL TO, VESSEL AND VEHICULAR TRAFFIC DURING THE COURSE OF THE WORK.

7. ALL STRUCTURES ARE DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER ERECTION IS FULLY COMPLETE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE ERECTION PROCEDURES AND SEQUENCE AND TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, SHEETING, TEMPORARY BRACING, GUYS OR TIE DOWNS THAT MAY BE NECESSARY. SUCH MATERIAL SHALL REMAIN THE CONTRACTOR'S PROPERTY AFTER COMPLETION OF THE PROJECT.

8. THE CONTRACTOR SHALL FOLLOW ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION.

CONCRETE AND REINFORCING STEEL

1. ALL CONCRETE WORK SHALL COMPLY WITH THE RECOMMENDATIONS OF ACI 301 AND ACI 318, UNLESS OTHERWISE SPECIFIED.

2. CONTRACTOR MAY USE SHOTCRETE AS AN ALTERNATIVE FOR POUR-IN-PLACE CONCRETE. SHOTCRETE APPLICATION MUST MEET THE SPECIFIED STRENGTH AND DURABILITY PARAMETERS NOTED IN THE CONTRACT DOCUMENTS FOR POUT-IN-PLACE CONCRETE.

3. FOLLOW THE REQUIREMENTS OF ACI 306 WHEN POURING CONCRETE IN COLD WEATHER.

4. CAST-IN-PLACE CONCRETE STRENGTH SHALL BE A MINIMUM OF 4500 PSI AT 28 DAYS, U.N.O.

5. NONMETALLIC NON-SHRINK GROUT STRENGTH SHALL BE A MINIMUM OF 5000 PSI AT 28 DAYS, U.N.O.

6. THE CONTRACTOR SHALL MAINTAIN PROPER CURING PROCEDURES FOR A MINIMUM OF 7 DAYS.

7. ALL DETAILING, FABRICATION AND ERECTION OF REINFORCING STEEL SHALL CONFORM TO THE ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES, ACI 315.

8. REINFORCING STEEL FOR CAST-IN-PLACE CONCRETE SHALL CONFORM TO ASTM A 615, GR 60, EXCEPT REINFORCING STEEL TO BE WELDED SHALL CONFORM TO ASTM A 706.

9. MINIMUM CONCRETE COVER FOR ALL REINFORCING SHALL BE 2 INCHES, U.N.O.

10. ALL CONSTRUCTION JOINTS SHALL BE KEYED, U.N.O. JOINTS SHALL BE PROVIDED AS NECESSARY AT LOCATIONS, AND USING METHODS, APPROVED BY THE ENGINEER.

11. ALL REINFORCING BAR SPLICES SHALL BE TENSION LAP SPLICES, IN ACCORDANCE WITH ACI 318, U.N.O.

12. CHAMFER ALL EXTERNAL EXPOSED CORNERS OF CONCRETE WITH A 1 INCH, 45-DEGREE CHAMFER, U.N.O.

13. WELDING OF REINFORCING STEEL SHALL BE PERFORMED IN ACCORDANCE WITH AWS D1.4.

STRUCTURAL AND MISCELLANEOUS STEEL

1. ALL STEEL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF AISC SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL. DESIGN, FABRICATION, AND ERECTION ARE TO BE GOVERNED BY THE LATEST REVISIONS OF:
   A. AISC STEEL CONSTRUCTION MANUAL
   B. AISC CODE OF STANDARD PRACTICE
   C. AWS D1.1 STRUCTURAL WELDING CODE
   D. RCSC SPECIFICATIONS FOR STRUCTURAL JOINTS USING HIGH STRENGTH BOLTS

2. STRUCTURAL AND MISCELLANEOUS STEEL MATERIALS SHALL CONFORM TO THE FOLLOWING, U.N.O.:

WIDE FLANGE SHAPES:	ASTM A 992, GRADE 50
HP PILES:	ASTM A 572, GRADE 50
PIPE PILES:	ASTM A 252, GRADE 3, Fy = 50 KSI
PIPE:	ASTM A 53, GRADE B, TYPE S
HOLLOW STRUCTURAL SECTIONS (HSS):	ASTM A 500
OTHER SHAPES, BARS AND PLATES:	ASTM A 36, Fy = 36 KSI
HEADED BOLTS:	ASTM A 325
ANCHOR BOLTS:	ASTM A 449
STEEL SHEET PILE (SSP):	ASTM A 572, GRADE 50
NUTS:	ASTM A 563
WASHERS:	ASTM F 436

3. IF OVERSIZED HOLES ARE USED, WASHERS MUST BE EXTRA THICK, AND MAY REQUIRE WELDING.

4. ALL MISCELLANEOUS METALS INCLUDING BOLTS, WASHERS, NUTS, ANGLES, INSERTS, PLATES, AND OTHER FABRICATIONS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A 123 AND/OR ASTM A 153, AS APPLICABLE AFTER FABRICATION, UNLESS OTHERWISE NOTED OR SPECIFIED. STAINLESS STEEL ITEMS SHALL NOT BE GALVANIZED.

5. FIELD TREAT DAMAGED GALVANIZED FINISH WITH TWO COATS OF HIGH ZINC DUST OXIDE PAINT, COLD GALVANIZING COMPOUNDS OR APPROVED EQUAL. IN ADDITION, ALL EXPOSED THREADED SURFACES SHALL BE CLEANED AND PAINTED WITH TWO COATS OF HIGH ZINC DUST OXIDE PAINT AFTER INSTALLATION OF THE NUT(S).

6. THE TYPE, SIZE, SPACING, AND ALIGNMENT OF CONNECTING HARDWARE SHOWN ARE CRITICAL AND MUST BE MAINTAINED.

7. ALL WELDING SHALL CONFORM TO THE LATEST EDITION OF AWS D.1.1, U.N.O. ALL WELDS SHALL BE MADE WITH E70XX ELECTRODES, UNLESS HIGHER STRENGTH ELECTRODES ARE REQUIRED BY AWS D1.1. GENERALLY, ELECTRODES SHALL BE NEW OR BAKED AT THE START OF EACH SHIFT. FOLLOW THE ATMOSPHERIC EXPOSURE LIMITS AND BAKING REQUIREMENTS OF CLAUSE 5 OF AWS D1.1.

8. WELDING PERSONNEL AND PROCEDURES ARE TO BE QUALIFIED PER AWS D1.1, U.N.O.

9. MINIMUM SIZE OF FILLET WELDS SHALL BE 5/16" U.N.O.

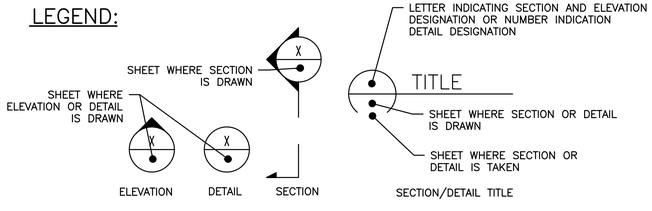
10. WHEN THE 'ALL-AROUND' WELDING SYMBOL IS USED AT AN END CONNECTION OF A ROLLED SHAPE, THE CONTRACTOR SHALL TERMINATE THE WELD AT EACH OF THE FLANGE EDGES, AND ONE WELD THICKNESS AWAY FROM EACH INTERSECTION OF THE WEB AND FLANGE, U.N.O.

11. DOWELS, BOLTS, REINFORCEMENT OR OTHER STEEL TO BE EMBEDDED IN CONCRETE SHALL BE INSTALLED USING HILTI HIT-HY 200 EPOXY, U.N.O.

CIVIL/STRUCTURAL ABBREVIATIONS, U.N.O.

AASHTO	=	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ACI	=	AMERICAN CONCRETE INSTITUTE
AISC	=	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALT	=	ALTERNATE
ANSI	=	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX	=	APPROXIMATE
ARCH.	=	ARCHITECTURAL
ASTM	=	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AVG	=	AVERAGE
AWS	=	AMERICAN WELDING SOCIETY
B.O.P.	=	BOTTOM OF PIPE
B/B	=	BACK TO BACK
C/C	=	CENTER TO CENTER
CF	=	CUBIC FEET
C.I.P.	=	CAST IN PLACE
CJ	=	CONSTRUCTION JOINT
CLR	=	CLEAR
CO	=	CLEAN OUT
CONC	=	CONCRETE
CONST	=	CONSTRUCTION
CONT	=	CONTINUOUS
CTE	=	COAL TAR EPOXY
CY	=	CUBIC YARD
D	=	DEPTH
D/R	=	DOWNRIVER
DEG	=	DEGREES
DETL'S	=	DETAILS
DIA	=	DIAMETER
DIST	=	DISTANCE
DWG	=	DRAWING
DWT	=	DEAD WEIGHT TONNAGE
E	=	EAST
EA	=	EACH
EF	=	EACH FACE
EHW	=	EXTREME HIGH WATER
EJ	=	EXPANSION JOINT
EL/ELEV.	=	ELEVATION
ELEC	=	ELECTRICAL
EW	=	EACH WAY
EXIST.	=	EXISTING
EXT	=	EXTERIOR
EXPN	=	EXPANSION
FDN.	=	FOUNDATION
FPS	=	FEET PER SECOND
FRP	=	FIBERGLASS REINFORCED PLASTIC
FS	=	FAR SIDE
FT	=	FEET
FY	=	YIELD STRESS
GALV	=	GALVANIZED
GR	=	GRADE
GRTNG	=	GRATING
GUSS	=	GUSSET
H	=	HEIGHT
HAT	=	HIGHEST ASTRONOMICAL TIDE
HTL	=	HIGH TIDE LINE
HVY	=	HEAVY
I	=	I BEAM
I/S	=	INSHORE
INV	=	INVERT
JT	=	JOINT
kg	=	KILOGRAMS
KIP	=	KILOPOUND
kN	=	KILONEWTONS
L	=	ANGLE
LAT	=	LOWEST ASTRONOMICAL TIDE OR LATITUDE
LB	=	POUND
LF	=	LINEAR FEET
LG	=	LONG
LLV	=	LONG LEG VERTICAL
LOA	=	LENGTH OVERALL
LONG.	=	LONGITUDE
LT	=	LONG TON
m	=	METERS
mm	=	MILLIMETERS
MAX	=	MAXIMUM
MEA	=	MEASURED
MHHW	=	MEAN HIGHER HIGH WATER
MHW	=	MEAN HIGH WATER
MIN	=	MINIMUM
MISC	=	MISCELLANEOUS
MLLW	=	MEAN LOWER LOW WATER
MLW	=	MEAN LOW WATER
MPa	=	MEGAPASCALS
MPH	=	MILES PER HOUR
MSL	=	MEAN SEA LEVEL
N	=	NEWTON OR NORTH
NAVD-88	=	NORTH AMERICAN VERTICAL DATUM OF 1988
NGVD-29	=	NATIONAL GEODETIC VERTICAL DATUM OF 1929
NTP	=	NOTICE TO PROCEED
NIC	=	NOT IN CONTRACT
NS	=	NEAR SIDE
NTS	=	NOT TO SCALE
NO.	=	NUMBER
O.C.	=	ON CENTER
O/S	=	OUTSHORE
OSHA	=	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
PSI	=	POUNDS PER SQUARE INCH
PVC	=	POLYVINYL CHLORIDE
R/F	=	REINFORCING
R.C.P.	=	REINFORCED CONCRETE PIPE
REQ'D	=	REQUIRED
S	=	SOUTH
SCH	=	SCHEDULE
SECT	=	SECTION
SHT	=	SHEET
SIM	=	SIMILAR
SPEC	=	SPECIFICATION
SQ	=	SQUARE
SS	=	STAINLESS STEEL
SSP	=	STEEL SHEET PILE
STL	=	STEEL
STRUC.	=	STRUCTURE
SUPP	=	SUPPORT
SY	=	SQUARE YARD
T, TONNE	=	METRIC TON
TON	=	SHORT TON
T.B.D	=	TO BE DETERMINED
TEMP	=	TEMPORARY
THK	=	THICKNESS
THRU	=	THROUGH
T.O.	=	TOP OF
T.O.C	=	TOP OF CONCRETE
T.O.S	=	TOP OF STEEL
TYP	=	TYPICAL
U.N.O.	=	UNLESS NOTED OTHERWISE
UHMWPE	=	ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE
U/R	=	UP RIVER
USACE	=	UNITED STATES ARMY CORPS OF ENGINEERS
W/	=	WITH
W	=	WIDTH, WIDE FLANGE BEAM OR WEST
W.P./WP	=	WORK POINT
W.T.	=	WALL THICKNESS
WT	=	WEIGHT
℄	=	CENTER LINE
#	=	NUMBER
%	=	PERCENT
℄	=	PLATE
&	=	AND
@	=	AT
x	=	BY
ø	=	DIAMETER

LEGEND:



ELEVATIONS:

+11.27'	HIGHEST OBSERVED WATER LEVEL (10/30/2012)
+2.28'	MEAN HIGHER HIGH WATER (MHHW)
+1.96'	MEAN HIGH WATER (MHW)
0.00'	NAVD-88
-0.30'	MEAN TIDE LEVEL (MTL)
-2.60'	MEAN LOW WATER (MLW)
-2.77'	MEAN LOWER LOW WATER (MLLW)
-7.06'	LOWEST OBSERVED WATER LEVEL (02/02/1976)

(NOT TO SCALE)

NOTE: TIDAL DATA IS BASED ON NOAA STA. NO. 8518750, BATTERY, NY HARBOR

CONFORMED DOCUMENT
DATE: 12/08/23

NEW YORK STATE OF OPPORTUNITY | Battery Park City Authority

BATTERY PARK CITY AUTHORITY
200 LIBERTY STREET, 24TH FLOOR,
NEW YORK, NY 10281
T: 212.417.2000

Urban Engineers of New York, D.P.C.
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New York, NY 10119
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SEAL

BY: _____

DATE: _____

REV	DATE	DESCRIPTION	CKD	APP'D
1	12/08/23	EDITED CONCRETE NOTE	AK	MGW
0	11/11/21	100% DESIGN SUBMISSION	BY	CK

NEW YORK, NY

BATTERY PARK CITY AUTHORITY

PIER A REHABILITATION

GENERAL NOTES

SCALE: AS NOTED	DESIGN BY: AK
DATE: 12/08/23	APPROVED BY: MGW
PROJECT NO: 2020200179.001	DRAWN BY: FYC
SHEET NUMBER: GN-1	CHECKED BY: SIM
SHT. NO.: SHT 2 OF 14	
DRAWING FILE NO.: GN-1 GEN... .DWG	REV. NO.: 0

DATE PRINTED: 11/11/2021 9:00:25 AM

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TIMBER

1. SHIMS: CLEAR SELECT STRUCTURAL WHITE OAK HEARTWOOD, EDGE SAWN (I.E. GRAIN TO BE ROUGHLY PERPENDICULAR TO THE BEARING FACES OF THE SHIM), U.N.O.

2. OTHER TIMBER: SELECT STRUCTURAL MARINE GRADE SOUTHERN PINE THAT IS ROUGH CUT, U.N.O.

3. LEAD HOLES FOR LAG SCREW SHALL BE BORED AS FOLLOWS:
   A. THE CLEARANCE HOLE FOR THE SHANK SHALL HAVE THE SAME DIAMETER AS THE SHANK, AND THE SAME DEPTH OF PENETRATION AS THE LENGTH OF UNTHREADED SHANK. THE DRILL BIT LENGTH SHALL BE ⅛" LESS IN LENGTH AS IS REQUIRED TO ACCOMMODATE SHANK DEPTH.
   B. THE LEAD HOLE FOR THE THREADED PORTION SHALL HAVE A DIAMETER EQUAL TO 70% OF THE SHANK DIAMETER.
   C. THIS EQUIPMENT SHALL BE EXPOSED TO THE FIELD ENGINEER FOR REVIEW PRIOR TO DAILY USE.

4. THE THREADED PORTION OF THE LAG SCREW SHALL BE INSERTED IN ITS LEAD HOLE BY TURNING WITH A WRENCH OR BY ROTATING EQUIPMENT, NOT BY DRIVING WITH A HAMMER.

5. SOAP OR OTHER LUBRICANT SHALL BE USED ON THE LAG SCREWS OR IN THE LEAD HOLES TO FACILITATE INSERTION AND PREVENT DAMAGE TO THE LAG SCREW.

PROTECTIVE PILE WRAP SYSTEM

1. USE DENSO PRODUCT SEASHIELD SERIES 70, OR APPROVED EQUAL.

2. MATERIALS SHALL CONSIST OF DENSYL PETROLATUM COMPOUND, DENSO MARINE PILING PETROLATUM TAPE, DENSO GLASS OUTERWRAP 70, AND DENSO POLY–WRAP, OR APPROVED EQUALS.

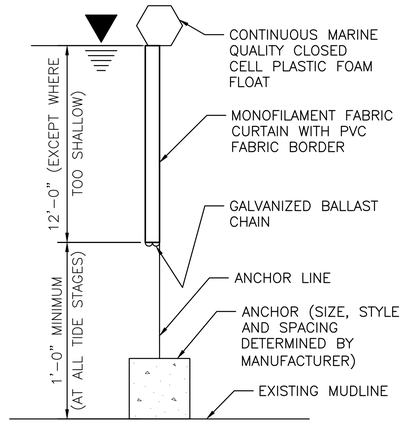
3. INSTALL ALL PRODUCTS ACCORDING TO MANUFACTURER'S RECOMMENDED PROCEDURES.

4. REMOVE EXISTING PROTRUSIONS FROM PILES PRIOR TO INSTALLATION.

5. THOROUGHLY CLEAN ALL PILES PRIOR TO INSTALLATION. PILE MUST BE FREE FROM ALL NAILS, BOLTS, SPLINTERS, MARINE GROWTH, OR OTHER FOREIGN OBJECTS THAT COULD CAUSE DAMAGE TO MATERIALS.

6. PLUG AND FILL ALL HOLES AND SURFACE DEFECTS WITH DENSYL MASTIC PETROLATUM COMPOUND.

7. INSTALL IN SEQUENCE THE DENSO MARINE PILING PETROLATUM TAPE, DENSO GLASS OUTERWRAP 70, AND DENSO POLY–WRAP ACCORDING TO MANUFACTURER'S PROCEDURES.



TURBIDITY CURTAIN DETAIL
N.T.S.

EROSION & SEDIMENT CONTROL NOTES:

1. A FLOATING TURBIDITY CURTAIN SHALL BE PLACED TO ENCOMPASS AREAS WHERE SEDIMENT MAY BE GENERATED AS A RESULT OF PROJECT WORK. A TURBIDITY CURTAIN MUST BE IN PLACE FOR ACTIVITIES THAT MAY GENERATE TURBIDITY, INCLUDING: PILE INSTALLATION OR EXTRACTION, PLACING CONCRETE UNDERWATER, DREDGING OR UNDERWATER DEBRIS REMOVAL, AND DEMOLITION.

2. THE CURTAIN HEIGHT SHALL NOT EXCEED 12 FT, AND SHALL BE SHORT ENOUGH TO MAINTAIN A 1 FT GAP BETWEEN ITS BOTTOM AND THE MUDLINE AT MEAN LOW WATER.

3. UNLESS NOTED OTHERWISE, THE TURBIDITY CURTAIN SHALL BE A TRITON TYPE III PERMABLE SILT AND TURBIDITY BARRIER, OR APPROVED EQUIVALENT. WHERE NO TIDAL FLUCTUATION OR CURRENT EXISTS, A TYPE II BARRIER MAY BE USED. SUBMIT PROPOSED BARRIER SPECIFICATIONS, ALONG WITH THE MANUFACTURER'S RECOMMENDED CONDITIONS FOR USE.

4. 8"ø EROSION CONTROL SEDIMENT LOGS SHALL BE PLACED ALONG THE WATER'S EDGE IN ALL AREAS WHERE SEDIMENT OR RUNOFF MAY ENTER THE WATER, THROUGHOUT THE DURATION OF THE PROJECT, TO PREVENT THE DISCHARGE OF SEDIMENTS INTO THE WATER.

5. ATTACH BUOYS WITH NAVIGATION LIGHTS WHERE REQUIRED BY THE COAST GUARD.

100% DESIGN SUBMISSION
DATE: 11/11/21

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200 LIBERTY STREET, 24TH FLOOR, NEW YORK, NY 10281
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One Penn Plaza, Suite 4125
New York, NY 10119
o. 212.736.9100
URBAN ENGINEERS

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BY: _____

DATE: _____

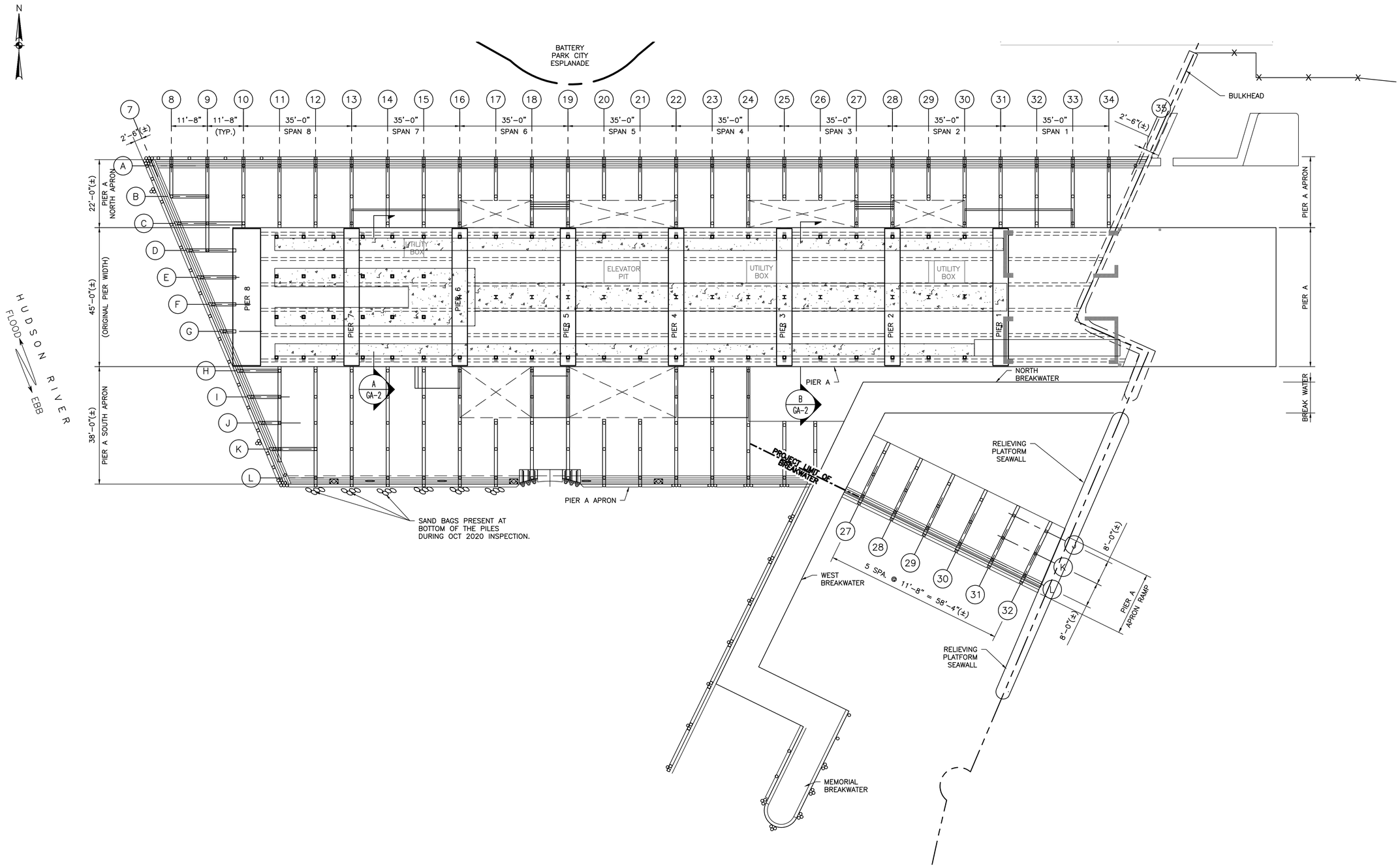
REV	DATE	DESCRIPTION				
2	12/08/23	ADDED TO PILE WRAP NOTES	P.JD	CK	CK	APP'D
1	11/16/22	EDIT PILE WRAP SYSTEM NOTE	AK	JCH	MGW	CKD
0	11/11/21	100% DESIGN SUBMISSION	AK	SMM	MGW	BY

NEW YORK, NY
BATTERY PARK CITY AUTHORITY
PIER A REHABILITATION

GENERAL NOTES

SCALE: AS NOTED
DATE: 12/08/23
DESIGN BY: AK
APPROVED BY: MGW
DRAWN BY: FYC
CHECKED BY: SMM
PROJECT NO: 2020200179.001
SHEET NUMBER: GN-2
SHT. NO.: SHT 2 OF 14
DRAWING FILE NO.: GN-1 GEN... .DWG
REV. NO.: 0

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NOTES:

1. SEE GN–1 & GN–2 FOR GENERAL NOTES.
2. THE EXISTING POST–TENSIONED BEAM LOCATION AND COLUMNS ARE REFERRING FROM PIER A RENOVATION CONSTRUCTION DOCUMENT, REV 4 DATED ON 12/28/09, SHEET A–201.00 BY H3 CONSULTANT FIRM.

EXISTING PIER PLAN

0 8' 16' 32'

100% DESIGN SUBMISSION
DATE: 11/11/21

NEW YORK STATE OF OPPORTUNITY | Battery Park City Authority

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URBAN ENGINEERS

SEAL

BY:

DATE:

REV	DATE	DESCRIPTION	BY	CKD	APD
0	11/11/21	100% DESIGN SUBMISSION	AK	SMM	MGW

NEW YORK, NY
BATTERY PARK CITY AUTHORITY

PIER A REHABILITATION

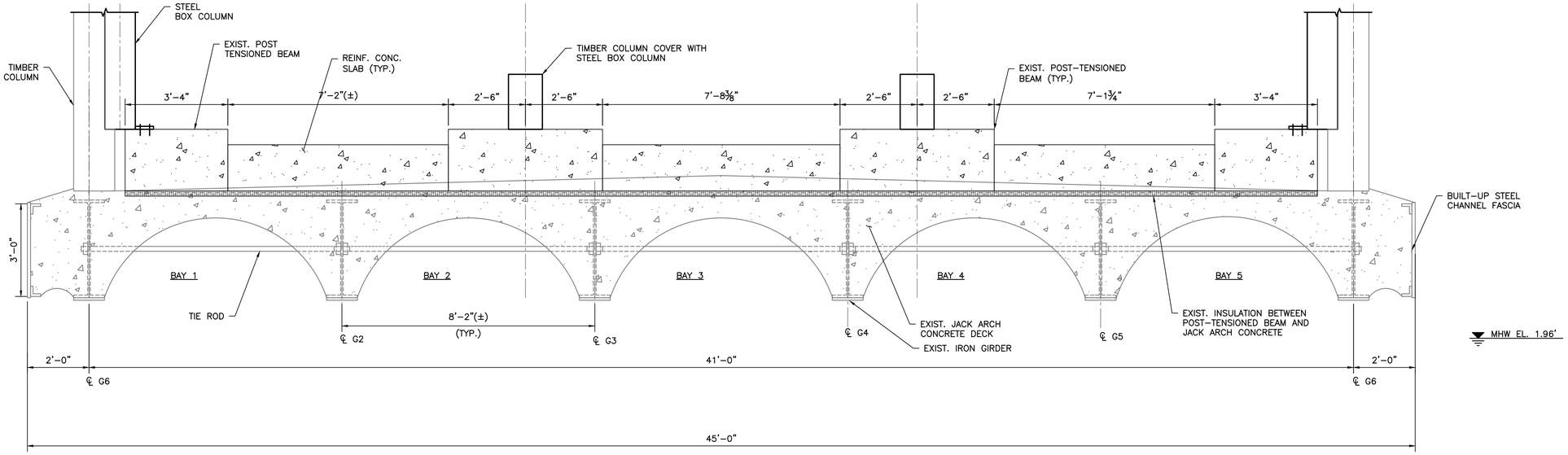
EXISTING PIER PLAN

SCALE: AS NOTED	DESIGN BY: AK
DATE: 11/11/21	APPROVED BY: MGW
	DRAWN BY: FYC
	CHECKED BY: SMM
PROJECT NO.: 2020200179.001	
SHEET NUMBER: **GA-1**	
SHT. NO.: SHT 1 OF 14	
DRAWING FILE NO.: GA-1 EXI... .DWG	REV. NO.: 0

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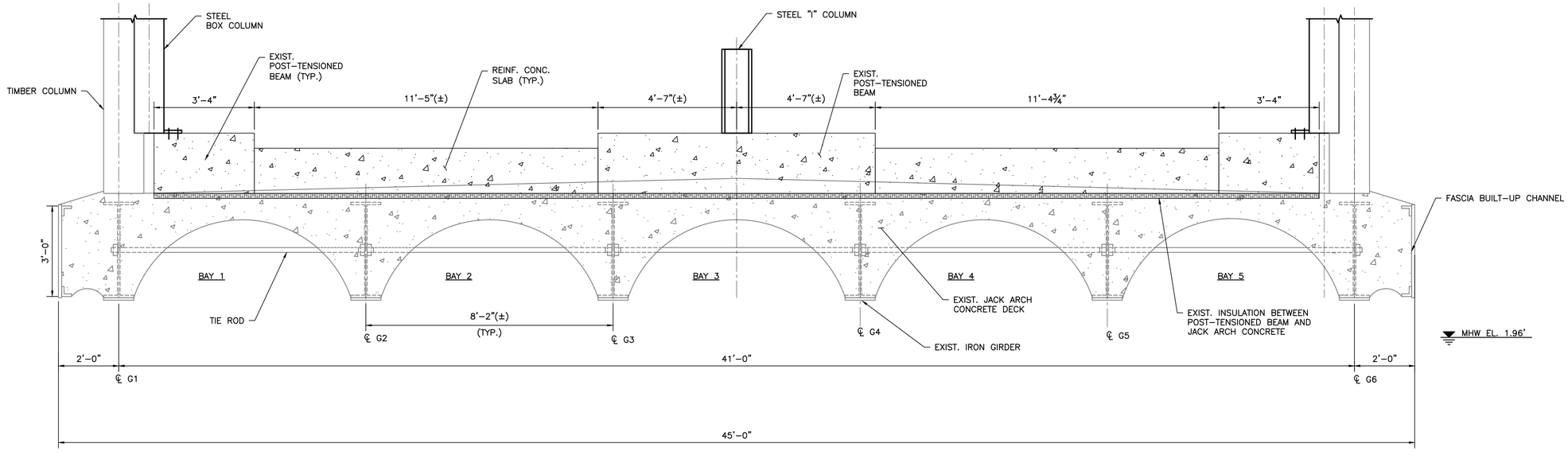
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A GA-2 GA-1 SECTION

0 1' 2' 4'



B GA-2 GA-1 SECTION

0 1' 2' 4'

NOTES:

1. SEE GN-1 & GN-2 FOR GENERAL NOTES.
2. THE EXISTING POST-TENSIONED BEAM LOCATION AND COLUMNS ARE TAKEN FROM PIER A RENOVATION CONSTRUCTION DOCUMENT, REV 4 DATED ON 12/28/09, SHEET A-201.00 BY H3 CONSULTANT FIRM.

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PIER A REHABILITATION

EXISTING SECTIONS

SCALE: AS NOTED	DESIGN BY: AK
DATE: ----	APPROVED BY: MGW
	DRAWN BY: FYC
	CHECKED BY: AK

PROJECT NO. 2020200179.001

SHEET NUMBER **GA-2**

SHT. NO.: SHT 2 OF 14

DRAWING FILE NO.: GA-2....dwg

REV. NO.: 0

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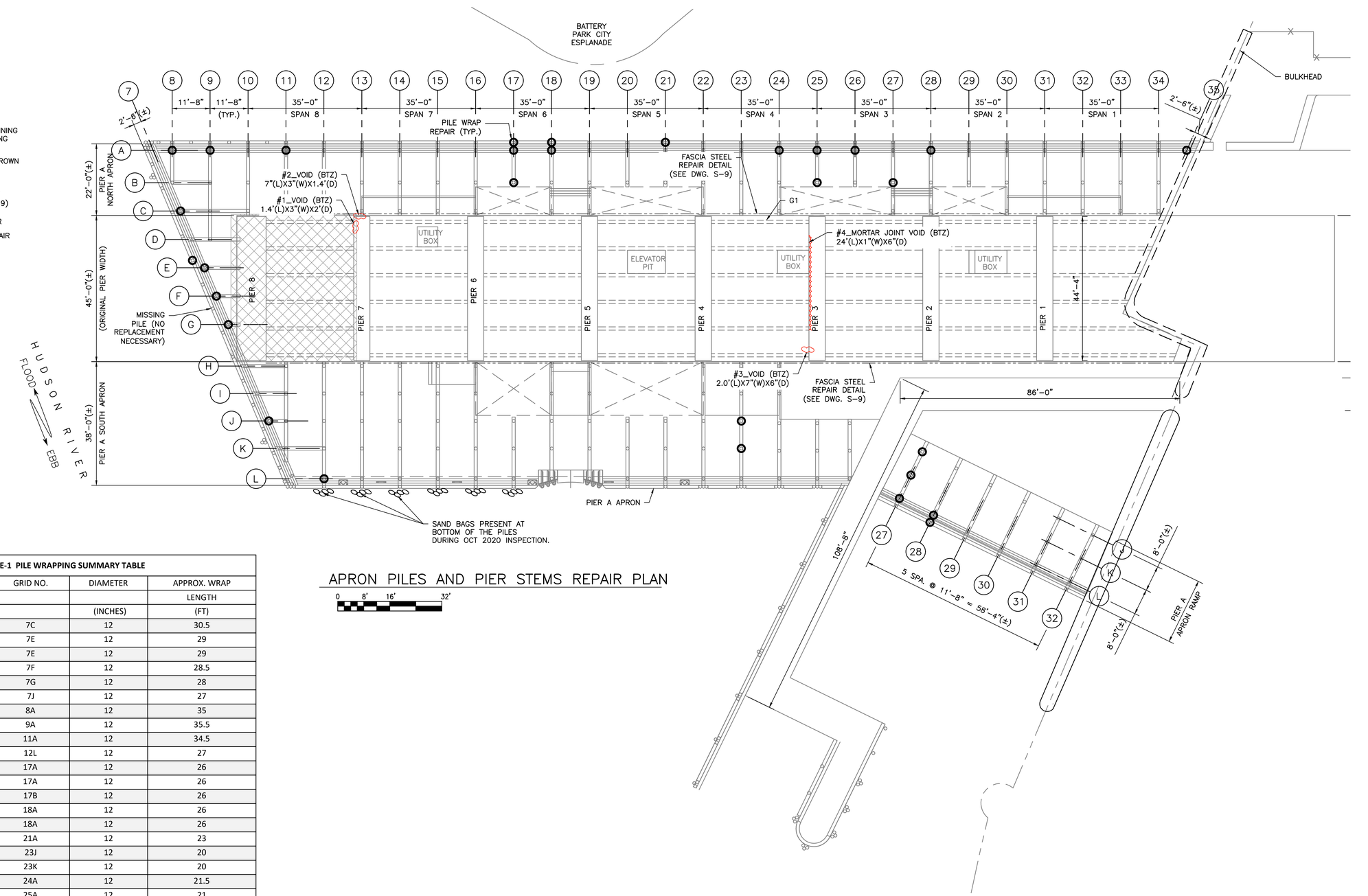
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N

LEGEND:

- VOIDS & UNDERMINING CONCRETE SPALLING
- CRACK LINE AT CROWN OF JACK ARCH CONCRETE DECK
- AREA PREVIOUSLY REPAIRED IN (2019)
- PILE WRAP REPAIR
- FASCIA STEEL REPAIR



APRON PILES AND PIER STEMS REPAIR PLAN

0 8' 16' 32'

TABLE-1 PILE WRAPPING SUMMARY TABLE

REPAIR NO.	ELEMENT	GRID NO.	DIAMETER (INCHES)	APPROX. WRAP LENGTH (FT)
1	PILE	7C	12	30.5
2	FENDER PILE	7E	12	29
3	PILE	7E	12	29
4	PILE	7F	12	28.5
5	PILE	7G	12	28
6	PILE	7J	12	27
7	PILE	8A	12	35
8	PILE	9A	12	35.5
9	PILE	11A	12	34.5
10	PILE	12L	12	27
11	FENDER PILE	17A	12	26
12	PILE	17A	12	26
13	PILE	17B	12	26
14	FENDER PILE	18A	12	26
15	PILE	18A	12	26
16	FENDER PILE	21A	12	23
17	PILE	23J	12	20
18	PILE	23K	12	20
19	PILE	24A	12	21.5
20	PILE	25A	12	21
21	PILE	25B	12	21
22	PILE	26A	12	21
23	PILE	27B	12	21
24	PILE	27J	12	13.5
25	PILE	27K	12	13.5
26	PILE	27L	12	13.5
27	PILE	28A	12	21
28	FENDER PILE	28L	12	13.5
29	PILE	28L	12	13.5
30	PILE	35A	12	13.5

TABLE-2 VOIDS AND JOINTS CONCRETE SPALL LOCATION

ID NO.	TYPE OF DEFECT	LOCATION	SIZE LENGTH (FT)	SIZE WIDTH (FT)	SIZE DEPTH (FT)	REMARK
1	VOID	PIER STEM-7	1.4	0.25	2	NORTH-WEST CORNER, WEST FACE, NEAR THE MUD-LINE
2	VOID	PIER STEM-7	0.6	0.25	1.4	NORTH-WEST CORNER, NORTH FACE NEAR THE MUD-LINE
3	VOID	PIER STEM-3	2	0.6	0.5	5FT FROM SOUTH-WEST CORNER, WEST FACE, NEAR THE MUD-LINE
4	MORTAR JOINT VOID	PIER STEM-3	24	0.085	0.5	HORIZONTAL JOINT BETWEEN CONCRETE BLOCKS COURSE 2 & 3

NOTES:

1. SEE GN-1 & GN-2 FOR GENERAL NOTES.
2. PILE WRAP REPAIRS AS INDICATED AND SEE THE PILE WRAPPING REPAIR DETAIL ON SHEET S-9.
3. PIER STEM REPAIRS AS INDICATED AND SEE THE PIER STEM REPAIR DETAIL ON SHEET S-8.
4. FASCIA STEEL REPAIRS AS INDICATED AND SEE FASCIA STEEL REPAIR DETAIL ON SHEET S-9.

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-	-	-	-	-	-
1	11/16/22	ADD FASCIA STEEL REPAIR LOCATIONS	AK	JCH	MGW
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PIER A REHABILITATION

APRON PILES AND PIER STEMS REPAIR PLAN

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DATE: 11/11/21	APPROVED BY: MGW
	DRAWN BY: FYC
	CHECKED BY: SMM
PROJECT NO.: 2020200179.001	
SHEET NUMBER: S-1	
SHT. NO.: SHT 1 OF 14	
DRAWING FILE NO.: S-1 APRO... .DWG	REV. NO.: 0

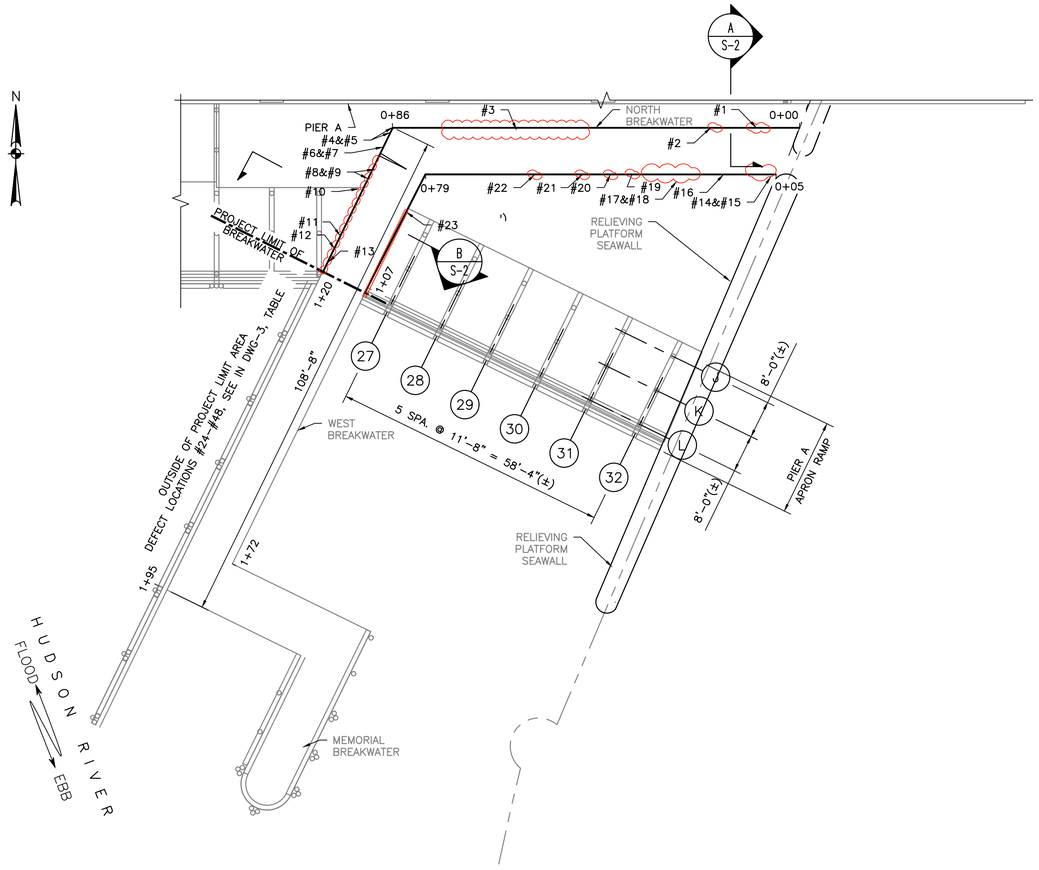
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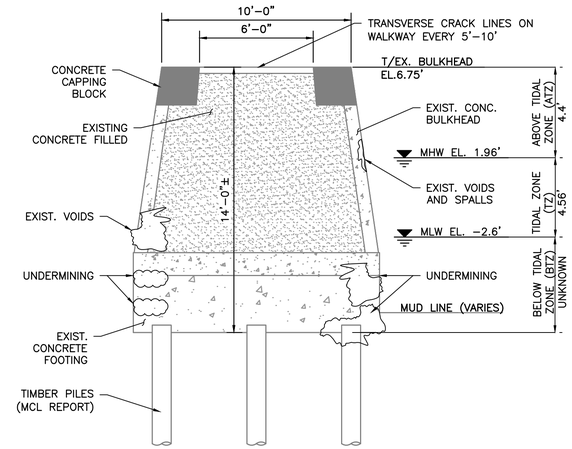
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LEGEND:

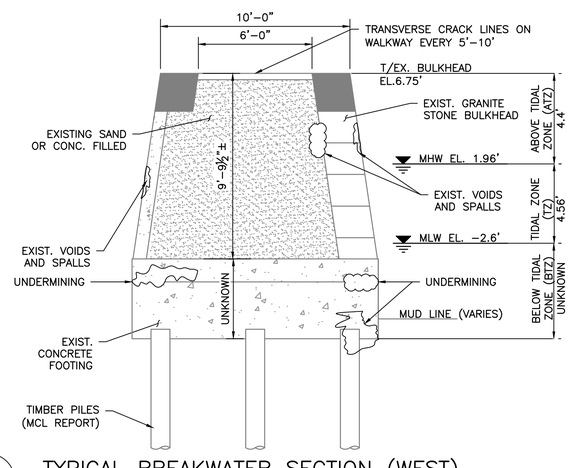
VOIDS & UNDERMINING
CONCRETE SPALLING



BREAKWATER REPAIR PLAN
0 8' 16' 32'



A S-2 S-2 TYPICAL BREAKWATER SECTION (NORTH)
0 2' 4' 8'



B S-2 S-2 TYPICAL BREAKWATER SECTION (WEST)
0 2' 4' 8'

NOTES:

1. SEE GN-1 & GN-2 FOR GENERAL NOTES.
2. DEFECT LOCATIONS AND REPAIR DETAILS AS INDICATED ON NOTES SHEET S-3.

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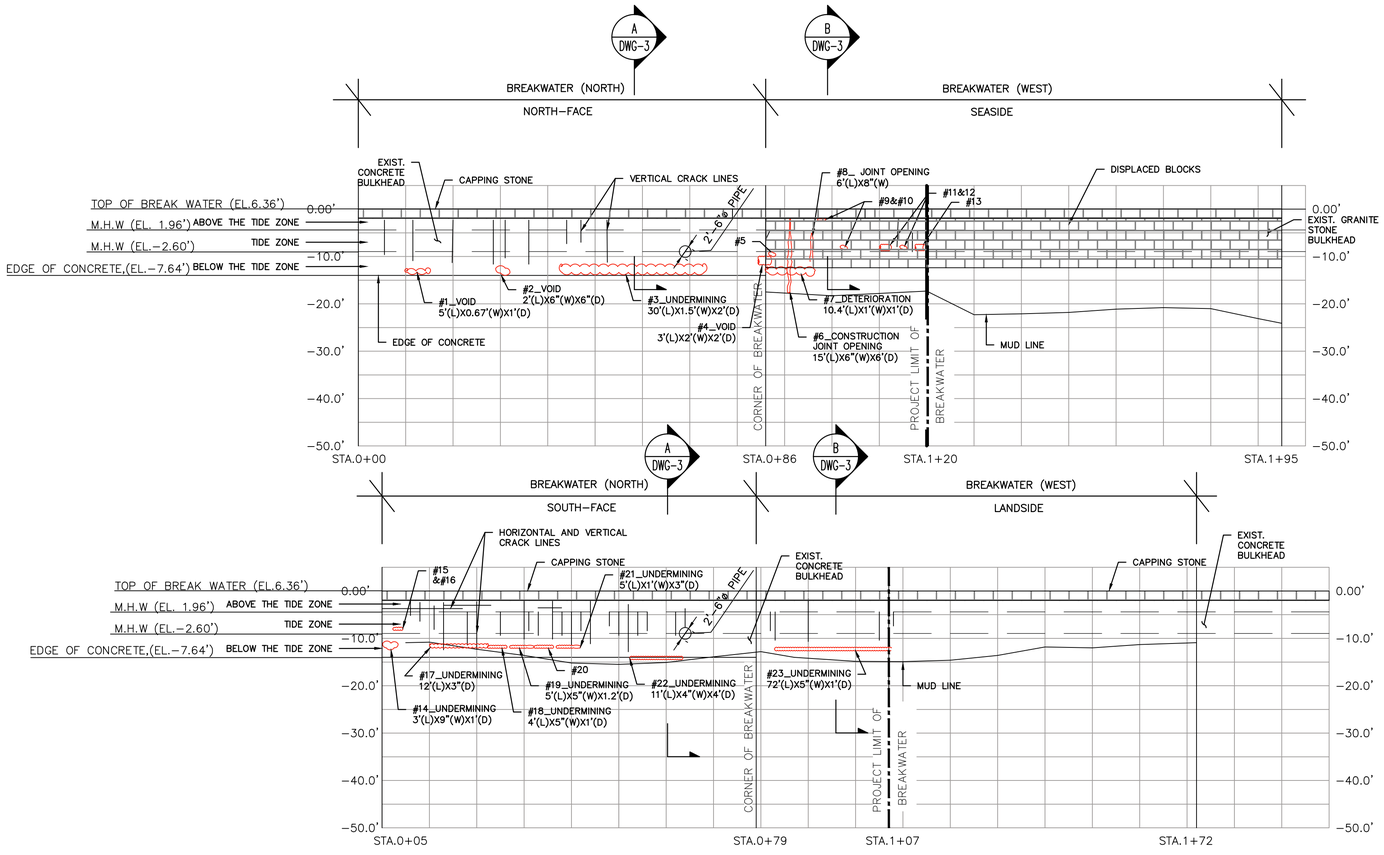
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PIER A REHABILITATION
BREAKWATER PLAN AND SECTIONS

SCALE: AS NOTED
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APPROVED BY: MGW
DRAWN BY: FYC
CHECKED BY: SMM
PROJECT NO.: 2020200179.001
SHEET NUMBER: S-2
SHT. NO.: SHT 2 OF 14
DRAWING FILE NO.: S-2 BREA... .DWG
REV. NO.: 0

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BREAKWATER ELEVATION

0 8' 16' 32'

LEGEND:

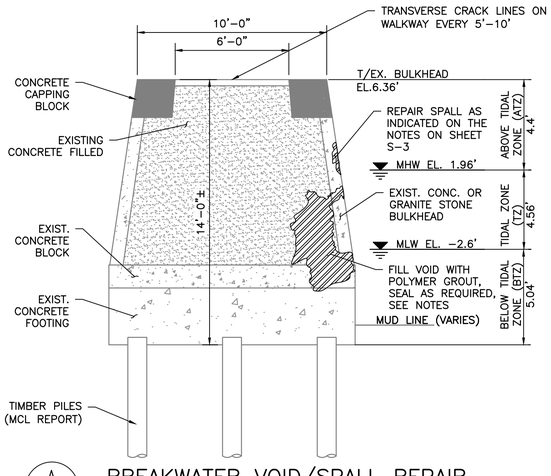
VOIDS & UNDERMINING
CONCRETE SPALLING

TABLE-1 VOIDS AND JOINTS CONCRETE SPALL LOCATION

ID NO.	TYPE OF DEFECT	STATION	SIZE LENGTH (FT)	SIZE WIDTH (FT)	SIZE DEPTH (FT)	ZONE
1	VOID	0+05	5	0.67	1	BTZ
2	VOID	0+14	2	0.5	0.5	BTZ
3	UNDERMINING	0+56.5	30	1.5	2	BTZ
4	VOID	0+86	3	2	2	BTZ
5	VOID	0+87	1.5	1.5	1	BTZ
6	VOID	0+91	15	0.5	6	3ZONES
7	DETERIORATION	0+91	10.4	1	1	BTZ
8	JOINT	0+95	6	0.67	-	ATZ
9	SPALL	0+97	0.83	0.33	0.5	ATZ
10	VOID	1+01	1	1	0.83	TZ
11	SPALL	1+10	2.5	1	1	TZ
12	SPALL	1+14	1	0.58	0.5	TZ
13	VOID	1+18	1.5	1.5	0.67	TZ
14	UNDERMINING	0+05	3	0.75	1	BTZ
15	SPALL	0+08	2	0.33	0.58	TZ
16	SPALL	0+10	0.83	0.83	0.33	TZ
17	UNDERMINING	0+16	12		0.16	BTZ
18	UNDERMINING	0+24	4	0.42	1	BTZ
19	UNDERMINING	0+30	5	0.42	1.16	BTZ
20	UNDERMINING	0+35	4	0.33	0.25	BTZ
21	UNDERMINING	0+41	5	1	0.25	BTZ
22	UNDERMINING	0+59	11	0.33	4	BTZ
23	UNDERMINING	0+88	72	0.42	1	BTZ

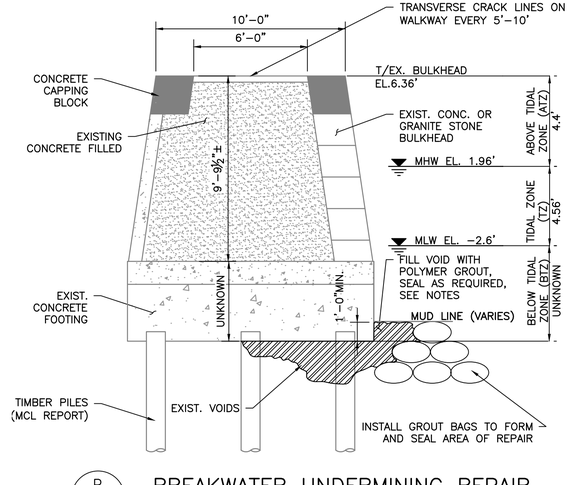
TABLE - 2 SUMMARY OF CRACK LINES AND LOCATION

ID NO.	LOCATION	STATION	NUMBER OF CRACK LINES	TOTAL LENGTH (FT)	CRACK WIDTH (IN)
1	NORTH SURFACE AND SEASIDE	0+00 TO 1+20	12	78	MAXIMUM = 1/4
					MINIMUM = 1/8
2	SOUTH SURFACE AND LAND SIDE	0+05 TO 1+07	29	180	MAXIMUM = 1/4
					MINIMUM = 1/32



A S-3 S-3 BREAKWATER VOID/SPALL REPAIR

0 2' 4' 8'



B S-3 S-3 BREAKWATER UNDERMINING REPAIR

0 2' 4' 8'

NOTES:

1. SEE GN–1 & GN–2 FOR GENERAL NOTES.
2. DRILL OR CUT MATERIALS AS REQUIRED AROUND VOIDS TO FACILITATE CONCRETE PUMPING.
3. CLEAN ALL LOOSE MATERIAL AND DEBRIS FROM REPAIR AREA.
4. SEAL AND FORM AREA AS REQUIRED USING GROUT BAGS OR OTHER SUITABLE METHOD.
5. TREMIE PUMP POLYMER GROUT INSIDE VOIDS. BEGIN AT INNER LOWER PORTION OF VOID AND WORK OUTWARDS AND UPWARDS TO FILL ENTIRE VOID. USE ANTI–WASHOUT MIX TO MINIMIZE WATERBORNE CEMENTITIOUS MATERIALS.
6. FINISH GROUT FLUSH WITH SURROUNDING MATERIALS FOR VOIDS, AND 12 INCHES ABOVE BOTTOM OF CONCRETE FOOTING FOR UNDERMINING REPAIR.
7. REPAIR ALL SPALLS ABOVE THE TIDE ZONE AS INDICATED ON DWG S–8.
8. REPAIR ALL SPALLS IN THE TIDE ZONE WITH POLYMER GROUT WITH ANTI–WASHOUT ADDITIVE. REMOVE ALL LOOSE CONCRETE PRIOR TO FORMING. PROVIDE FORMWORK AS NECESSARY TO ACHIEVE A FLAT SURFACE & REMOVE FORMWORK AFTER CONCRETE IS CURED.

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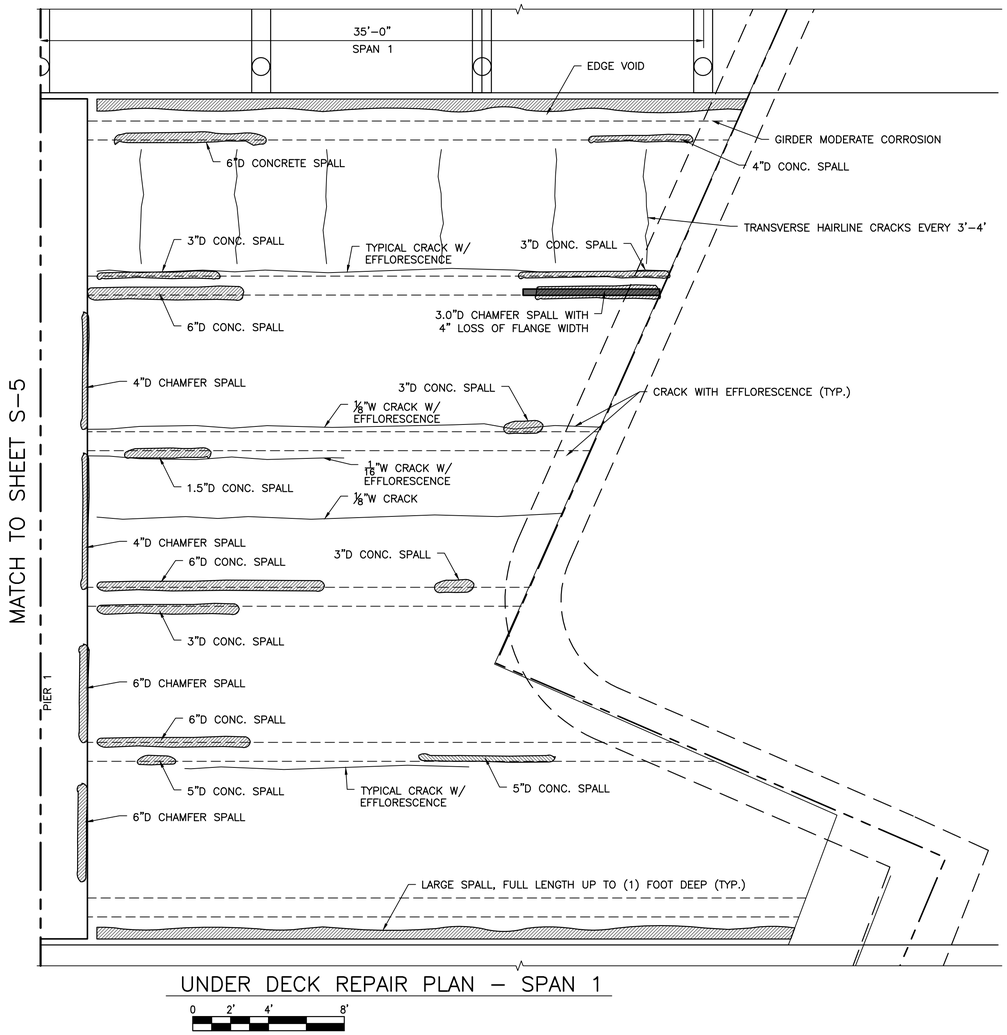
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BATTERY PARK CITY AUTHORITY
PIER A REHABILITATION
BREAKWATER ELEVATION & TYPICAL REPAIR DETAILS

SCALE: AS NOTED
DESIGN BY: AK
APPROVED BY: MGW
DRAWN BY: FYGAK
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DATE: 11/11/21
PROJECT NO.: 2020200179.001
SHEET NUMBER: **S-3**
SHT. NO.: SHT 3 OF 14
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UNDER DECK REPAIR PLAN – SPAN 1

0 2' 4' 8'

NOTES:

1. SEE GN–1 & GN–2 FOR GENERAL NOTES.
2. UNDER DECK REPAIRS AS INDICATED AND SEE THE REPAIR DETAILS ON SHEET S–8.

LEGEND:

- CRACK
- SPALL
- DELAMINATION
- KNIFE EDGING OF GIRDERS

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PIER A REHABILITATION

UNDER DECK REPAIR PLAN - SPAN 1

SCALE: AS NOTED
DATE: 11/11/21
DESIGN BY: AK
APPROVED BY: MGW
DRAWN BY: FYC
CHECKED BY: SMM
PROJECT NO: 2020200179.001
SHEET NUMBER: **S-4**
SHT. NO.: SHT 4 OF 14
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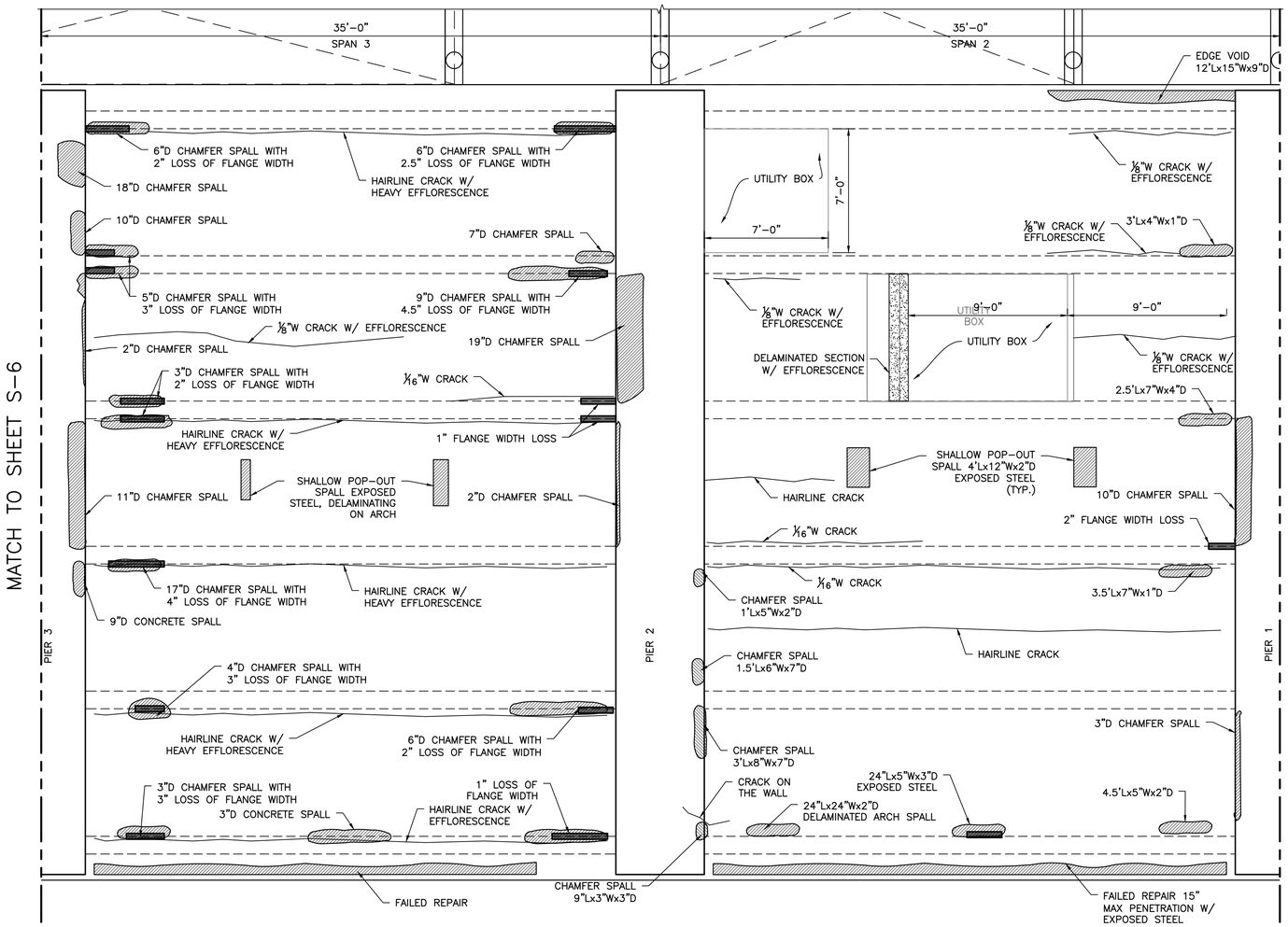
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NOTES:

1. SEE GN–1 & GN–2 FOR GENERAL NOTES.
2. UNDER DECK REPAIRS AS INDICATED AND SEE THE REPAIR DETAILS ON SHEET S–8.

LEGEND:

- CRACK
- SPALL
- DELAMINATION
- KNIFE EDGING OF GIRDERS



UNDER DECK REPAIR PLAN – SPAN 2 & 3

0 2' 4' 8'

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PIER A REHABILITATION

UNDER DECK REPAIR PLAN - SPAN 2 & 3

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	CHECKED BY: SMM
PROJECT NO: 2020200179.001	
SHEET NUMBER: S-5	
SHT. NO.: SHT 5 OF 14	
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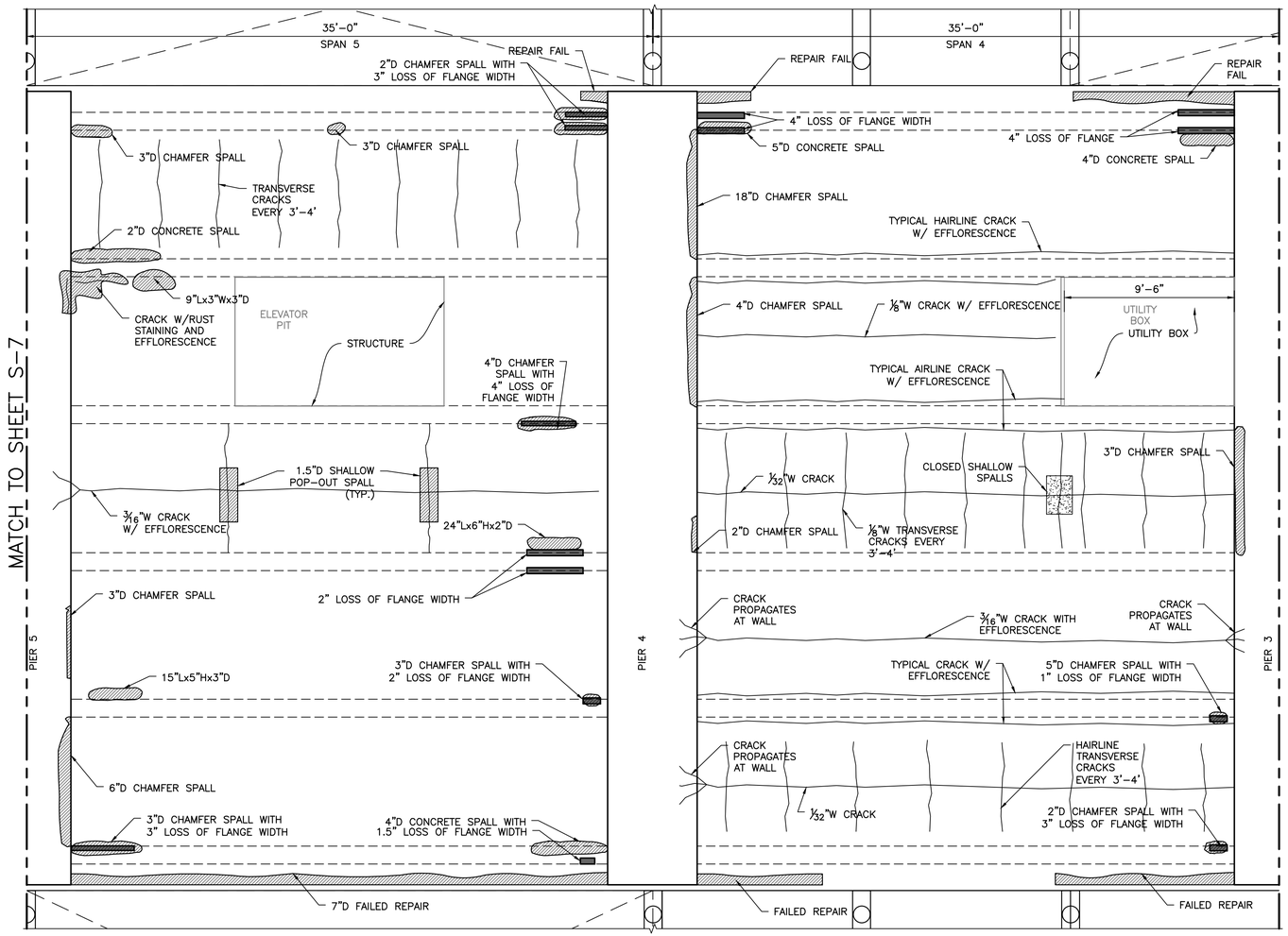
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NOTES:

1. SEE GN–1 & GN–2 FOR GENERAL NOTES.
2. UNDER DECK REPAIRS AS INDICATED AND SEE THE REPAIR DETAILS ON SHEET S–8.

LEGEND:

CRACK
SPALL
DELAMINATION
KNIFE EDGING OF GIRDERS



UNDER DECK REPAIR PLAN – SPAN 4 & 5

0 2' 4' 8'

100% SUBMISSION

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PIER A REHABILITATION

UNDER DECK REPAIR PLAN - SPAN 4 & 5

SCALE: AS NOTED
DATE: 11/11/21
DESIGN BY: AK
APPROVED BY: MGW
DRAWN BY: FYC
CHECKED BY: SMM
PROJECT NO: 2020200179.001
SHEET NUMBER: S-6
SHT. NO.: SHT 6 OF 14
DRAWING FILE NO.: S-3 UNDE... .DWG
REV. NO.: 0

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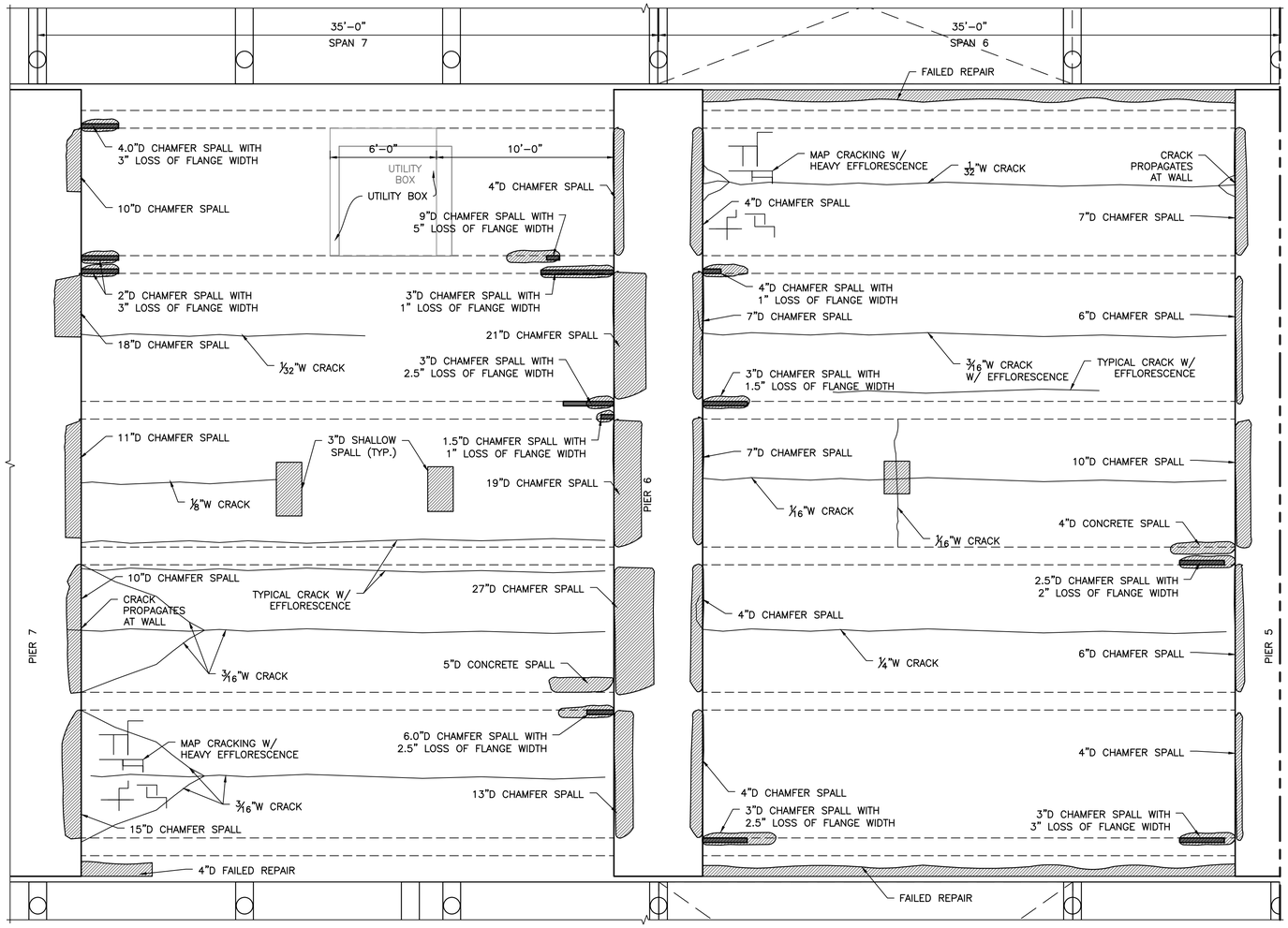
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NOTES:

1. SEE GN–1 & GN–2 FOR GENERAL NOTES.
2. UNDER DECK REPAIRS AS INDICATED AND SEE THE REPAIR DETAILS ON SHEET S–8.

LEGEND:

CRACK
SPALL
DELAMINATION
KNIFE EDGING OF GIRDERS



UNDER DECK REPAIR PLAN – SPAN 6 & 7

0 2' 4' 8'

100% SUBMISSION

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PIER A REHABILITATION

UNDER DECK REPAIR PLAN - SPAN 6 & 7

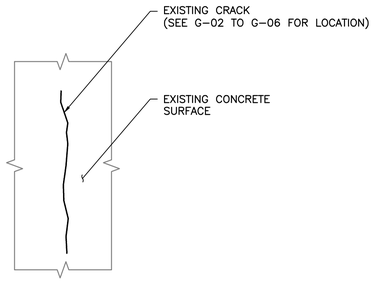
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SHT. NO.: SHT 7 OF 14
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REV. NO.: 0

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DRAWN BY: FYC
CHECKED BY: SMM

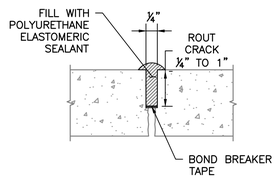
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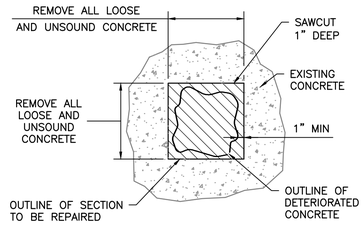
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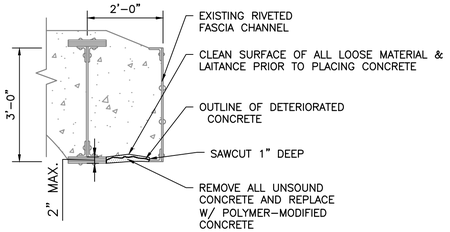
T:\PROJECTS\ON-GOING\2020 PROJECTS\2020200179.001 - BPCA PIER A\WORK\DRAWINGS\WORKING DRAWINGS\CURRENT\S-3 UNDER DECK REPAIR PLAN - SPAN 1.DWG



CRACK (< 1/4") REPAIR DETAIL

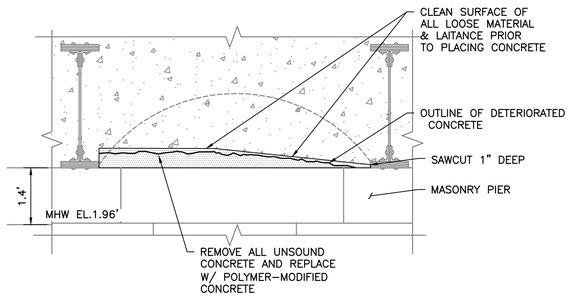






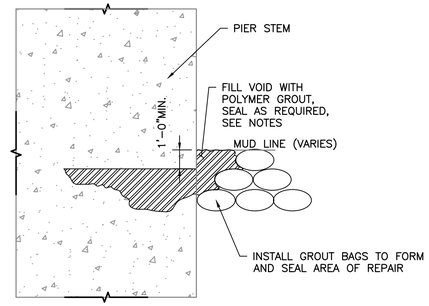
TYPE 1 CONCRETE SPALL REPAIR DETAIL

N.T.S.



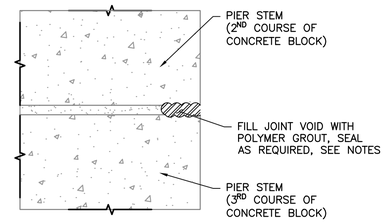
TYPE 2 CONCRETE SPALL REPAIR DETAIL

N.T.S.



TYPICAL PIER STEM VOID REPAIR DETAIL

N.T.S.



PIER STEM MORTAR JOINT REPAIR DETAIL

N.T.S.

NOTES:

1. FOR GENERAL NOTES, SEE DWG. GN-1 & GN-2.
2. ALL CONCRETING FOR CRACK AND CONCRETE REPAIR IN THE TIDAL ZONE SHALL BE STARTED ON RECEDING TIDE.
3. THE APPROXIMATE LOCATION OF CRACKS AND SPALLS ARE SHOWN ON S-4 TO S-7. CONTRACTOR TO VERIFY THESE LOCATIONS IN THE FIELD.
4. REPAIR SHALL BE PERFORMED IN CONSIDERATION OF PRODUCT LIMITATIONS AS RECOMMENDED BY THE MANUFACTURER.

CRACK REPAIR NOTES:

1. ALL CRACKS SHALL BE ROUTED TO 1/2" WIDE BY 1" DEEP. CRACKS WIDER THAN 1/2" SHALL BE REPAIRED AS TYPE 1 OR TPE 2 SPALLS DEPENDING ON THE DEPTH OF THE CRACK.
2. BLOW-OUT THE ROUTED CRACK WITH OIL FREE COMPRESSED AIR OR FLUSH WITH WATER. INSERT A BOND BREAKER TAPE.
3. FILL THE SLOT WITH A POLYURETHANE ELASTOMERIC SEALANT ALLOWING FOR A SMALL CREST TO REMAIN AS PER THE SPECIFICATIONS AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR SURFACE PREPARATION, TEMPERATURE AND INSTALLATION.

GENERAL CONCRETE REPAIR NOTES:

1. ALL REPAIRS ARE TO BE IN ACCORDANCE WITH 036000 – GROUTING SECTION OF THE TECHNICAL SPECIFICATIONS.
2. TYPE 1 REPAIRS APPLY TO DETERIORATED AREAS WITH A DEPTH OF DETERIORATION LESS THAN OR EQUAL TO 1-1/2" WITH NO EXPOSED REINFORCEMENT BAR. TYPE 2 REPAIRS APPLY TO DETERIORATED AREAS WHERE ANY DEPTH OF DETERIORATION IS GREATER THAN 1-1/2", OR TO ANY SIZE AREA WHERE REINFORCING BARS ARE EXPOSED.
3. CRACK REPAIR TYPE DETAIL SHALL BE USED TO REPAIR CRACKS WIDER THAN 1/16" AND UP TO 1/4" IN WIDTH.
4. FOR ADDITIONAL INFORMATION REGARDING CONCRETE REPAIRS REFER TO 036000 – GROUTING SECTION OF THE TECHNICAL SPECIFICATIONS.

TYPE 1 SPALL REPAIR NOTES:

1. OUTLINE DETERIORATED CONCRETE AREAS WITH A SAWCUT OF 1" MAXIMUM DEPTH.
2. REMOVE ALL LOOSE, DELAMINATED AND UNSOUND CONCRETE WITHIN THE OUTLINED DETERIORATED AREA TO FORM A UNIFORM SHAPE AND SOUND BOND BETWEEN EXISTING AND NEW CONCRETE.
3. CLEAN SURFACE OF LOOSE MATERIAL AND LAITANCE PRIOR TO PLACING POLYMER MODIFIED CONCRETE.
4. APPLY ENGINEER APPROVED EPOXY BONDING COMPOUND BETWEEN THE OLD AND NEW CONCRETE.
5. PRE WET SURFACE TO SATURATED SURFACE DRY.
6. PLACE REPAIR CONCRETE. RESTORE TO A FINISH TO MATCH SURROUNDING CONCRETE SURFACES.

TYPE 2 SPALL REPAIR NOTES:

1. OUTLINE DETERIORATED CONCRETE AREAS WITH A SAWCUT OF 1" MINIMUM DEPTH, BUT NOT TO THE DEPTH OF REINFORCING STEEL.
2. REMOVE ALL LOOSE, DELAMINATED AND UNSOUND CONCRETE WITHIN THE OUTLINED DETERIORATED AREA TO FORM A UNIFORM SHAPE AND SOUND BOND BETWEEN THE EXISTING CONCRETE AND NEW CONCRETE. REMOVE CONCRETE TO 1" BEHIND REINFORCING BARS, IF PRESENT.
3. CLEAN THE EXPOSED REINFORCEMENT BARS OF RUST, IF PRESENT.
4. IF EXPOSED REINFORCING STEEL IS CORRODED (LOSS OF ONE QUARTER OR MORE OF ORIGINAL CROSS SECTIONAL ARE), LAP WITH NEW BARS OF EQUAL OR GREATER SIZE.
5. APPLY ENGINEER APPROVED EPOXY BONDING COMPOUND ON THE BARS.
6. APPLY ENGINEER APPROVED EPOXY BONDING COMPOUND BETWEEN THE OLD AND NEW CONCRETE.
7. PRE-WET SURFACE TO SATURATED SURFACE DRY.
8. PLACE POLYMER MODIFIED CONCRETE. RESTORE TO A FINISH TO MATCH SURROUNDING CONCRETE SURFACES.

PIER STEM REPAIR NOTES:

1. DRILL OR CUT MATERIALS AS REQUIRED AROUND VOIDS TO FACILITATE CONCRETE PUMPING.
2. CLEAN ALL LOOSE MATERIAL AND DEBRIS FROM REPAIR AREA.
3. SEAL AND FORM AREA AS REQUIRED USING GROUT BAGS OR OTHER SUITABLE METHOD.
4. TREMIE PUMP POLYMER GROUT INSIDE VOIDS. BEGIN AT INNER LOWER PORTION OF VOID AND WORK OUTWARDS AND UPWARDS TO FILL ENTIRE VOID. USE ANTI-WASHOUT MIX TO MINIMIZE WATERBORNE CEMENTITIOUS MATERIALS.
5. FINISH GROUT FLUSH WITH SURROUNDING MATERIALS FOR VOIDS, AND 12 INCHES ABOVE BOTTOM OF CONCRETE FOOTING FOR UNDERMINING REPAIR.

100% SUBMISSION
DATE: 11/11/21

NEW YORK STATE OF OPPORTUNITY. | Battery Park City Authority

BATTERY PARK CITY AUTHORITY
200 LIBERTY STREET, 24TH FLOOR,
NEW YORK, NY 10281
T: 212.417.2000

Urban Engineers of New York, D.P.C.
One Penn Plaza, Suite 4125
New York, NY 10119
o. 212.736.9100

URBAN ENGINEERS

SEAL

BY:

DATE:

REV	DATE	DESCRIPTION	BY	CKD	APD
0	11/11/21	100% DESIGN SUBMISSION	AK	SMM	MGW

NEW YORK, NY
BATTERY PARK CITY AUTHORITY

PIER A REHABILITATION

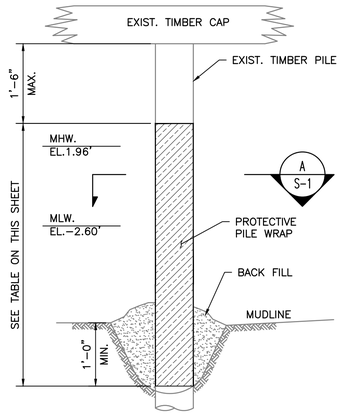
CONCRETE REPAIR DETAILS

SCALE: AS NOTED	DESIGN BY: AK
	APPROVED BY: MGW
DATE: 11/11/21	DRAWN BY: FYC
	CHECKED BY: SMM
PROJECT NO.: 2020200179.001	
SHEET NUMBER: S-8	
SHT. NO.: SHT 8 OF 14	
DRAWING FILE NO.: S-7 CONC... .DWG	REV. NO.: 0

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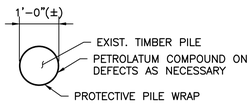
100% DESIGN SUBMISSION

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TYPICAL TIMBER PILE WRAP DETAIL

N.T.S.

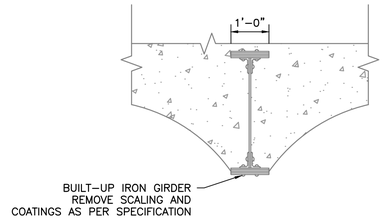


A S-9 S-1 TYPICAL TIMBER PILE WRAP SECTION

0 1' 2'

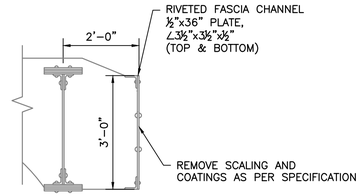
PILE REPAIR NOTES:

1. SEE GN-1 & GN-2 FOR GENERAL NOTES.
2. REFER TO SHEET S-1 FOR PILE REPAIR LOCATION AND WRAPPING LENGTH.
3. PILE WRAP REPAIRS AS INDICATED AND ACCORDING TO NOTES ON GN-2.



EXISTING IRON GIRDERS REPAIR DETAIL

N.T.S.



EXISTING FASCIA STEEL COMPONENTS REPAIR DETAIL

N.T.S.

STEEL REPAIR NOTES:

1. FOR GENERAL NOTES SEE SHEET GN-1 & GN-2.
2. REFER TO SHEET GA-2, S-4 TO S-7 FOR REPAIR MEMBERS LOCATIONS.
3. ALL THE EXISTING STEEL MEMBERS TO BE REPAIRED BY CLEANING AND MINIMUM THREE COATINGS, PRIMER, INTERMEDIATE COAT AND TOP COAT.
4. PAINTING SYSTEM OF SURFACE PREPARATION AND COATINGS MUST BE DONE ACCORDING TO TECHNICAL SPECIFICATION "SECTION 099000 PAINTING AND COATING"
5. DOWNSPOUT ON FASCIA L-ANGLE HAVE TO EXTEND TO DISCHARGE TO THE SEA.

REV-1, 100% DESIGN SUBMISSION
DATE: 01/31/2022

NEW YORK STATE OF OPPORTUNITY | Battery Park City Authority

BATTERY PARK CITY AUTHORITY
200 LIBERTY STREET, 24TH FLOOR,
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Urban Engineers of New York, D.P.C.
One Penn Plaza, Suite 4125
New York, NY 10119
o. 212.736.9100

URBAN ENGINEERS

SEAL

BY:

DATE:

REV	DATE	DESCRIPTION	BY	CKD	APP'D
1	01/31/22	REMOVED OPTIONS & UPDATE NOTES	AK	SMM	MGW
0	11/11/21	100% DESIGN SUBMISSION	AK	SMM	MGW

NEW YORK, NY

BATTERY PARK CITY AUTHORITY

PIER A REHABILITATION

PILE AND STEEL REPAIR DETAILS

SCALE: AS NOTED
DATE: 11/11/21
DESIGN BY: AK
APPROVED BY: MGW
DRAWN BY: FYC
CHECKED BY: SMM
PROJECT NO. 2020200179.001
SHEET NUMBER S-9
SHT. NO.: SHT 2 OF 14
DRAWING FILE NO.: S-7 CONC... .DWG
REV. NO.: 0

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100% DESIGN SUBMISSION

EXHIBIT C

Battery Park City Authority
Pier A Rehabilitation
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SECTION 000005

GENERAL CONDITIONS

AIA Document A201 – General Conditions of the Contract for Construction shall be referenced if not stated in the Contract Documents.

Notwithstanding anything in these specifications and drawings to the contrary, all provisions in the Battery Park City Authority contract hereforth shall supersede any conflicting provisions in these documents. All other provisions of the Contract Documents shall remain in full force and effect. References to the "Authority" in these Conditions shall be deemed to mean "Owner/Owner's Representative" and vice versa.

PART 1 - GENERAL

1.01 INTRODUCTION

A. If, during the performance of the Work, the Contractor finds a conflict, error, or discrepancy in the Contract Documents, the Contractor shall report to the Owner's Representative in writing immediately. Before proceeding with the Work affected thereby, the Contractor shall obtain a written interpretation or clarification from the Owner's Representative which shall be provided within 24 hours of notification from the Owner. Any work done before the Owner's Representative renders his/her decision is at the Contractor's sole risk and may be forced to remove/modify said work at no additional cost to the Owner.

B. In the event of discrepancies in the Contract Documents, interpretations will be based upon the following priorities, in descending order of precedence:
   1. The Scope of Work, as defined in the Request for proposal.
   2. The Agreement including Regulatory Authorizations, and any properly executed Change-Orders thereto.
   3. The Drawings and Specifications.
   4. AIA Document A201-General Conditions of the Contract for Construction.

The Agreement, the provisions in the Contract and other Contract documents are intended to supplement and complement each other and shall, where possible, be thus interpreted. If, however, any provision of the Agreement irreconcilably conflicts with a provision of the Contract and the other Contract Documents, the provision imposing the greater duty or obligation on the Contractor shall govern. In the event of any dispute over the meaning or application, it shall be interpreted fairly and reasonably and neither more strongly for nor against either party to it.

In case of inconsistency between Drawings and Specifications, or within either document no clarified by Addendum, the better quality or greater quantity of work shall be provided in accordance with the Owner's interpretation.

C. The Specification covers the repair work on Pier A at Battery Park City, Manhattan, NY, also referred to herein as the Project Site and is shown in the Contract Drawings.

D. The Contractor guarantees that in the performance of work, he and every person in his direct or indirect employment (i.e. subcontractors) shall abide by and comply with all federal, state, and local laws including the Occupational Safety and Health Act and waterfront MARSEC USCG requirements.

E. The term Owner, as used throughout the Contract Documents, designates Battery Park City Authority (BPCA) as the Owner, or its duly authorized representative.

F. The term Owner's Representative, as used throughout these Specifications, indicates the Owner's authorized representative for a particular activity. The term includes Owner's Representative, Engineer-Of-Record, and/or Special Inspector.

G. It is the responsibility of the Owner's Representative to delegate responsibility for particular activities.

H. The term Engineer-Of-Record, Engineer or Owner's Representative as used throughout the Contract Documents, designates Urban Engineers D.P.C.

I. All correspondence between the Contractor and Engineer of Record shall be directed through the Owner's Representative.

J. The Work shall commence in accordance with the Contractor's accepted schedule. If, in the opinion of the Owner, the Contractor has not mobilized sufficient plant or material and/or if the Contractor does not demonstrate that sufficient work is underway according to the accepted schedule, the Owner reserves the right to terminate the Contract.

K. In the event of termination of the Contract pursuant to the conditions set forth herein, such termination shall not act so as to relieve the Contractor from liability for any damages sustained by the Owner as a result of any breach by the Contractor of the terms of the Contract.

L. At the completion of each work day the area around Pier A must be clear of all construction equipment, materials and debris. The Contractor shall coordinate with the Owner regarding equipment and material lay down area.

M. Definitions
   1. Work: Material, equipment, labor, and services required for Contractor to fulfill his/her obligations of project or the part of the project considered.
   2. Project Site: Battery Park City Pier A, New York, NY 10004.
   3. Provide: Furnish and install; provide in place.
   4. Furnish: Furnish only, not including installation.
   5. Install: Furnish and Install in place materials or structures. (Installation of materials furnished by others will be specifically identified).
   6. Shall: Mandatory requirement (understood to be applicable whether or not "shall" is used in the sentence structure): omission of "shall" does not make the Specification or Contract Drawing non- mandatory.
   7. Contract Sum: This shall be read as the Total Base Proposal amount and will be adjusted based on actual quantities of completed Work, including Owner-accepted Alternatives and Unit Price as included in the Form of Proposal.
   8. Day: Contract "day" shall be as defined in the BPCA master contract.

1.02 DESCRIPTION OF WORK

The Work shall include, but not be limited to:

This Agreement covers the complete scope for the type of work included herein, including all incidental work not necessarily indicated or described in the "scope" documents. This Agreement is let on the basis of such documents with the understanding that the Proposer is to furnish all items required for proper completion of the work without adjustment to the Contract Price. It is intended that the Work be of sound and quality installation and the Proposer shall be solely responsible for the inclusion of adequate amounts to cover installation of all items indicated, described or implied.

A. Mobilization to and demobilization from the site.

B. Furnish, installation and maintenance of environmental controls and safety measures.

C. Furnish, installation and maintenance of temporary works.

D. Cleaning, demolition and authorized disposal of components associated with repairs.

E. All repairs shown in the Contract Drawings.

F. Providing coordination with the Owner's Representative for securing testing services and test results confirming accordance with Contract Documents for Engineer of Record approval.

G. Providing submittals.

H. Attendance of authorized representative at project meetings.

I. Coordination with Owner's Representative and/or Engineer of Record for review of Work.

J. Providing bi-weekly schedule of anticipated work.

K. Providing daily construction reports.

L. Providing detailed outline of Proposer's QA/QC protocol.

1.03 GENERAL SCOPE OF WORK

Schedule

Unless otherwise stated in Section 013300, the following submittal schedule of all shop drawings, etc., for review by the Owner's Representative and Engineer of Record shall be as follows:

A. Contractor's Submittal

1. Proposer shall submit within two (2) weeks after receipt of Contract or Notice to Proceed a detailed schedule to the Owner's Representative conforming with the project milestone installation dates.
2. Contractor shall be responsible to meet all project milestone dates. If the contractor does not meet the milestone dates or is progressing behind schedule, the contractor will be directed by the Owner/ Owner's Representative to work additional shifts, hours and weekends at no additional cost to the Owner, in order to ensure substantial completion no later than project closeout date. The project milestone dates are as follows:
    a. Contractor to complete Shop Drawings: TBD
    b. Construction Start: TBD
    c. Substantial Completion: TBD
    d. Punch List Walk-through: TBD
    e. Final Inspection of Punch List: TBD
3. Contractor shall be required to submit an original certificate of insurance to the Owner's Representative one week prior to commencement of contracted work in accordance with the Owner's contract.

B. Owner's Representative Review and Comments
1. Within five (5) days after receipt of Contractor's submittal.
2. The Work shall be performed in a general sequence developed by the Contractor and submitted to the Owner's Representative for review, in accordance with the requirements of the Contract. The Contractor is solely responsible for the means and methods of construction and for the sequences and procedures to be used.
3. The Contractor shall furnish and coordinate all plant, labor, supervision, materials, equipment and appliances for all demolition and/or construction work in connection with the demolition and/or construction of the marine facilities.
4. The Contractor acknowledges and is aware that the area is occupied by others and that the site will not be fully closed from public access. All material delivery and operations associated with the Work shall be coordinated with other activities at the site in such a manner as to minimize the impedance on the site's tenants and the public, while maximizing the cost effectiveness and time of the Work. Coordination of equipment mobilization, construction, deliveries, etc. must be made with the Owner's Representative.

1.04 EXAMINATION OF EXISTING CONDITIONS

A. Before submitting a proposal, it is a requirement of this Contract that each proposer visit the site to determine the conditions under which the Work is to be done. Such examination shall include, but not be limited to:
1. Structural detail of the existing structures and related facilities.
2. Various on-site utilities and structures not within the Scope of this Contract, but that may impact the execution of the Work. These will remain fully operational throughout the construction period.
3. The layout and structural and finish condition of the existing structures.
4. Access space, possible work areas, and load restrictions.

1.05 CONTRACTOR-FURNISHED MATERIALS

A. The Contractor shall furnish all materials for installation in the completed Work as specified hereinafter.

B. The Contractor shall handle these materials as they are delivered to the site or off-site work areas, and shall store them in a designated storage area by the Owner. If sufficient room is not available, the Contractor shall store materials at his own cost.

C. The Contractor-furnished material is subject to review by the Owner or Owner's Representative at the plant of manufacture at the Owner's option. Review by the Owner or Owner's Representative is not to be construed as technical in nature and in no way shall be deemed to relieve the Contractor from his/her obligation herein to insure the quality and integrity of the materials supplied by the Contractor for this project.

D. Project material furnished by the Contractor shall conform to the requirements of the Specifications stated hereinafter. The Contractor shall, as part of the Contract fee, also furnish all consumable materials necessary to complete the Work, such as, but not limited to, welding electrodes, safety equipment, etc.

1.06 LAYOUT

A. The Contractor shall be solely responsible for the accuracy of all locations, dimensions, and levels and no plea as to instructions or order received from any other sources other than information contained on Contract Drawings, Specifications or in written orders of the Owner or Owner's Representative shall justify departure from the dimensions and elevations required by the Contract Drawings.

B. The Contractor shall take his own measurements at the site, verifying same with the Contract Drawings and existing facilities, and will be held responsible for the proper fit and alignment of completed work in position.

1.07 GUARANTEE

A. The Contractor shall guarantee to the Owner all materials and workmanship against original defects, or against injury from proper and usual wear when used for the purpose intended, for twelve (12) months after date of final payment certifications, and shall maintain all items in perfect condition during the period of guarantee.

B. Defects appearing during the period of guarantee shall be made good by the Contractor at his expense upon written demand of the Owner, it being required that all work shall be in perfect condition when the period of guarantee shall have elapsed. In the event of default by the Contractor, the Company shall have the right to make good any and all defects and bill the Contractor as per the contract for administration fees. The Owner shall provide notice of correction along with time frame for correction prior to taking action regarding guarantee bonds or penalties.

C. The Proposer shall follow any and all anti-terrorism security procedures, guidelines, instructions, and regulations with respect to ingress into and egress from the work site, transportation and disposition of material that might be considered contraband as well as any emergency procedures. It is the Proposer's responsibility to make contingencies for the effect upon the scheduling and performance

of their work of any and all such regulations and procedures. The cost of such contingencies shall be included in the Contract Price.

1.08 PARKING, STORAGE AND ACCESS TO WORK AREA

A. The Contractor shall coordinate with the Owner for available parking, storage and access to the work area. In no event shall these areas interrupt or disturb the Owner's operations. The Contractor shall protect the stored equipment and material from the elements in such a manner as to be satisfactory to the manufacturer of the equipment or material and the Owner.

B. Should questions of labor jurisdiction arise, this Proposer will immediately take steps to settle such disputes and will use such labor as may be determined to have jurisdiction, at no additional cost to the Owner. Should it fail to take expeditious action, it will be responsible for any time lost because of delays arising from such disputes.

C. The Contract includes the cost of all standby trades and Owner Representative fees should Proposer work prior to or later than normal working hours and on Saturdays, Sundays and Holidays, if Proposer desires to work outside of normal working hours. That includes the additional cost for inspections by the engineer.

D. As a State Agency, Proposer shall be aware that all BPCA projects require the employment of labor at prevailing wage rates. Outside State and Federal Agencies will closely monitor all projects.

E. Contractor shall be responsible for providing all equipment required for unloading, installation, clean-up and hauling of debris. Contractor is to be aware that due to the spacing limitations of the surrounding area of work there is to be no staging of equipment on site, unless approved in the Contractor's Staging Plan.

F. Contractor shall not use the site for staging of construction materials or equipment, unless approved in the Contractor's Staging Plan.

G. Proposer shall not store any material or equipment on site unless directed by the Owner/Owner's Representative.

H. Proposer shall not use the site for staging of installation materials or equipment except as approved by the Owner.

1.09 SUBCONTRACTORS

A. A list of Subcontractors, pre-qualified by the Contractor, shall be submitted to the Owner by the Contractor with his proposal. The Owner has the ultimate right to accept or reject any one or more of the subcontractors, and must do so in writing after receipt of said list from the Contractor. Valid insurance certificates for subcontractors shall be submitted by the Contractor to the Owner.

B. The Owner shall receive, upon completion of this Contract in full from the Contractor, any reduction in the Subcontractor's price, which may result from a reduced scope of the Contractor's work.

1.10 SITE CONDITIONS

A. At the Contractor's expense, the Contractor's working areas shall be cleaned by him on a day-to-day basis, with all rubbish removed from the site and all work areas cleaned at the end of each day. At final completion of all work, the Contractor shall leave the entire premises, within the site of his operations, clean and free from the rubbish resulting from his construction operations.

B. Each Proposer is responsible for progress cleaning of its own areas on a daily basis. All Proposers are responsible for consolidating any debris caused by their work. The proposer for General Construction (G) shall be responsible for cleanup of the entire site which includes removal of debris for ALL proposers on site on a daily basis. The proposer for General Construction (G) shall legally dispose consolidated debris off-site. Each Proposer is advised that failure to comply with cleaning requirements will result in backcharges and/or reductions in payments.

C. Contractor shall perform site cleanup and removal of debris on a daily basis and broom clean all installation areas at completion of the day. Surplus equipment, parts & installation materials are to be removed by contractor upon completion of installation unless it is mutually agreed, in writing, from Owner or the Owner's Representative that this material can remain on site.

D. Contractor shall be responsible for ice, snow and frost removal at site during construction in order to accommodate performance of work.

E. The Proposer shall take special care to provide for temporary damage protection for any and all existing conditions to remain in proximity to the work area. The protection shall remain in place while performing the work shown or described herein or elsewhere in the Contract Documents. Any damage to existing conditions to remain as a result of work by the Proposer shall be repaired or replaced to the satisfaction of the Owner and at no cost to the Owner.

1.11 COMPENSATION

A. Compensation shall be based upon the Owner-accepted Schedule of Values and authorized Change Orders thereto.

B. Contractor shall provide interim As-Built documents in PDF format and a hard copy with each application for payment. These will be incorporated into the final As-Built documentation.

C. Requisitions for this project shall be due to the Owner's Representative by the 5th of every month as a "pencil copy". The final signed and sealed requisition is then due to the owner by the 15th of every month in the format specified in the Owner's contract.

1.12 UTILITIES

A. The Contractor is responsible to provide and maintain any and all utilities he deems necessary to affect the Work. Should existing site utilities be made available for the Contractor's use by the Owner, it is the responsibility of the Proposer to verify the suitability of existing site utilities for their needs. The Contractor may use such provided utilities at his own risk. Damages shall be the sole responsibility of the Contractor and repairs shall be made immediately at no additional cost to the Owner.

1.13 FIRE PROTECTION

A. The Contractor shall provide and maintain at his expense all required fire protection systems and devices as necessary to safely perform the Work in accord with the applicable regulations. They shall be operational throughout the period of construction. The Contractor shall also maintain sufficient means for fire and emergency rescue vehicles to access the site.

1.14 COMPLIANCE WITH CONTRACT

A. The Owner shall have the right to withhold without penalty any payment described above, or sections referenced herein, for completed work should the Contractor fail to meet any obligations or requirements of the Contract, cause damage to the existing site, structures or facilities, or violate a condition of the Permits. Any withheld payment shall be promptly made upon the Contractor's full compliance with the Contract, or resolution of impending fines or damage claims.

1.15 ENVIRONMENTAL PROTECTION

A. The Contractor shall comply with all local, state, and federal requirements for protection of:
   1. The environment during the Work. No later than fifteen (15) days following award of contract and at least ten (10) days prior to mobilization to the site, Contractor shall submit a comprehensive plan describing the means and methods to be employed for protection, containment, and clean up. Contractor shall ensure that personnel are properly trained and that sufficient equipment and materials are readily available for use if required. Contractor shall abide by state and federal spill-reporting requirements. Clean-up required as a result of Contractor negligence shall be the sole responsibility of the Contractor at no additional cost to the Owner.
   2. The work by the Contractor shall conform to the applicable section of the New York City Noise Code regarding the sound level standards and the time and duration of construction activities.

1.16 TEMPORARY WORK

A. Labor, equipment, materials, and services required to perform the Work that, upon completion, are not a part of the Work, shall be furnished, installed, and subsequently removed from the site by the Contractor.

1.17 SAFETY PLAN

A. No later than ten (10) days following award of Contract and at least ten (10) days prior to mobilization to the site, Contractor shall submit two (2) copies of his project-specific Safety Plan by the Owner.

1.18 MATERIAL SAFETY DATA SHEETS

A. No later than ten (10) days following award of contract and at least ten (10) days prior to mobilization to the site, Contractor shall submit two (2) three-ring bound sets of all Material Safety Data Sheets (MSDS) for materials anticipated for use in execution of the Work. As the Work

progresses and new materials are used on the project, Contractor shall submit two (2) copies of the corresponding MSDS's for these new materials no later than the time of arrival of the materials on site. ALL MSDS sheets regarding materials used in the execution of the Work shall be up-to-date and stored in the Contractor's onsite job trailer or office.

1.19 WORK SCHEDULE REQUIREMENTS

A. Access to the site and acceptable working hours are to be determined by the Owner, specified prior to the commencement of Work, and strictly adhered to throughout contract Work. Work shall be in compliance with local noise restriction ordinances.

1.20 ENGINEERING SERVICES CHARGEABLE TO THE CONTRACTOR

A. The Owner reserves the right to charge the Contractor for additional engineering and inspection services if required, including, but not limited to, Contractor's actions or inactions, delays, quality assurance failures, re-work, etc.

1.21 CONTRACTOR'S REPRESENTATIVE

A. The Contractor shall assign an individual to be the single point of contact for all job-related correspondence and issues. This individual shall be assigned to the project from start to finish, and shall not be replaced without permission from the Owner whose permission should not be unreasonably withheld. This individual shall be responsible to disseminate information to other members of the Contractor's staff and to applicable subcontractors as necessary. This individual shall be the Contractor's designated representative at the site, and shall be authorized to conclude all matters, financial and otherwise, on the Contractor's behalf. The Contractor's Representative shall attend all project meetings and shall be on site at all times while the Contractor or his Subcontractors are present on site.

1.22 MEANS AND METHODS

A. The furnishing of this work is solely the responsibility of the Contractor. Review of construction by the Engineer of Record is for general conformance with the Contract Documents only. Lack of comment by the Owner and Owner's Representative with regard to construction procedures shall not be interpreted as approval or acceptance of any such procedures.

1.23 PRECEDENCE

A. It is expressly understood and agreed that failure by the Owner or Owner's Representative to exercise his authority or prerogative to order the Contractor for any duly authorized purpose shall not be considered to set a precedent for any other activities.

1.24 SAFETY OF PERSONS AND PROPERTY

A. The Contractor is solely responsible for the safety of his operations. The Contractor shall take precautions for the safety of, and shall provide protection to prevent damage, injury or loss to:
   1. Persons employed by the Contractor in performance of the Work, and persons nearby that may be affected by the Contractor's operations or the Work;
   2. The Work, including all equipment and materials which will be incorporated in the Work;
   3. Other properties and structures at the site, or on adjacent properties.

1.25 UNCOVERING WORK

A. The Contractor shall notify the Owner's Representative prior to covering any Work. The Contractor shall not proceed to cover the Work until formal approval from the Owner's Representative is provided in writing. If any Work is covered prior to acceptance by the Owner or Owner's Representative, the Work shall, if requested by the Owner, be uncovered for the Owner's observation and then be re-covered at the Contractor's sole cost and expense.

1.26 DAILY CONSTRUCTION REPORTS

A. For each day that Work is performed at the site, the Contractor shall prepare and submit a Daily Construction Report to the Owner's Representative. Contractor shall include the following information in the report, as a minimum:
   1. Project name
   2. Contractor name
   3. Date
   4. Hours worked
   5. Weather conditions
   6. Subcontractors working on site
   7. Material deliveries (material, quantity, and vendor)
   8. Trades working on site (trade and number of workers per trade)
   9. Equipment on site (manufacturer and model number, with notation of whether the equipment was idle or was used in the Work)
   10. Specific work performed, location and type of work
   11. Visitors to the site
   12. Materials or equipment leaving the site (including debris removal)
   13. Incident descriptions
   14. Contractor shall submit reports no later than 12 hours for the previous day's work.

1.27 MONITORING OF EXISTING STRUCTURES DURING CONSTRUCTION

A. The Owner reserves the right to establish an independent monitoring program in order to evaluate the effect of the Work on the existing structures to remain on site. Such monitoring may include, but is not necessarily limited to, settlement gauges, tilt plates, and crack gauges.

B. The Owner reserves the right to suspend the Contractor's operations at any time based upon the monitoring data.

1.28 EXCAVATED MATERIAL (not used)

1.29 ENGINEERING REVIEW AND SPECIAL INSPECTION

A. At key stages throughout the Work, engineering inspections are required to ensure the Work is being performed in accordance with the Contract Documents. These inspections will be performed by a Special Inspector, as selected by the Owner's Representative at the discretion of the Owner. The final acceptance of the Work will be performed by the Engineer of Record. The key stages are specific to each repair type. Additional pre and post inspection criteria may be required at the discretion of the Special Inspector, Engineer of Record.

1.30 EQUIPMENT

A. Proposers shall use ultra-low sulfur diesel fuel or compressed natural gas (CNG) for all construction vehicles with a carrying capacity in excess of 5 tons and for all portable generators, consistent with Local Law 77 for Lower Manhattan. All diesel engines of greater than 50 horsepower must use ultra-low sulfur diesel fuel with a sulfur content no greater than 15 ppm. Equip the above vehicles with high performance engines and diesel oxidation catalyst (DOC) filters or another previously demonstrated advanced retrofit technology, consistent with NYC Local Law 77 for Lower Manhattan. On-road vehicles used in construction may not idle for more than five consecutive minutes except under practical considerations such as during vehicle maintenance, while stopped in traffic, and in cold weather conditions below 25 degrees F.

PART 2 - PRODUCTS (not used)

PART 3 - EXECUTION (not used)

END OF SECTION

SECTION 01 11 00

SUMMARY OF WORK

For more project specific information, refer to SECTION 011100-A SUMMARY OF WORK technical supplement.

PART 1 - GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. Work as described herein, and shown on the Construction Drawings.

1.02 EXAMINATION OF DOCUMENTS AND SITE OF WORK

A. The Proposer acknowledges the following:
   1. The Proposer has reviewed and examined the Proposal Documents to the degree which he is satisfied that the Proposal submitted includes the cost to perform the Work as set forth in the proposed Contract Documents.
   2. The Proposer has informed himself of the existing conditions and limitations under which the Work is to be performed and that the Proposal submitted includes the cost to account for these existing conditions and limitations.
   3. The Proposer acknowledges that any substructure and subsurface condition information provided with the Proposal Documents is for information only.
   4. The Proposer is permitted to perform his own investigation solely for purposes of development of a Proposal. Any site investigation that the Proposer performs, including subsurface, hydrographic, above or below water, or any other non- destructive or destructive testing, shall be documented by the Proposer at the time of the investigation. Results of any investigation performed by the Proposer, which is not representative in the Proposal Documents, and which impact the Proposal, shall be submitted with the Proposal. This information shall be kept confidential during the Contractor selection process.
   5. Proposers are permitted to perform investigations at the site by appointment prior to submitting a proposal. Appointment requests shall be in writing and shall be made through the Owner's Representative at least seventy-two hours prior to the intended time of visit. The Proposer shall provide all required insurance and forms to the Owner's Representative and receive authorization prior to performing any investigation.

1.03 PROOF OF COMPETENCY OF PROPOSER

A. A Proposer may be required to furnish evidence satisfactory to the Owner that he and his proposed subcontractors have sufficient means and experience in the types of work called for to assure completion of the Contract in a satisfactory manner. Such evidence includes representative project information, similar to the scope and magnitude of this project, consisting of references, contract value, and other pertinent information.

1.04 EXECUTION OF AGREEMENT

A. Certificates of Insurance shall be approved by the Owner before the successful Proposer may proceed with the Work. Failure or refusal to provide Certificates of Insurance in a form satisfactory to the Owner shall subject the successful Proposer to loss of time from the allowable construction period equal to the time of delay in furnishing the required material.

B. Certificates of Insurance shall name, at a minimum, the Owner, Owner's Representative and Consulting Engineer as additional insured parties.

1.05 INTERPRETATION OF CONTRACT DOCUMENTS PRIOR TO PROPOSING

A. If any person contemplating submitting a Proposal for construction of the Work is in doubt as to the true meaning of any part of the proposed Contract Documents, or finds discrepancies in or omissions from any part of the proposed Contract Documents, he must submit to the Owner's Representative, with copy to the Owner, a written request for interpretation thereof by not later than seven (7) days prior to the Proposal due date. The person submitting the request shall be responsible for its prompt delivery.

B. Interpretation or correction of Contract Documents will be made only by Addendum and will be mailed or delivered to each Proposer of Record. The Owner and Owner's Representative will not be responsible for any other explanations or interpretations of the Contract Documents.

1.06 CONSTRUCTION TIME

A. The Contractor shall commence and perform the Work expeditiously in accordance with the Contractor's construction schedule with adequate, trained forces and shall achieve substantial completion and final completion within the times stated within the schedule.

B. Within the Form of Proposal, provide the total number of days which the Proposer proposes to complete the Work. The schedule is to commence with issuance of the Owner's Executed Contract.

1.07 BASE BID

A. Base Bid provided shall be complete, including all mark-up, and shall include all appropriate overheads, profit, and cost of labor, materials, equipment, required permits to perform the Work and costs associated with services necessary to complete this work in accordance with the Contract Documents.

B. For Work to be performed on a unit price based on linear footage, or as specifically directed by the Owner, the estimated quantities are not guaranteed and are solely for the purpose of comparison of proposals and determining an initial Contract price.

C. Payment for unit price work shall be based upon the total quantity completed and accepted by the Owner.

D. SPECIAL CONDITIONS
   1. The Proposer acknowledges and shall include the cost for the following in the Proposal:
      a. Quantities for each Typical repair item are estimates based on limited field visits and lack of access to the entire structure. The contractor is responsible for satisfying themselves of the existing conditions to provide a complete job, regardless of the lack of data presented herein.

1.08 GENERAL CONDITIONS

A. The Contractor shall commence and perform the Work expeditiously in accordance with the Contractor's construction schedule with adequate, trained forces and shall achieve substantial completion and final completion within the times stated within the schedule.

B. Within the Form of Proposal, provide the total number of days which the Proposer proposes to complete the Work. The schedule is to commence with issuance of the Owner's Executed contract.

1.09 EXISTING WORK

A. Remove or alter existing work in such a manner as to prevent injury or damage to any portions of the existing work that remains.

B. Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as approved by the Owner. At the completion of operations, existing work shall be in a condition equal to or better than that which existed before new work started.

1.10 QUALITY ASSURANCE

A. Use adequate number of skilled work personnel who are thoroughly trained and experienced in the necessary trades, and familiar with the specified requirements and methods required for proper performance of the work outlined in this specification.

B. The Contractor shall coordinate the work to ensure no conflicts occur to compromise the timely completion of all work specified.

1.11 WORKING CONDITIONS

A. The Contractor is responsible for any precautions and scheduling necessary in order to maintain this status. Work may begin only after a schedule representing an acceptable plan is approved by the Owner.

B. The Contractor shall coordinate day-to-day activities with the Owner. All conflicts will be resolved by the Owner's representative.

1.12 WORKING HOURS

A. The Contractor is permitted to perform construction work between the hours of 7:00 AM and 4:30 PM Mondays through Fridays, excluding Saturdays, Sundays, and Federal Holidays. Work performed at any other time other than these periods will only be allowed pending approval of the Owner, following a 48 hour advanced request (72 hour for Sundays and Holidays) a DOB after hours work permit, and approval from BPCA. .

1.13 AVAILABILITY OF UTILITIES

A. Electrical: The Contractor shall provide its own electrical power and equipment. OSHA requirements will govern the use of such utility.

B. Water: The Contractor will be responsible for supplying its own water and equipment, including all hoses, adapters and backflow preventer as required.

C. Sanitary Facilities: The Contractor shall be responsible for furnishing and maintaining temporary toilet facilities for their employees, and for the Owner's Engineer.

D. The Contractor is responsible for the cost of all utilities.

1.14 EQUIPMENT

A. The Contractor shall supply all equipment necessary to perform all work, including but not limited to cleaning materials, ladders, etc.

1.15 RECEIPT OF MATERIALS

A. Shipments of equipment, materials, and supplies shall be addressed to the Contractor, not the Owner. The Contractor shall provide all equipment, materials and labor for off-loading. The Owner will not accept shipments for the Contractor.

1.16 STORAGE OF MATERIALS

A. Contractor's materials may be stored on site at a location that is approved by the Owner.

1.17 EXISTING MATERIALS

A. The Owner shall have the opportunity to salvage all materials removed prior to disposal by Contractor.

1.18 SITE OFFICE FACILITIES AND STORAGE SHED

A. Permits
   1. The Contractor shall make the necessary arrangements for, and obtain all permits required for this work.

B. The Contractor shall provide his own storage. No equipment or materials storage will be provided by the Owner.

1.19 POWER OUTAGE

A. Needed power outages shall be arranged only with prior approval from the Owner, with duration and affected areas held to a minimum.

1.20 FINAL INSPECTION

A. Final Inspection will not be made until all work under the contract is complete. The Contractor shall notify the Owner in writing 48 hours prior to the date on which the project will be ready for final inspection.

1.21 DUMPING AREA

A. All discarded material shall be removed from the Owner's property and disposed of in an approved site complying with Local, State, and Federal regulations. Certified weight tickets shall be supplied to the Owner within 15 days of the date of the weight ticket for all trash and construction debris disposed. All dumpsters/containers shall be supplied by the Contractor. The contractor shall provide appropriate signs or covers to prevent use by Tenants.

B. No material shall be washed or swept out of equipment or vehicles (including concrete from chutes of trucks, loose debris, etc.) onto Owner property or in the water. Any material spilled from Contractor furnished dumpsters/containers shall be immediately cleaned up by the Contractor.

1.22 RECYCLABLES

A. The Contractor shall recycle or reuse all material designated as recyclable or prohibited from landfilling. Definitions for recyclables and landfill prohibited material can be obtained from the contracted trash hauler. Certified weight tickets shall be supplied to the Owner within 15 days of the date of removal from the facility for all material recycled or reused, and for landfill prohibited materials.

1.23 AS-BUILT DRAWINGS

A. The Owner will furnish one complete set of black and white prints of all drawings which shall be used to indicate any changes from the contract set. Each sheet shall be marked "AS-BUILT DRAWINGS" in red pencil, and all changes or modifications shall be noted thereon by the Contractor.

B. Changes shall be noted during the construction process for all trades.

C. Keep "AS-BUILT DRAWINGS" current. Do not permanently conceal any work until the required information has been accurately recorded.

D. Use colored pencils or pens for graphic work conforming to the following color code:
   1. Red - Architectural and Structural Work
   2. Green - Electrical Work
   3. Use blue pen for written work

E. Submit a complete set of "AS-BUILT DRAWINGS" to the Owner when all work has been completed, or as directed.

PART 2 - PRODUCTS (not used)

PART 3 - EXECUTION (not used)

END OF SECTION

SECTION 01 14 00

WORK RESTRICTIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to this section.

1.02 USE OF PREMISES

A. Use of Site: Limit use of premises to work in areas indicated. Do not disturb portions of site beyond areas in which the Work is indicated.
   1. Limits: Confine construction operations to those areas delineated as included in the Construction Documents.
   2. Owner Occupancy: Allow for Owner occupancy of portions of the site and for use by the public at any and all times during the life of the contract. The Owner reserves the right to maintain and provide full public access to the Site within the contract limits at any time during the entire life of the contract. Contractor will be responsible for securing and maintaining temporary construction fencing as necessary to achieve and maintain this access.
   3. Contractor shall, throughout the life of the contract, maintain clear access to all areas of the pier to personnel of Battery Park City Authority (Owner) for maintenance and repair operations. Specifically, the Owner and/or its agents shall be unencumbered from performing all required maintenance operations for all areas adjacent to and within the contract limits.
   4. Construction Gates / Entrances: Keep all construction gates / entrances, if required, serving the premises clean, clear and available to the Owner, Owner's employees, emergency vehicles at all times. Do not use these areas for parking or storage of materials.
      a. Schedule deliveries to minimize use of construction gates and entrances.
      b. Schedule deliveries to coordinate with other contractor's gaining access to the site.
      c. Provide flag-person services for all deliveries into and out of the site so as to protect the public.
      d. Secure all construction entrances and gates to the site at all times.
      e. Provide durable signage limiting public access to the construction site at all construction gate / entrances as directed by the Construction Manager.
      f. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

B. Use of Existing Site: Maintain existing site throughout the construction period. Repair damage caused by construction operations.

1.03 OCCUPANCY REQUIREMENTS

A. Partial Owner Occupancy: Owner may occupy portions of the site during the construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations.

PART 2 - PRODUCTS (not used)

PART 3 - EXECUTION (not used)

END OF SECTION

SECTION 012100

ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements governing allowances.

1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and in anticipation of the need for additional structural repairs falling within the project scope, but not included on the project Drawings, at a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.

1.3 SELECTION AND PURCHASE

A. At the earliest practical date after award of the Contract, advise BPCA of the need for additional structural repairs.
B. At BPCA request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

1.4 SUBMITTALS

A. Submit proposals, in the form specified for Change Orders, identifying any increased quantities of repair work or extra work directed by the Design Engineer.
B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.5 COORDINATION

A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.6 ALLOWANCES

A. Allowances shall cover cost to the Contractor for furnishing OR furnishing and installing items specified in 3.3 Schedule of Allowances. Items furnished but not installed will be delivered to a location at the project site or within Battery Park City as directed by the construction manager and will be paid for on a direct cost basis.

1.7 UNUSED MATERIALS

A. Return unused materials purchased under an allowance to manufacturer or supplier for credit to BPCA, after installation has been completed and accepted.

1. If requested by construction manager, prepare unused material for storage by BPCA when it is not economically practical to return the material for credit. If directed by Construction manager, deliver unused material to BPCA storage space. Otherwise, disposal of unused material is Contractor's responsibility.

PART 2 – PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

A. Allowance No. 1 – Additional Repair: include an allowance of $160,000 for additional concrete repairs, crack repairs, structural steel repairs, or other added work not otherwise shown on the Contract Documents, at the direction of the Design Engineer. Any unused Allowance will not be paid to the Contractor.

END OF SECTION 012100

SECTION 01 31 00

PROJECT MANAGEMENT & COORDINATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to this section.

1.02 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
   1. General project coordination procedures.
   2. Conservation.
   3. Coordination Drawings.
   4. Administrative and supervisory personnel.
   5. Project meetings.

B. Each contractor shall participate in coordination requirements. Certain areas of responsibility will be assigned to a specific contractor.

C. Related Sections: The following Sections contain requirements that relate to this Section:
   1. Division 1 – Section “Construction Progress Documentation” for preparing and submitting the Contractor’s Construction Schedule.
   2. Division 1 – Section “Submittal Procedures” for means and methods of submitting product data, shop drawings, and construction operations to perform the Contract Work.

1.03 COORDINATION

A. Coordination: Each contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its operations with operations included in different Sections that depend on each other for proper installation, connection, and operation.
   1. Schedule construction operations in sequence required to obtain the best results where performance of one part of the Work depends on performance of other components, before or after its own completion.
   2. Coordinate performance of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
   3. Make adequate provisions to accommodate items scheduled for later Contract Work.
   4. Provide detailed written construction work plans within 5 days of award in a format and containing information as requested by the Construction Manager.

B. Where necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
   1. Preparation of Contractor's Construction Schedule.
   2. Preparation of the Schedule of Values for payment of completed work.
   3. Installation and removal of temporary facilities and controls.
   4. Delivery and processing of submittals.
   5. Progress meetings.
   6. Pre-installation conferences.
   7. Project closeout activities.

D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
   1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work.

1.04 SUBMITTALS

A. Coordination Drawings / Work Plans: Prepare Coordination Drawings and/or detailed work plans where careful coordination is needed for performance of repair by separate entities and/or as requested by the Owner. Prepare coordination drawings and/or work plans where limited space availability necessitates utilization of space for efficient installation of different components.
   1. Indicaterelationship of componentsshown on separate Shop Drawings and/or work plans.
   2. Indicate required installation sequences.

B. Staff Names: Within 5 days of award, submit a list of principal staff assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone.

1.05 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

A. General: In addition to Project superintendent, provide the resumes of other administrative and supervisory personnel as required for proper performance of the Work, including but not limited to.
   1. Project Manager
   2. Project superintendent
   3. Site Safety Representative
   4. Staff Engineer

PART 2 - PRODUCTS (not used)

PART 3 - EXECUTION (not used)

END OF SECTION

SECTION 01 32 00

CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Specification section 013300, submittal procedures.

1.02 SUBMITTALS

A. The Contractor shall submit the following to the Approving Authority in accordance with Section entitled "Submittal Procedures, Section 013300."

B. Schedules
   1. Construction schedule
   2. Material delivery schedule

1.03 CONSTRUCTION SCHEDULE

A. Within 5 days after receipt of the Notice of Award, prepare and submit to the Owner's representative for approval a Critical Path Method (CPM) Schedule.

1.04 MATERIAL DELIVERY SCHEDULE

A. Initial Schedule
   1. Within 10 calendar days after approval of the proposed construction schedule, submit for Owner's representative approval a schedule showing procurement plans for materials and equipment. Submit in the format and content as prescribed by the Owner's representative, and include as a minimum the following information:
      a. Description.
      b. Date of the purchase order.
      c. Promised shipping date.
      d. Name of the manufacturer or supplier.
      e. Date delivery is expected.
      f. Date the material or equipment is required, according to the current construction schedule.

1.05 NETWORK ANALYSIS SYSTEM (NAS)

A. As an alternative to the critical path method (CPM) schedule, the Contractor may use, subject to the approval of the Owner's Representative, some other computer generated network analysis system affording similar and equal information and control to that provided by the CPM.

B. The schedule shall have a minimum of 15 activities and a maximum of 200 activities. The schedule shall identify as a minimum:
   1. Construction time for all major systems and components;

2. Manpower requirements for each activity;
3. Major submittals and submittal processing time; and
4. Major material and equipment lead time.

C. CPM Submittals and Procedures
1. Submit all network analysis and updates electronically via e-mail. The network analysis system shall be submitted in Microsoft Project 2010. The network analysis system shall be kept current, with changes made to reflect the actual progress and status of the construction.

1.06 UPDATED SCHEDULES

A. Update the construction schedule and material delivery schedule at monthly intervals to correspond to payment applications or when schedule has been revised. Reflect any changes occurring since the last update. Submit copies of the purchase orders and confirmation of the delivery dates as directed by the Owner's representative.

PART 2 - PRODUCTS (not used)

PART 3 - EXECUTION (not used)

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

For more project specific information, refer to SECTION 013300-A SUBMITTAL PROCEDURES technical supplement.

PART 1 - GENERAL

1.01 SUMMARY

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

1.02 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Engineer and Construction Manager's responsive action.

B. Informational Submittals: Written and graphic information and physical samples that do not require Engineer’s and Construction Manager's responsive action. Submittals may be rejected for not complying with requirements.

1.03 ACTION SUBMITTALS

A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Engineer and Construction Manager and additional time for handling and reviewing submittals required by those corrections.

1.04 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

B. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer’s receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
   1. Initial Review: Allow 10 working days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Engineer will advise Contractor when a submittal being processed must be delayed for coordination.

2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 5 working days for review of each resubmittal.

C. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:
1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
2. Name file with submittal number or other unique identifier, including revision identifier.
3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Engineer and Construction Manager.
4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner, containing the following information:
a. Project name.
b. Date.
c. Name and address of Engineer.
d. Name of Construction Manager.
e. Name of Contractor.
f. Name of firm or entity that prepared submittal.
g. Names of subcontractor, manufacturer, and supplier.
h. Category and type of submittal.
i. Submittal purpose and description.
j. Specification Section number and title.
k. Specification paragraph number or drawing designation and generic name for each of multiple items.
l. Drawing number and detail references, as appropriate.
m. Location(s) where product is to be installed, as appropriate.
n. Related physical samples submitted directly.
o. Indication of full or partial submittal.
p. Transmittal number, numbered consecutively.
q. Submittal and transmittal distribution record.
r. Other necessary identification.
s. Remarks.

D. Deviations: Identify deviations from the Contract Documents on submittals.

E. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Engineer and Construction Manager's action stamp.

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

G. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Engineer and Construction Manager's action stamp.

PART 2 - PRODUCTS

2.01 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements:
   1. Submit electronic submittals via email as PDF electronic files.
      a. Engineer, through Construction Manager, will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
   2. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
      a. Provide a digital signature with digital certificate on electronically- submitted certificates and certifications where indicated.
      b. Provide a notarized statement on original paper copy certificates and certifications where indicated.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
   1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
   2. Mark each copy of each submittal to show which products and options are applicable.
   3. Include the following information, as applicable:
      a. Manufacturer's catalog cuts.
      b. Manufacturer's product specifications.
      c. Standard color charts.
      d. Statement of compliance with specified referenced standards.
      e. Testing by recognized testing agency.
      f. Application of testing agency labels and seals.
      g. Notation of coordination requirements.
      h. Availability and delivery time information.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
   1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
      a. Identification of products.
      b. Schedules.
      c. Compliance with specified standards.
      d. Notation of coordination requirements.
      e. Notation of dimensions established by field measurement.
      f. Relationship and attachment to adjoining construction clearly indicated.
      g. Seal and signature of professional engineer if specified.
   2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.

D. Certifications: Where other Sections of the Specifications require certification that a product, material, or installation complies with specified requirements, submit a notarized certification from the manufacturer certifying compliance with specified requirements.

PART 3 - EXECUTION

3.01 CONTRACTOR'S REVIEW

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

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

3.02 ENGINEER AND CONSTRUCTION MANAGER'S ACTION

A. General: Engineer and Construction Manager will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Engineer and Construction Manager will review each submittal, make marks to indicate corrections or revisions required, and return it. Engineer and Construction Manager will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
   1. Submission is in general conformance with design concept: When the Engineer of Record marks the submittal “Submission is in general conformance with design concept”; the Work covered by the submittal may proceed, provided it complies with the requirements of the Contract Documents. Final payment depends on that compliance.
   2. Submission is in general conformance with design concept, except as noted: When the Engineer of Record marks the submittal “Submission is in general conformance with design concept, except as noted”, the Work covered by the submittal may proceed provided it complies with the notations on the submittal and requirements of the Contract Documents. Final payment depends on that compliance.
   3. Revise and Resubmit: When the Engineer of Record marks the submittal “Revise and Resubmit”, the Work covered by the submittal may proceed provided it complies with the notations on the submittal and requirements of the Contract Documents. The submittal must be revised to comply with the notations on the submittal and requirements of the Contract Documents, and must then resubmit to the Engineer of Record. Final payment depends on that compliance.
   4. Submission is rejected for non-conformance with design concept: When the Engineer of Record marks the submittal “Submission is rejected for non- conformance with design concept”, do not proceed with the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise and prepare a new submittal according to the notations, resubmit without delay. Repeat if necessary to obtain a different action mark.

C. Informational Submittals: Engineer and Construction Manager will review each submittal and will not return it, or will return it if it does not comply with requirements Construction Manager will forward each submittal to appropriate party.

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

E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

F. The Contractor shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by the Owner’s Representative or Engineer’s approval of shop drawings, product data, or material samples.

END OF SECTION

SECTION 01 36 10

TURBIDITY CURTAINS

PART 1 - GENERAL

1.01 SUMMARY

A. This Section specifies requirements for Turbidity Curtains. These requirements establish minimum standards and material requirements for the performance of the work. The Contractor is responsible for the design, furnishing, fabrication, and installation of the Turbidity Curtains. Additional specifications include:

1.02 REFERENCES

A. The following is a listing of the publications referenced in this Section:
   1. New York State Department of Environmental Conservation Standards and Specifications for Erosion and Sediment Control.

1.03 DESIGN AND PERFORMANCE REQUIREMENTS

A. Quality Assurance
   1. The Contractor shall submit certification from the manufacturer that all Turbidity Curtains were fabricated, inspected, and shipped in accordance with the manufacturer's requirements.
   2. The Contractor shall maintain a quality control program to assure that all installations conform to the requirements of the Contract Drawings, Specifications, field inspection, and testing.
   3. The manufacturer of Turbidity Curtains shall have been in business of manufacturing Heavy Duty Turbidity Curtains for at least 10 years and shall show proof of three installations each having been in service for at least 1 year.

B. Job Conditions
   1. The Contractor is responsible for taking field measurements as required for correct fit. In the event discrepancies are found, the Contractor is responsible for contacting the Engineer immediately.
   2. The Contractor is responsible for maintaining the Turbidity Curtains, anchors, anchor lines, buoys, and surroundings as recommended by the manufacturer.

1.04 SUBMITTALS

A. Submit the following in accordance with the requirements of "Submittal Procedures" of Division 1 – GENERAL REQUIREMENTS.
   1. Product Data – manufacturer's data showing materials, fabrication, installation instructions, and recommendations.
   2. Shop Drawings and catalog cuts indicating material and dimensions.
   3. Field measurements.
   4. Layout Plan – including proposed materials, dimensioned drawings, and installation procedure.

5. Certified test report or certificate of conformance or compliance furnished by the manufacturer's testing laboratory or independent testing agency attesting that each product or material furnished under this specification meets the requirements herein.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Turbidity Curtains shall meet the following requirements:
   1. The visible portion shall be a bright color (safety orange recommended) that will attract the attention of nearby boaters.
   2. The fabric, connections, cables, and anchors must be of sufficient strength to resist the load imparted by a 3 knot current acting perpendicular to the boom.
   3. Sufficient buoyancy must be provided to support the boom and generate a continuous minimum freeboard of 6 inches.
   4. Load cables shall be fabricated into the top and bottom hem of every boom. The cables shall be vinyl coated steel and possess an ultimate capacity of 10,000 pounds. The lower cable shall support ballast of sufficient quantity as to maintain a vertical boom position.
   5. Bottom anchors shall be placed fore and aft to resist ebb and flood currents. Bottom anchors must be sufficient to hold the boom in the same position relative to the bottom of the watercourse without interfering with the action of the boom. The anchors shall be attached to a floating anchor buoy. The manufacturer's specifications shall be followed when choosing anchor points on the boom.
   6. The boom should have a height that is greater than 20% the depth of water. This will allow for fluctuations in water level.
   7. If water depths allow, the toe of the boom may be anchored by means of staking.

2.02 ACCESSORIES

A. Steel shall conform to ASTM A36 or stronger.

2.03 FABRICATION

A. All Turbidity Curtains shall be fabricated in strict accordance with manufacturer's specifications.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's recommendations and instructions.

B. Take care to protect the boom from abrasion, tearing, and puncture.

C. Install Work in accordance with approved shop drawings.

D. Shallow installations can be made by securing boom with stakes instead of floatation system.

E. Turbidity Curtains are not to be used across flowing waterways.

3.02 PROTECTION

A. Protect and maintain protection of completed Work to ensure that the Work is undamaged at the time of delivery

END OF SECTION

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 SCOPE

A. Provisions of this section apply to furnishing and placing all cast-in-place cement concrete indicated on the Drawings, described in these Specifications or otherwise required for proper completion of the Work.

B. This section does not include pre-cast, post-tensioned or pre-stressed concrete work.

1.02 SUBMITTALS

A. The Contractor shall submit the following for approval in accordance with the Contract:
   1. Submit shop drawings of proposed construction two (2) weeks prior to fabrication of reinforcement. Shop drawings shall contain the following:
      a. Meet requirements of applicable portions of "Details and Detailing of Concrete Reinforcement" by ACI 315, latest edition.
      b. Show bending, assembly, splicing, sizes, bar lengths, and marking of bars. Indicate bar spacing by dimension.
      c. Show reinforcing with necessary details in elevations, sections and plans. Locate sleeves, holes, accessories, and anchors by dimensions.
      d. Furnish prints of approved shop drawings to trades that have items to be embedded in, or connected to concrete work.
   2. Submit a plan showing the location and details of proposed construction joints two (2) weeks prior to fabrication of reinforcement.
   3. Submit data on proposed concrete admixtures thirty (30) days before concrete placement.
   4. Submit Samples of materials as requested by the Engineer, including names, sources, and descriptions.
   5. Submit a brief plan stating the proposed method of pouring and testing concrete, providing details on site access for delivery trucks, staging area, means of conveyance, washout locations, testing and cylinder curing locations, and proposed curing procedures thirty (30) days before concrete placement.
   6. Submit proposed concrete mix design and supporting laboratory test reports for concrete materials and mix design test for approval thirty (30) days before concrete placement. Provide materials certificates in lieu of materials laboratory test reports. Materials certificates shall be signed by the manufacturer and contractor, certifying that each material item complies with, or exceeds specified requirements.
   7. Submit results of strength tests for samples taken at site within ten (10) days after test is completed

1.03 QUALITY ASSURANCE

A. CODES, STANDARDS & PROVISIONS
   1. Comply with the provisions specified in the latest revision of the following ASTM standards, including all supplements and addenda:

a. C31 - Standard Method of Making and Curing Concrete Test Specimens in the Field
b. C33 - Standard Specification for Concrete Aggregates.
c. C39 - Standard Method of Test for Compressive Strength of Cylindrical Concrete Specimens.
d. C94 - Standard Specification for Ready-Mixed Concrete
e. C138 - Standard Method of Test for Unit Weight, Yield, and Air Content (Gravi-metric) of Concrete.
f. C143 - Standard Method of Test for Slump of Portland Cement Concrete.
g. 7 C150 – Portland Cement.
h. C171 - Standard Specification for Sheet Materials for Curing Concrete.
i. C172 - Standard Method of Sampling Fresh Concrete.
j. C173 - Standard Method of Test for Air Content of Freshly Mixed Concrete by the Volumetric Method.
k. C192 - Standard Method of Making and Curing Concrete Test Specimens in the Laboratory.
l. C231 - Standard Method of Test for Air Content of Freshly Mixed Concrete by the Pressure Method.
m. C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
n. C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
o. C494 - Standard Specification for Chemical Admixtures for Concrete.
p. C618 - Standard Specification for Fly Ash and Raw or Calcined Natural Pozzolans for Use in Portland Cement Concrete.
q. C685 - Specifications for Concrete Made by Volumetric Batching and Continuous Mixing.
r. C1064 - Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete
s. C1602 - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete.
t. D1751 - Standard Specification for Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
u. E329 - Standard Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.

2. Comply with the provisions specified in the latest revision of the following publications of the American Concrete Institute (ACI):
   a. Committee 212 Report - Guide for Use of Admixtures in Concrete.
   b. ACI 214 - Recommended Practice for Evaluation of Strength Test Results of Concrete.
   c. ACI 301 - Specifications for Structural Concrete for Buildings.
   d. ACI 302 - Recommended Practice for Concrete Floor and Slab Construction.
   e. Committee 303 Report - Guide to Cast-In-Place Architectural Concrete Practice, 1974.
   f. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete.
   g. Committee 304 Report - Placing Concrete by Pumping Methods.
   h. Committee 305 Report - Hot Weather Concreting.
   i. Committee 306 Report - Cold Weather Concreting.
   j. ACI 308 - Recommended Practice for Curing Concrete.
   k. ACI 309 - Recommended Practice for Consolidation of Concrete
   l. ACI 318 - Building Code Requirements for Reinforced Concrete.
   m. ACI 347 - Guide to Formwork for Concrete.
   n. ACI 357R - Design and Construction of Fixed Offshore Concrete Structures
   o. ACI 546.2R - Guide to Underwater Repair of Concrete
   p. SP-19 - Cement and Concrete Terminology (Report of ACI Committee 116).
3. Comply with the provisions specified in the following:

a. Concrete Plant Manufacturers Bureau: "Concrete Plant Mixer Standards of the Plant Mixer Manufacturers Division", 1970.
b. National Ready Mixed Concrete Association: Check List for Certification of Ready Mixed Concrete Production Facilities, 1967.
c. American Association of State Highway and Transportation Officials, "Standard Specification for Transportation Materials and Methods of Sampling and Testing". (AASHTO T260-78).

PART 2 - PRODUCTS

2.01 MATERIALS

A. Cement & Cementitious Materials
1. ASTM C 150, Portland Cement - Type II except as modified herein. The blended cement shall consist of a mixture of ASTM C 150, Type II, and ASTM C 618 Type F or C pozzolan or fly ash. The pozzolan or fly ash content shall not exceed 25% by weight of the total cementitous material. Use one manufacturer for each type of cement, fly ash, and pozzolan.

B. Admixtures
1. When required or permitted, use admixtures conforming to the following specifications:
a. Air Entertaining - ASTM C260
b. Water Reducing, Retarding and Accelerating - ASTM C494.
2. When concrete is to be placed underwater, whether by tremie or another method, an anti-washout admixture shall be included in the concrete mix design to minimize material loss and segregation.

C. Water
1. Water used in the mix shall conform to the requirements specified in ASTM C1602.

D. Aggregates
1. Maximum nominal size of aggregate shall be ¾ inch, unless stated otherwise on the contract drawings, and shall conform to the requirements specified in ASTM C33. Regard fine and coarse aggregates as separate ingredients. Conform to the appropriate grading requirements for each size of coarse aggregate, as well as the combination of sizes when two or more are used.

E. Curing Materials
1. Waterproof Sheets
a. Conform to the requirements specified in ASTM C171.
2. Liquid Membrane Forming Compounds
a. Conform to the requirements specified in ASTM C309.

F. Expansion Joint Filler
1. Conform to the requirements specified in ASTM D1751.

PART 3 - EXECUTION

3.01 HANDLING

A. Storage

1. Store cement in weathertight buildings, bins or silos which will exclude moisture and contaminants.
2. Arrange and utilize aggregate stockpiles in a manner to avoid excessive segregation and to prevent contamination with other materials or with other sizes of like aggregates. To insure that this condition is met, perform any test for determining conformance to requirements for cleanness and grading on samples taken from the aggregates at the point of batching. Do not use frozen or partially frozen aggregates.
3. Allow stockpiles of natural or manufactured sand to drain to ensure a relatively uniform moisture content throughout the stockpile.
4. To prevent excessive variations in moisture content, allow predampened aggregates to remain in the stockpiles for a minimum of 12 hours before use.
5. Store admixtures in such a manner as to avoid contamination, evaporation or damage. For those used in the form of suspensions or non-stable solutions, provide agitating equipment to assure thorough distribution of the ingredients. Protect liquid admixtures from freezing and from temperature changes which would adversely affect their characteristics.

3.02 CONCRETE MIX

A. General
1. Concrete for all parts of the work shall be of the specified quality capable of being placed without excessive segregation and, when hardened, of developing all characteristics required by these specifications.

B. Strength
1. The minimum compressive strength of the concrete shall be as indicated on the drawings.

C. Durability
1. Concrete shall be air-entrained and shall conform to the air content limits of the following table as measured by ASTM C 138 or ASTM C 173 or ASTM C231.

Nominal maximum size of coarse aggregate, in	Size number	Total air content percent by volume
3/8 ½ ¾ 1	8 7 67 57	6 - 10 5.5 – 7.5 5 - 7 4.5 – 6.5
Nominal maximum size of coarse aggregate, in	Size number	Total air content percent by volume
1-1/2 2 3	467 357 -	4.5 - 6 4 - 5.5 3.5 - 4.5

2. Concrete of normal weight shall have a water-cement ratio not exceeding 0.40.
3. For all concrete in which aluminum or galvanized metal is to be embedded, demonstrate by tests that the mixing water of the concrete, including that contributed by the aggregates and admixture used, will not contain a deleterious amount of chloride ion.

D. Slump
1. Except as specified for floors, proportion and produce concrete to have a slump of 4 in. or less if consolidation is to be by vibration, and 5 in. or less if consolidation is to be by methods other than vibration. A tolerance of up to 1 in. above the indicated maximum shall be allowed for

individual batches provided the average for all batches or the most recent 10 batches tested, whichever is fewer, does not exceed the maximum limit. Concrete of lower than usual slump may be used provided it is properly placed and consolidated. The slump shall be determined by ASTM C 143.

2. If concrete slabs are used, proportion and produce concrete to have a slump of 3 inches or less.
3. A slump of 6 to 9 inches is typically used for concrete that will be pumped or tremie-poured.

E. Aggregate Size
   1. The nominal maximum size of the aggregate shall be ¾ inch, but shall not exceed one-fifth of the narrowest dimension between sides of forms, one-third of the depth of slabs, or three-fourths of the minimum clear spacing between reinforcing bars.

F. Admixtures
   1. Except for air-entraining admixtures, or anti-washout admixtures for underwater placement, do not use admixtures unless specifically approved by the Engineer.
   2. When its use is allowed by the Engineer, the amount of calcium chloride shall not exceed 2 percent by weight of cement. Determine the amount of calcium chloride by the method described in AASHTO T260-78.
   3. When their use is permitted, use all admixtures in accordance with the manufacturer's instructions except as otherwise specified herein.

G. Proportions
   1. Proportion the ingredients so as to produce a mixture which will work readily into the corners and angles of the forms and around reinforcement by the methods of placing and consolidation employed on the work, but without permitting the materials to segregate or excessive free water to collect on the surface.
   2. Use of the proposed mixture proportions shall be subject to approval by the Engineer based on their demonstrated ability to produce concrete meeting all requirements of the specifications. Determine ability to produce the required average strength on the basis of the strength test record of 30 or more tests made during the past 24 months from a similar mix, representing similar materials and conditions to those expected, in accordance with section 5.3 of ACI 318.
   3. The strength test history used to determine standard deviation will be considered to comply with the above requirement for 30 consecutive strength tests if the tests represent either a group of 30 consecutive batches of the same class of concrete or the statistical average for two groups totaling 30 or more batches. The tests used in establishing the standard deviation shall represent concrete produced for a specified strength or strengths within 1000 psi of that required for the proposed work; changes in materials and proportions within the population of background tests shall not have been more closely restricted than will be the case for the proposed work.

H. Temperature
   1. The temperature of concrete to be placed shall not exceed 90 degrees F.
   2. The temperature of concrete to be placed in cold weather shall conform to the requirements of the following table.

Nominal Section Size, in	Minimum Concrete Temperature, as placed, F
<12	55
12-36	50
36-72	45
>72	40

   3. The temperature of ready-mix concrete shall be determined in accordance with ASTM C 1064.

3.03 PRODUCTION OF CONCRETE

A. Batch, mix and transport ready-mixed concrete in accordance with ASTM C94, except as otherwise specified herein. Plant equipment and facilities shall conform the "Check List for Certification of Ready Mixed Concrete Production Facilities" of the National Ready Mixed Concrete Association.

B. Batch and mix concrete produced by on-site volumetric batching and continuous mixing in accordance with and conforming to all requirements of ASTM C 685.

C. Charge air-entraining admixtures, calcium chloride, and other chemical admixtures into the mixer as solutions and measure by means of an approved mechanical dispensing device. Consider the liquid a part of the mixing water. Admixtures that cannot be added in solution may be weighed or may be measured by volume if so recommended by the manufacturer.

D. If two or more admixtures are used in the concrete, add them separately to avoid possible interaction that might interfere with the efficiency of either admixture or adversely affect the concrete.

E. Complete the addition of retarding admixtures within 1 minute after addition of water to the cement has been completed, or prior to the beginning of the last three-quarters of the required mixing, whichever occurs first.

F. Mix concrete only in quantities for immediate use. Do not re-tamper concrete which has partially set.

G. When concrete arrives at the project with slump below that suitable for placing, as indicated by the specifications, water may be added only if neither the maximum permissible water-cement ratio nor the maximum slump is exceeded. Incorporate the water by additional mixing equal to thirty revolutions or more, if necessary, at mixing speed. Water shall not be added to the batch at any later time.

H. Cold Weather
   1. Comply with the applicable requirements of “Cold Weather Concreting”, ACI 306.
   2. Do not place concrete if temperature is below 40 degrees F, except with specific approval. For concrete placed or cured below 40 degrees F, provide heat, insulation and moisture to maintain concrete temperature and curing conditions as recommended by ACI 306.
   3. Do not use frozen materials, or materials containing ice. Do not allow concrete to come into contact with frost.

I. Hot Weather
   1. Comply with the applicable requirements of “Hot Weather Concreting”, ACI 305.
   2. Cool the ingredients before mixing.
   3. Flake ice or well-crushed ice of a size that will melt completely during mixing may be substituted for all or part of the mixing water if, due to high temperature, low slump, flash set or cold joints are encountered.
   4. Reduce concrete temperatures to prevent rapid evaporation of water in hot weather.

3.04 PREPARATION BEFORE PLACING

A. Remove hardened concrete and foreign materials from the inner surfaces of the conveying equipment.

B. Complete the formwork and remove snow, ice, frost, water, dirt or other foreign materials.

C. All material that is to come in contact with the fresh concrete, including formwork, reinforcement and inserts, must be at a temperature above 32 Degrees Fahrenheit at the time the concrete is poured, in accordance with ACI 306 “Cold Weather Concreting”.

D. Place all sleeves, inserts, anchors and embedded items including reinforcing bars. Approved bar chairs shall be used where required to vertically position reinforcing bars. The use of large aggregate or brick will not be permitted to provide clearance between the formwork and reinforcing steel.

E. Give ample notice and opportunity to Engineer before starting to place concrete in any unit of the structure to permit proper inspection of forms and reinforcement by the Engineer.

F. Give ample notice and opportunity to all other contractors whose work is related to or supported by the concrete to furnish embedded items before the concrete is placed.

G. Sprinkle semiporous subgrades sufficiently to eliminate suction, and seal porous subgrades in a manner approved by the Engineer.

H. Do not place concrete on frozen ground or fill material, or on subgrades containing frost.

3.05 CONVEYING

A. Convey concrete from the mixer to the place of final deposit as rapidly as practicable by methods which will prevent segregation or loss of ingredients and in a manner which will assure that the required quality of the concrete is maintained.

B. Use conveying equipment which is approved by the Engineer and of a size and design such that detectable setting of the concrete does not occur before adjacent concrete is placed.

C. Clean conveying equipment at the end of each operation or work day.

D. For truck mixers, agitators and non agitating units, conform to the applicable requirements of ASTM C94.

E. For belt conveyors, use units which are horizontal or at a slope which will not cause excessive segregation or loss of ingredients. Protect concrete against undue drying or rise in temperature. Use an arrangement approved by the Engineer at the discharge end to prevent apparent segregations. Do not allow mortar to adhere to the return length of the belt. Discharge long runs into a hopper or through a baffle.

F. For chutes, use metal or metal lined equipment having a slope not exceeding 1 vertical to 2 horizontal and not less than 1 vertical to 3 horizontal. Chutes more than 20 ft. long and chutes not meeting the slope requirements may be used provided they discharge into a hopper before distribution.

G. For pumping or pneumatic conveying, use equipment of suitable kind with adequate pumping capacity, and pump the concrete directly to the structure with no intermediate transfer points.
   1. Do not convey concrete through pipe made of aluminum or aluminum alloy.
   2. Control pneumatic placement so that segregation is not apparent in the discharged concrete.
   3. When concrete is being conveyed to the pump by delivery trucks, the Contractor shall test the slump and entrained air of the first batch of concrete on each shift in which concrete will be poured. Tests will be conducted on the concrete being discharged from the truck into the pump, and on the concrete being discharged from the end of the pumping line at the point of final placement. These tests shall be performed at no additional cost to the Owner.

a. The loss of slump due to the pumping or pneumatic conveying of concrete shall not exceed 3 inches. Concrete exhibiting larger slump losses, or a resulting slump outside the specified range shall not be accepted.
b. The loss of entrained air due to the pumping or pneumatic conveying of concrete shall not exceed 5%. Concrete with a resulting air entrainment below the specified range shall not be accepted.

4. The Contractor shall ensure that pump and pipeline washout-blowout procedures are performed safely and cleanly to prevent personnel injury and to prevent concrete contact with river water or other natural environments.

3.06 PLACING CONCRETE

A. Deposit concrete continuously, or in layers of such thickness that no concrete will be deposited on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness within the section. If a section cannot be placed continuously, locate construction joints as shown on the drawings or as approved by the Engineer.

B. Deposit concrete at such a rate that the concrete which is being integrated with fresh concrete is still plastic.

C. Do not deposit concrete which has partially hardened or has been contaminated by foreign materials.

D. Remove temporary spreaders in forms when the concrete placing has reached an elevation rendering their service unnecessary. They may remain embedded in the concrete only if made of metal or concrete, and if prior approval has been obtained from the Engineer.

E. Do not begin placing of concrete in supported elements until the concrete previously placed in columns and walls is no longer plastic and has been in place at least two hours.

F. Deposit concrete as nearly as practicable in its final position to avoid segregation due to rehandling or flowing. Do not subject the concrete to any procedure which will cause segregation.
1. Do not allow concrete to drop free more than four feet. Where greater drops are required use a tremie or "elephant's trunk". Control the discharge of such devices so that the concrete can effectively be compacted in horizontal layers not more than 12 inches thick. Space the devices such that excessive segregation does not occur.

G. Consolidate all concrete by vibration, spading, rodding or forking so that the concrete is thoroughly worked around the reinforcement, around embedded items, and into corners of forms, eliminating all air or stone pockets which may cause honeycombing, pitting, or planes of weakness. Use international vibrators of the largest size and the most powerful that can be properly used in the work, as described in Table 5.1.4 of ACI 309. They shall be operated by competent workmen. Do not use vibrators to transport concrete within forms. Insert vibrators and withdraw at points approximately 18 in. apart. At each insertion, the duration shall be sufficient to consolidate the concrete but not sufficient to cause segregation, generally from 5 to 15 seconds. Keep a spare vibrator on the job site during all concrete placing operations. Where the concrete is to have an as-cast finish, bring a full surface of mortar against the form by the vibration process, supplemented if necessary by spading to work the coarse aggregate back from the formed surface.

H. Unless adequate protection is provided, do not place concrete during rain, sleet or snow.

I. Do not allow rainwater to increase the mixing water or damage the surface finish.

J. The temperature of the concrete as placed shall not be so high as to cause difficulty from loss of slump, flash set, or cold joints and should not exceed 90F. When the temperature of the concrete exceeds 90 F, use precautionary measures approved by the Engineer. When the temperature of steel forms is greater than 120 F, spray steel forms and reinforcement with water just prior to placing the concrete.

K. When required or permitted, deposit concrete underwater by an approved method in such a way that the fresh concrete enters the mass of previously placed concrete from within, causing water to be displaced with minimum disturbance at the surface of the concrete.
   1. A tremie pipe (8 to 12 inches in diameter) shall be used to deposit the concrete. The tremie pipe shall be water tight. No water shall be allowed to enter the tremie pipe. The tremie pipe shall be sealed and lowered into the base of the formwork and filled with concrete. The tremie shall be raised no more than 6 inches off the bottom to break the seal and initiate the flow of concrete. The end of the tremie pipe shall remain embedded in the fresh concrete from 3 to 5 feet after pouring is started. The tremie pipe shall be lifted slowly to avoid disturbance to the concrete. Concrete placement shall be as continuous as possible through each tremie.
   2. The tremie pipe must remain fixed horizontally while concrete is flowing. Horizontal movement of the pipe will damage the surface of concrete already in place. Horizontal distribution of the concrete is accomplished by halting placement, moving the pipe, reestablishing the seal and resuming placement. A tremie pipe injection point spacing of 2 to 3 times the depth of concrete shall be used.

L. After the introduction of the mixing water to the cement and aggregates, each batch of concrete will be discharged within 1.5 hours, or before the mixing drum has completed 300 revolutions, whichever comes first.
   1. These limitations may be waived by the Owner, or Engineer, if, after the limits stated above, the concrete slump remains sufficient to allow it to be placed without the addition of water to the batch.
   2. These limitations may reduced by the Owner, or Engineer, if hot weather, or other conditions that may contribute to rapid stiffening of the concrete mix, are present.

M. Provide all material, manpower and equipment necessary for the safe washout and cleaning of all concrete-related equipment, including trucks, pumps, pipes, and forming tools. Dispose of all hardened washout concrete. Rivers and other aquatic environments shall not be used for washout or cleaning.

3.07 CONSTRUCTION JOINTS

A. Make construction joints only as shown on the Drawings, or as approved by the Engineer.

B. Locate joints not shown on the Drawings only as approved by the Engineer. Locate those joints as least to impair the strength of the structure. In general, locate construction joints near the middle of the spans of slabs, beams and girders. Locate joints in walls and columns at the underside of floors, slabs, beams or girders and at the tops of footings or floor slabs. Place beams, girders, brackets, column capitals, haunches and drop panels at the same time as slabs. Make joints perpendicular to the main reinforcement.

C. Continue reinforcement across joints unless shown otherwise on the drawings.

D. Provide keys and inclined dowels as directed by the Engineer.

E. For all transverse and longitudinal construction joints, provide a keyway 2 inches deep by 4 inches wide with a rubber dumbbell-type waterstop.

F. Clean the surface of concrete at all joints and remove all laitance before placing adjoining concrete.

G. Immediately before new concrete is placed, all construction joints shall be wetted and standing water removed.

H. Obtain bond by one of the following methods:
   1. The use of an approved adhesive. Prepare and apply adhesive to joints receiving an adhesive in accordance with the manufacturer's recommendations.
   2. The use of an approved chemical retarder which delays but does not prevent setting of the surface mortar. Remove mortar within 24 hours after placing to produce a clean exposed aggregate bonding surface. Prepare surfaces of joints to be treated in accordance with the manufacturer's recommendations.
   3. Roughening the surface of the concrete in an approved manner which will expose the aggregate uniformly and will not leave laitance, loosened particles of aggregate or damaged concrete at the surface.
   4. Dampen (but do not saturate) the hardened concrete of construction joints and of joints between footings and walls or columns, between walls or columns and beams or floors they support, joints in unexposed walls and all others not mentioned below immediately prior to placing of fresh concrete.
   5. For horizontal construction joints in exposed work; horizontal construction joints in the middle of beams, girders, joists and slabs; and horizontal construction joints in work designed to contain liquids, dampen (but do not saturate) the hardened concrete and thoroughly cover the joint with a coat of cement grout of similar proportions to the mortar in the concrete. Place the fresh concrete before the grout has attained its initial set.

3.08 EMBEDDED ITEMS

A. Expansion Joints - Do not extend reinforcement or other embedded metal items bonded to the concrete (except dowels in slabs bonded on only one side of joints) continuously through any expansion joint.

B. Position expansion joint material, waterstops and other embedded items accurately, and support them against displacement. Fill voids in sleeves, inserts and anchor slots temporarily with readily removable material to prevent the entry of concrete into the voids.

3.09 SLABS

A. Set edge forms and intermediate screed strips accurately to produce the designated elevations and contours of the finished surface, and construct them sufficiently strong to support vibrating screeds or roller pipe screeds if the nature of the finish specified requires the use of such equipment. Align the concrete surface to the contours of screed strips by the use of strike-off templates or approved compacting type screeds.

B. Carefully coordinate mixing and placing with finishing. Do not place concrete on the subgrade or forms more rapidly than it can be spread, straightened, and darbied or bull floated. These operations must be performed before bleeding water has an opportunity to collect on the surface.

C. To obtain good surfaces and avoid cold joints, plan the size of finishing crews with due regard for the effects of concrete temperature and atmospheric conditions on the rate of hardening of the concrete.

D. If saw-cut joints are required or permitted, time cutting properly with the set of the concrete: start cutting as soon as the concrete has hardened sufficiently to prevent aggregates being dislodged by the saw, and complete before shrinkage stresses become sufficient to produce cracking.

E. Thoroughly consolidate concrete in slabs. Use internal vibration in beams and girders of framed slabs and along the bulkheads of slabs on grade. Obtain consolidation of slabs with vibrating screeds, roller pipe screeds, internal vibrators, or other approved means.

3.10 FINISHES

A. Provide the following finishes as applicable and in accordance with ACI 301 unless specified otherwise herein or shown otherwise on the Drawings:
   1. Smooth Form Finish - for all formed concrete surfaces.
   2. Broom or Belt Finish - for sidewalks, driveways, ramps and exterior platforms.
   3. Provide smooth form finish where type of finish is not certain from above.

B. Smooth Form Finish - Use form facing materials which produce a smooth, hard, uniform texture on the concrete. it may be plywood, tempered concrete-form-grade hardboard, metal, plastic, paper, or other approved material capable of producing the desired finish. The arrangement of the facing material shall be orderly and symmetrical, with the number of seams kept to the practical minimum. Support it with studs or other backing capable of preventing excessive deflection. Do not use material with raised grain, torn surfaces, worn edges, patches, dents, or other defects which will impair the texture of the concrete surface. Patch tie holes and defects. Completely remove all fins.

C. Broom or Belt Finish - First, float finish the surface as described above. Do not trowel. Give the surface a coarse transverse scored texture by drawing a broom or burlap belt across the surface.

3.11 TOLERANCES

A. Tolerance in finished elevation shall be ¼ inch per 100 feet of length. This tolerance is non additive.

B. Produce formed surfaces which result in concrete outlines within the tolerances of applicable standards.

C. Depressions in slabs between high spots shall not be greater than 3/16 in. below a 10 ft. long straightedge.

3.12 CURING

A. Beginning immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury, and maintain the concrete with minimal moisture loss at a relatively constant temperature for the period necessary for hydration of the cement and hardening of the concrete.

B. For concrete surfaces not in contact with forms, apply one of the following procedures immediately after completion of placement and finishing:
   1. Ponding or continuous sprinkling.
   2. Application of absorptive mats or fabric kept continuously wet.
   3. Application of sand kept continuously wet.
   4. Continuous application of steam (not exceeding 150F) or mist spray.
   5. Application of waterproof sheet materials conforming to ASTM C171.

6. River water and other non-potable water sources shall not be acceptable for use in curing.
7. Application of a curing compound conforming to ASTM C309. Apply the compound in accordance with the recommendations of the manufacturer immediately after any water sheen which may develop after finishing has disappeared from the concrete surface. Do not use on any surface against which additional concrete or other material is to be bonded unless it is proved that the curing compound will not prevent bond, or unless positive measures are taken to remove it completely from areas to receive bonded applications. Minimize moisture loss from surfaces placed against wooden forms or metal forms exposed to heating by the sun by keeping the forms wet until they can be safely removed. After form removal, cure the concrete for at least seven days.

C. Cold Weather - When the mean daily outdoor temperature is less than 40 F, maintain the temperature of the concrete between 50 and 70 F for seven days. When necessary, make arrangements for heating, covering, insulating, or housing the concrete work in advance of placement and maintain the required temperature without injury due to concentration of heat. Do not use combustion heaters during the first 24 hours unless precautions are taken to prevent exposure of the concrete to exhaust gases which contain carbon dioxide.

D. Hot Weather - When necessary, make provision for windbreaks, shading, fog spraying, sprinkling, ponding, or wet covering with a light colored material in advance of placement, and take such protective measures as quickly as concrete hardening and finishing operations will allow.

E. Rate of Temperature Change - Keep changes in temperature of the air immediately adjacent to the concrete during and immediately following the curing period as uniform as possible and do not exceed 5 F in any 1 hour or 50 F in any 24 hour period.

F. During the curing period, protect the concrete from damaging mechanical disturbances, such as load stresses, heavy shock, and excessive vibration. Protect all finished concrete surfaces from damage by construction equipment, materials, or methods, by application of curing procedures, and by rain or running water. Do not load self-supporting structures in such a way as to overstress the concrete.

G. Proper curing methods shall be maintained, including curing methods for side faces once forms are stripped, for a minimum of seven (7) days.

H. No external loads shall be applied to the concrete until seven (7) days after concrete is cast.

I. No piles shall be driven or vibrated within fifty feet (50 ft) of new concrete until seven (7) days after concrete is cast.

3.13 REPAIR OF SURFACE DEFECTS

A. Repair surface defects, including tie holes immediately after form removal.

B. Remove all honeycombed and other defective concrete down to sound concrete. If chipping is necessary, form the edges perpendicular to the surface or slightly undercut. No featheredges will be permitted. Dampen the area to be patched and an area at least 6 in. wide surrounding it to prevent absorption of water from the patching mortar. Prepare a bonding grout using a mix of approximately 1 part cement to 1 part fine sand passing a No. 30 mesh sieve, mixed to the consistency of thick cream, and then well brushed into the surface.

C. Make the patching mixture of the same materials and of approximately the same proportions as used for the concrete, except that the coarse aggregate shall be omitted and the mortar shall consist of not more than 1 part cement to 2 1/2 parts sand by damp loose volume. Substitute white portland cement

for a part of the gray portland cement on exposed concrete in order to produce a color matching the color of the surrounding concrete as determined by a trial patch. Use no more mixing water than necessary for handling and placing. Mix the patching mortar in advance and allow it to stand with frequent manipulation with a trowel, without addition of water, until it has reached the stiffest consistency that will permit placing.

D. After surface water has evaporated from the area to be patched, brush the bond coat well into the surface. When the bond coat begins to lose the water sheen, apply the premixed patching mortar. Consolidate the mortar.

E. After cleaning and thoroughly dampening the tie holes, fill them solid with patching mortar.

F. If permitted or required, proprietary compounds for adhesion or as patching ingredients may be used in lieu of or in addition to the foregoing patching procedures. Use such compounds in accordance with the manufacturer's recommendations.

G. Shotcrete is an acceptable alternative to the pour-in-place repairs specified in the Project Scope of Work Specifications.
   1. The Shotcrete application must meet the specified strength and durability parameters noted in the contract documents for pour-in-place concrete.
   2. Submittals of the mix properties, aggregate size, application methods, qualifications of shotcrete workers and admixtures shall be sent to the Engineer for review and approval prior to starting any shotcrete applications.
   3. Any alternate proposal for shotcrete repairs shall be supported with a shotcrete mix design supported by certified laboratory testing results and quality assurance plan for the application method.
   4. More details regarding application can be found in Section 033713 Shotcrete.

3.14 TESTING

A. Concrete materials and operations will be tested and inspected as the work progresses. Failure to detect any defective work or material shall not in any way prevent later rejection when such a defect is discovered, nor shall it obligate the Engineer for final acceptance.

B. Additional testing and inspection required by failure to meet specification requirements or by changes in materials or proportions requested by the Contractor shall be paid for by the Contractor.

C. Testing of concrete for mix design purposes shall be paid for by the Contractor.

D. All testing agencies shall meet the requirements of ASTM E 329.

E. Contractor shall engage an independent field and laboratory testing agency to perform all test required by the Contract Documents.

F. To facilitate testing and inspection,
   1. Furnish any necessary labor to assist the designated testing agency in obtaining and handling samples at the project or other sources of materials.
   2. Advise the designated testing agency sufficiently in advance of operations to allow for completion of quality tests and for the assignment of personnel.
   3. Provide and maintain for the sole use of the testing agency adequate facilities for safe storage and proper curing of concrete test cylinders on the project site for the first 24 hours as required by ASTM C 31.

G. The first batch of concrete to be poured during a shift shall have its air content, slump and temperature tested, prior to initiating a pour, and will be rejected if values outside accepted ranges are obtained.

H. One strength test sampling shall be randomly taken from each 50 cu. yds. of concrete poured in a given shift. A minimum of five (5) strength test samplings shall be performed on randomly selected batches for each class of concrete on the project. If fewer than five (5) batches of concrete are used, strength test sampling shall be performed on each batch. If the total quantity of a given class of concrete is less than 50 cu. yds., strength tests may be waived at the engineer's discretion.

I. A strength test sampling shall consist of enough cylinders to perform a minimum of two strength tests, as defined below in 5.14.I.1. All strength test sampling shall be performed in accordance with ASTM C-172. Cylinders will be made and cured in accordance with ASTM C-31 and tested in accordance with ASTM C-39.
   1. A valid strength test shall consist of the breaking of a minimum of two (2) 6"x12" concrete cylinders, or three (3) 4"x8" concrete cylinders. At a minimum, strength tests shall be performed after seven (7) days and twenty-eight (28) days.
   2. Additional test cylinders may be taken at the time of sampling, at the Engineer's or Contractor's discretion, in order to:
      a. Perform an additional strength test after less than seven (7) days for consideration of form removal.
         1) Forms shall not be removed until the concrete has achieved at least 70% of the design strength.
      b. Perform an additional strength test after fourteen (14) days for evaluation of strength gain.
      c. Perform an additional strength test after either seven (7) days or twenty-eight (28) days to confirm those strength tests results.
      d. Perform an additional strength test after forty-five (45) days should the twenty-eight (28) day strength test results be below the specified strength.
      e. Allow for the discarding of outlying strength results for any strength test, in accordance with ACE 214R.
      f. Perform strength tests of cylinders cured under field conditions to demonstrate the adequacy of the curing and protection undertaken in the field.
         1) The strength test results of field-cured cylinders will not be used for evaluation and acceptance of the concrete strength. However, a field-cured strength test that results in less than 85% of the strength of companion laboratory-cured cylinders will necessitate the improvement of field protection and curing procedures. This 85% limitation will not apply if the field-cure strength exceeds the specified compressive strength by more than 500 psi.
         2) No additional compensation will be allowed to accommodate the requirement to perform the additional sampling and testing under this prevision, and to improve field curing and protection procedures as necessary.

J. The air content, temperature, and slump of the concrete shall be measured for each strength test sampling performed. All sampling shall be performed in accordance with ASTM C 172.
   1. These properties tests may be conducted more frequently than the test strength sampling, and may be performed on every arriving batch prior to its placement, at the Engineers discretion.
   2. If the measured slump, or air content, or both are found to be above the specified upper limit, a check test shall be immediately performed on a fresh sample. If the check test fails, the concrete shall be considered to have failed the requirements of this specification, and shall be rejected.
   3. If the measured slump, or air content, or both are found to be below the specified upper limit, adjustments shall be permitted in accordance with ASTM C 94. If the adjusted concrete subsequently fails, a check test shall be immediately performed on a fresh sample. If the check

test fails, the concrete shall be considered to have failed the requirements of this specification, and shall be rejected.

K. All concrete testing, whether properties testing or strength test sampling, shall be conducted on concrete at the point of placement. The Contractor shall take all necessary measures to efficiently and safely allow the representative of the testing agency to take samples at the point of placement. No additional compensation will be allowed to accommodate this requirement.

L. Representatives of the testing agency will inspect, sample and test the materials and the production of concrete as required by the Engineer. When it appears that any material furnished or work performed by the Contractor fails to fulfill specification requirements, the testing agency will report such deficiency to the Engineer and the Contractor.

M. The testing agency will report all test and inspection results to the Engineer and Contractor immediately after they are performed. All test reports will include the exact location in the work at which the batch represented by a test was deposited. Reports of strength tests will include detailed information on storage and curing of specimens prior to testing.

N. The testing agency and its representatives are not authorized to revoke, alter, relax, enlarge or release any requirement of the contract documents, nor to approve or accept any portion of the work.

3.15 EVALUATION AND ACCEPTANCE

A. Test results for standard molded and standard cured test cylinders will be evaluated separately for each portion of the structure.

B. The strength level of the concrete will be considered satisfactory so long as the averages of all sets of three consecutive strength test results equal or exceed the specified strength, and no individual strength test result falls below the specified strength by more than 500 psi, or one tenth the specified strength, whichever is greater.

C. Completed concrete work which meets all applicable requirements will be accepted without qualification.

D. Completed concrete work which fails to meet one or more requirements but which has been repaired to bring into compliance will be accepted without qualification.

E. Completed concrete work which fails to meet one or more requirements and which cannot be brought into compliance as determined by the Engineer may be accepted or rejected. Remove and replace (at Contractor's expense) all concrete work rejected by the Engineer.

F. Formed surfaces resulting in concrete outlines smaller than permitted by the allowable tolerances shall be considered potentially deficient in strength and subject to the requirements stated below for concrete of deficient strength.

G. Formed surfaces resulting in concrete outlines larger than permitted by the allowable tolerances may be rejected and the excess material shall be subject to removal. If removal of the excess material is permitted, it shall be accomplished in such a manner as to maintain the strength of the section and to meet all other applicable requirements of function and appearance.

H. Concrete members cast in the wrong location may be rejected if the strength, appearance or function of the structure is adversely affected or misplaced items interfere with other construction.

I. Inaccurately formed concrete surfaces exceeding the limits of applicable standards and which are exposed to view, may be rejected and shall be repaired or removed and replaced if required.

J. Finished slabs exceeding the tolerances of this section may be repaired provided that strength, durability or appearance is not adversely affected. High spots may be removed with a terrazzo grinder, low spots filled with a patching compound or other remedial measures performed as permitted.

K. Concrete with defects which adversely affect the appearance of the specified finish may be repaired, if possible. If, in the opinion of the Engineer, the defects cannot be repaired, the concrete may be either accepted or rejected.

L. Concrete not exposed to view is not subject to rejection for defective appearance, except in those cases where concrete finish is specified.

M. The strength of the structure in place will be considered potentially deficient if it fails to comply with any requirements which control the strength of the structure, including but not necessarily limited to the following conditions.
   1. Low concrete strength.
   2. Reinforcing steel size, quantity, strength, position, or arrangement at variance with the requirements of the contract drawings.
   3. Concrete which differs from the required dimensions or location in such a manner as to reduce the strength.
   4. Curing less than that specified.
   5. Inadequate protection of concrete from extremes of temperature during early stages of hardening and strength development.
   6. Mechanical injury, construction fires, accidents or premature removal of formwork likely to result in deficient strength.
   7. Poor workmanship likely to result in deficient strength.

N. Structural analysis and/or additional testing may be required when the strength of the structure is considered potentially deficient.

O. Core tests may be required when the strength of the concrete in place is considered potentially deficient.

P. If core tests are inconclusive or impractical to obtain or if structural analysis does not confirm the safety of the structure, load tests may be required and their results evaluated in accordance with Chapter 20 of ACI 318.

Q. Concrete work judged inadequate by structural analysis or by results of a load test shall be reinforced with additional construction if so directed by the Engineer, or shall be replaced at the Contractor's expense.

END OF SECTION

SECTION 03 60 00

GROUTING

PART 1 - GENERAL

1.01 SCOPE

A. Provide all labor, materials, equipment, and services necessary to furnish and place all grout as shown and specified in the contract documents or otherwise required for proper completion of the Work.

B. This specification covers the requirements for the furnishing and installation of non-shrink epoxy grout, sand-cement poured grout and sand-cement drypack grout, unless shown otherwise on the design drawings. The work shall include, but not be limited to the following:
   1. Concrete surface preparation.
   2. Furnishing and installation of all leveling plates, shims, wedges, and other approved adjusting materials.
   3. Furnishing and installation of all grout.

1.02 SUBMITTALS

A. Contractor shall submit the following in accordance with the Contract:
   1. Submit with the bid, if not otherwise directed, copies of laboratory test reports, including all test data certifying that the selected products will produce grouts of the qualities specified herein. These certification documents shall be forwarded to the Engineer for review and authorization to proceed.
   2. Certify that the grout conforms to the test reports submitted with the bid.

1.03 QUALITY ASSURANCE

A. Comply with the requirements of the latest edition of the following standards.
   1. ASTM Standards
      a. C33 Specification for Concrete Aggregates
      b. C150 Specification for Portland Cement
      c. C191 Test for Time of Setting Hydraulic Cement by Vicat Needle
      d. C579 Test Method for Compressive Strength of Chemical-resistant Mortars and Monolithic Surfacing
      e. C827 Test Method for Early Volume Change of Cementitious Mixtures
   2. U.S. Army Corp. of Engineers (CRD) Standards
      a. CRD-C79-77 Test Method for Flow of Grout Mixtures (Flow Cone Method)

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Application of grout types shall be as follows unless noted otherwise on the drawings:

1. Non-shrink Epoxy Grout
    a. Compressors, generators, blowers, pumps, motors and all other rotating equipment, including grout inside equipment bases.
    b. Equipment with cast bases.
    c. Equipment on base frames or skids up to base of skid (space between beams shall be filled with sand-cement grout)
    d. Anchor bolts and structural elements, especially those mounted into existing concrete elements.
2. Sand-Cement Poured Grout
    a. Vessels, heat exchangers and other miscellaneous equipment
    b. Anchor bolts and structural elements subjected to static loading only.
3. Dry-pack Grout
    a. Structural column base plates
    b. Small equipment with flat plate bases

B. Manufacturer's printed instructions accompanying epoxy grout containers and the installation instructions given on vendor equipment drawings shall be reviewed together with this specification prior to commencing any grouting. Any conflict among these three sources of information will be resolved by the Engineer. The Construction Manager will issue a revision to this specification, documenting the resolution.

C. Work Prior to Setting Base Plates
1. Concrete foundations shall be at least 7 days old prior to surface preparation.
2. Concrete surfaces shall be prepared for grouting or drypacking by chipping back to sound concrete or to a dimension specified by the Engineer. The surface shall be clean with all laitance, grease, oil, dirt or loosened aggregate removed prior to setting the leveling plate and/or equipment to be grouted.
3. Water for surface soaking, mixing and curing cement-based grout or drypack shall be potable.
4. All leveling plates shall be set to the proper elevation prior to grouting. The number and type of leveling plates will be determined by the Construction Manager in accordance with the recommendations of the equipment manufacturer and other project documents. On subcontracted work, the number and type of leveling plates shall be submitted by the Equipment Installation Subcontractor to the Engineer for review two weeks prior to use. Leveling plates shall be removed after grout hardening and before tightening the anchor bolt nuts.
5. Concrete surfaces on which cement-based grout or drypack is to be placed shall be thoroughly soaked with water for 24 hours. Just prior to grouting, the water shall be removed. All standing water shall be removed from anchor bolt sleeves.
6. Concrete surfaces on which epoxy grout is to be placed shall be completely dry before grouting.
7. Metal surfaces in contact with the grout or drypack shall be clean and free of oil and grease, and foreign substances not associated with the grouting process.

D. Grout Formwork
1. Form work shall be provided for grout and shall be compatible with the method of placing grout specified herein.
2. Forms shall be designed for rapid, continuous and complete filling of space to be grouted. Forms shall be of adequate strength to withstand the forces of the fluid grout, and shall be caulked or sealed with tape to prevent excessive leakage. The forms shall be coated with form oil or heavy wax to prevent grout adherence and absorption.
3. For other than epoxy grout applications, form placement shall allow at least 1 inch (25 mm) of space all around base plates or equipment bases. The top of the forms shall be a minimum of 1 inch (25 mm) above the bottom of the adjacent base plate. Forms shall have a chamfer strip attached to form a chamfered edge at all corners.

4. For all epoxy grout applications, form placement shall be such that the epoxy grout extends 1 ½ inch (38 mm) beyond the outside edge of the foundation, and 4 inches (100 mm) below the top of the poured concrete surface. Grout thickness below the equipment base shall be a minimum of 1 ½ inch (38 mm) for foundations 3 feet (.9m) in width and less, increasing by 1 inch for each additional 3 feet in foundation width. Forms shall have a chamfer strip attached to form a chamfered edge at all corners.
5. For rotating equipment, leveling and alignment shall be performed and witnessed by the Engineer on the same day that the grout is placed.

E. Grout Material Storage
1. Epoxy grout materials shall be stored and handled in accordance with the manufacturer's printed instructions.
2. Cement-based grouting materials which becomes damp or air-set, prior to use, shall not be used.
3. Epoxy grout aggregate shall be delivered to the jobsite in sound, dry bags and epoxy grout liquids in sealed hardener and resin containers. The Contractor shall be responsible for storing the grout in a dry, weatherproof shelter.

2.02 REQUIREMENTS FOR EPOXY GROUT

A. Materials
1. Nonshrink epoxy grout shall be a proportioned, factory packaged product consisting of specially formulated resin, hardener and aggregate. Approved epoxy grouts are HILTI, Carter Waters, Five Star, Sika, and Escoweld. Substitutes shall not be permitted unless specifically approved by the Engineer. Epoxy grout shall be designed for injection in anchor bolt applications.

B. Performance Characteristics
1. Epoxy grout shall have a minimum compressive strength of 5000 psi (350 kg/cm 2) at 24 hours when tested in accordance with ASTM C579.
2. Epoxy grout shall have a minimum working time of 45 minutes at 75o F (24 o C).
3. The grout shall show no shrinkage (0.0 percent) and a maximum of 2.5 percent expansion at all ages when tested in accordance with ASTM C827 (modified). The volume change test of epoxy grout, ASTM C827 (modified), requires an indicator ball with a specific gravity between 0.9 and 1.1.
4. The grout shall be flowable, or injectable, depending on the application.

2.03 REQUIREMENTS FOR SAND-CEMENT POURED GROUT

A. Materials
1. Grout is a mixture of cement and sand with pouring consistency. The mix shall consist of 1 part of Portland cement and 2 parts of sand by volume.
2. The water-cement ratio shall be limited to 0.45 by weight.
3. Portland cement shall conform to ASTM C150, Types I, II, IV, or V.
4. Sand shall conform to ASTM C33.

2.04 REQUIREMENTS FOR DRYPACK GROUT

A. Materials
1. Drypack shall be a mixture of one part cement and 2 ½ parts of sand by volume proportioned at the jobsite and mixed thoroughly with just enough water to produce a consistency such that when a sample is tightly squeezed in the hand only enough moisture will come to the surface to moisten the hand.

2. Portland cement shall conform to ASTM C150, Types I, II, IV or V.
3. Sand shall conform to ASTM C33.

PART 3 - EXECUTION

3.01 EPOXY GROUT

A. Mixing
1. All epoxy grout components shall be conditioned to a temperature range between 70o F to 85o F (21o C to 30o C) prior to mixing. The entire hardener component shall then be added to the entire resin component and thoroughly mixed for 2 to 3 minutes with a low speed mixer. Mixed resin and hardener shall then be put into a clean mortar mixer or wheelbarrow and the entire bag of aggregate added. The combination shall be mixed until aggregate is completely wetted. Nothing else shall be added to the mixture.
2. Mixing shall be adjacent to area being grouted, with sufficient manpower and equipment available for rapid and continuous mixing and placing.
3. Grout shall not be mixed in quantities larger than that which can be placed during the working time specified herein.

B. Placing
1. Epoxy grout has a limited working time after mixing. This working time shall be specified by the grout manufacturer. The placing of grout shall be performed only during this specified working time and any unused grout remaining beyond this time shall be discarded.
2. Epoxy grout shall be injected for anchor bolt applications. In top-down vertical anchor bolt applications, grout may be gravity-poured with the Engineer's approval. Anchors shall be temporarily supported to prevent sagging until the grout is fully cured.
3. When placing epoxy grout, the temperature of the foundation, base plate and grout material shall be within the temporary range of 40o F to 90o F (5o C to 32o C) or as recommended by the manufacturer, determined by a surface thermometer.
4. Epoxy grout shall be placed from one long side of an equipment base to the other, in one direction only. The grout shall be poured into movable head box having an inclined plane to direct the grout beneath the equipment base in a manner which minimizes trapped air and bubble formation. The head box should be about a 3 foot (1 m) cube to allow large volumes of grout to be poured continuously. The use of vibrators is not permitted. The use of steel straps is permitted to move grout into position but chaining is not permitted because of air entrapment between the links.
5. Pumping epoxy grout is permitted and may eliminate the requirement for a head box.
6. Epoxy grout placing shall be continued until it oozes out along the entire perimeter and up through every interior air relief hole and grout hole. An exception occurs when grouting such equipment as pumps having an elevated interior base plate. In these situations, grout shall be placed under the entire equipment base to the top of the exterior base plate and then the grouting stopped for a short period of time to allow the grout to seal the periphery and then the grouting completed through one of the interior grout holes.
7. Expansion joints shall be installed as indicated on the design drawings for epoxy grout placements of long length or large area. In no case shall the poured length in any direction exceed 10 feet (3m) without an expansion joint.

C. Finishing and Curing
1. Finishing and curing shall be in strict accordance with the manufacturer's printed instructions.

2. Epoxies cannot be trimmed after set. They must be left at the finished level with required chamfer strips built into the forms. Top surfaces may be trowelled with a steel trowel moistened with oil. Further finishing will require grinding.
3. The epoxy grout shall be maintained within the placing temperature range for a minimum of 24 hours after placing.
4. Epoxy grout shall not be wet-cured.
5. After 24 hours, the juncture between the equipment base or sole plate and the epoxy grout, and between the epoxy grout and the concrete foundation shall be sealed with a silicon such as R.T.V., as approved by the Engineer.

3.02 SAND-CEMENT POURED GROUT

A. Mixing
   1. Ingredients shall be thoroughly dry-mixed before adding water. After adding water, the batch shall be mixed for 3 to 5 minutes.
   2. Batches shall be sized to allow continuous placement of freshly mixed grout. Grout not used within one hour or in accordance with manufacturer's recommendation, whichever is less, after mixing, shall be discarded.

B. Placing
   1. When placing grout the temperature of the foundation, base plate and grout shall be within the temperature range of 40o F to 90o F (5o C to 32o C) or as recommended by the manufacturer, determined by a surface thermometer. This temperature shall be maintained for 3 days following grouting. Preparations for maintaining this temperature shall be submitted to the Engineer.

3.03 DRYPACK GROUT

A. Mixing
   1. Ingredients shall be thoroughly dry-mixed before adding water. After adding water, the batch shall be mixed for 3 to 5 minutes. Batches shall be sized to allow continuous placement of freshly mixed drypack. Drypack grout not used within one hour, or in accordance with manufacturer's recommendation whichever is less, after mixing shall be discarded. Re-tampering will not be allowed.

B. Placing
   1. The space between the top of the flange of steel beam and the bottom of the concrete slab shall be filled with drypack grout by tamping with a bar until the voids are eliminated.
   2. When placing drypack grout, the temperature of the concrete, steel, and drypack grout shall be within the temperature range of 40o F to 90o F (5o C to 32o C) or as recommended by the manufacturer, determined by a surface thermometer. This temperature shall be maintained for 3 days following grouting.

3.04 INSPECTION AND QUALITY CONTROL

A. For epoxy grouts, a manufacturer's technical representative shall be called to the field office for a pre-grouting conference to assure that all grouting steps are followed in accordance with the manufacturer's instructions. The representative should remain at the jobsite until the Construction Manager is assured that the correct procedures are being followed and the warranty is not in jeopardy. The Structural Engineer shall be advised if the manufacturer's representative recommends anything contrary to this specification.

B. The Construction Manager and Contractor shall implement contract document procedures for inspection, testing, and documentation. These procedures shall define the documentation that will be employed to assure that the certifications, examinations, tests and approvals required by the contract specifications are accomplished.

C. Vertical support for equipment having a structural steel base frame and a stiffened cover plate is provided by grouting under the base frame. Compliance with the installation procedure established herein will preclude unacceptable voids. Incidental voids under the cover plate may not be detrimental or witnessed and approved by the construction engineer. It is important that the cover plate is sealed by grout against foreign elements.

END OF SECTION

SECTION 03 37 13

SHOTCRETE

PART 1 - GENERAL

1.1 SCOPE

A. Provisions apply to the installation of shotcrete as an alternative to cast-in-place concrete as indicated on the Contract Drawings.

B. All shotcrete shall be in accordance with ACI 506.2.

1.2 SUMMARY

A. Section Includes:

1. Dry-mix shotcrete.
2. Wet-mix shotcrete.

1.3 DEFINITIONS

A. Shotcrete: Mortar or concrete pneumatically projected onto a surface at high velocity.

B. Dry-Mix Shotcrete: Shotcrete with most of the mixing water added at nozzle.

C. Wet-Mix Shotcrete: Shotcrete with ingredients, including mixing water, mixed before introduction into delivery hose.

1.4 SUBMITTALS

A. Product Data: For each type of product.

1. Include reinforcement and forming accessories, shotcrete materials, admixtures, and curing compounds.

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

1. For predampened dry-mix mixtures, indicate amounts of mixing water to be added to the dry-mix materials before mixing and conveying through the delivery hose.

C. Shop Drawings: For shotcrete installation.

1. Include plans, elevations, sections, and support and anchor details.

2. Detail fabrication, bending, and placing of reinforcement; number and location of splices; and special reinforcement required for openings through shotcrete structures.
3. Detail formwork fabrication, assembly, and support.
4. Indicate locations of proposed construction joints.

D. Qualification Data for Testing Agency and Installer.

E. Material Certificates: For each of the following:

1. Cementitious materials.
2. Admixtures.
3. Form materials.
4. Steel reinforcement and accessories.
5. Fiber reinforcement.
6. Waterstops.
7. Curing compounds.

F. Preconstruction Test Reports: For shotcrete.

G. Field quality-control reports.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer employing nozzle operators for Project, each of whom attains mean core grades not exceeding 2.5, according to ACI 506.2, on preconstruction tests, is ACI Shotcrete Nozzleman certified in Wet/Dry-Mix Process for the Position as appropriate to the required shotcrete work.

B. Testing Agency Qualifications: Qualified according to ASTM C1077 and ASTM E329 for testing indicated.

C. Standard: Comply with ACI 506.2, "Specification for Shotcrete," unless otherwise indicated.

D. Shotcrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design shotcrete mixtures.

E. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

1. Build mockups for each finish required and for each design mixture, shooting orientation, and nozzle operator.
2. Build mockups in the location and of the size indicated or, if not indicated, as directed by Engineer.
3. Demonstrate curing and protecting of shotcrete, finishes, and joints, as applicable.
4. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Engineer specifically approves such deviations in writing.
5. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on shotcrete.

1. Produce and test shotcrete test panels before shotcrete placement according to requirements in ACI 506.2 for each design mixture, shooting orientation, and nozzle operator. Produce test panels with dimensions of 24 by 24 inches minimum and of average thickness of shotcrete, but not less than 3-1/2 inches.

2. From each test panel, testing agency shall obtain six test specimens: one set of three specimens unreinforced, and one set of three specimens reinforced. Agency will perform the following:

a. Strength Testing: Test each set of unreinforced specimens for compressive strength according to ASTM C42/C42M.
b. Core Grading: Visually inspect each set of reinforced shotcrete cores taken from test panels and determine mean core grades according to ACI 506.2.

1.7 DELIVERY, STORAGE, AND HANDLING

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

PART 2 - PRODUCTS

2.1 FORM MATERIALS

A. Forms: Form-facing panels that will provide continuous, straight, smooth, concrete surfaces. Furnish panels in largest practical sizes to minimize number of joints.

2.2 REINFORCING MATERIALS

A. Reinforcing Bars: ASTM A615/A615M, Grade 60, deformed.

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

C. Plain-Steel Wire: ASTM A1064/A1064M

D. Welded Wire Reinforcement: ASTM A1064/A1064M, furnished in flat sheet.

E. Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place; manufactured according to CRSI's "Manual of Standard Practice" and as follows:

1. For uncoated reinforcement, use all-plastic, CRSI Class 1, plastic-protected, or CRSI Class 2, stainless-steel bar supports.

2. For zinc-coated reinforcement, use galvanized wire or dielectric-polymer-coated wire or all-plastic bar supports.

F. Reinforcing Anchors: ASTM A36/A36M, unheaded rods or ASTM A307, Grade A, hex-head bolts; carbon steel; and carbon-steel nuts.

G. Zinc Repair Material: ASTM A780/A780M, zinc-based solder, paint containing zinc dust, or sprayed zinc.

2.3 SHOTCRETE MATERIALS

A. Portland Cement: ASTM C150/C150M, Type II. Use only one brand and type of cement for Project.

B. Blended Hydraulic Cement: ASTM C595/C595M

C. Normal-Weight Aggregates: ASTM C33/C33M, from a single source, and as follows:

1. Combined Aggregate Size: ACI 506R or ASTM C1436
2. Deleterious Substances: according to ASTM C33/C33M.

D. Lightweight Aggregates: ASTM C330/C330M.

1. Combined Aggregate Size: ACI 506R

E. Water: Potable, complying with ASTM C94/C94M, and free from deleterious materials that may affect color stability, setting, or strength of shotcrete.

F. Joint Filler Strips: ASTM D1751, asphalt-saturated cellulosic fiber or ASTM D1752, cork or self-expanding cork.

G. Admixtures: ASTM C1141/C1141M, Class A (liquid) or Class B (nonliquid), but limited to the following admixture materials. Provide admixtures for shotcrete that contain no more than 0.1 percent chloride ions. Certify compatibility of admixtures with each other and with other cementitious materials.

1. Accelerating Admixture, Conventional: ASTM C494/C494M, Type C or Type E.
2. Coloring Admixture: ASTM C979/C979M, synthetic mineral-oxide pigment or colored, water-reducing admixture, free of carbon black; color stable, nonfading, and resistant to lime and other alkalis.
3. Air-Entraining Admixture: As limited in "Shotcrete Mixtures" Article.

2.4 WATERSTOPS

A. Flexible Rubber Waterstops: CE CRD-C 513 for embedding in concrete to prevent passage of fluids through joints. Factory fabricate corners, intersections, and directional changes.

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

C. Self-Expanding Butyl Strip Waterstops: Manufactured rectangular or trapezoidal strip, butyl rubber with sodium bentonite or other hydrophilic polymers, for adhesive bonding to concrete, 3/4 by 1 inch.

D. Self-Expanding Rubber Strip Waterstops: Manufactured rectangular or trapezoidal strip, bentonite-free, hydrophilic polymer-modified chloroprene rubber, for adhesive bonding to concrete; 3/8 by 3/4 inch.

2.5 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 3, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry, or cotton mats.

B. Moisture-Retaining Cover: ASTM C171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Curing Compound: ASTM C309, Type 1, Class B; clear, membrane-forming curing compound.

2.6 SHOTCRETE MIXTURES

A. Source Limitations for Shotcrete: Obtain each color, size, type, and variety of shotcrete material and shotcrete mixture from single manufacturer with resources to provide shotcrete of consistent quality in appearance and physical properties.

B. Design Mixtures: Prepare design mixtures for each type and strength of shotcrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 506.2.

1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixture or field test data, or both.

C. Cementitious Materials Replacing Portland Cement: Use fly ash, pozzolan, slag cement, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent.

D. Limit water-soluble chloride ions to maximum percentage by weight of cement or cementitious materials permitted by ACI 301.

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

F. Coloring Admixture: Add coloring admixture to shotcrete mixture according to manufacturer's written instructions and to result in hardened shotcrete color consistent with approved mockup.

G. Design-Mixture Adjustments: Subject to compliance with requirements, shotcrete design-mixture adjustments may be proposed when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant.

H. Shotcrete Mixture: Proportion mixture to provide shotcrete with the following properties:

1. Compressive Strength (28 Days): 4000 psi

2. Air Content: Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight wet-mix shotcrete having an air content before pumping of 8 percent with a tolerance of plus or minus 1-1/2 percent.

2.7 SHOTCRETE EQUIPMENT

A. Mixing Equipment: Capable of thoroughly mixing shotcrete materials in sufficient quantities to maintain continuous placement.

B. Dry-Mix Delivery Equipment: Capable of discharging aggregate-cement mixture into delivery hose under close control and maintaining continuous stream of uniformly mixed materials at required velocity to discharge nozzle. Equip discharge nozzle with manually operated water-injection system for directing even distribution of water to aggregate-cement mixture.

1. Provide uniform, steady supply of clean, compressed air to maintain constant nozzle velocity while simultaneously operating blow pipe for cleaning away rebound.
2. Provide water supply with uniform pressure at discharge nozzle to ensure uniform mixing with aggregate-cement mix. Provide water pump to system if line water pressure is inadequate.

C. Wet-Mix Delivery Equipment: Capable of discharging aggregate-cement-water mixture accurately, uniformly, and continuously.

2.8 BATCHING AND MIXING

A. Dry-Mix Process: Measure mixture proportions by weight batching according to ASTM C94/C94M or by volume batching complying with ASTM C685/C685M requirements.

1. In volume batching, adjust fine-aggregate volume for bulking. Test fine-aggregate moisture content at least once daily to determine extent of bulking.
2. Prepackaged shotcrete materials may be used at Contractor's option. Predampen prepackaged shotcrete materials and mix before use.

B. Wet-Mix Process: Measure, batch, mix, and deliver shotcrete according to ASTM C94/C94M and furnish batch ticket information.

1. Comply with ASTM C685/C685M when shotcrete ingredients are delivered dry and proportioned and mixed on-site.

PART 3 - EXECUTION

3.1 PREPARATION

A. Concrete and Masonry Substrates: Before applying shotcrete, remove unsound or loose materials and contaminants that may inhibit shotcrete bonding. Chip or scarify areas to be repaired to extent necessary to provide sound substrate. Cut edges square and 1/2 inch deep at perimeter of work, tapering remaining shoulder at 1:1 slope into cavity to eliminate square shoulders. Dampen surfaces to saturated, surface-dry condition before shotcreting.

1. Abrasive blast or hydroblast existing surfaces that do not require chipping to remove paint, oil, grease, or other contaminants and to provide roughened surface for proper shotcrete bonding.

B. Earth Substrates: Compact and trim to line and grade before placing shotcrete. Do not place shotcrete on frozen surfaces. Dampen surfaces to saturated, surface-dry condition before shotcreting.

C. Rock Substrates: Clean rock surfaces of loose materials, mud, and other foreign matter that might weaken shotcrete bonding. Dampen surfaces to saturated, surface-dry condition before shotcreting.

D. Steel Substrates: Clean steel surfaces by abrasive blasting according to SSPC-SP 2 or 3."

3.2 FORMS

A. Design, erect, support, brace, and maintain forms, according to ACI 301, to support shotcrete and construction loads and to facilitate shotcreting. Construct forms so shotcrete members and structures are secured to prevent excessive vibration or deflection during shotcreting.

1. Fabricate forms to be readily removable without impact, shock, or damage to shotcrete surfaces and adjacent materials.
2. Construct forms to required sizes, shapes, lines, and dimensions using ground wires and depth gages to obtain accurate alignment, location, and grades in finished structures. Construct forms to prevent mortar leakage but permit escape of air and rebound during shotcreting. Provide for openings, offsets, blocking, screeds, anchorages, inserts, and other features required in the Work.

B. Form openings, chases, recesses, bulkheads, keyways, and screeds in formwork. Determine sizes and locations from trades providing such items. Accurately place and securely support items built into forms.

3.3 STEEL REINFORCEMENT

A. Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials that weaken shotcrete bonding.

C. Securely embed reinforcing anchors into existing substrates, located as required.

D. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports, bolsters, chairs, spacers, and other devices as required to maintain minimum concrete cover.

E. Set wire ties with ends directed into shotcrete, not toward exposed shotcrete surfaces.

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

G. Zinc-Coated Reinforcement: Repair cut and damaged zinc coatings with zinc repair material according to ASTM A780/A780M. Use galvanized-steel wire ties to fasten zinc-coated steel reinforcement.

3.4 JOINTS

A. General: Construct joints at locations indicated or as approved by Architect.

B. Construction Joints: Locate and install construction joints tapered to a 1:1 slope where joint is not subject to compression loads and square where joint is perpendicular to main reinforcement. Continue reinforcement through construction joints unless otherwise indicated.

C. Contraction Joints: Construct contraction joints in shotcrete using saw cuts 1/8-inch wide by one-third of slab depth or joint-filler strips 1/4-inch wide by one-third of shotcrete depth unless otherwise indicated.

1. After shotcrete has cured, remove strip inserts and clean groove of loose debris.
2. Space joints at 15 feet horizontally and vertically.
3. Tool edges round on each side of strip inserts if floated or troweled finishes are required.
4. Where shooting over an existing substrate joint, align new shotcrete joint with existing joint.

3.5 INSTALLATION OF WATERSTOPS

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

B. Self-Expanding Strip Waterstops: Install in construction joints and at other locations indicated, according to manufacturer's written instructions, adhesive bonding, mechanically fastening, and firmly pressing into place. Install in longest lengths practicable.

C. Prevent waterstop displacement during shotcrete application.

3.6 ALIGNMENT CONTROL

A. Ground Wires: Install ground wires to establish thickness and planes of shotcrete surfaces. Install ground wires at corners and offsets not established by forms. Pull ground wires taut and position adjustment devices to permit additional tightening.

3.7 EMBEDDED ITEMS

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

3.8 APPLICATION

A. Apply shotcrete according to ACI 506.2.

B. Apply temporary protective coverings and protect adjacent surfaces against deposit of rebound and overspray or impact from nozzle stream.

C. Moisten wood forms immediately before placing shotcrete where form coatings are not used.

D. Apply dry-mix shotcrete materials within 45 minutes after predampening and wet-mix shotcrete materials within 90 minutes after batching.

E. Deposit shotcrete continuously in multiple passes, to required thickness, without cold joints and laminations developing. Place shotcrete with nozzle held perpendicular to receiving surface. Begin shotcreting in corners and recesses.

1. Remove and dispose of rebound and overspray materials during shotcreting to maintain clean surfaces and to prevent rebound entrapment.
2. Remove and dispose of cuttings during the trimming or rodding process to prevent unconsolidated material from falling onto lower reinforcement.

F. Maintain reinforcement in position during shotcreting. Place shotcrete to completely encase reinforcement and other embedded items. Maintain steel reinforcement free of overspray, and prevent buildup against front face during shotcreting.

G. Do not place subsequent lifts until previous lift of shotcrete is capable of supporting new shotcrete.

H. Do not permit shotcrete to sag, slough, or dislodge.

I. Remove hardened overspray, rebound, and laitance from shotcrete surfaces to receive additional layers of shotcrete; dampen surfaces before shotcreting.

J. Do not disturb shotcrete surfaces before beginning finishing operations.

K. Remove ground wires or other alignment-control devices after shotcrete placement.

L. Shotcrete Core Grade: Apply shotcrete to achieve mean core grades not exceeding 2.5 according to ACI 506.2, with no single core grade exceeding 3.0.

M. Installation Tolerances: Place shotcrete without exceeding installation tolerances permitted by ACI 117, increased by a factor of two.

N. Cold-Weather Shotcreting: Mix, place, and protect shotcrete according to ACI 306.1 and as follows. Protect shotcrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. Discontinue shotcreting when ambient temperature is 40 deg F and falling.
2. Uniformly heat water and aggregates before mixing to obtain a shotcrete shooting temperature of not less than 50 deg F and no more than 90 deg F.
3. Do not use frozen materials or materials containing ice or snow.
4. Do not place shotcrete on frozen surfaces or surfaces containing frozen materials.
5. Do not use calcium chloride, salt, or other materials containing antifreeze agents.

O. Hot-Weather Shotcreting: Mix, place, and protect shotcrete according to ACI 305.1 when hot-weather conditions and high temperatures would seriously impair quality and strength of shotcrete, and as follows:

1. Cool ingredients before mixing to maintain, at time of placement, shotcrete temperature below 100 deg F for dry mix and 90 deg F for wet mix.
2. Reduce temperature of reinforcing steel and receiving surfaces below 100 deg F before shotcreting.

3.9 SURFACE FINISHES

A. General: Finish shotcrete according to descriptions in ACI 506R.

B. Natural Finishes:

1. Gun Finish: Natural undisturbed finish as sprayed.
2. Rod Finish: Rough-textured finish obtained by screeding or cutting exposed face of shotcrete to plane with cutting rod, edge of trowel, or straightedge after initial set. Do not push or float with flat part of trowel.
3. Broom Finish: Rough-textured finish obtained by screeding or cutting exposed face of shotcrete to plane with cutting rod, edge of trowel, or straightedge after initial set; followed by uniform brooming.

C. Flash-Coat Finish: After screeding or cutting exposed face of shotcrete to plane after initial set, apply up to 1/4-inch coat of shotcrete using ACI 506R, Grading No. 1, fine-screened sand modified with maximum aggregate size not exceeding No. 4 sieve to provide a finely textured finish.

D. Flash-Coat with Final Finish: After screeding or cutting exposed face of shotcrete to plane after initial set, apply up to 1/4-inch coat of shotcrete using ACI 506R, Grading No. 1, fine-screened sand modified with maximum aggregate size not exceeding No. 4 sieve, and apply steel-trowel finish.

E. Finish-Coat Finish: After screeding or cutting exposed face of shotcrete to plane after initial set, apply shotcrete finish coat, 1/4 to 1 inch thick, using ACI 506R, Grading No. 1, fine-screened sand modified with maximum aggregate size not exceeding No. 4 sieve to provide a finish of uniform texture and appearance.

F. Finish-Coat with Final Finish: After screeding or cutting exposed face of shotcrete to plane after initial set, apply shotcrete finish coat, 1/4 to 1 inch thick, using ACI 506R, Grading No. 1, fine-screened sand modified with maximum aggregate size not exceeding No. 4 sieve, and apply steel-trowel finish.

3.10 CURING

A. Protect freshly placed shotcrete from premature drying and excessive cold or hot temperatures.

B. Begin curing immediately after placing and finishing but not before free water, if any, has disappeared from shotcrete surface.

C. Curing Exposed Surfaces: Cure shotcrete by one of the following methods:

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

    a. Water.
    b. Continuous water-fog spray.
    c. Water-saturated absorptive covers or moisture-retaining covers. Lap and seal sides and ends of covers with 12-inch lap over adjacent covers.

2. Curing Compound: Apply uniformly in continuous operation by power spray according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

    a. Apply curing compound to natural gun and flash-coat finishes at rate of 1 gal./100 sq. ft.

D. Curing Formed Surfaces: Cure formed shotcrete surfaces by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.

3.11 FORM REMOVAL

A. Forms not supporting weight of shotcrete may be removed after curing for 24 consecutive hours at not less than 50 deg F, provided shotcrete is hard enough not to be damaged by form-removal operations and provided curing and protecting operations are maintained.

1. Leave forms supporting weight of shotcrete in place until shotcrete has attained design compressive strength. Determine compressive strength of in-place shotcrete by testing representative field-cured specimens of shotcrete.
2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.

B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing materials are unacceptable for exposed surfaces. Apply new form-coating compound as specified for new formwork.

3.12 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Air Content: ASTM C173/C173M, volumetric method or ASTM C231/C231M, pressure method; one test for each compressive-strength test for each mixture of air-entrained, wet-mix shotcrete measured before pumping.

C. Shotcrete Temperature: ASTM C1064/C1064M; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each set of compressive-strength specimens.

D. Test Panels: Make a test panel, reinforced as in structure, for each shotcrete mixture and for each workday or for every 50 cu. yd. of shotcrete placed, whichever is less. Produce test panels with dimensions of 24 by 24 inches minimum and of average thickness of shotcrete, but not less than 4-1/2 inches. Testing agency will obtain sets of test specimens from each test panel.

1. Compressive Strength Testing: One set of three unreinforced specimens. Test each set of unreinforced specimens for compressive strength according to construction testing requirements in ACI 506.2.
2. Visual Core Grading: One set of three reinforced specimens. Visually inspect each set of reinforced shotcrete cores taken from test panels and determine mean core grades according to ACI 506.2.

E. In-Place Shotcrete Testing: One set of three unreinforced cores for each mixture and for each workday or for every 50 cu. yd. of shotcrete placed, whichever is less. Test cores for compressive strength according to ACI 506.2 and ASTM C42/C42M. Do not cut steel reinforcement.

F. Strength of shotcrete will be considered satisfactory according to the following:

1. Specimen Cores: Mean compressive strength of each set of three unreinforced cores equals or exceeds 85 percent of specified compressive strength, with no individual core less than 75 percent of specified compressive strength.
2. Specimen Cubes: Mean compressive strength of each set of three unreinforced cubes shall equal or exceed design compressive strength with no individual cube less than 88 percent of specified compressive strength.

G. Shotcrete will be considered defective if it does not pass tests and inspections.

H. Prepare test and inspection reports.

3.13 REPAIRS

A. Remove and replace shotcrete that is delaminated or exhibits laminations, voids, or sand/rock pockets exceeding limits for specified core grade of shotcrete.

1. Remove unsound or loose materials and contaminants that may inhibit bond of shotcrete repairs.

2. Chip or scarify areas to be repaired to extent necessary to provide sound substrate. Cut edges square and 1/2 inch deep at perimeter of work, tapering remaining shoulder at 1:1 slope into cavity to eliminate square shoulders.
3. Dampen surfaces and apply new shotcrete.

B. Repair core holes from in-place testing according to repair provisions in ACI 301, except do not use shotcrete. Match adjacent color and finish.

3.14 CLEANING

A. Immediately remove and dispose of rebound and overspray materials from final shotcrete surfaces and areas not intended for shotcrete placement.

END OF SECTION 033713

SECTION 05 12 00

STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

1.01 SCOPE

A. The provisions of this section are applicable to all the structural steel, miscellaneous metal work, and steel items required to complete the work as shown and specified in the contract documents.

1.02 SUBMITTALS

A. The Contractor shall submit the following items in accordance with Section 013300, Submittal Procedures.
   1. Shop Drawings: Submit shop drawings for review prior to fabrication. Do not start fabrication until review of shop drawings by the engineer is complete. Prepare drawings in accordance with the latest edition of the AISC manual "Structural Steel Detailing" and including complete details, sections, materials, fabrication, assembly, and erection requirements, procedures and diagrams.
      a. Indicate welds by standard AWS A2.1 and A2.4 symbols, and show size, length and type of each weld.
      b. Provide setting drawings, templates and directions for installation of anchor bolts or other anchorages.
      c. Include diameters of bolt holes, types, sizes and strengths of bolts; yield strength of steel; shop and field welding details; arc-welding electrode designation; and manufacturer's name, color, and number of coats of shop paint.
      d. Include erection diagrams showing elevations and cross sections which will locate all members by piece mark and provide essential dimensions and necessary erection information.
      e. Design all connections not shown on the contract drawings as per the AISC manual. Account for eccentricity in all connection designs.
      f. Prohibit direct reproduction of the Contract Drawings for use as Shop drawings.
   2. Test Reports: Assist independent testing agency in submitting reports of inspections and testing of structural steel.
      a. Furnish the testing agency with the fabrication plant's schedule, in order for appropriate inspections to be accomplished.
      b. Request the testing agency to conduct both visual inspections and torque sampling of mill-fabricated connections, at the rate of one test and sampling for each 50 tons of steel fabricated.
   3. Manufacturer's Mill Certificate: The Fabricator is required to obtain mill certificates from the supplier for all structural steel and furnish copies of the certificates to the Construction Manager and/or Engineer prior to fabrication. Mill Certificates shall properly account for all project steel, and shall be accompanied by an inventory list that provides the quantities and lengths of the steel in each supplied heat.
   4. Weld & Welder Qualification Documents (See Section 5.06 of this specification for more details):
      a. Only AWS (American Welding Society) qualified welders shall be employed for welding. Submit a Welding Personnel Qualification Record (WPQR), to the Engineer for review at least three (3) weeks prior to using the welder.

b. For each anticipated class of weld, submit Weld Procedure Specifications (WPS) to the Engineer for review at least three (3) weeks prior to welding.

5. Bolt tensioning procedures for snug, pretensioned, and slip-critical bolts, including methods, equipment, and torque values.
6. Submit samples of materials as requested by the engineer, including names, sources, and description.

1.03 REFERENCE

A. Comply with the requirements of the latest edition of the following standards (including all supplements and addenda), unless noted otherwise:
   1. AISC (American Institute of Steel Construction): "Steel Construction Manual"
      a. "Specification for Structural Joints Using High-Strength Bolts" "Code of Standard Practice for Steel Buildings and Bridges".
   2. AWS (American Welding Society):
      a. "Structural Welding Code-Steel" (AWS D1.1) "Welding Zinc-Coated Steel" (AWS D19.0) Other Applicable Standards
   3. BOCA (Basic Building Code)
   4. ASTM (American Society for Testing and Materials):
      a. Applicable Referenced Specifications.
   5. OSHA (Occupational Safety and Health Administration):
      a. As required by State and Federal Regulations.

B. Where provisions of pertinent codes and standards conflict with these specifications, more stringent provisions shall govern.

1.04 QUALIFICATIONS

A. Steel Fabricator shall be a member of the American Institute of Steel Construction or can further demonstrate at least ten (10) years of qualified experience, subject to the approval of the Engineer.

B. Qualify welding procedures, welders and welding operators in accordance with AWS D1.1. See Section 5.06 of this specification for further details.

C. Fabricate structural steel members in accordance with AISC Code of Standard Practice.

D. Maintain one copy of each document on site.

E. Erector: Company specializing in performing the work of this section with a minimum of 5 years documented experience.

F. Design connections not detailed on the drawings under direct supervision of a professional structural engineer experienced in design of this work and licensed in the State of New York.

G. An independent testing laboratory may be employed by the Owner for the final detailed inspection of the work under this section. The Engineer may also elect to undertake this work. In either case, the following items apply:
   1. The testing agency (or Engineer) will inspect materials, workmanship, field welds, bolts and bolt tension and projection of bolt threads. The testing agency will follow specified and applicable AISC criteria and the inspection procedures specified in the "Specifications For Structural Joints Using ASTM A-325 or A-490 Bolts" for checking Hi-Tensile Bolt installation. Materials and workmanship not conforming to drawings and established standards of these

specifications and/or references will be rejected by the Owner and shall be corrected at Contractor's expense.
2. The Contractor shall allow access for such testing at all times.
3. Testing on behalf of the Owner shall not relieve the Contractor of responsibility to comply with the provisions of these specifications.

H. Inspection of material and workmanship in mill and shop, if required, will be performed by the Owner without expense to the Contractor, except as otherwise described in these Specifications. Contractor shall provide access to all areas of work to allow inspection as may be determined necessary by the Owner and Engineer. In either case, whether the Owner decides to require or omit Laboratory inspection in the shop, this shall not relieve the Contractor of the responsibility of providing and erecting steel in full accordance with the Specifications. Any steel not conforming may be rejected by the Engineer at any stage of construction, and shall be repaired or replaced by the Contractor, as required to satisfy all Contract requirements, all without additional cost to the Owner.

1.05 SPECIAL INSPECTIONS

A. Where fabrication of steel assemblies shall be performed offsite, the manufacturer shall:
1. Be accredited by International Accreditation Services under its Fabricator Inspection Accreditation Program and hold a current certificate of accreditation indicating the scope of fabrication accreditation.

OR

2. Obtain approval from the Department of Licenses and Inspections as a fabricator that is exempt from special inspections at its fabrication facility, in accordance with Chapter 17 of the IBC.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Plates, Shapes and Bars
1. All structural steel shapes and bars, except wide flange and HP shapes, shall be purchased under the requirements of ASTM A36 “Standard Specification for Structural Steel,” unless noted otherwise. Wide flange shapes shall conform to ASTM A992, GR-50. HP shapes shall conform to ASTM A572, GR-50.
2. Plates shall be produced from cut lengths of flat product. Plates produced from coil are specifically disallowed. Plates shall be purchased oversized and cut to fabricated dimensions or purchased with sheared, gas, or plasma cut edges in exact sizes. Mill edge plates are not to be used in fabrication. Plates, shapes, and bars shall meet the dimensional requirement of ASTM A6.

B. Structural Steel Tubing
1. Structural Steel tubing shall be purchased under the requirement of ASTM A 500. Tensile requirements for square and rectangular tubing shall meet the requirements of Grade B (46 ksi minimum yield).

C. Pipe
1. Structural steel pipe shall be purchased under the requirements of ASTM A 53 Grade B, unless otherwise noted on the drawings.

D. Grating.
   1. Bar Grating
      a. Grating shall be welded galvanized steel bar grating, Irving type IWA or equal, with 1 ¼ in. x 3/16 in. bearing bars space 1-3/16 in. on centers, unless noted otherwise on Contract Drawings. Grating shall be serrated.
      b. Banding of grating edges not required, unless noted on Contract Drawings. However, provide load-carrying bands at all openings through grating. Grating panels shall be attached to the supporting structure by welding or using anchor and/or clamp assemblies. If welded, use 2 in. of 3/16-in. fillet weld at maximum 12 in. on centers. If using clips, the spacing of attachment clips shall not exceed two (2) feet and there shall be no less than six (6) clip assemblies in any one piece of grating.

E. Ladders
   1. Unless otherwise noted on Contract Drawings, vertical ladders shall be fabricated using 3 ½"x ½" side rails (with eased edges) spaced on eighteen (18) inch centers with 1" round bar rungs spaced on twelve (12) inch centers. Vertical ladders of more than twenty-four (24) feet in height shall have back cages installed beginning between seven and eight feet above the walkway or base elevation and extending to the upper extent of the vertical ladder stringers. The back cages shall be of form and construction to meet applicable OSHA requirements. Stringers shall extend above the top rung of the vertical ladders at least forty-two (42) inches to provide an adequate hand hold for entry and exit from the ladder, unless noted otherwise. Where required for safety, additional 1" square bar grip rungs shall be provided on adjacent structure to facilitate safe and convenient access to the vertical ladder. Support each ladder at top and bottom and at intermediate points where shown by means of welded or bolted steel brackets clear of the wall surface by not less than seven (7) inches.

F. Handrails
   1. Handrails are to be of the two-tier type with toe guard attached at grating level. Unless otherwise noted on Contract Drawings, handrail stanchions shall be 1½" O.D. schedule 80 structural steel pipe with a maximum spacing of six (6) feet on centers and where possible shall be aligned with the transverse supporting framing below the grating for increased rigidity. The top tier of horizontal rail is to be 1½" O.D. schedule 40 structural steel pipe. The intermediate tier of horizontal rail shall be 1½" O.D. schedule 40 structural steel pipe and shall be equidistant from the top rail, and walkway finished surface. For steel walkways, a galvanized L-6"x3½"x3/8" angle toe board is to be installed continuously between handrail stanchions with the bottom of the angle welded to the walkway stringer. For concrete installations, a four inch by one-quarter inch (4" x ¼") painted flat bar kick plate is to be installed continuously between handrail stanchions with the bottom of the bar not more than one quarter inch (¼") above the top of the finished surface.
   2. Portable safety chain type rails are to be installed at all openings in the handrail perimeter. The chain rails are to be fabricated of ¼" hot dipped galvanized chain. Attachments are to be welded ¼" round bar eyelets at one end, and fitted with chain hooks with spring loaded safety clasp at the other end. Chain hooks and clasps are to be hot dipped galvanized. The chain hooks are to attach to ¼" round bar eyelets welded to the handrail stanchion.

G. Bolts, Threaded Rods, Nuts, and Washers
   1. All bolts, anchors, and threaded rods that are not a portion of vendor- furnished equipment packages shall be purchased under the following ASTM Designations, as indicated in the design drawings: ASTM A307, ASTM A325, ASTM A449, ASTM A490, ASTM A193, or ASTM F1554. Nuts shall conform to ASTM A563, and washers shall conform to ASTM F436, unless the grade of bolt, anchor or threaded rod calls for matching nuts and washers from another specification. Where necessary, bolts may be purchased under the equivalent SAE specification of grade eight (8) if mechanical properties are shown to be equivalent. Bolts that are a part

and/or accessory to vendor-purchased items shall meet the manufacturer's requirements as modified by special protective coating stipulations in this specification.

2. All bolts shall be of the size indicated on the contract and detail drawings and shall be UNC coarse thread series. Nuts shall be heavy hex series and fitted with hardened washers, lock washers, and/or other washers as indicated on the drawings.
3. All bolts nuts, and threaded holes in structural steel shall be thoroughly cleaned of any foreign matter including machining chips and oil before the bolts are installed. The threaded portion of the bolt to engage with the nut and/or the threaded steel shall be coated with a thread locking compound suitable for disassembly with hand tools
4. All bolts in slip-critical connections shall be tensioned to seventy (70) percent of the minimum tensile strength of the bolts using the turn of the nut method, or an accurately calibrated torque wrench. Torque shall be applied to the bolts immediately after the application of the thread-locking compound. Bolts that are found to be under the required torque value shall be removed, thoroughly cleaned, and reinstalled with another application of thread locking compound.
5. Impact wrenches, or other tools whose torque is not easily controlled, shall not be used without the written permission of the engineer.
6. Bolts that have been torqued with a calibrated wrench shall be marked with a semi-permanent marker to indicate that they have been tightened to specified value.
7. The bolts, nuts, and washers are to receive the same surface preparation and protective coating systems as the surrounding steel unless otherwise noted on the drawings or in the specification. Note that hop dipped galvanized bolts, nuts, washers, screws, and other similar items are to be used in conjunction with grating, and sheet metal that is specified to be hot dipped galvanized.

PART 3 - EXECUTION

3.01 FABRICATION

A. Fabricate items of structural steel in accordance with AISC Specifications and as indicated on the approved Shop Drawings. Provide camber in structural members as shown.

B. Properly mark and match-mark materials for field assembly and for identification as to structure and site for which intended. Fabricate for delivery sequence, which will expedite erection and minimize field handling of materials.

C. All fabricated members shall have shop marks matching the member designations on the approved shop drawings. Any finished members arriving onsite that are unlabeled, or do not match the approved shop drawings, shall be rejected.

D. Furnish main steel members in one piece without splicing, unless otherwise noted on Contract Drawings or approved by the Construction Manager.

E. Exclude bolt threads from shear planes in bearing type connections using high- strength bolts.

F. Provide either welded or bolted shop connections, except as noted on Contract Drawings. Provide bolted or welded field connections at contractor's option, except as noted on Contract Drawings.

G. Remove all cracks, porosities, spatter, slag inclusions, incomplete fusions, and incomplete penetrations over ½ in. long in any 12 in. length of weld, and reweld as required.

H. Mill ends of columns and other members in direct bearing.

I. Contractor to verify all existing dimensions and elevations before fabrication. The completed structure shall be dimensionally accurate to the extent that parts shall move and function freely without unnecessary strain, wear, vibration or deflections.

J. In regard to items not indicated on the drawings or referenced in the specifications or contract, the requirements of the Code of Standard Practice for Steel Buildings and Bridges as contained in the AISC Manual of Steel Construction – Thirteenth Edition shall be applicable.

K. General dimensional tolerances not specified on the drawings shall meet the requirements of the Code of Standard Practice referenced above. Dimensional tolerances for fitting at joints to be welded shall meet the requirements of AWS D1.1 for pre-qualified and/or Fabricator-qualified welding procedures.

L. All workmanship must be first-class in all respects, and any exposed members not presenting a finished and workmanlike appearance will be rejected. All finished members shall be free from twist, bends or open joints.

M. All members shall be true to length so that assembling may be done without fillers, except where same are required as detailed. There shall be no projecting edges or corners where different members are assembled.

N. All coping, blocking and mitering shall be done with care.

O. All welds on exposed surfaces shall be ground smooth and flush with the adjacent surfaces.

P. All details and connections shall be carefully made and fitted and special care shall be exercised to produce a thoroughly neat and workmanlike appearance. All detail pieces shall be made in exact accordance with detail drawings and all projecting corners clipped and all filler pieces made flush.

Q. Provide all lugs, clips, connections, bolts and the like, necessary for complete fabrication and erection, and to engage with the adjacent construction. Provide setting diagrams for loose items to be built into concrete work indicating location, elevation and projection of loose items. All bolts remaining in the finished, exposed work shall be hexagon head bolts with hexagon nuts. Bolts shall be of proper length to permit full thread in the nut, but shall not project more than ¼” beyond the face of the nut.

R. Burning shapes to length in the shop with a standard flame cutting machine will be permitted. There shall be no burning in the field without the consent of the Owner. If consent is given, burned members shall be finished to an acceptable appearance which shall be the equal of a sheared finish. Burning of holes will not be permitted in the shop or in the field.

S. Cut, drill, or punch holes perpendicular to metal surfaces. Do not flame cut holes or enlarge holes by burning. Drill holes in bearing plates.

3.02 MATERIAL HANDLING

A. Where possible, material shall be handled with slings, straps, and/or plate clamps to minimize the attachment of welded plate clips and lifting lugs to the structure. Where necessary, lifting clips, eyes, and lugs may be fitted on a temporary basis and removed after member erection. Where this course is followed, the base material shall be refinished to original surface condition by welding gouges and grinding surface irregularities to a flush finished condition.

B. In areas where lifting lugs may be left on the structure without detriment to the function or appearance to the structure, the Fabricator shall be permitted to leave the lifting attachments permanently in place. Where this course is followed, the lugs shall be fabricated using optical or numerically controlled burning equipment and shall have smooth finishes on all cut surfaces. In addition, the attachments shall be welded continuously and shall receive surface preparation and protective coating systems identical to the surrounding structure to which they are attached.

C. Material shall be stored so as to avoid contact with the ground, and shall be protected against weathering. Material shall be stored in a manner to insure that no members, protruding flanges, stiffeners, gussets plates, and other attachments are bent or otherwise damaged during storage. During transport, material shall be similarly secured so as to protect it from excessive vibration, abrasion, impact, weather, and anything else which could damage the material or coating.

D. If such defects or damage in material cannot be corrected in the field to the entire satisfaction of the Engineer, the material shall be returned to the shop, or new parts furnished, as the Engineer will direct. The Contractor shall pay all expenses for such actions.

E. Material determined unacceptable by the Engineer shall be corrected or replaced as required, all at Contractor's expense.

3.03 MATERIAL PREPARATION

A. Material shall be carefully cut to length and dimensioned using optical or numerical burning equipment, saws, shears, etc. where possible. Material that is cut using hand torches shall be carefully ground to finished dimensions and to remove any edge irregularities prior to fabrication.

B. Holes for bolts, pins, and miscellaneous attachments shall be drilled or bored. Flame burning is not allowed to prepare holes in structural steel with the exception of using flame burning to remove excessive material prior to finishing the parts with machine tools.

C. Where special grades of steel are required, those being steel grades other than ASTM A 36, the individual parts are to be clearly marked with semi-permanent markers to indicate the steel grade from which the part has been fabricated.

D. The Fabricator shall protect all material from extended ground contact, exposure to corrosive environment, weld spatter, or other conditions that will adversely affect the milled surface finish on the material to be used in fabrication.

3.04 CLEANING AND PAINTING

A. Clean and paint all structural steel as outlined in Sections 09900 and 09967, unless noted otherwise. If a structural steel section is designated to be hot-dip galvanized, galvanize in accordance with Section 09911.

B. Do not shop coat:
   1. Surfaces within 2 in. of field welds.
   2. Contact surfaces of slip-critical high-strength bolted connections.

C. After erection and inspection, erection contractor shall field paint all unpainted surfaces and abraded spots with primer and finish coats as outlined the appropriate Section.

D. For galvanized steel that will be welded after galvanizing, refer to Section 05120.5.06.

3.05 ERECTION

A. Brace and maintain all steel in alignment until other parts of construction necessary for permanent bracing or support are completed.

B. Install temporary guys and bracing to safely resist wind loading designated in applicable building code.

C. Set threads of machine bolts to prevent loosening.

D. Tighten bolts in slip-critical connections by the “turn-of-nut” or calibrated wrench methods as specified in the Specification for Structural Joints Using ASTM A325 or A490 Bolts.

E. Contact surfaces of slip-critical connections shall be free of oil, grease, rust, mill scale, etc.

F. After erection and inspection, paint with shop paint all unpainted surfaces, abraded spots, and bolt heads and nuts.

G. Base plates, complete with anchor bolts shall be accurately located and leveled with instruments. When leveling bolts are not required by the drawings, proper steel shims shall be provided for leveling the base plates. Wood shims will not be permitted to be used for leveling steel base plates or masonry plates. Provide grout holes in base plates as shown on drawings.

H. No shims will be allowed between compression/tension members and base plates.

I. Compression members shall not be spliced except as shown on drawings or as authorized in writing by Engineer.

J. Erect compression and tension members plumb and true, in positions indicated. All work shall be formed, fabricated and erected or installed true to lines, levels, and dimensions, plumb and square. Level and plumb individual members of the structure within specified AISC tolerances.

K. All beams shall be fabricated with crown of mill camber at top.

L. Do cutting, punching, drilling and tapping as required for attachment of other work coming in contact with miscellaneous metal work where so indicated or where directions for same are given prior to or with approval of shop drawings. Do necessary cutting, drilling and fitting required for installation of miscellaneous metal work. Execute drilling, cutting, fitting carefully and where required, fit work at job before finishing. Flame cutting or hole burning will not be accepted, unless specifically approved.

M. Form all work true to detail, with clean, straight, sharply defined profiles. Metals shall have smooth finish surfaces except where otherwise specified. Finish curved work to true radii, using easy curves.

N. Wherever exposed, welds shall be ground smooth and polished to match finish to adjacent metals using filler metal compatible with base metal.

O. Install all supporting members, fastenings, framing, hangers, bracing brackets, straps, bolts, angles as required to set, connect work rigidly and properly to steel, masonry or other construction.

P. Finished work shall be free from warp, twists, bends or open joints and shall present a clean and workmanlike appearance.

Q. Faulty work shall be immediately corrected at no additional expense to the Owner.

R. Unless shown on drawings, Anchorage to concrete shall be accomplished by use of built-in anchors or expansion bolts. Expansion bolts or cartridge driven stud anchorage will be allowed only for fastening to concrete, but will not be permitted for fastening to masonry. Wood plugs will not be permitted for fastening in any walls.

3.06 WELDING

A. General

1. Welding details shall conform to the size and configurations indicated on the contract and Fabricator-prepared detail drawings. Unless otherwise noted and approved by the Engineer, all exterior welding shall be continuous.
2. All welding shall fully comply with the requirements of AWS D1.1 Structural Welding Code – Steel. Other welding procedures may be considered by the Engineer on a per case basis; however, requests for variance from AWS code requirements will normally be denied.
3. Welds shall not be water quenched. For field welding to be performed in the tidal zone, the base metal within 3" of the proposed weld shall be preheated to fully dry the material prior to welding.
4. In general, electrodes shall be new, or reconditioned, at the start of each work shift. The Contractor shall strictly adhere to the atmospheric exposure and baking requirements of Clause 5 of AWS D1.1, and shall provide suitable holding and conditioning ovens onsite, as necessary.

B. Welding Procedures

1. Formal written welding procedure specifications (WPS) shall be prepared by the Contractor and submitted to the Engineer for review prior to the commencement of fabrication. All WPS shall be either prequalified in accordance with AWS, or qualified by the Fabricator on a case-by-case basis.
2. The formal WPS shall contain all variables listed in AWS Table 3.8, including: sketches indicating joint geometry and access or backing holes; welding process; base material specification and thickness limits; backing material specification and dimensions; groove preparation dimensions and tolerances, permitted welding positions; electrode rod, wire, flux and gas shield information; current type, range and polarity; and preheat and interpass temperature ranges.
3. Welding procedures that are not pre-qualified by AWS D1.1, and are to be qualified by the Fabricator, shall be qualified in accordance with AWS D1.1 in the presence of the Engineer and/or his designated representative.
4. Allowable welding processes are shielded metal are welding (SMAW), gas metal arc welding (GMAW), flux core arc welding (FCAW), and submerged arc welding (SAW). As such, the following filler material requirements are to be used on all grades of steel used on this project:

SMAW	E70X5(-X), E70X6(-X), E70X8(-X)
SAW	F7X-EXXX-X
GMAW	ER70S-X
FCAW	E7XTX-X (Except –2, -3, -1-, -GS)

   Higher filler metal strengths may be required when welding materials in groups III and IV of AWS D1.1 Table 3.1.
5. Submerged arc welding, while being very efficient on thick material, sometimes produces excessive distortion on light gauge materials. Where the Fabricator desires to use submerged arc welding on material of less than one-half (1/2) inch in thickness, it shall be demonstrated to the Engineer that excessive distortion of the material can be effectively controlled.
6. Short circuiting transfer (short arc) welding produces low heat input into parent material and is useful for preventing excessive distortion when welding relatively thin steel shapes and plate. Penetration produced by short arc welding is minimal and often times insufficient for highly

stressed parts. Short arc welding will only be considered on certain thin plate structures where stress levels are relatively low. Specific written approval of the engineer is required for the use of short arc welding.

7. All bevel welds shown without penetration size shall be complete joint penetration welds.
8. Backing bars shall be removed from all accessible complete joint penetration welds.
9. When the 'all-around" welding symbol is used at an end connection of a rolled shape, the Contractor shall terminate the weld at each of the flange edges, and one weld thickness away from each intersection of the web and flange, unless noted otherwise.
10. Parts to be joined by fillet welds shall be brought into close contact, and the root opening shall not be permitted to exceed 3/16 in, unless written permission is granted by the Engineer. If the root opening separation is greater than 1/16 in, the legs of the fillet weld shall be increased by the size of the root opening.

C. Welders and Welding Operator Qualifications
   1. Each welder or welding operator shall be qualified in accordance with AWS D1.1. Welding Personnel Qualification Records shall be submitted to the Engineer for review.
   2. WPQRs shall contain all of the variables listed in AWS Table 4.12, and shall be applicable to the welds that a given welder proposes to perform on the project.
   3. If the qualification test listed on the WPQR is more than six (6) months old, a detailed employment history and letter must accompany the WPQR to certify that the welder has been engaged in the welding process in question since the date of original qualification.

D. Welding Galvanized Steel
   1. Prior to welding surfaces that have been previously hot dip galvanized, all zinc coating must be removed from either side of the intended weld zone, and on both sides of the piece.
   2. Zinc coating may be removed by grinding or burning. If the coating is removed by burning, the surface shall be further ground or cleaned to remove combustion byproducts and other impurities.
   3. Welding shall be performed in Accordance with AWS D19.0.
   4. In order to prevent excessive heat that could damage the adjacent galvanized coating, weave beads shall not be permitted.
   5. Recoat areas after the completion of welding in accordance with the Contract Drawings and Section 09911.

3.07 REWORK AND FAIRING

A. Fabricated steel that is out of dimensional tolerances and/or not fair to the eye may be replaced and/or repaired by the Fabricator. If heat fairing is to be used, the material shall not be heated to more than twelve hundred (1200) degrees Fahrenheit. During heat fairing procedures, the Fabricator shall monitor the material temperature with temp sticks or lacquer, surface applied thermocouple gauges, or some other suitable form of temperature measuring system.

3.08 WELD INSPECTION

A. Inspection of welded splices of main material and all complete penetration welds selected by the Engineer shall be by a testing laboratory selected by the Engineer and paid by the Owner, unless noted otherwise. All weld testing shall be in accordance with the AWS, unless otherwise modified hereinafter.

B. The Contractor shall cooperate with and assist the Owner with the inspection of welds.

C. Unless noted otherwise, visual inspection of all welds will be made by the Contractor. A record of this inspection shall be maintained by the Contractor.

D. The Contractor shall correct improper workmanship and remove, replace or correct as instructed all welds found unacceptable or deficient by the Engineer. The Contractor shall pay for all corrections.

E. Send five copies of reports on all required testing directly to the Engineer.

3.09 COMPLETION

A. Upon Completion or when directed, conduct careful inspection and correct all defective work.

B. Remove scrap, litter and debris resulting from operations specified herein, and leave work and the premises in clean satisfactory condition, ready to receive subsequent work.

END OF SECTION

SECTION 09 90 00

PAINTING & COATING

PART 1 - GENERAL

1.01 SCOPE

A. Work Included
   1. Paint and finish all surfaces listed in the Painting Schedule, Part Five of this Section. Provide all touch up and remedial painting as required until the work is accepted by the Engineer.

B. Work Not Included
   1. Painting specified under other sections.
   2. Unless otherwise indicated, painting is not required on surfaces in concealed areas and inaccessible areas.
   3. Metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze, and similar finished materials will not require painting under this Section except as may be specified herein.
   4. Do not paint any moving parts of operating units; mechanical or electrical parts such as valve operators, linkages, sensing devices, and motor shafts, unless otherwise indicated.
   5. Do not paint over any required labels or equipment identification, performance rating, name, or nomenclature plates.

C. Definitions
   1. The term "paint", as used herein, means all coating systems materials including primers, emulsions, epoxy, enamels, sealers, fillers, and other applied materials whether used as prime, intermediate, or finish coats.

1.02 SUBMITTALS

A. Contractor shall submit the following in accordance with Section 013300, Submittal Procedures:
   1. Submit recommended color, paint specifications, proposed application procedure, and manufacturer contact number three weeks prior to painting.

1.03 QUALIFICATIONS

A. Qualification of Manufacturer
   1. Products used in the work of this Section shall be produced by manufacturers regularly engaged in manufacture of similar items and with a history of successful production acceptable to the Engineer.

B. Qualifications of Workmen
   1. Provide and identify by name, at least one person who shall be present at all times during execution of the work of this Section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this Section.
   2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the methods and materials to be used.

3. In acceptance or rejection of the work of this Section, the Engineer will make no allowance for lack of skill on the part of workmen.

C. Paint Coordination
1. Provide finish coats, which are compatible with the prime coats used.
2. Review other Sections of these Specifications as required, verifying the prime coats to be used and assuring compatibility of the total coating system for the various substrata.
3. Upon request, furnish information on the characteristics of the specific finish materials to ensure that compatible prime coats are used.
4. Provide barrier coats over non-compatible primers, or remove the primer and reprime as required.
5. Notify the Engineer in writing of anticipated problems in using the specified coating systems over prime coating supplied under other Sections.

D. In addition to complying with all pertinent codes and regulations, comply with all pertinent recommendations contained in the latest revision of the following publications of the Steel Structures Painting Council:
1. SSPC-SP-l Solvent Cleaning
2. SSPC-SP-2 Hand Tool Cleaning
3. SSPC-SP-3 Power Tool Cleaning
4. SSPC-SP-4 Flame Cleaning
5. SSPC-SP-5 White Metal Blast Cleaning
6. SSPC-SP-6 Commercial Blast Cleaning
7. SSPC-SP-7 Brush Off Blast Cleaning
8. SSPC-SP-8 Pickling
9. SSPC-SP-9 Weathering Blast Cleaning
10. SSPC-SP-10 Near White Metal Cleaning

PART 2 - PRODUCTS

2.01 MATERIAL

A. Design
1. Design is based on use of paint products manufactured by Glidden or Rustoleum, and the materials of those manufacturers are named in the Painting Schedule.
2. Equal products of Sherwin-Williams or other manufacturers may be used if approved by Engineer.

B. General
1. Provide the best quality grade of the various types of coatings as regularly manufactured by paint materials manufacturers approved by Engineer. Materials not displaying the manufacturer's identification as a standard best-grade product will not be acceptable.

C. Durability
1. Provide paints of durable and washable quality. Do not use paint materials which will not withstand normal washing as required to remove pencil marks, ink, ordinary soil, and similar material without showing discoloration, loss of gloss, staining, or other damage.

D. Colors and Glosses
1. Paint colors shall be as specified below, or Owner approved equal, unless noted otherwise on the Contract Drawings:
a. Handrail - Sherwin Williams Safety Yellow (SW 4084)

b. Cleats - Sherwin Williams Safety Yellow (SW 4084)
c. Bollards - Sherwin Williams Safety Yellow (SW 4084)
d. Walkway Stringers - Sherwin Williams Blueprint (SW 4058)
e. All other structural steel - Primer only.

2. The Construction Manager will be the sole judge of acceptability of the various glosses obtained from the materials supposed to be used in the Work.

E. Undercoats and Thinners

1. Provide undercoat paint produced by the same manufacturer as the finish coat. Use only the thinners recommended by the paint manufacturer, and use only to the recommended limits. Insofar as practicable, use undercoat, finish coat, and thinner material as parts of a unified system of paint finish.

F. Standards

1. Provide paint materials, which meet or exceed the standards listed for each application in the Painting Schedule in Part Five of this Section.

2.02 APPLICATION EQUIPMENT

A. General

1. For application of the approved paint, use only such equipment as is recommended for application of the particular paint by the manufacturer of the particular paint, and as approved by Engineer.

B. Compatibility

1. Prior to actual use of application equipment, use all means necessary to verify that the proposed equipment is actually compatible with the material to be applied and that the integrity of the finish will not be jeopardized by use of the proposed application equipment.

2.03 OTHER MATERIALS

A. All other materials, not specifically described but required for a complete and proper installation of the work of this Section, shall be new, first-quality of their respective kinds, and as selected by the Contractor subject to the approval of the Engineer.

PART 3 - EXECUTION

END OF SECTION

SECTION 01 10 00 - A

SUMMARY OF WORK (supplement)

PART 1 - GENERAL

1.01 GENERAL PROJECT AND SITE DESCRIPTION

A. The project is located on the Battery Park Terminal on the eastern shore of the Hudson River in New York, NY.

B. The structure is a concrete and steel arched deck structure supported on timber piles.

C. Recent surveys indicate that a portion of the timber piles exhibit signs of moderate to serious deterioration.

D. The surveys also indicate areas of cracking and spalling on the underside of the concrete arches.

E. The objective of the project is to protect the timber piles and concrete and retard the ongoing processes of deterioration.

1.02 WORK INCLUDED IN THE CONTRACT

A. GENERAL
1. Provide all labor, equipment, materials, and all other services and expenses as may be necessary for, and incidental to, the proper execution and completion of the tasks as described herein.

B. MOBILIZATION & STARTUP
1. Perform a survey of the entire dock structure to verify conditions, quantities and dimensions.
2. Mobilize all personnel, equipment and materials to the site as needed. A laydown area for equipment and materials will be provided for by the Owner in the vicinity of the work site.
3. All equipment and materials shall be located in the laydown area(s) provided by the Owner, or as otherwise directed by the Owner. Bids shall include any specific laydown requirements required to perform the work.
4. Install all turbidity barriers and materials to comply with all permits and E&S plans.

C. PROTECTIVE AND REPAIR WORK
1. Follow the procedures outlined on the drawings to clean and prepare the surfaces and install the proposed repair materials for the following items:
    a. Protective Pile Wrapping
    b. Concrete Crack and Spall Repair
    c. Steel Coating Repair
    d. Breakwater Repairs
    e. Steel Fascia Repair

D. DEMOBILIZATION & CLOSE-OUT
1. Demobilize from the site and leave the facility in a clean and satisfactory condition.
2. Submit as-built drawings to the Owner.

1.03 INCIDENTAL ITEMS

A. Review the information available relating to the project, including, but not limited to, the construction drawings, drawings indicating previous repairs, investigation survey report(s), geotechnical investigation/report, tides and currents.

B. Adhere to and abide by all the Owner's safety and security policies at all times.

C. Provide and maintain all safety measures and devices to ensure public safety and prevent public access to the structure throughout construction.

D. Include all required insurance documents with Bid.

1.04 EXCLUSIONS

A. All exclusions shall be specifically stated in the Bid and shall become the basis for the Contract.

B. No additional exclusions or modifications will be accepted after the award of work.

1.05 PERMITS

A. Obtain all permits required for performing the work under the Contract.

1.06 SCHEDULE

A. Bids shall include an approximate schedule of duration for the completion of the construction and associated activities.

PART 2 - PRODUCTS (not used)

PART 3 - EXECUTION (not used)

END OF SECTION

SECTION 01 33 00 - A

SUBMITTAL PROCEDURES (supplement)

PART 1 - GENERAL

1.01 SCOPE

A. The provisions of this section apply to the submittal of all information by the Contractor to the Engineer / Owner.

PART 2 - PRODUCTS (not used)

PART 3 - EXECUTION

3.01 SUBMITTAL PROCEDURES

A. Make Submissions in a timely manner. Do not initiate a construction activity prior to receiving ALL the submittals, reviewed by the Engineer, related to the construction activity, indicating an authorization to proceed with the construction activity. Any construction activity performed without this authorization shall be at Contractor’s risk and cost. Delays arising due to the failure in making timely submittals shall be at Contractor’s cost. No compensation will be paid for construction activities performed without the authorization of the Engineer.

B. Submit a Submittal Log, documenting the list of submittals to be made during the project, prior to mobilization.

C. Transmit each submittal with a letter of transmittal indicating the content of the submittal, quantity of submitted items and any special instructions.

D. Submittals are to be sequentially numbered. Mark revised submittals with original number and sequential alphabetic suffix.

E. Identify Project, Contractor, Subcontractor and Supplier; pertinent drawing and detail number, and specification section number, appropriate to submittal.

F. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with requirements of the Work and Contract Documents.

G. Schedule submittals to expedite Project. All materials shall be submitted electronically either through email or other media. The Contractor shall coordinate with the Engineer and Owner as to the preferred submission procedures for the project.

H. For each submittal, allow for a 10-working-day review period excluding delivery time to and from Contractor.

I. Identify with highlighter and/or red ink variations from Contract Documents and product or system limitations, which may alter or be detrimental to successful performance of completed Work. Contractor shall provide an estimated cost for any proposed alternates.

J. Allow space on submittals for Contractor and Engineer review stamps.

K. When revised for resubmission, identify changes made since previous submission.

L. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report inability to comply with requirements.

M. Submittals not requested will not be recognized or processed.

N. No materials, supplies, equipment or labor shall be ordered for an item until the Engineer has reviewed the submittal.

O. Update the submittal log and submit to the Engineer every month at a minimum.

3.02 SUBMITTAL DATA

A. Product Data: Submit to the Engineer, for the purpose of review and checking the conformance with information given and design concept expressed in Contract Documents.

B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project. Record this information in the submittal matrix.

END OF SECTION

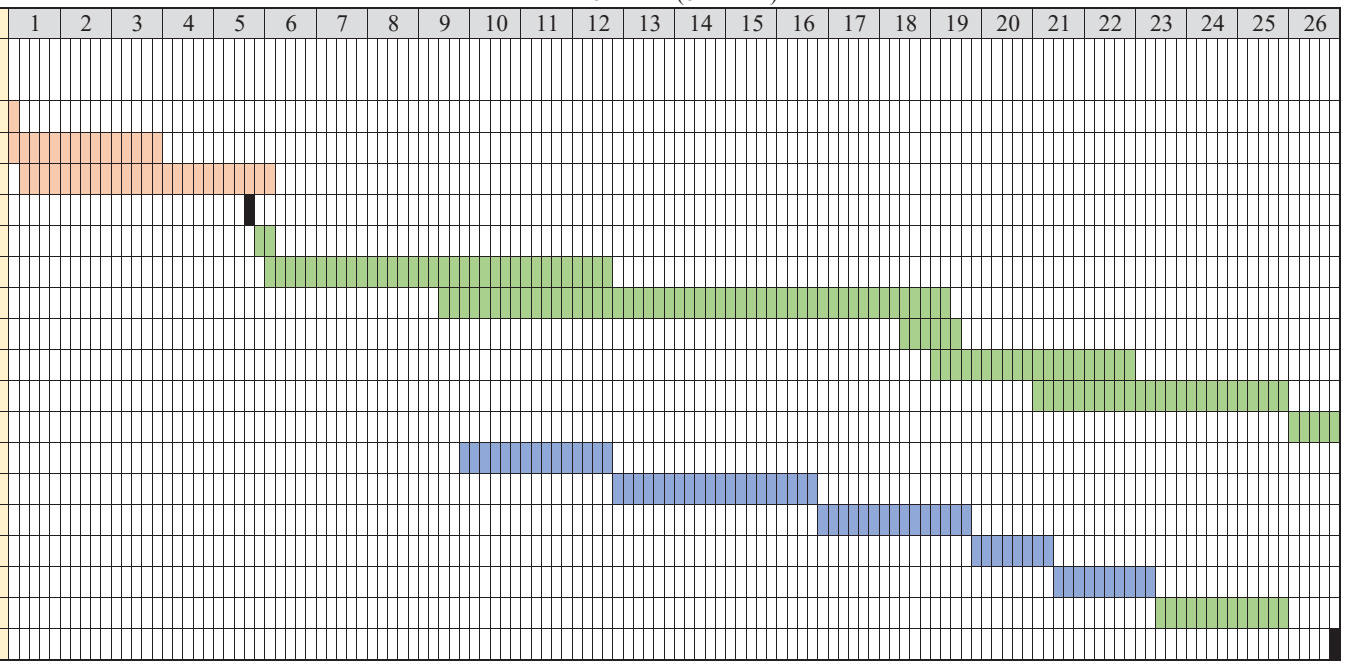
BATTERY PARK CITY AUTHORITY

Pier A Structural Repairs Project – Phase II Contractor Services

Bid Level Schedule

26 Weeks (6 months)

	Shifts	
	Out of Water	In-Water
Award	1	
Permits	15	
Submittal Approvals	20	
Mobe	1	
Install curtain	2	
Spall Repairs (I & II)	30	14
Crack Repairs	40	20
Pier Stem Void & Joint	6	
Pier A Edge Void	20	10
Replace Failed Concrete	25	
Girder Flange Repair	5	
Seal & Wrap Piles		15
Breakwater Voids		20
Breakwater Spalls		15
Breakwater Undermining		8
UW Crack Repairs	10	10
Fascia Coating	12	
Substantial Completion	1	



Assumed Start : 5/1/2024

Assumed Completion: 11/1/2024

EXHIBIT C
PROPOSAL SUBMISSION PACKET

[ATTACHED]

I. PROPOSAL SUBMISSION CHECKLIST AND CONFIRMATION STATEMENT

[ ] The Proposer hereby certifies that they meet the Minimum Qualification Requirements as stated in Section V.A of the RFP.

[ ] The Proposer hereby certifies that except as disclosed in the Proposal, no officer or employee of the Proposer is directly or indirectly a party to or in any other manner interested financially or otherwise in this RFP.

[ ] The Proposer hereby certifies that they have reviewed BPCA's Standard Form of Contract, attached as Exhibit D to the RFP, and either has no objections or has detailed their objections in an appendix to their Proposal.

[ ] The Proposer hereby certifies that they possess the experience, ability, resources and financial standing to perform the Services and shall, upon request by the Authority, provide documentation of such.

[ ] The Proposer hereby certifies that their Proposal submitted for the Pier A Construction Management Services includes the following required documents and forms, or that, where any required form or document may not be included, a written explanation has been provided for that omission:

[ ] Executive Summary

[ ] Answers to Information Required

[ ] Vendor Responsibility Questionnaire / Certificate of No Change

[ ] Statement of Non-Collusion

[ ] New York State Finance Law §139 Compliance Forms

[ ] Encouraging the Use of New York State Businesses Statement

[ ] Acknowledgement of Addenda Form

[ ] MWBE Utilization Plan

[ ] SDVOB Utilization Plan

[ ] Diversity Practices Questionnaire

[ ] EEO Policy Statement

[ ] Copy of the Proposer's IRS W9 Form (https://www.irs.gov/pub/irs-pdf/fw9.pdf)

Name of Proposer:

Officer Name:

Officer Title:

_____

(Signature of Officer)

II. INFORMATION REQUIRED

A. Questions and Information Sought Relating to the Work

1) Describe your firm's background, services, size, and history as these factors may be relevant to the CM Services – especially those services performed in New York City, with an emphasis on buildings, historic structures, and public spaces in marine settings, as well as in-water marine construction.

2) Describe your proposed approach to, and methodology for, performance of the Services, including staffing, communication, and schedule protocols. Describe your proposed approach to, and methodology for, overseeing in-water construction work.

3) Please describe your experience and approach to managing multiple concurrent construction projects.

4) Describe your firm's experience with constructability reviews and cost estimating.

5) List each key member of the team you intend to assign to this engagement, and include for each listed individual: (a) area(s) of specialization; (b) title and/or position within your firm; (c) the services to be performed; and d) their experience and qualifications with respect to the factors referenced in Question #1 above.

6) Identify the person who will be the lead project manager (the "Lead PM") and primary contact in providing services to BPCA, and any other persons who will be listed as a "key person" in any contract with BPCA.

7) Identify any subcontractors you intend to use for this engagement, and describe the services to be performed by each subcontractor.

8) Describe your proposed team's experience with similar work for other public entities, with an emphasis on New York State public entities.

9) Clearly identify any information in your Proposal that you believe to be confidential and exempt from FOIL, and state the reasons. Please note that this question is for informational purposes only, and BPCA will determine, in its sole discretion, whether requested documents are exempt from disclosure under FOIL.

10) Identify any and all exceptions taken to BPCA's Standard Form of Contract, attached as Exhibit D, explaining the reasons for such exceptions. Such exceptions must be detailed in an appendix to your Proposal labeled, "Appendix: Objections to BPCA Form of Contract." No exceptions to the Contract will be considered by BPCA after submission of the Proposals. BPCA maintains the right to reject Proposals based on non-conformance with the standard form of Contract.

11) Provide at least three (3) client references for whom your firm has performed similar work to that requested in this RFP. For each client, describe the project, the project's date, and services performed, and provide the name, address, and telephone number for a person at client's firm familiar with such work.

12) Describe your firm's environmentally sustainable business practices or activities, and how such practices may be brought to use in the performance of the Work.

B. Questions and Information Sought Relating to Proposer's Firm & Eligibility

1) Within the past three (3) years, have there been any significant developments in your firm such as changes in ownership or restructuring? Do you anticipate any significant changes in the near future? If so, please describe.

2) How does your firm identify and manage conflicts of interest?

3) Are there any potential conflict of interest issues posed by your firm's performance of the Work on behalf of BPCA?

4) Has your firm or have any of the firm's partners/employees been disciplined or censured by any regulatory body within the last five (5) years? If so, please describe the relevant facts.

5) Within the last five (5) years, has your firm, or a partner or employee in your firm, been involved in litigation or other legal proceedings relating to the provision of professional services? If so, please provide an explanation and the current status or disposition of the matter.

6) List any professional or personal relationships your firm's employees may have with BPCA's Board Members and/or employees – a list of which is attached as Exhibit G.

7) If selected, will your firm assign any person to this engagement who was previously an employee of BPCA or BPCA's affiliate, Battery Park City Parks Conservancy ("BPCPC")? If so, please: i) identify when (month and year) that person's employment at BPCA/BPCPC terminated, and ii) describe that person's involvement, if any, with matters related to this RFP during his/her employment at BPCA/BPCPC.

8) In the past five (5) years, have any public sector clients terminated their working relationship with your firm? If so, please provide a brief statement of the reasons. Provide the name of the client and provide a contact person, address and telephone number.

III. VENDOR RESPONSIBILITY QUESTIONNAIRE

A. Instructions

The Standard Vendor Responsibility Form should be filled out by someone in your firm who knows about tax filings, prior findings of non-responsibility by a governmental authority, etc., and can certify the accuracy of all information requested in the form (such as legal status, tax status, and debarment status).

You must answer every question on the questionnaire.

NOTE: You may fill out the "Certificate of No Change" form instead ONLY if your firm has submitted the Vendor Responsibility form to Battery Park City Authority already during this calendar year. If this is the first time your firm is proposing to do work for Battery Park City Authority this year, then you must fill out the entire Vendor Responsibility Questionnaire.

B. Standard Vendor Responsibility Questionnaire

a. Legal Business Name:
b. Federal Employer Id No. (FEIN):
c. D/B/A – Doing Business As (if applicable):
d. County Filed:
e. Website Address (If Applicable)
f. Principal Place Of Business Address:
g. Telephone:
h. Fax (If Applicable):
i. Authorized Contact For This Questionnaire:
    i. Name:
    ii. Title:
    iii. Telephone:
    iv. Email:
j. Type Of Business (please check appropriate box and provide additional information)
    ☐ Corporation (Sole Proprietor). State of Incorporation:
    ☐ Corporation (General Partnership). State of Incorporation:
    ☐ Corporation (Not-For-Profit). Charities Registration Number:
    ☐ Corporation (Limited Liability Company/LLC). Jurisdiction Filed In:
    ☐ Corporation (Limited Partnership). State/County filed in:

☐ Individual
☐ Other – Specify:

k. If not incorporated or formed in New York State, please provide a current Certificate of Good Standing from your state or applicable local jurisdiction.

l. List the name and title of each principal owner, officer, major stockholder (10% or more of the voting shares for publicly traded companies, 25% or more of the shares for all other companies), director, and member, as applicable:

m. Authorized Contact For The Proposed Contract:

i. Name:
ii. Title:
iii. Telephone:
iv. Email:

[NO FURTHER TEXT ON THIS PAGE]

Vendor Name:		Vendor FEIN:	

C. Does the vendor use, or has it used in the past five (5) years, any other business name, FEIN, or D/B/A other than what is listed in question a-c above? If yes, please provide the name(s), FEIN(s), and D/B/A(s) and the address for each such company and D/B/A on a separate page and attach to this response.	Yes ☐ No☐
D. Within the past five (5) years, has the vendor, any principal, owner, officer, major stockholder (10% or more of the voting shares for publicly traded companies, 25% or more of the shares for all other companies), affiliate[1] or any person involved in the bidding, contracting or leasing process been the subject of any of the following:	
a. a judgment or conviction for any business related conduct constituting a crime under federal, state or local government law including, but not limited to, fraud, extortion, bribery, racketeering, price-fixing or bid collusion or any crime related to truthfulness and/or business conduct?	Yes ☐ No☐
b. a criminal investigation or indictment for any business related conduct constituting a crime under federal, state or local government law including, but not limited to, fraud, extortion, bribery, racketeering, price-fixing or bid collusion or any crime related to truthfulness and/or business conduct?	Yes ☐ No☐
c. an unsatisfied judgment, injunction or lien for any business related conduct obtained by any federal, state or local government agency including, but not limited to, judgments based on taxes owed and fines and penalties assessed by any federal, state or local government agency?	Yes ☐ No☐
d. an investigation for a civil or criminal violation for any business related conduct by any federal, state or local agency?	Yes ☐ No☐
e. a grant of immunity for any business-related conduct constituting a crime under federal, state or local governmental law including, but not limited to, fraud, extortion, bribery, racketeering, price-fixing, bid collusion or any crime related to truthfulness and/or business conduct?	Yes ☐ No☐
f. a federal, state or local government suspension or debarment from the contracting process?	Yes ☐ No☐
g. a federal, state or local government contract suspension or termination for cause prior to the completion of the term of a contract?	Yes ☐ No☐

[1]"Affiliate" meaning: (a) any entity in which the vendor owns more than 50% of the voting stock; (b) any individual, entity or group of principal owners or officers who own more than 50% of the voting stock of the vendor; or (c) any entity whose voting stock is more than 50% owned by the same individual, entity or group described in clause (b). In addition, if a vendor owns less than 50% of the voting stock of another entity, but directs or has the right to direct such entity's daily operations, that entity will be an "affiliate" for purposes of this questionnaire.

h. a federal, state or local government denial of a lease or contract award for non-responsibility?	Yes ☐	No☐
i. an administrative proceeding or civil action seeking specific performance or restitution in connection with any federal, state or local contract or lease?	Yes ☐	No☐
j. a federal, state or local determination of a willful violation of any public works or labor law or regulation?	Yes ☐	No☐
k. a sanction imposed as a result of judicial or administrative proceedings relative to any business or professional license?	Yes ☐	No☐
l. a consent order with the New York State Department of Environmental Conservation, or a federal, state or local government enforcement determination involving a violation of federal, state or local environmental laws?	Yes ☐	No☐
m. an Occupational Safety and Health Act citation and Notification of Penalty containing a violation classified as serious or willful?	Yes ☐	No☐
n. a rejection of a bid on a New York State contract or a lease with the State for failure to comply with the MacBride Fair Employment Principles?	Yes ☐	No☐
o. a citation, violation order, pending administrative hearing or proceeding or determination issued by a federal, state or local government for violations of:		
i. health laws, rules or regulations	Yes ☐	No☐
ii. unemployment insurance or workers' compensation coverage or claim requirements	Yes ☐	No☐
iii. ERISA (Employee Retirement Income Security Act)	Yes ☐	No☐
iv. human rights laws	Yes ☐	No☐
v. federal U.S. Citizenship and Immigration Services laws	Yes ☐	No☐
vi. Sherman Act or other federal anti-trust laws	Yes ☐	No☐
p. entered into an agreement to a voluntary exclusion from contracting with a federal, state or local governmental entity?	Yes ☐	No☐
q. a denial, decertification, revocation or forfeiture of Women's Business Enterprise, Minority Business Enterprise or Disadvantaged Business Enterprise status?	Yes ☐	No☐
r. a rejection of a low bid on a federal, state or local contract for failure to meet statutory affirmative action or Minority or Women's Business Enterprise or Disadvantaged Business Enterprise status requirements on a previously held contract?	Yes ☐	No☐
s. a finding of non-responsibility by an agency or authority due to a violation of State Finance Law §139-j?	Yes ☐	No☐
For each YES answer to questions D., a-s above, provide details on additional pages regarding the finding, including but not limited to cause, current status, resolution, etc.		

Vendor Name:		Vendor FEIN:	

E. During the past three (3) years has the vendor failed to:	
a. File returns or pay any applicable federal, state or local government taxes? If yes, identify the taxing jurisdiction, type of tax, liability year(s) and tax liability amount the company failed to file/pay and the current status of the liability.	Yes ☐ No☐
b. File returns or pay New York State Unemployment Insurance? If yes, indicate the years the company failed to file/pay the insurance and the current status of the liability.	Yes ☐ No☐
Have any bankruptcy proceedings been initiated by or against the vendor or its affiliates within the past seven (7) years (whether or not closed) or is any bankruptcy proceeding pending by or against the vendor or its affiliates, regardless of the date of filing? If yes, indicate if this is applicable to the submitting vendor or one of its affiliates: If it is an affiliate, include the affiliate's name and FEIN: Provide the court name, address and docket number: Indicate if the proceedings have been initiated, remain pending or have been closed: If closed, provide the date closed:	Yes ☐ No☐
F. Does the vendor have the financial resources necessary to fulfil the requirements of the proposed contract?	Yes ☐ No☐

Vendor Name:		Vendor FEIN:	

G. Certification:

State of:)

) ss:

County of:)

CERTIFICATION:

The undersigned, personally and on behalf of the vendor identified in questions B(a)-B(c) above, does hereby state and certify to Battery Park City Authority – State of New York that the information given above is true, accurate and complete. It is further acknowledged that Battery Park City Authority – State of New York will rely upon the information contained herein and in any attached pages for purposes of evaluating our company for vendor's responsibility for contract award and Battery Park City Authority – State of New York may, in its discretion, by means which it may choose, verify the truth and accuracy of all statements made herein. It is further acknowledged that intentional submission of false or misleading information may constitute a felony under Penal Law Section 175.35 or may constitute a misdemeanor under Penal Law Sections 175.30, or 210.45, and may also be punishable by a fine and/or imprisonment of up to five years under 18 USC Section 1001 and may result in a denial of contract award or contract termination.

Name of Business:

Address:

City, State, Zip:

Officer Name:

Officer Title:

_____

Signature of Officer

IV. CERTIFICATE OF NO CHANGE FORM

NOTE: You may fill out the "Certificate of No Change" form instead ONLY if your firm has submitted the Vendor Responsibility form to Battery Park City Authority already during this calendar year. If this is the first time your firm is proposing to do work for Battery Park City Authority this year, then you must fill out the entire Vendor Responsibility Questionnaire.

CERTIFICATE OF NO CHANGE

STATE OF ( )

COUNTY OF) ss.:

The undersigned, being duly sworn, deposes and says:

1. I am_____, the_____ (title) of _____ (hereinafter the "Contractor"), which is currently submitting an amendment to a State Contract.

2. Contractor previously submitted the completed Battery Park City Authority Standard Vendor Responsibility Questionnaire, dated_____, in connection with another State Contract.

3. Attached is an accurate and true copy of such previously submitted Standard Vendor Responsibility Questionnaire.

4. I hereby certify that with the exception of the information specified in Question 12, and as changed herein, there has been no material change in the information pertaining to the Contractor specified on such attached Questionnaire.

AUTHORIZED CONTACT FOR THE PROPOSED CONTRACT:

Name & Title: _____

Telephone Number: _____

Email: _____

_____
Signature

_____
Print Name

_____
Title

V. STATEMENT OF NON-COLLUSION

A. By submission of this Proposal, Proposer and each person signing on behalf of Proposer certifies, (and in the case of a joint Proposal each party thereto certifies) as to its own organization, under penalty of perjury, that to the best of his knowledge and belief:
   a. The prices in this Proposal 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 Proposer or with any competitor.
   b. Unless otherwise required by law, the prices which have been quoted in this Proposal have not been knowingly disclosed by the Proposer and will not knowingly be disclosed by the Proposer prior to opening, directly or indirectly to any other Proposer or to any competitor.
   c. No attempt has been made or will be made by Proposer to induce any other person, partnership, firm or corporation to submit or not to submit a Proposal for the purpose of restricting competition.

B. A Proposal shall not be considered for award nor shall any award be made where sub-paragraphs A.a, A.b, and A.c above have not been complied with provided however, that if in any case Proposer cannot make the foregoing certification and the Proposer shall so state and shall furnish with its Proposal a signed statement which sets forth in detail the reasons therefore. Where sub-paragraphs A.a, A.b, and A.c above have not been complied with, Proposal shall not be considered for award nor shall any award be made unless the Authority determines that such disclosure was not made for the purpose of restricting competition. The fact that a Proposer (a) has published price lists, rates, or tariffs covering items Being procured, (b) has informed prospective customers of proposed or pending Publication of a new or revised price lists for such item, or (c) has sold the same items To other customers at the same prices being proposed, does not constitute, without more, a disclosure within the meaning of paragraph A. a, above.

C. This Proposal, if made by a corporate Proposer, shall be deemed to have been authorized by the board of directors of the Proposer and such authorization shall be deemed to include the signing and submission of the Proposal and the inclusion thereof of the statement of non-collusion as the act and deed of the corporation.

(Insert Name of Proposer and Sign Below)

By: _____
(Print full legal name of person, firm, partnership, or corporation)

_____
(Signature)

_____
(Address)

_____ _____ _____
Corporate ID Number Federal ID Number Date

STATEMENT OF NON-COLLUSION *(CONTINUED)*

If the Proposer is an individual, the Proposer's legal residence is as follows:

_____

Street Address City State ZIP

If Proposer is a Firm or Partnership, complete the following:

Name of Members or Partners	Legal Residence

If Proposer is a Corporation, complete the following:

Names of All Officers	
President:	
Vice President:	
Secretary:	
Treasurer:	
Other Officers/Titles (if applicable):	

VI. OFFEROR'S AFFIRMATION OF UNDERSTANDING OF AND AGREEMENT PURSUANT TO STATE FINANCE LAW §139-j(3) AND §139-j(6)(b)

For reference, the applicable sections of the New York State Finance Law can be found here: https://www.nysenate.gov/legislation/laws/STF/139-J

Offeror affirms that it understands and agrees to comply with the procedures of Battery Park City relative to permissible Contacts as required by State Finance Law §139-j(3) and §139-j(6)(b).

By: _____ Date: _____

_____
(Signature)

_____
(Name – Printed)

_____
(Title)

Contractor Name: _____
(Company)

Contractor Address: _____

VII. OFFEROR'S CERTIFICATION OF COMPLIANCE WITH STATE FINANCE LAW §139-k(5)

For reference, the applicable sections of the New York State Finance Law can be found here: https://www.nysenate.gov/legislation/laws/STF/139-K

I certify that all information provided to Battery Park City Authority, its subsidiaries and affiliates with respect to State Finance Law §139-k is complete, true and accurate.

By: _____ Date: _____

_____
(Signature)

_____
(Name – Printed)

_____
(Title)

Contractor Name: _____
(Company)

Contractor Address: _____

VIII. OFFEROR DISCLOSURE OF PRIOR NON-RESPONSIBILITY DETERMINATIONS

Name of Individual or Entity Seeking to Enter into the Procurement Contract:	
Address:	
Name and Title of Person Submitting this Form:	
Project Name:	
Date:	

1. Has any Governmental Entity made a finding of non-responsibility regarding the individual or entity seeking to enter into the Procurement Contract in the previous four years? If yes, please answer the next questions:	Yes ☐ No☐
2. Was the basis for the finding of non-responsibility due to a violation of State Finance Law §139-j?	Yes ☐ No☐
3. Was the basis for the finding of non-responsibility due to the intentional provision of false or incomplete information to a Governmental Entity?	Yes ☐ No☐
4. If you answered yes to any of the above questions, please provide details regarding the finding of non-responsibility below: Governmental Entity: Date of Finding of Non-responsibility: Basis of Finding of Non-Responsibility: (add additional pages if required)	
5. Has any Governmental Entity or other governmental agency terminated or withheld a Procurement Contract with the above-named individual or entity due to the intentional provision of false or incomplete information? If yes, please provide details below: Governmental Entity: Date of Termination or Withholding of Contract: Basis of Termination or Withholding: (add additional pages if required)	Yes ☐ No☐

Offeror certifies that all information provided to the Governmental Entity with respect to State Finance Law §139-k is complete, true and accurate.

By: _____ Date: _____

_____
(Signature)

_____
(Name – Printed)

_____
(Title)

Contractor Name: _____
(Company)

Contractor Address: _____

[NO FURTHER TEXT ON THIS PAGE]

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

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

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

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

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

Proposers can demonstrate their commitment to the use of New York State businesses by responding to the question below. Each proposer must include a response to this question with their proposal. Please note that a "yes" response requires supporting information. If yes, identify New York State businesses that will be used and attach identifying information.

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

X. ACKNOWLEDGEMENT OF ADDENDA FORM

RFP TITLE: _____

Complete Part I or Part II, whichever is applicable, and sign in Part III.

Part I

Listed below are the dates of issue for each Addendum received in connection with this RFP:

Addendum # 1, Dated _____, ____

Addendum # 2, Dated_____, ____

Addendum # 3, Dated_____, ____

Addendum # 4, Dated _____, ____

Addendum # 5, Dated_____, ____

Addendum # 6, Dated_____, ____

Part II: Acknowledgement of No Receipt

_____ No Addendum was received in connection with this RFP

Part III

Proposer's Name: _____

Proposer's Authorized Representative:

Name: _____

Title: _____

Signature: _____

[NO FURTHER TEXT ON THIS PAGE]

XI. MINORITY BUSINESS ENTERPRISE/WOMEN BUSINESS ENTERPRISE (MBW/WBE) UTILIZATION PLAN

Please fill out utilization plan for MBE/WBE(s) participation and use the same form for all additional \ MBE/WBE Firms.

Contractor Information:

Project Name:		
Project No.:	Site #:	Date:
Name of Contractor:		
Address:		
Contact Person:		
Phone:	Fax:	
Federal ID No.:	Tax ID:	
Is Your Firm: MBE ☐ WBE☐		
Work to Begin:	Work to be Completed:	

MBE/WBE Information:

Sub-Contractor or Vendor:		
Name:		
Address:		
Contact Person:		
Phone:	Fax:	
Federal ID No.:	Tax ID:	
Is This Firm: MBE ☐ WBE☐		
Total Percent of Contract Holder %	Trade:	
Scope of Work to be done by MBE/WBE:		
Work to Begin:	Work to be Completed:	

MBE/WBE Information:

Sub-Contractor or Vendor:	
Name:	
Address:	
Contact Person:	
Phone:	Fax:
Federal ID No.:	Tax ID:
Is This Firm: MBE ☐ WBE☐	
Total Percent of Contract Holder %	Trade:
Scope of Work to be done by MBE/WBE:	
Work to Begin:	Work to be Completed:

[NO FURTHER TEXT ON THIS PAGE]

MINORITY BUSINESS ENTERPRISE/WOMEN BUSINESS ENTERPRISE (MBW/WBE) UTILIZATION PLAN (continued)

The Minimum MBE/WBE Business Participation Goal Expected for your Firm is as Follows:	Workforce Percentages set for this project is as Follows:
Trade(s)	Trade(s)
Minority Owned Business %	Minority Workforce %
Women Owned Business %	Female Workforce %

Please attach copies of the most recent New York State Certification Letters for all MBE/WBE Firms Listed on this Utilization Plan. If there are any changes in the information on this plan you must immediately re-submit this plan with the most recent date.

[NO FURTHER TEXT ON THIS PAGE]

XII. SERVICE DISABLED VETERAN OWNED BUSINESSES (SDVOB) UTILIZATION PLAN

Please fill out utilization plan for SDVOB(s) participation and use the same format for all additional SDVOB sub-contractors.

Contractor Information

Contractor:	Date:
Name:	
Address:	
Contact Person:	Phone:
Federal ID No.:	Fax:

SDVOB Information

Sub-Contractor:	Federal ID No.:
Name:	Work to Begin
Address:	
Phone:	Work to Finish On:
Contact Person:	
Estimate % of Contract to be Awarded to SDVOB:	
Scope of Work to be Done by SDVOB:	

SDVOB Information

Sub-Contractor:	Federal ID No.:
Name:	Work to Begin
Address:	
Phone:	Work to Finish On:
Contact Person:	
Estimate % of Contract to be Awarded to SDVOB:	
Scope of Work to be Done by SDVOB:	

SDVOB Information

Sub-Contractor:	Federal ID No.:
Name:	Work to Begin
Address:	
Phone:	Work to Finish On:
Contact Person:	
Estimate % of Contract to be Awarded to SDVOB:	
Scope of Work to be Done by SDVOB:	

[NO FURTHER TEXT ON THIS PAGE]

SERVICE DISABLED VETERAN OWNED BUSINESSES (SDVOB) UTILIZATION PLAN (continued)

Workforce Percentage Information

Trade (s)	
Minority Workforce:	%
Female Workforce:	%

[NO FURTHER TEXT ON THIS PAGE]

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

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

MBE/WBE

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

(1) Actively and affirmatively soliciting bids for contracts and subcontracts from qualified State certified MBEs or WBEs, including solicitations to MBE/WBE contractor associations.

(2) Requesting a list of State-certified MBEs/WBEs from BPCA and soliciting bids from these MBEs/WBEs directly.

(3) Ensuring that plans, specifications, request for proposals and other documents used to secure bids will be made available in sufficient time for review by prospective MBEs/WBEs.

(4) Where feasible, dividing the work into smaller portions to enhance participations by MBEs/WBEs and encourage the formation of joint venture and other partnerships among MBE/WBE contractors to enhance their participation.

(5) Documenting and maintaining records of bid solicitation, including those to MBEs/WBEs and the results thereof. The Contractor will also maintain records of actions that its subcontractors have taken toward meeting MBE/WBE contract participation goals.

(6) Ensuring that progress payments to MBEs/WBEs are made on a timely basis so that undue financial hardship is avoided, and that bonding and other credit requirements are waived or appropriate alternatives are developed to encourage MBE/WBE participation.

EEO

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

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

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

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

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

Agreed to this _____ day of _____

By _____

Print: _____ Title: _____

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

MBE/WBE Contract Goals

30% Minority and Women's Business Enterprise Participation

___% Minority Business Enterprise Participation

___% Women's Business Enterprise Participation

EEO Contract Goals (if applicable)

___% Minority Labor Force Participation

___% Female Labor Force Participation

_____
(Authorized Representative)

Title: _____

Date: _____

XIV. DIVERSITY PRACTICES QUESTIONNAIRE

I, _____, as _____ (title) of _____ company (the "Company"), swear and/or affirm under penalty of perjury that the answers submitted to the following questions are complete and accurate to the best of my knowledge:

1. Does your Company have a Chief Diversity Officer or other individual who is tasked with supplier diversity initiatives? Yes ☐ No ☐
   If Yes, provide the name, title, description of duties, and evidence of initiatives performed by this individual or individuals.

2. What percentage of your Company's gross revenues (from your prior fiscal year) was paid to New York State certified MBEs/WBEs as subcontractors, suppliers, joint-ventures, partners or other similar arrangement for the provision of goods or services to your Company's clients or customers?

3. What percentage of your Company's overhead (i.e. those expenditures that are not directly related to the provision of goods or services to your Company's clients or customers) or non-contract-related expenses (from your prior fiscal year) was paid to New York State certified MBEs/WBEs as suppliers/contractors?[1]

4. Does your Company provide technical training[2] to MBEs/WBEs? Yes ☐ No ☐
   If Yes, provide a description of such training which should include, but not be limited to, the date the program was initiated, the names and the number of MBEs/WBEs participating in such training, the number of years such training has been offered and the number of hours per year for which such training occurs.

5. Is your Company participating in a government approved M/WBE mentor-protégé program?
   Yes ☐ No ☐
   If Yes, identify the governmental mentoring program in which your Company participates and provide evidence demonstrating the extent of your Company's commitment to the governmental mentoring program.

6. Does your Company include specific quantitative goals for the utilization of MBEs/WBEs in its non-government procurements? Yes ☐ No ☐
   If Yes, provide a description of such non-government procurements (including time period, goal, scope and dollar amount) and indicate the percentage of the goals that were attained.

7. Does your Company have a formal M/WBE supplier diversity program? Yes ☐ No ☐
   If Yes, provide documentation of program activities and a copy of policy or program materials.

8. Does your Company plan to enter into partnering or subcontracting agreements with New York State certified MBEs/WBEs if selected as the successful Proposer? Yes ☐ No ☐
   If Yes, complete the attached Utilization Plan

All information provided in connection with the Diversity Practices Questionnaire is subject to audit and any fraudulent statements are subject to criminal prosecution and debarment.

[1] Do not include onsite project overhead.

[2] Technical training is the process of teaching employees how to more accurately and thoroughly perform the technical components of their jobs. Training can include technology applications, products, sales and service tactics, and more. Technical skills are job-specific as opposed to soft skills, which are transferable.

Signature of Owner/Official _____

Printed Name of Signatory _____

Title _____

Name of Business _____

Address _____

City, State, Zip _____

STATE OF _____

COUNTY OF) ss:

On the _____ day of _____, 20__, before me, the undersigned, a Notary Public in and for the State of _____, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to this certification and said person executed this instrument.

_____
Notary Public

XV. Certification Under Executive Order No. 16 Prohibiting State Agencies and Authorities from Contracting with Businesses Conducting Business in Russia

Executive Order No. 16 provides that "all Affected State Entities are directed to refrain from entering into any new contract or renewing any existing contract with an entity conducting business operations in Russia." The complete text of Executive Order No. 16 can be found here.

The Executive Order remains in effect while sanctions imposed by the federal government are in effect. Accordingly, vendors who may be excluded from award because of current business operations in Russia are nevertheless encouraged to respond to solicitations to preserve their contracting opportunities in case the sanctions are lifted during a solicitation or even after award in the case of some solicitations.

As defined in Executive Order No. 16, an "entity conducting business operations in Russia" means an institution or company, wherever located, conducting any commercial activity in Russia or transacting business with the Russian Government or with commercial entities headquartered in Russia or with their principal place of business in Russia in the form of contracting, sales, purchasing, investment, or any business partnership.

Is Vendor an entity conducting business operations in Russia, as defined above? Please answer by checking one of the following boxes:

[ ] 1. No, Vendor does not conduct business operations in Russia within the meaning of Executive Order No. 16.

[ ] 2.a. Yes, Vendor conducts business operations in Russia within the meaning of Executive Order No. 16 but has taken steps to wind down business operations in Russia or is in the process of winding down business operations in Russia. (Please provide a detailed description of the wind down process and a schedule for completion.)

[ ] 2.b. Yes, Vendor conducts business operations in Russia within the meaning of Executive Order No. 16 but only to the extent necessary to provide vital health and safety services within Russia or to comply with federal law, regulations, executive orders, or directives. (Please provide a detailed description of the services being provided or the relevant laws, regulations, etc.)

[ ] 3. Yes, Vendor conducts business operations in Russia within the meaning of Executive Order No. 16.

The undersigned certifies under penalties of perjury that they are knowledgeable about the Vendor's business and operations and that the answer provided herein is true to the best of their knowledge and belief.

Vendor Name (Legal Entity): _____

By (Signature): _____

Name: _____

Title: _____

Date: _____

EXHIBIT D
BPCA'S STANDARD FORM OF CONTRACT

[ATTACHED]

CONSULTANT AGREEMENT

between

HUGH L. CAREY BATTERY PARK CITY AUTHORITY

and

[CONSULTANT]

Dated as of _____

Contract No. [CONTRACT #]

([PROJECT NAME])

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EXHIBIT A - SCOPE OF WORK

EXHIBIT B - RATES **[if applicable]**

EXHIBIT C - FORM OF TIME SHEET **[if applicable]**

EXHIBIT D - MBWE AND EEO POLICY STATEMENT

CONSULTANT AGREEMENT

AGREEMENT (the "Agreement") made as of _____ by and between BATTERY PARK CITY AUTHORITY d/b/a HUGH L. CAREY BATTERY PARK CITY AUTHORITY, (the "Owner"), a body corporate and politic, constituting a public benefit corporation, having a place of business at 200 Liberty Street, 24th Floor, New York, New York 10281, and **[COMPANY],** formed under the laws of the State of **[INCORP. STATE]**, having an office at **[CITY, STATE AND ZIP]** (the "Consultant").

W I T N E S S E T H:

WHEREAS, Owner has fee title to certain real property located in the City, County and State of New York, generally known as Battery Park City; and

WHEREAS, Owner has developed Battery Park City, in individual parcels, with the goal of creating a richly diversified mixed use community providing residential and commercial space with related amenities such as parks, plazas, recreational areas and a waterfront esplanade; and

WHEREAS, Owner intends to retain the services of Consultant to perform **[describe services to be performed]** (the "Project"), and Consultant desires to perform such services for Owner.

NOW, THEREFORE, in consideration of the mutual promises herein contained, the parties hereby agree as follows:

1. Scope of Work

Consultant shall perform the services described in the Scope of Work attached hereto as Exhibit A (the "Work"). All Work shall be completed in accordance with the requirements furnished to Consultant by Owner, and shall be completed to Owner's satisfaction.

2. Time for Performance

Consultant shall perform the Work as expeditiously as is consistent with professional skill and the orderly progress of the Work, and in accordance with any schedule set forth in the attached Scope of Work. If a schedule approved by Owner is incorporated into this Agreement, said schedule shall not be exceeded by Consultant, except for reasonable cause. The term of this Agreement shall begin **[DATE TERM BEGINS]** (the "Commencement Date") and shall terminate not later than **[DATE TERM ENDS]** (the "Expiration Date") (such period from the Commencement Date to the Expiration Date is referred to herein as the "Term") unless this Agreement is otherwise terminated as hereinafter provided. Consultant shall complete the Scope of Work on or before **[DATE]**, unless the time for performance of the Work is extended by written agreement of Consultant and Owner.

3. Compensation

(a) Owner shall pay, and Consultant agrees to accept as full compensation for all Work performed under this Agreement, the not-to-exceed amount of **[$$$$$]** (the "Fee"), paid in

accordance with the rates (the "Rates") attached hereto as Exhibit B. The Fee includes any and all reimbursable expenses, which shall not exceed **[$$$$$]** (the "Reimbursable Amount"), incurred by Consultant in performing the Work.

(b) Any reimbursable expenses shall be paid in accordance with Owner's standard policies for reasonable expenses actually incurred by Consultant in connection with the performance of the Work. Consultant shall submit copies of receipts or other supporting documentation for any qualifying expenses incurred.

(c) Consultant shall submit monthly requests for payment to Owner that shall:

(i) include the name, address, and telephone number of Consultant;

(ii) be accompanied by time sheets, in substantially the form provided in Exhibit C ("Form of Time Sheet"), attached hereto and made part hereof, containing a description of the work performed and indicating hours worked in each billing category; and

(iii) reference the project for which services were rendered.

(d) Owner shall pay Consultant in accordance with Owner's Prompt Payment Policy, a copy of which can be found at: http://bpca.ny.gov/wp-content/uploads/2018/01/BPCA-Prompt-Payment-Policy-Fiscal-Year-2017.pdf. Any item(s) of Work indicated in any Exhibit hereto as attributable to a specific phase of the Work that is not performed during the specified phase shall not be compensated by Owner, but payment for any such items of Work shall remain available to Consultant if, with Owner's advance approval, such Work is actually performed during a subsequent phase of the Work, subject to the provisions of this Article 3 and Owner's approval of any request for payment. Owner may withhold from any payment an amount equal to any costs or damages incurred by Owner as a result of Consultant's negligence or breach of this Agreement.

(e) All requests for payment should be addressed as follows:

Office of the Treasurer
Battery Park City Authority
d/b/a Hugh L. Carey Battery Park City Authority
200 Liberty Street, 24th Floor
New York, NY 10281-1097
Attn.: Accounts Payable

A duplicate copy is to be sent to the attention of **[PROJECT MANAGER, TITLE]**.

4. Increase and Decrease in the Scope of Consultant's Work

Owner shall have the right to make changes to, increase or reduce the scope of Work, or extend the Term or any date set forth in the schedule referenced in Section 2 *supra*, at any time and for any reason, upon written notice to Consultant specifying the nature and extent of such changes. If Consultant believes that any work it has been directed to perform by Owner is beyond the scope of Work set forth in this Agreement and constitutes extra work, Consultant shall so notify Owner within ten (10) business days. Owner shall determine whether or not such work is in fact

beyond the scope of the Work and is considered extra work. If Owner determines that such work constitutes extra work to Consultant or any Subconsultant (as defined in Section 25 of this Agreement), Owner will pay Consultant any additional reimbursable expenses approved pursuant to Owner's policy for reimbursable expenses, and such additional compensation only as mutually agreed in writing by Owner and Consultant at the time of such change.

5. Consultant Cooperation

(a) Consultant shall work with such firms or individuals as Owner shall designate from time to time in connection with the Work, and agrees to meet with such firms or individuals at such times as Owner may require in order to maintain an ongoing review process so as to expedite determinations and approvals required to be made in connection with the Work.

(b) Consultant shall render any assistance that Owner may require with respect to any claim or action arising from or in any way relating to Consultant's services during or subsequent to the Term of this Agreement, including, but not limited to, review of claims, preparation of technical reports and participation in negotiations, both before and after Consultant has completed performance of the Work under this Agreement and without any additional compensation therefor.

6. Termination

(a) *Termination for Convenience*. Owner, at any time, may terminate this Agreement in whole or in part. Any such termination shall be effected by mailing or delivering to Consultant a written notice of termination specifying the extent to which performance of the Work under this Agreement is terminated and the date upon which such termination becomes effective. Upon receipt of the notice of termination, Consultant shall act promptly to minimize any expenses resulting from said termination. Owner shall pay Consultant the costs actually incurred by Consultant, including any Fee for Work actually and satisfactorily performed up to the effective date of the termination, but in no event shall Consultant be entitled to compensation in excess of the total consideration of this Agreement. In the event of such a termination, Owner may take over the Work and prosecute same to completion by contract or otherwise, and may take possession of and utilize such work product, materials, appliances, and plant as may be on the site and necessary or useful to complete the Work. Except as otherwise provided herein, all of Owner's liability hereunder shall cease and terminate as of the effective date specified in such notice of termination.

(b) *Termination for Cause*. Owner may terminate this Agreement for cause if:

(i) Consultant shall fail to diligently, timely and expeditiously perform any of its obligations as set forth in the Agreement;

(ii) Any representation or warranty made or deemed to have been made under this Agreement by Consultant shall prove to be untrue in any material respect;

(iii) Consultant shall make a general assignment for the benefit of its creditors, or a receiver or trustee shall have been appointed on account of Consultant's insolvency, or Consultant otherwise shall be or become insolvent, or an order for relief shall have been entered against Consultant under Chapter 7 or Chapter 11 of Title 11 of the United States Code;

(iv) a breach of any covenant or agreement contained in Section 16 of this Agreement or any other section of this Agreement shall occur; or

(v) Consultant otherwise shall be in default hereunder;

by serving written notice upon Consultant of Owner's intention to terminate this Agreement. Such notice shall state: (1) the reason(s) for Owner's intention to terminate the Agreement, and (2) the effective date of termination, to be not less than three (3) calendar days after the date of the notice of termination. If Consultant shall fail to cure the reason(s) for termination or make arrangements satisfactory to Owner on or before the effective date of termination, this Agreement shall terminate on the date specified by Owner in the notice of termination. In the event of any such termination, Owner may take over the Work and prosecute same to completion by contract or otherwise, for the account and at the expense of Consultant, and Consultant shall be liable to Owner for all costs incurred by Owner by reason of said termination. In the event of such termination, Owner may take possession of and utilize such work product, materials, appliances, and plant as may be on the site and necessary or useful to complete the Work. Upon Owner's completion of the Work following a termination for cause, Consultant shall be entitled to such amount of the Fee that has not theretofore been paid to Consultant and that shall compensate Consultant for all Work actually and satisfactorily performed by it up to the date of termination, provided, however, that Owner shall deduct from any amount all additional costs and expenses that Owner may incur over those which Owner would have incurred in connection with the Work if Owner had not so terminated this Agreement for cause. Nothing contained in this Agreement shall limit in any manner any and all rights or remedies otherwise available to Owner by reason of a default by Consultant under this Agreement, including, without limitation, the right to seek full reimbursement from Consultant for all costs and expenses incurred by Owner by reasons of Consultant's default hereunder and which Owner would not have otherwise incurred if Consultant had not defaulted hereunder.

(c) Upon any termination of this Agreement in accordance with the provisions of this Section 6, Consultant shall, with respect to the Work which is the subject of such termination:

(i) discontinue all its services from and after the date of the notice of termination, except to attempt to cure any reason(s) for termination or as may be required to complete any item or portion or services to a point where discontinuance will not cause unnecessary waste of duplicative work or cost;

(ii) cancel, or if so directed by Owner, transfer to Owner all commitments and agreements made by Consultant relating to the Work, to the extent same are cancelable or transferable by Consultant;

(iii) transfer to Owner in the manner, to the extent, and at the time directed by Owner, all work product, supplies, materials and other property produced as a part of, or acquired in the performance of the Work; and

(iv) take other actions as Owner may reasonably direct.

(d) In the event that Consultant, having been terminated, thereafter obtains a determination, in a judicial or other action or proceeding, that such termination was unwarranted, without basis, or invalid for any reason, then the termination shall be deemed to have been one for

the convenience of Owner and Consultant shall be entitled to be reimbursed and paid as provided in Subsection 6(b) but to no other payments or damages.

7. Suspension

Owner may, at any time and for any reason, order Consultant in writing to suspend, delay or interrupt performance of all or any part of the Work for a reasonable period of time as the Owner may determine. Upon receipt of a suspension order, Consultant shall, as soon as practicable, cease performance of the Work as ordered and take immediate affirmative measures to protect such Work from loss or damage. Consultant specifically agrees that such suspension, delay or interruption of the performance of Work pursuant to this Section 7 shall not increase the cost of performance of the Work of this Agreement. Owner may extend the Term or any date set forth in schedule referenced in Section 2 *supra*, to compensate Consultant for lost time due to suspension, delay or interruption, and such time extension shall be Consultant's sole compensation for same. Consultant shall resume performance of such Work upon the date ordered by Owner.

8. Assignment

(a) Consultant shall not by agreement, operation of law, or otherwise, assign, encumber, transfer, convey, sublet or otherwise dispose of this Agreement to any entity or person, in whole or in part, including but not limited to an assignment, transfer or conveyance by change in the control or change in the ownership of the Consultant or a change in control or change in the ownership of any entity owning or controlling the Consultant, without the prior written consent of Owner, which consent may be withheld, conditioned or delayed in the Owner's sole discretion. A "change in control" includes, but is not limited to, any change in the ownership or control of the Consultant or any entity owning or controlling the Consultant, whether such change results from a merger, or a sale, assignment or transfer of stock, or a sale of assets, or a sale, transfer or assignment of assets to an affiliate or subsidiary, or a sale, transfer or assignment of assets to an affiliate or subsidiary with a subsequent sale or transfer of such affiliate or subsidiary, or a transfer or change in control by contract or other such agreement.

(b) Any action by the Contractor which violates the provisions of section A, above, shall be deemed to be a material breach of the terms of this Agreement by the Consultant and Owner shall have all rights and remedies available to it under law and equity, including termination of the Agreement.

9. Ownership of Documents

(a) All material specifically prepared for the Project and excluding any intellectual property already owned by Consultant that is furnished by Consultant or any Subconsultants (including but not limited to all film, video, or digital assets, Hypertext Markup Language ("HTML") files, JavaScript files, flash files, etc.) in connection with the Work shall be deemed Works Made for Hire and become the sole property of Owner. Consultant shall provide a tangible copy of the Work to Owner in any form(s) to be specified by Owner. Such materials may be used by Owner, in whole or in part, or in modified form, for any and all purposes Owner may deem desirable without further employment of, or payment of any additional compensation to

Consultant. Consultant hereby acknowledges that whatever participation Consultant has, or will have, in connection with any copyrightable subject matter that is the subject of the Work is and shall be deemed Work Made for Hire on behalf of the Owner and that the Owner shall be the sole owner of the Work, and all underlying rights therein, worldwide and in perpetuity. In the event that the Work, or any portion thereof, does not qualify or is deemed not to be Work Made for Hire, Consultant hereby irrevocably transfers and assigns to the Owner all of Consultant's right, title and interest, throughout the world, in and to the Work, including, without limitation, all of Consultant's right, title and interest in the copyrights to the Work, including the unrestricted right to make modifications, adaptations and revisions to the Work and hereby waives any so-called "moral rights" with respect to the Work. Consultant grants to Owner a royalty free, worldwide perpetual, irrevocable, nonexclusive license to reproduce, modify, and publicly display the Work.

(b) Any plans, drawings, or specifications prepared by or on behalf of Consultant for the Project shall become property of Owner, and Consultant may not use same for any purpose not relating to the Project without Owner's prior written consent. Consultant may retain such reproductions of plans, drawings or specifications as Consultant may reasonably require. Upon completion of the Work or the termination of this Agreement, Consultant shall promptly furnish Owner with a complete set of original record prints. All such original materials shall become property of Owner who may use them, without Consultant's permission, for any proper purpose including but not limited to additions or completion of the Project.

10. <u>Insurance</u>

(a) Consultant shall procure and maintain all of the insurance required under this Section 10 during the Term of this Agreement, except with respect to Completed Operations coverage, as described in Section 10(g) below.

(b) Consultant shall not commence performance of the Work until Consultant has obtained, and required each Subconsultant to obtain, all the insurance required under this Section 10 and until it has furnished to Owner the certificate or certificates of insurance required by Section 10(c) hereof.

(c) Consultant shall furnish to Owner, before or upon execution of this Agreement, a certificate or certificates of the insurance required under this Section 10 and, upon Owner's request, certified copies of the original policies of insurance, within the time period required by Owner and before commencing performance of the Work. Such certificate or certificates shall be in form satisfactory to Owner, and shall list the various coverages required under this Article 10. Consultant hereby certifies that the policy shall not be changed, canceled or reduced and that it shall be automatically renewed upon expiration and continued in force until two years after the Work is completed unless Owner is given 90 days' written notice to the contrary. Such certificates shall also include riders providing that violation of any of the terms of any policy shall not by itself invalidate such policy. Such policies and certificates must name as additional insureds Owner, Battery Park City Parks Conservancy Corporation ("BPCPC") and the State of New York.

(d) All insurance required to be procured and maintained must be procured from insurance companies that have a financial rating by A.M. Best Company as published in the most

current key rating guide of A-:VII or better and which are authorized to do business in the State of New York.

(e) If at any time any of the required insurance policies should be canceled, terminated or modified so that insurance is not in effect as required, then Consultant shall suspend performance of the Work. If the Work is suspended then Owner may, at Owner's option, obtain insurance affording coverage equal to that required herein and the cost of such insurance shall be payable by Consultant to Owner.

(f) All additional insured protection afforded Owner, BPCPC, and the State of New York must be on a primary and non-contributory basis and all policies must include a waiver of subrogation in favor of Owner, BPCPC, and the State of New York.

(g) Consultant and Subconsultants shall secure in a form satisfactory to Owner the following:

(i) Worker's Compensation, Employer's Liability insurance (including United States Longshoreman & Harbor Workers and Jones Act coverages if required) and Disability Benefits during the Term, at not less than the statutory limits, for the benefit of such employees as are required to be insured by the applicable provisions of law and voluntary compensation for employees excluded from statutory benefits.

(ii) Commercial General Liability insurance, as follows:

(A) Coverage must be written on ISO Form CG 00 001 or its equivalent and with no modification to the contractual liability coverage provided therein, and shall be provided on an occurrence basis with limits not less than:

- $1,000,000 per occurrence
- $2,000,000 General Aggregate, which must apply on a per project basis
- $2,000,000 Products/Completed Operations aggregate

(B) Owner, BPCPC and the State of New York must be protected as additional insureds with coverage at least as broad as the combination of the most recent editions of ISO Forms CG 20 26 and CG 20 37 on policies held by the Consultant and any of its Subconsultants. Subconsultants may not use blanket additional insured endorsements to provide additional insured protection to Owner, BPCPC, and the State of New York "by written contract" but must use ISO Form CG 20 38 or its equivalent. The policy must provide coverage for defense and indemnification of claims and/or lawsuits, including third party actions, claims and/or lawsuits for bodily injury to the employees of Consultant or Subconsultants arising from the injured worker's employment with the Consultant or any of its Subconsultants

(C) Consultant and any of its Subconsultants must maintain Products/Completed Operations coverage for no less than three years after the Work is completed and continue to include Additional Insured protection for Owner, BPCPC & the State of New York for the prescribed timeframe and coverage shall contain, in addition to any other provisions required hereby, a provision that the policy shall not be changed, canceled or reduced. As a

condition precedent to the making of final payment, Consultant shall furnish Owner with a then current certificate of insurance that confirms the Completed Operations coverage is in effect.

(D) When providing evidence of this insurance the Consultant and any of its Subconsultants must include a completed Acord 855 NY form.

(iii) Automobile Liability insurance covering the use in connection with the Work of all owned, non-owned and hired vehicles. The coverage must protect Owner, BPCPC, and the State of New York as additional insureds under such policy and shall not be less than a $1,000,000 Combined Single Limit

(iv) Professional Liability ("Errors and Omissions") insurance must be maintained at a limit of not less than $1,000,000 per claim.

(v) Data Breach and Privacy/Cyber Liability Insurance including coverage for failure to protect confidential information and failure of the security of Consultant's computer systems or Owner's/BPCPC's systems due to the actions of Consultant which results in unauthorized access to Owner's and/or BPCPC's data. The limit applicable to this policy shall be no less than $1,000,000 per occurrence, and must apply to incidents related to the cyber theft of Owner's and BPCPC's property, including but not limited to, money and securities. Owner, BPCPC, and the State of New York must be protected as additional insureds on policies held by Consultant and any of its Subconsultants.

(vi) Technology Errors and Omissions insurance with a limit of not less $1,000,000 for damages arising from computer-related services including, but not limited to, the following:

- Consulting;
- Data processing;
- Programming;
- System integration;
- Hardware or software development;
- Installation;
- Distribution or maintenance;
- Systems analysis or design;
- Training; and
- Staffing or other support services.

The policy shall include coverage for third party fidelity including cyber theft and protect Owner, BPCPC, and the State of New York as additional insureds.

(vii) Valuable Papers insurance insuring, for the benefit of Consultant and Owner, all plans, designs, drawings, specifications, and documents used under this Agreement by Consultant in a total amount of not less than **[amount]**. Consultant may furnish full coverage under one policy, or may submit separate policies from any Subconsultant(s) for their proportionate shares of such coverage.

(viii) Comprehensive Crime/Employee Dishonesty insurance in a reasonable amount or an amount which is customary in the applicable industry, trade or profession. Coverage

must extend to Third Parties.

(ix) Umbrella Liability insurance in an amount of not less than [amount]. Owner, BPCPC, and the State of New York must be protected as additional insureds on policies held by the Consultant and any of its Subconsultants.

(h) The insurance required under subsections 10(g)(ii) and (iii) shall provide that the insurance company or an attorney approved and retained by the insurance company shall defend any suit or proceeding against Owner or any officers, agents or employees of Owner whether or not such suit is groundless, false or fraudulent. Notwithstanding the foregoing, Owner shall have the right to engage its own attorneys for the purpose of defending any suit or proceeding against it or its respective officers, agents or employees, and, in such event, Consultant shall, indemnify Owner for all attorneys' fees and disbursements and other costs incurred by it arising out of, or incurred in connection with, any such defense.

(i) Owner, at Owner's cost and expense, may, at its sole option, procure and maintain such insurance as shall in the opinion of Owner, protect Owner from contingent liability of Owner to others for damages arising from bodily injury, including death and property damages which may arise from operations under this Agreement. The procurement and maintenance of such insurance by Owner shall not in any way be construed or be deemed to relieve Consultant from, or to be a limitation on the nature or extent of, such obligations and risk.

11. Authority of Owner

The Work shall be subject to the general supervision, direction, control and approval of Owner or its authorized representative(s), whose decision shall be final and binding upon Consultant as to all matters arising in connection with or relating to this Agreement. Owner shall determine all matters relative to the fulfillment of this Agreement on the part of Consultant and such determination shall be final and binding on Consultant.

12. Entire Agreement

This Agreement, including all Exhibits hereto, constitutes the entire Agreement between Owner and Consultant, and any prior agreements or understandings between Owner and Consultant with respect to any portion of the Work are hereby merged into and with this Agreement. In the event of any conflict between the terms of this Agreement and any other agreement between Owner and Consultant, the terms of this Agreement shall be deemed to control.

13. Consultant as Independent Contractor

Notwithstanding any other provision of this Agreement, Consultant's status shall be that of an independent contractor and not that of a servant, agent or employee of Owner. Accordingly, Consultant shall not hold itself out as, nor claim to be acting in the capacity of, an officer, agent, employee or servant of Owner.

14. Maintenance, Audit and Examination of Accounts

Consultant shall, until the earlier of six (6) years after completion of the performance of

the Work or six (6) years after termination of this Agreement, maintain, and require all Subconsultants to maintain, complete and correct books and records relating to all aspects of Consultant's obligations hereunder, including without limitation, accurate cost and accounting records specifically identifying the costs incurred in performing their respective obligations, and shall make such books and records available to Owner or its authorized representatives for review and audit at all such reasonable times as Owner may request. In the event that Consultant and/or any Subconsultants shall fail to comply with the provisions of this Section 14, and as a result thereof shall be unable to provide reasonable evidence of such compliance, Owner shall not be required to pay any portion of the Fee and Reimbursable Expenses then due or next becoming due, as the case may be, with respect to such items, and if such compensation has already been paid, Owner may require Consultant to refund any such payment made. Any excessive audit costs incurred by Owner due to Consultant's or any Subconsultant's failure to maintain adequate records shall be borne by Consultant.

15. Acceptance of Final Payment; Release and Discharge

Final payment shall be made to Consultant upon satisfactory completion and acceptance by Owner of the Work required under this Agreement, or all Work performed prior to the termination of this Agreement if terminated pursuant to Section 6 hereof, and upon submission of a certification that all Subconsultants have been paid their full and agreed compensation. The acceptance by Consultant of the final payment under this Agreement, or any final payment due upon termination of this Agreement under Section 6 hereof, shall constitute a full and complete waiver and release of Owner from any and all claims, demands and causes of action whatsoever that Consultant, and/or it successors and assigns have, or may have, against Owner under the provisions of this Agreement, unless a detailed and verified statement of claim is served upon Owner prior to the date final payment is tendered by Owner. It is expressly understood and agreed that Owner's or Consultant's termination of this Agreement pursuant to Section 6 hereof shall not give rise to any claim against Owner for damages, compensation or otherwise as a result of such termination, and that under such circumstances Owner's liability to make payments to Consultant on account of any and all Work shall be limited to the payments set forth in Section 6 hereof.

16. Covenants, Representations and Warranties

(a) Consultant represents and warrants to Owner that:

(i) no public official is directly or indirectly interested in this Agreement, or in the supplies, materials, equipment, work, labor or services to which it relates or in any of the profits thereof;

(ii) except as set forth in this Agreement, Consultant has, and shall have, no interest, direct or indirect, in the Project to which the Work relates; and

(iii) to the best of its knowledge, upon due inquiry, no officer, member, partner or employee of Consultant has, prior to the date of this Agreement, been called before a grand jury, head of a state agency, head of a city department or other city agency to testify in an investigation concerning any transaction or contract had with the State of New York, any political subdivision thereof, a public authority, or with any public department, agency or official of the State of New

York of or any political subdivision thereof, and refused to sign a waiver of immunity against subsequent criminal prosecution or to answer any relevant question concerning such transaction or contract.

(b) Consultant covenants and agrees that:

(i) recognizing that time for completion of the Work is of the essence, Consultant shall perform all of its obligations hereunder in a prompt and workmanlike manner and in accordance with the time periods for the Work set forth herein;

(ii) the personnel assigned and any Subconsultant(s) used by Consultant in the performance of the Work hereunder shall be qualified in all respects for such assignment, employment and use;

(iii) Consultant, in the performance of the Work, shall utilize the most efficient available methodology and technology for the purpose of reducing the cost and time of such performance;

(iv) Consultant shall comply with the provisions of all Federal, State and local statutes, laws, rules, ordinances and regulations that are applicable to the performance of this Agreement;

(v) should any claim be made or any action be brought against the Owner that is in any way related to the Work, Consultant shall diligently render to Owner any and all assistance specified in Section 5 of this Agreement that may be required by Owner as a result thereof; and

(vi) Consultant shall not commit its personnel to, nor engage in, any other projects during the term of this Agreement to the extent that such projects may adversely affect the quality or efficiency of the Work or would otherwise be detrimental to the conduct and completion of the Work, and Consultant shall provide sufficient numbers of qualified personnel as shall be required to perform the Work in the time requested by Owner. Consultant shall comply with any reasonable request by Owner to remove and/or replace any of Consultant's personnel from the Project.

(c) The parties make mutual representations that to the best of their knowledge that any materials provided by either party for inclusion in the Work shall not infringe upon the copyright or trademark of any third party.

17. <u>Indemnity</u>

To the fullest extent allowed by law:

(a) Consultant shall be liable to, and shall indemnify Owner, each Member, officer, agent and employee of Owner for, and shall hold each of the foregoing harmless from and against, any and all claims, losses, damages, expense, penalties, costs or other liabilities, including, without limitation, attorneys' fees, costs, disbursements and interest, arising out of the performance of the Work or Consultant's breach of this Agreement, including but not limited to any claim for personal injury, property damage or death, or any breach that results in the unauthorized use or disclosure

of Owner's Confidential Information, except to the extent such claim arises solely as a result of Owner's negligence or willful act, and Consultant agrees that it shall defend any suit or action brought against Owner or any Member, officer, agent or employees of Owner that is based on any loss or liability or alleged loss or liability indemnified herein.

(b) Consultant shall be liable to, and shall indemnify Owner and each of the Members, officers, agents and employees of Owner for, and shall hold each of the foregoing harmless from and against, any and all claims made against any of the foregoing for infringement of any copyright, trademark or patent arising out of the use of any plans, designs and specifications furnished by Consultant in the performance of this Agreement.

18. Confidentiality

Consultant hereby agrees that data, recommendations, reports and other materials developed in the course of the Work are strictly confidential between Consultant and Owner and except as specifically provided herein, Consultant may not at any time reveal or disclose such data, recommendations or reports in whole or in part to any third party without first obtaining written approval from Owner.

19. Modification

This Agreement may not be modified, in whole or in part, unless in writing and executed by both the Authority and the Consultant.

20. Waiver

Except as otherwise provided in Section 15 of this Agreement, the parties may waive any of their rights hereunder without invalidating this Agreement or waiving any other rights hereunder, provided, however, that no waiver of, or failure to enforce or exercise any provision of this Agreement shall affect the right of any party thereafter to enforce such provisions or to exercise any right or remedy in the event of any other breach or default, whether or not similar.

21. Severability

If any term or provision of this Agreement or the application thereof to any person or entity, or circumstance shall, to any extent, be determined to be invalid or unenforceable, the remaining provisions of this Agreement, or the application of such terms or provisions to persons, entities or circumstances other than those as to which it is held to be invalid or unenforceable, shall in no way be affected thereby and each term or provision of this Agreement shall be valid and binding upon the parties, and enforced to the fullest extent permitted by law.

22. New York Law/Forum Selection/Jurisdiction

This Agreement shall be construed under, and be governed by, the laws of the State of New York. All actions or proceedings relating, directly or indirectly, to this Agreement shall be litigated only in courts located within the County of New York. Consultant, any guarantor of the performance of its obligations hereunder ("Guarantor") and their successors and assigns hereby subject themselves to the jurisdiction of any state or federal court located within such county,

waive the personal service of any process upon them in any action or proceeding therein and consent that such process be served by certified or registered mail, return receipt requested, directed to the Consultant and any successor at Consultant's address hereinabove set forth, to Guarantor and any successor at the address set forth in the instrument of guaranty, and to any assignee at the address set forth in the instrument of assignment. Such service shall be deemed made two days after such process is so mailed.

23. Provisions Required by Law

Each and every provision of law and clause required by law to be included in this Agreement shall be deemed to be included herein, and this Agreement shall read and shall be enforced as though such provision(s) and/or clause(s) were so included.

24. Notices

Any notice, approval, consent, acceptance, request, bill, demand or statement required or permitted to be given hereunder (a "Notice") from either party to the other shall be in writing and transmitted either:

(a) Via certified or registered United States mail, return receipt requested;
(b) By personal delivery; or
(c) By expedited delivery services.

In addition to one or more of the transmission methods listed above and in the interest of expediency, notices may be contemporaneously submitted by e-mail, but by which itself alone will not be deemed sufficient notice.

Such notices shall be addressed as follows or to such different addresses as the parties may from time to time designate:

Battery Park City Authority

[INSERT NAME OF CONTACT]
200 Liberty Street, 24th Floor
New York, NY 10281
[INSERT EMAIL ADDRESS]

With a copy to:

Abigail Goldenberg
General Counsel
200 Liberty Street, 24th Floor
New York, NY 10281
Abigail.goldenberg@bpca.ny.gov

[INSERT NAME OF CONSULTANT]

[insert contact info]

Either party may at any time change such address or add additional parties to receive a Notice by mailing, as aforesaid, to the other party a Notice thereof.

25. Approval and Use of Subconsultants

(a) Except as specifically provided herein, Consultant shall not employ, contract with or use the services of any consultants, contractors or other third parties (collectively, "Subconsultants") in connection with the performance of its obligations hereunder without the prior written consent of Owner to the use of each such Subconsultant, and to the agreement to be entered into between Consultant and any such Subconsultant. Consultant shall inform Owner in writing of any interest it may have in a proposed Subconsultant. No such consent by Owner, or employment, contract, or use by Consultant, shall relieve Consultant of any of its obligations hereunder.

(b) Consultant shall be responsible for the performance of the Work of any Subconsultants engaged, including the maintenance of schedules, coordination of their Work and resolutions of all differences between or among Consultant and any Subconsultants. It is expressly understood and agreed that any and all Subconsultants engaged by Consultant hereunder shall at all times be deemed engaged by Consultant and not by Owner.

(c) The fees of any Subconsultant retained by Consultant to perform any part of the Work required under this Agreement shall be deemed covered by the compensation stipulated in Section 3 above. Consultant shall pay its Subconsultants in full the amount due them from the proportionate share of each requisition for payment submitted by Consultant and paid by Owner. Consultant shall make payment to its Subconsultants no later than seven (7) calendar days after receipt of payment from Owner. Consultant shall indemnify, defend and hold Owner harmless with respect to any claims against Owner based upon Consultant's alleged failure to make payments to Subconsultants for Work under this Agreement.

(d) Upon the request of Owner, Consultant shall cause any Subconsultant employed by the Consultant in connection with this Agreement to execute a copy of this Agreement, wherein such Subconsultant shall acknowledge that it has read and is fully familiar with the terms and provisions hereof and agrees to be bound thereby as such terms and provisions are or may be applicable to such Subconsultants.

26. Employment and Diversity

26.1 *Participation by Minority and Women-Owned Business Enterprises*

(a) General Provisions

(i) Owner is required to implement the provisions of New York State Executive Law Article 15-A and Parts 140-145 of Title 5 of the New York Codes, Rules and Regulations ("NYCRR") for all contracts, as defined therein, with a value (1) in excess of $25,000 for labor, services, equipment, materials, or any combination of the foregoing or (2) in excess of $100,000 for real property renovations and construction.

(ii) Consultant agrees, in addition to any other nondiscrimination provision herein and at no additional cost to Owner, to fully comply and cooperate with Owner in the implementation of New York State Executive Law Article 15-A and the regulations promulgated thereunder. These requirements include equal employment opportunities for minority group members and women ("EEO") and contracting opportunities for New York State-certified minority and women-owned business enterprises ("MWBEs"). Consultant's demonstration of "good faith efforts" pursuant to 5 NYCRR § 142.8 shall be a part of these requirements. These provisions shall be deemed supplementary to, and not in lieu of, the nondiscrimination provisions required by New York State Executive Law Article 15 (the "Human Rights Law") and other applicable federal, state, and local laws.

(iii) Failure to comply with all of the requirements herein may result in a finding of non-responsiveness, non-responsibility and/or a breach of contract, leading to the assessment of liquidated damages pursuant to Section 26.1(g) and such other remedies as are available to Owner.

(b) Contract Goals

(i) For purposes of this Contract, Owner hereby establishes an overall goal of XX% for MWBE participation, XX% for New York State-certified minority-owned business enterprise ("MBE") participation and XX% for New York State-certified women-owned business enterprise ("WBE") participation (collectively, "MWBE Contract Goals") based on the current availability of MBEs and WBEs.

(ii) For purposes of providing meaningful participation by MWBEs on the Agreement and achieving the MWBE Contract Goals established in Section 26.1(b)(i) hereof, Consultant should reference the directory of MWBEs at the following internet address: https://ny.newnycontracts.com.

(iii) Additionally, Consultant is encouraged to contact the Division of Minority and Women's Business Development at (212) 803-2414 to discuss additional methods of maximizing participation by MWBEs on this Agreement.

(iv) Consultant understands that only sums paid to MWBEs for the performance of a commercially useful function, as that term is defined in 5 NYCRR § 140.1, may be applied towards the achievement of the applicable MWBE participation goal. [FOR CONSTRUCTION CONTRACTS – The portion of a contract with an MWBE serving as a supplier that shall be deemed to represent the commercially useful function performed by the MWBE shall be 60% of the total value of the contract. The portion of a contract with an MWBE serving as a broker that shall be deemed to represent the commercially useful function performed by the MWBE shall be the monetary value for fees, or the markup percentage, charged by the MWBE]. [FOR ALL OTHER CONTRACTS - The portion of a contract with an MWBE serving as a broker that shall be deemed to represent the commercially useful function performed by the MWBE shall be 25% of the total value of the contract.]

(v) Consultant must document "good faith efforts," pursuant to 5 NYCRR § 142.8, to provide meaningful participation by MWBEs as Subconsultants and suppliers in the

performance of this Agreement. Such documentation shall include, but not necessarily be limited to:

(A) Evidence of outreach to MWBEs;
(B) Any responses by MWBEs to Consultant's outreach;
(C) Copies of advertisements for participation by MWBEs in appropriate general circulation, trade, and minority or women-oriented publications;
(D) The dates of attendance at any pre-bid, pre-award, or other meetings, if any, scheduled by Owner with MWBEs; and,
(E) Information describing specific steps undertaken by Consultant to reasonably structure the Work to maximize opportunities for MWBE participation.

(c) Equal Employment Opportunity ("EEO")

(i) The provisions of Article 15-A of the Executive Law and the rules and regulations promulgated thereunder pertaining to equal employment opportunities for minority group members and women shall apply to this Agreement.

(ii) In performing the Agreement, Consultant shall:

(A) Ensure that each Consultant and Subconsultant performing work on the Agreement shall undertake or continue existing EEO programs to ensure that minority group members and women are afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status. For these purposes, EEO shall apply in the areas of recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff, or termination and rates of pay or other forms of compensation.

(B) Consultant shall submit an EEO policy statement to Owner within seventy-two (72) hours after the date of the notice by Owner to award the Agreement to Consultant.

(C) If Consultant, or any of its Subconsultants, does not have an existing EEO policy statement, Owner may require Consultant or Subconsultant to adopt a model statement (see Exhibit D – Equal Employment Opportunity Policy Statement).

(D) Consultant's EEO policy statement shall include the following language:

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

(2) Consultant shall state in all solicitations or advertisements for employees that, in the performance of the contract, all qualified applicants will

be afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status.

(3) Consultant shall request each employment agency, labor union, or authorized representative of workers with which it has a collective bargaining or other agreement or understanding, to furnish a written statement that such employment agency, labor union, or representative will not discriminate on the basis of race, creed, color, national origin, sex age, disability or marital status and that such union or representative will affirmatively cooperate in the implementation of Consultant's obligations herein.

(4) Consultant will include the provisions of Sections 26.1(c)(ii)(D)(1) through (3), which provides for relevant provisions of the Human Rights Law, in every subcontract in such a manner that the requirements of the subdivisions will be binding upon each Subconsultant as to the Work.

[PLEASE NOTE THAT THIS REQUIREMENT "C" IS ONLY APPLICABLE WHERE A STATE AGENCY EXPECTS TO ENTER INTO A STATE CONTRACT WITH A TOTAL EXPENDITURE IN EXCESS OF $250,000. NOTE: THIS LANGUAGE SHOULD BE DELETED FROM THE FINAL CONTRACT]

(iii) Staffing Plan. To ensure compliance with this Section, Consultant shall submit a staffing plan to document the composition of the proposed workforce to be utilized in the performance of the Agreement by the specified categories listed, including ethnic background, gender, and Federal occupational categories. Consultant shall complete the staffing plan form (https://www.ogs.ny.gov/MWBE/Docs/EEO100.docx) and submit it as part of their bid or proposal or within a reasonable time, as directed by Owner.

WORKFORCE UTILIZATION REPORTS SHALL BE COLLECTED ON A MONTHLY BASIS FOR CONSTRUCTION CONTRACTS AND A QUARTERLY BASIS FOR ALL OTHER CONTRACTS. NOTE: THIS LANGUAGE SHOULD BE DELETED FROM THE FINAL CONTRACT]

(iv) Workforce Utilization Report

(A) Consultant shall submit a Workforce Utilization Report (https://its.ny.gov/sites/default/files/documents/eeo_workforce_utilization_report.xlsx) and shall require each of its Subconsultants to submit a Workforce Utilization Report, in such form as shall be required by Owner on a quarterly basis during the term of this Agreement.

(B) Separate forms shall be completed by Consultant and any Subconsultants.

(C) Pursuant to Executive Order #162, Consultants and Subconsultants are also required to report the gross wages paid to each of their employees for the work performed by such employees on the contract on a quarterly basis.

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

(d) MWBE Utilization Plan

(i) Consultant represents and warrants that Consultant has submitted an MWBE Utilization Plan, or shall submit an MWBE Utilization Plan at such time as shall be required by Owner, through the New York State Contract System ("NYSCS"), which can be viewed at https://ny.newnycontracts.com, provided, however, that Consultant may arrange to provide such evidence via a non-electronic method to Owner, either prior to, or at the time of, the execution of the contract.

(ii) Consultant agrees to adhere to such MWBE Utilization Plan in the performance of the Work.

(iii) Consultant further agrees that failure to submit and/or adhere to such MWBE Utilization Plan shall constitute a material breach of the terms of the Agreement. Upon the occurrence of such a material breach, Owner shall be entitled to any remedy provided herein, including but not limited to, a finding that Consultant is non-responsive.

(e) Waivers

(i) If Consultant, after making good faith efforts, is unable to achieve the MWBE Contract Goals stated herein, Consultant may submit a request for a waiver through the NYSCS, or a non-electronic method provided by Owner. Such waiver request must be supported by evidence of Consultant's good faith efforts to achieve the maximum feasible MWBE participation towards the applicable MWBE Contract Goals. If the documentation included with the waiver request is complete, Owner shall evaluate the request and issue a written notice of approval or denial within twenty (20) business days of receipt.

(ii) If Owner, upon review of the MWBE Utilization Plan, quarterly MWBE Consultant Compliance Reports described in Section 26.1(c)(iv)(C), or any other relevant information, determines that Consultant is failing or refusing to comply with the MWBE Contract Goals, and no waiver has been issued in regards to such non-compliance, Owner may issue a notice of deficiency to Consultant. Consultant must respond to the notice of deficiency within seven (7) business days of receipt. Such response may include a request for partial or total waiver of MWBE Contract Goals.

(f) Consultant is required to submit a quarterly MWBE Consultant Compliance Report through the NYSCS, provided, however, that Consultant may arrange to provide such report via a non-electronic method to Owner by the 10th day following the end of each quarter during the term of the Agreement.

(g) Liquidated Damages - MWBE Participation

(i) Where Owner determines that Consultant is not in compliance with the requirements of this Section 26.1 and Consultant refuses to comply with such requirements, or if Consultant is found to have willfully and intentionally failed to comply with the MWBE participation goals, Consultant shall be obligated to pay to Owner liquidated damages.

(ii) Such liquidated damages shall be calculated as an amount equaling the difference between:

(A) All sums identified for payment to MWBEs had Consultant achieved the contractual MWBE goals; and

(B) All sums actually paid to MWBEs for work performed or materials supplied under the Agreement.

(iii) In the event a determination has been made which requires the payment of liquidated damages and such identified sums have not been withheld by Owner, Consultant shall pay such liquidated damages to Owner within sixty (60) days after they are assessed. Provided, however, that if Consultant has filed a complaint with the Director of the Division of Minority and Women's Business Development pursuant to 5 NYCRR § 142.12, liquidated damages shall be payable only in the event of a determination adverse to Consultant following the complaint process.

26.2 *Participation by Service-Disabled Veteran-Owned Businesses*

(a) General Provisions

Article 17-B of the New York State Executive Law provides for more meaningful participation in public procurement by New York State-certified Service-Disabled Veteran-Owned Businesses ("SDVOB"), thereby further integrating such businesses into New York State's economy. Owner recognizes the need to promote the employment of service-disabled veterans and to ensure that certified service-disabled veteran-owned businesses have opportunities for maximum feasible participation in the performance of Owner contracts.

In recognition of the service and sacrifices made by service-disabled veterans and in recognition of their economic activity in doing business in New York State, Consultants are expected to consider SDVOBs in the fulfillment of the requirements of the Agreement. Such participation may be as Subconsultants or suppliers, as protégés, or in other partnering or supporting roles.

(b) Contract Goals

(i) Owner hereby establishes an overall goal of __% for SDVOB participation, based on the current availability of qualified SDVOBs. For purposes of providing meaningful participation by SDVOBs, the Consultant should reference the directory of New York State Certified SDVOBs found at: http://ogs.ny.gov/Core/docs/CertifiedNYS_SDVOB.pdf. Questions regarding compliance with SDVOB participation goals should be directed to Shinay Stewart at

shinay.stewart@bpca.ny.gov or (212) 336-9353. Additionally, following execution of this Agreement, Consultant is encouraged to contact the Office of General Services' Division of Service-Disabled Veterans' Business Development at 518-474-2015 or VeteransDevelopment@ogs.ny.gov to discuss additional methods of maximizing participation by SDVOBs on the Agreement.

(ii) Consultant must document "good faith efforts" to provide meaningful participation by SDVOBs as subcontractors or suppliers in the performance of the Contract (see Section 26.2(d) below).

(c) SDVOB Utilization Plan

(i) In accordance with 9 NYCRR § 252.2(i), Consultants are required to submit a completed SDVOB Utilization Plan on Form SDVOB 100 (https://ogs.ny.gov/Veterans/Docs/2016/SDVOB_100_Utilization_Plan.docx) with their bid.

(ii) The Utilization Plan shall list the SDVOBs that Consultant intends to use to perform the Work, a description of the Work that Consultant intends the SDVOB to perform to meet the goals on the Agreement, the estimated dollar amounts to be paid to an SDVOB, or, if not known, an estimate of the percentage of Work the SDVOB will perform. By signing the Utilization Plan, Consultant acknowledges that making false representations or providing information that shows a lack of good faith as part of, or in conjunction with, the submission of a Utilization Plan is prohibited by law and may result in penalties including, but not limited to, termination of a contract for cause, loss of eligibility to submit future bids, and/or withholding of payments. Any modifications or changes to the agreed participation by SDVOBs after the contract award and during the term of the Agreement must be reported on a revised SDVOB Utilization Plan and submitted to Owner.

(iii) Owner will review the submitted SDVOB Utilization Plan and advise the Consultant of Owner acceptance or issue a notice of deficiency within 20 days of receipt.

(iv) If a notice of deficiency is issued, Consultant agrees that it shall respond to the notice of deficiency, within seven business days of receipt, by submitting to Owner a written remedy in response to the notice of deficiency. If the written remedy that is submitted is not timely or is found by Owner to be inadequate, Owner shall notify Consultant and direct the Consultant to submit, within five business days of notification by Owner, a request for a partial or total waiver of SDVOB participation goals on Form SDVOB 200 (https://ogs.ny.gov/Veterans/Docs/2016/SDVOB_200_Waiver_Form.docx). Failure to file the waiver form in a timely manner may be grounds for disqualification of the bid or proposal.

(v) Owner may disqualify a Consultant's bid or proposal as being non-responsive under the following circumstances:

(A) If Consultant fails to submit an SDVOB Utilization Plan;
(B) If Consultant fails to submit a written remedy to a notice of deficiency;
(C) If Consultant fails to submit a request for waiver; or

(D) If Owner determines that Consultant has failed to document good faith efforts.

(vi) Consultant certifies that it will follow the submitted SDVOB Utilization Plan for the performance of SDVOBs on the Agreement pursuant to the prescribed SDVOB contract goals set forth above.

(vii) Consultant further agrees that a failure to use SDVOBs as agreed in the Utilization Plan shall constitute a material breach of the terms of the Contract. Upon the occurrence of such a material breach, Owner shall be entitled to any remedy provided herein, including but not limited to, a finding of Consultant non-responsibility.

(d) Waivers

(i) Prior to submission of a request for a partial or total waiver, Consultant shall speak to Shinay Stewart at shinay.stewart@bpca.ny.gov or (212) 336-9353 for guidance.

(ii) In accordance with 9 NYCRR § 252.2(m), a Consultant that is able to document good faith efforts to meet the goal requirements, as set forth in Section 26.2(e) below, may submit a request for a partial or total waiver on Form SDVOB 200 (https://ogs.ny.gov/Veterans/Docs/2016/SDVOB_200_Waiver_Form.docx), accompanied by supporting documentation. Consultant may submit the request for waiver at the same time it submits its SDVOB Utilization Plan. If a request for waiver is submitted with the SDVOB Utilization Plan and is not accepted by Owner at that time, the provisions of Section 26.2(c)(iii), (iv) and (v) will apply. If the documentation included with the Consultant's waiver request is complete, Owner shall evaluate the request and issue a written notice of acceptance or denial within 20 days of receipt.

(iii) Consultant shall attempt to utilize, in good faith, the SDVOBs identified within its SDVOB Utilization Plan, during the performance of the Work. Requests for a partial or total waiver of established goal requirements made subsequent to award of the Agreement may be made at any time during the term of the Agreement to Owner, but must be made no later than prior to the submission of a request for final payment.

(iv) If Owner, upon review of the SDVOB Utilization Plan and Monthly SDVOB Compliance Report determines that Consultant is failing or refusing to comply with the contract goals and no waiver has been issued in regards to such non-compliance, Owner may issue a notice of deficiency to the Consultant. The Consultant must respond to the notice of deficiency within seven business days of receipt. Such response may include a request for partial or total waiver of SDVOB contract goals. Waiver requests should be sent to Owner.

(e) Required Good Faith Efforts. In accordance with 9 NYCRR § 252.2(n), Consultants must document their good faith efforts toward utilizing SDVOBs on the Agreement. Evidence of required good faith efforts shall include, but not be limited to, the following:

(i) Copies of solicitations to SDVOBs and any responses thereto.

(ii) Explanation of the specific reasons each SDVOB that responded to Consultants' solicitation was not selected.

(iii) Dates of any pre-bid, pre-award or other meetings attended by Consultant, if any, scheduled by Owner with certified SDVOBs whom Owner determined were capable of fulfilling the SDVOB goals set in the Agreement.

(iv) Information describing the specific steps undertaken to reasonably structure the Work for the purpose of subcontracting with, or obtaining supplies from, certified SDVOBs.

(v) Other information deemed relevant to the waiver request.

(f) Monthly SDVOB Consultant Compliance Report

In accordance with 9 NYCRR § 252.2(q), Consultant is required to report Monthly SDVOB Consultant Compliance to Owner during the term of the Agreement for the preceding month's activity, documenting progress made towards achieving the SDVOB goals. This information must be submitted using form SDVOB 101 available at https://ogs.ny.gov/Veterans/Docs/2016/SDVOB_101_Monthly_Compliance%20_Report.docx and should be completed by the Consultant and submitted to Owner, by the 10th day of each month during the term of the Contract, for the preceding month's activity to: Shinay Stewart at shinay.stewart@bpca.ny.gov.

(g) Breach of Contract and Damages

In accordance with 9 NYCRR § 252.2(s), any Consultant found to have willfully and intentionally failed to comply with the SDVOB participation goals set forth in this Agreement, shall be found to have breached the Agreement and Consultant shall pay damages as set forth therein.

27. Responsibility

(a) Consultant shall at all times during the Term of this Agreement remain responsible. Consultant agrees, if requested by Owner or Owner's designee, to present evidence of its continuing legal authority to do business in New York State, integrity, experience, ability, prior performance, and organizational and financial capacity.

(b) Owner or Owner's designee, in its sole discretion, reserves the right to suspend any or all activities under this Agreement, at any time, when it discovers information that calls into question Consultant's responsibility. In the event of such suspension, Consultant will be given written notice outlining the particulars of such suspension. Upon issuance of such notice, Consultant must comply with the terms of the suspension order. Activity under the Agreement may resume at such time as Owner or its designee issues a written notice authorizing a resumption of performance under the Agreement.

(c) Upon written notice to Consultant, and a reasonable opportunity to be heard with appropriate officials or staff of Owner, this Agreement may be terminated by Owner or Owner's designee at Consultant's expense where Consultant is determined by Owner or its designee to be

non-responsible. In such event, Owner or its designee may complete the contractual requirements in any manner it deems advisable, and pursue available legal or equitable remedies for breach.

28. Interest of Others

Nothing in this Agreement shall be construed to give any person other than Owner and Consultant any legal or equitable right, remedy or claim. This Agreement shall be held to be for the sole and exclusive benefit of Owner and Consultant.

29. Executory Contract

It is understood by and between the parties hereto that this Agreement shall be deemed executory to the extent of the monies available to Owner and no liability on account thereof shall be incurred by Owner beyond monies available for the purpose thereof. In no event shall any claim be asserted under this Agreement by Consultant or any Subconsultant against any member, officer, employee, lessee, consultant or agent of Owner or the State of New York. By execution of this Agreement, Consultant agrees to look solely to Owner with respect to any claim that may arise.

30. Participation in International Boycott Prohibited

Consultant agrees, as a material condition of this Agreement, that neither Consultant nor any substantially owned or affiliated person, firm, partnership or corporation has participated or is participating or shall participate in an international boycott in violation of the provisions of the United States Export Administration Act of 1969, as amended, or the United States Export Administration Act of 1979, as amended, or the Regulations of the United States Department of Commerce promulgated thereunder. This Agreement shall be rendered forfeited and void by the Comptroller of the State of New York if, subsequent to execution, such person, firm, partnership or corporation has been convicted of a violation of the provisions of either of such federal acts or such Regulations or has been found upon the final determination of the United States Commerce Department or any other appropriate agency of the United States to have violated the provisions of either of such federal acts or such Regulations.

31. MacBride Fair Employment Principles

If the amount payable to Consultant under this Agreement is greater than $15,000, Consultant hereby certifies that it and/or any individual or legal entity in which it holds a 10% or greater ownership interest, and any individual or legal entity that holds a 10% or greater ownership in it, either have no business operations in Northern Ireland, or shall take lawful steps in good faith to conduct any business operations they have in Northern Ireland in accordance with the MacBride Fair Employment Principles relating to nondiscrimination in employment and freedom of workplace opportunity regarding such operations in Northern Ireland, as set forth in Section 165(5) of the New York State Finance Law, and shall permit independent monitoring of their compliance with such Principles.

32. Limitation Periods

Any legal action or proceeding against Owner must be commenced no later than one (1) year after the earlier of: (a) the termination of this Agreement, or (b) the last day Consultant

performed work physically at the site of the Work.

33. Iran Divestment Act

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

34. Termination for Failure to Disclose Under NYS Finance Law §139k

Owner reserves the right to terminate this Agreement in the event it is found that the certification filed by Consultant pursuant to New York State Finance Law §139-k was intentionally false or intentionally incomplete. Upon such finding, Owner may exercise its termination right by providing written notification to the Consultant in accordance with the written notification terms of this contract.

35. Comptroller's Approval

If this contract is considered an eligible contract as defined by Title 2 of NYCRR Part 206, it is subject to the New York State Comptroller's approval, and therefore shall not be valid and enforceable until that approval has been obtained. A contract is considered "eligible" as defined by Title 2 of NYCRR Part 206, if it is not a specifically exempt contract, is executed by a state authority on or after March 1, 2010 where the aggregate consideration under the contract may reasonably be valued in excess of one million dollars, AND the contract is either (1) awarded on a single-source basis, sole-source basis or pursuant to any other method of procurement that is not a competitive procurement OR (2) supported in whole or part with funds appropriated from the Community Projects Fund (007).

36. Binding Contract

A binding contract between the parties shall exist only if and at such time as both parties have executed this document.

37. Counterparts

This Agreement may be executed in any number of counterparts, all of which taken together shall constitute one instrument, but the Agreement shall not be deemed effective unless signed by all parties.

38. Section Headings

Section headings contained in this Agreement are for convenience only and shall not be considered for any purpose in governing, limiting, modifying, construing or affecting the provisions of this Agreement and shall not otherwise be given legal effect.

39. Subordination of Terms in the Exhibits

In the event of a conflict between any provisions contained in this Agreement and any of the Exhibits, the more stringent requirement will control. In the event that none of the conflicting or inconsistent portions or provisions are clearly the more stringent, the terms and conditions contained in this Agreement shall supersede.

(SIGNATURE PAGE FOLLOWS)

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date first above written.

HUGH L. CAREY BATTERY PARK CITY AUTHORITY

By: _____

Name: _____

Title: _____

[COMPANY]

By: _____

Name: _____

Title: _____

FEIN# [???]

EXHIBIT A

SCOPE OF WORK

EXHIBIT B

RATES

EXHIBIT C

FORM OF TIME SHEET

Employee Name/Title	Date of Work	Time Work Began	Time Work Ended	# of Hours	Rate of Pay Per Contract	Summary of Work Performed*	Employee Signature
		Total:					

*For services and/or additional hours that are extraordinary to scope

Supervisors Signature _____

Title _____

EXHIBIT D

M/WBE AND EEO POLICY STATEMENT

Consultant agrees to adopt the following policies with respect to the Work:

MBWE

Consultant will and will cause its Subconsultants to take good faith actions to achieve the M/WBE contract participations goals set by the Owner for that area in which the Owner-funded project is located, by taking the following steps:

(a) Actively and affirmatively solicit bids for contracts and subcontracts from qualified State-certified MBEs or WBEs, including solicitations to M/WBE consultant associations.

(b) Request a list of State-certified M/WBEs from Owner and solicit bids from them directly.

(c) Ensure that plans, specifications, request for proposals and other documents used to secure bids will be made available in sufficient time for review by prospective M/WBEs.

(d) Where feasible, divide the work into smaller portions to enhance participation by M/WBEs and encourage the formation of joint ventures and other partnerships among M/WBE consultants to enhance their participation.

(e) Document and maintain records of bid solicitation, including those to M/WBEs and the results thereof. Consultant will also maintain records of actions that its Subconsultants have taken toward meeting M/WBE contract participation goals.

(f) Ensure that progress payments to M/WBEs are made on a timely basis so that undue financial hardship is avoided, and that bonding and other credit requirements are waived or appropriate alternatives developed to encourage M/WBE participation.

EEO

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

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

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

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

(e) Consultant will include the provisions of sections (a) through (d) above in every subcontract in such a manner that the requirements of the subdivisions will be binding upon each Subconsultant as to work in connection with Owner's contract.

Agreed to this _____ day of _____, _____

By: _____

Print: _____ Title: _____

EXHIBIT E
COST PROPOSAL SUBMISSION FORMS

[NO FURTHER TEXT ON THIS PAGE

EXHIBIT E-1
FORM OF COST PROPOSAL

COST PROPOSAL
(Proposer to submit executed Cost Proposal on its letterhead)

Battery Park City Authority
One World Financial Center – 24th Floor
New York, New York 10281

Attention: Mr. Michael LaMancusa
Contract Administrator

Dear Mr. LaMancusa:

The undersigned (the "Proposer") hereby proposes to provide all specified work necessary to provide all work specified in Exhibit A-1, and agrees to commence the CM Services immediately upon receipt of an Initial Letter of Intent or executed contract for the sums written below.

A. Base Proposal

Total not-to-exceed amount of $_____ (_____Dollars and _____ Cents) to perform all work as described in, and associated with, Exhibit A-1 (inclusive of amounts in B-D below).

B. Itemized Proposal

An itemized proposal showing the cost of each Task described in, and associated with, Exhibit A-1.

C. Reimbursable

A total not-to-exceed amount of $_____ (_____ Dollars and _____ Cents) for any reimbursable costs to be incurred in performing the work as described in Exhibit A-1.

D. Form of Technical Salaries

Enclosed with its Cost Proposal, Proposer has submitted a completed Form of Technical Salaries (Exhibit E-2), showing Proposer's hourly billing rates.

Name of Proposer: _____

By: _____

Date: _____

EXHIBIT E-2
FORM OF TECHNICAL SALARY RATES

NAME	TITLE / FUNCTION	LOADED RATE Day / Hour (including Profit & Multiplier)	# OF DAYS / HOURS	TOTAL

TOTAL FEE = $ _____

Project Multiplier = _____

Proposer: _____<Name of Company>

By: _____ <Printed Name of Executing Officer>
Title:

Signature: _____ Date_____

The rates listed above represent contract unit rates for the personnel as listed within the assigned categories. Invoicing will be based on actual hours worked multiplied by the unit rate. The unit rate is the actual salary times an auditable multiplier as indicated. The auditable multiplier shall be limited to the direct payroll burden itemized below, overhead (allowances as defined in list below) and a reasonable profit percentage as indicated.

Itemization of Direct Payroll Burden

1. *F.I.C.A*
2. *Federal Unemployment Insurance*
3. *State Unemployment Insurance*
4. *Worker's Compensation*
5. *Life Insurance*
6. *Accidental death and Disbursement*
7. *NYS Disability Insurance*
8. *PL and PD Insurance*
9. *Group Hospitalization*
10. *Vacation time attributable to the Project*
11. *Major Medical Insurance*
12. *Pension and Profit Sharing Plan*
13. *401K Program (company contribution)*
14. *Medicare*
15. *Long Term Disability Insurance*
16. *Company Automobile Expenses*
17. *Tuition and Seminar Reimbursement*
18. *Company Training Program*
19. *Employee Bonuses- non-principals and non- shareholders*
20. *Travel and Meal Allowances – overtime work only*
21. *Premium for Staff Overtime- support or clerical work*
22. *Sick Time and Personal Days*

EXHIBIT F

CONTRACTOR REQUIREMENTS AND PROCEDURES FOR PARTICIPATION BY NEW YORK STATE-CERTIFIED MBES/WBES/SDVOBS, AND EQUAL EMPLOYMENT OPPORTUNITIES FOR MINORITY GROUP MEMBERS AND WOMEN

NEW YORK STATE LAW

Pursuant to New York State Executive Law Article 15-A and Parts 140-145 of Title 5 of the New York Codes, Rules and Regulations BPCA is required to promote opportunities for the maximum feasible participation of New York State-certified MBEs/WBEs (collectively, "MWBE(s)") and the employment of minority group members and women in the performance of BPCA contracts. Pursuant to New York State Executive Law Article 17-B and 9 NYCRR §252, BPCA recognizes its obligation under the law to promote opportunities for maximum feasible participation of certified SDVOBs.

Business Participation Opportunities for MWBEs

For purposes of this solicitation, BPCA hereby establishes the following MWBE participation goals, based on the current availability of MWBEs:

Overall goal for total MWBE participation: **30%**

NYS-Certified Minority-Owned Business ("MBE") Participation: **15%**

NYS-Certified Women-Owned Business ("WBE") Participation: **15%**

A contractor ("Contractor") on any contract resulting from this procurement ("Contract") must document its good faith efforts to provide meaningful participation by MWBEs as subcontractors and suppliers in the performance of the Contract. To that end, by submitting a response to this RFP, the Proposer agrees that BPCA may withhold payment pursuant to any Contract awarded as a result of this RFP pending receipt of the required MWBE documentation. The directory of MWBEs can be viewed at: https://ny.newnycontracts.com. For guidance on how BPCA will evaluate a Contractor's "good faith efforts," refer to 5 NYCRR § 142.8.

The Proposer understands that only sums paid to MWBEs for the performance of a commercially useful function, as that term is defined in 5 NYCRR § 140.1, may be applied towards the achievement of the applicable MWBE participation goal. The portion of a contract with an MWBE serving as a broker that shall be deemed to represent the commercially useful function providing supplies shall be sixty percent (60%) of the total value of the Contract. The portion of a contract with an MWBE serving as a broker that shall be deemed to represent the commercially useful function performed by the MWBE shall be the monetary value for fees, or the markup percentage, charged by the MWBE.

In accordance with 5 NYCRR § 142.13, the Proposer further acknowledges that if it is found to have willfully and intentionally failed to comply with the MWBE participation goals set forth in a Contract resulting from this RFP, such finding constitutes a breach of contract and BPCA may withhold payment as liquidated damages.

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

By submitting a bid or proposal, a Proposer agrees to demonstrate its good faith efforts to achieve the applicable MWBE participation goals by submitting evidence thereof through the New York State Contract System ("NYSCS"), which can be viewed at https://ny.newnycontracts.com – provided, however, that a Proposer may arrange to provide such evidence via a non-electronic method by contacting Thierry Byron at

thierry.byron@bpca.ny.gov or 212-417-2337. Please note that the NYSCS is a one-stop solution for all of your MBE/WBE and Article 15-A contract requirements. Please note that the NYSCS is a one-stop solution for all of your MBE/WBE and Article 15-A contract requirements. For additional information on the use of the NYSCS to meet the Proposer's MBE/WBE requirements, please see the attached MBE/WBE guidance from the New York State Division of Minority and Women's Business Development, "Your MWBE Utilization and Reporting Responsibilities Under Article 15-A.".

Additionally, a Proposer will be required to submit the following documents and information as evidence of compliance with the foregoing:

A. An MWBE Utilization Plan with their bid or proposal. Any modifications or changes to an accepted MWBE Utilization Plan after the Contract award and during the term of the Contract must be reported on a revised MWBE Utilization Plan and submitted to BPCA for review and approval.

B. BPCA will review the submitted MWBE Utilization Plan and advise the Proposer of BPCA acceptance or issue a notice of deficiency within thirty (30) days of receipt.

C. If a notice of deficiency is issued, the Proposer will be required to respond to the notice of deficiency within seven (7) business days of receipt by submitting to Thierry Byron at BPCA, by email at thierry.byron@bpca.ny.gov, a written remedy in response to the notice of deficiency. If the written remedy that is submitted is not timely or is found by BPCA to be inadequate, BPCA shall notify the Proposer and direct the Proposer to submit, within five (5) business days, a request for a partial or total waiver of MWBE participation goals. Failure to file the waiver form in a timely manner may be grounds for disqualification of the bid or proposal.

D. BPCA may disqualify a Proposer as being non-responsive under the following circumstances:

1) If a Proposer fails to submit an MWBE Utilization Plan;

2) If a Proposer fails to submit a written remedy to a notice of deficiency;

3) If a Proposer fails to submit a request for waiver; or

4) If BPCA determines that the Proposer has failed to document good faith efforts.

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

The successful Proposer will be required to submit a quarterly M/WBE Contractor Compliance & Payment Report to BPCA, by the tenth (10th) day following each end of quarter over the term of the Contract documenting the progress made toward achievement of the MWBE goals of the Contract.

Business Participation Opportunities for SDVOBs

For purposes of this solicitation, BPCA hereby establishes an overall goal of 6% for SDVOB participation. A Proposer must document good faith efforts to provide meaningful participation by SDVOBs as subcontractors or suppliers in the performance of the Contract and Proposer agrees that BPCA may withhold payment pending receipt of the required SDVOB documentation. The directory of New York State Certified SDVOBs can be viewed

at: https://sdves.ogs.ny.gov/business-search. For guidance on how BPCA will determine a Contractor's "good faith efforts," refer to 9 NYCRR §252.2(f)(2).

In accordance with 9 NYCRR §252.2(s), the Proposer acknowledges that if it is found to have willfully and intentionally failed to comply with the SDVOB participation goals set forth in the Contract, such finding constitutes a breach of Contract and Contractor shall be liable for damages to be calculated based on the actual cost incurred by BPCA related to BPCA's expenses for personnel, supplies and overhead related to establishing, monitoring and reviewing certified SDVOB programmatic goals. Such damages shall be calculated based on the actual cost incurred by BPCA related to BPCA's expenses for personnel, supplies and overhead related to establishing, monitoring and reviewing certified SDVOB programmatic goals.

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

B. BPCA will review the submitted Utilization Plan and advise the Proposer of BPCA's acceptance or issue a notice of deficiency within thirty (30) days of receipt.

C. If a notice of deficiency is issued, Proposer agrees that it shall respond to the notice of deficiency within seven (7) business days of receipt by submitting to Thierry Byron at BPCA, by email at thierry.byron@bpca.ny.gov, a written remedy in response to the notice of deficiency. If the written remedy that is submitted is not timely or is found by BPCA to be inadequate, BPCA shall notify the Proposer and direct the Proposer to submit, within five (5) business days, a request for a partial or total waiver of SDVOB participation goals. Failure to file the waiver form in a timely manner may be grounds for disqualification of the bid or Proposal.

D. BPCA may disqualify a Proposer as being non-responsive under the following circumstances:

1) If a Proposer fails to submit a Utilization Plan;

2) If a Proposer fails to submit a written remedy to a notice of deficiency;

3) If a Proposer fails to submit a request for waiver; or

4) If BPCA determines that the Proposer has failed to document good faith efforts.

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

The successful Proposer is required to submit a Contractor's SDVOB Contractor Compliance & Payment Report to BPCA on a monthly basis over the term of the Contract documenting the progress made toward achievement of the SDVOB goals of the Contract.

Equal Employment Opportunity ("EEO") Requirements

By submission of a bid or proposal in response to this solicitation, the Proposer agrees with all of the terms and conditions of the attached MWBE EEO Policy Statement. The Proposer is required to ensure that it and any subcontractors awarded a subcontract for the construction, demolition, replacement, major repair, renovation, planning or design of real property and improvements thereon (the "Work"), except where the Work is for the beneficial use of the Proposer, undertake or continue programs to ensure that minority group members and women are afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status. For these purposes, equal opportunity shall apply in the areas of recruitment,

employment, job assignment, promotion, upgrading, demotion, transfer, layoff, termination, and rates of pay or other forms of compensation. This requirement does not apply to: (i) work, goods, or services unrelated to the Contract; or (ii) employment outside New York State.

The Proposer will be required to submit a MW BE and EEO Policy Statement, Form # 4, to BPCA with its bid or proposal.

If awarded a Contract, Proposer shall submit a Workforce Utilization Report and shall require each of its Subcontractors to submit a Workforce Utilization Report, in such format as shall be required by BPCA on a monthly basis during the term of the Contract using the New York State Contract System or by other electronic means accepted by BPCA. Workforce Utilization Reporting shall be via the NYSCS Workforce Reporting Module. Monthly reports will be generated from the NYSCS for relevant contractors, and must be completed in order to be in compliance with this requirement.

Pursuant to Executive Order #162, contractors and subcontractors will also be required to report the gross wages paid to each of their employees for the work performed by such employees on the contract utilizing the Workforce Utilization Report on a quarterly basis.

Further, pursuant to Article 15 of the Executive Law (the "Human Rights Law"), all other State and Federal statutory and constitutional non-discrimination provisions, the Contractor and sub-contractors will not discriminate against any employee or applicant for employment because of race, creed (religion), color, sex, national origin, sexual orientation, military status, age, disability, predisposing genetic characteristic, marital status or domestic violence victim status, and shall also follow the requirements of the Human Rights Law with regard to non-discrimination on the basis of prior criminal conviction and prior arrest.

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

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NEW YORK STATE OF OPPORTUNITY | Division of Minority and Women's Business Development

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

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

GETTING STARTED

To access the system, please login or create a username and password at https://ny.newnycontracts.com/. If you are uncertain whether you already have an account set up or still need to register, please send an email to the customer service contact listed on the Contact Us & Support page, or reach out to Thierry Byron at thierry.byron@bpca.ny.gov or 212-417-2337. For verification, in the email, include your business name and contact information.

VENDOR RESPONSIBILITIES

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

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

For more information, contact Thierry Byron at thierry.byron@bpca.ny.gov or 212-417-2337.

EXHIBIT G
LIST OF BPCA & BPCPC BOARD MEMBERS AND EMPLOYEES

Donald Capoccia

Martha J. Gallo

Lester Petracca

Louis J. Bevilacqua

Catherine McVay Hughes

Anthony Kendall

EMPLOYEES:

Betzayda Afzal
Curtis Afzal
Elsa Alvarez
Dana Anders
Sharmila Baichu
Marie Baptiste
Brett Beecham
Freddy Belliard
Marieke Bender
Yipin Benon
Zachary Bergen
Marcus Billips
Emily Birdseye
Nidia Blake
Sully Bonnelly
Jasmine Briggs
Latoya Brooks-Jones
Nancy Buivid
Anthony Buquicchio
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Donna Canfield
Daniel Carmalt
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Gwen Dawson
Nicole Dawson
Gilbert De Padua
Joshua DeVoto
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Paul Diaz-Larui
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