

BATTERY PARK CITY AUTHORITY

REQUEST FOR PROPOSALS

FOR

South Neighborhood Street Light Electrical System Repair and Replacement

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I. SUMMARY

Battery Park City Authority d/b/a Hugh L. Carey Battery Park City Authority (“BPCA”) requests proposals (each individually, a “Proposal” or collectively, the “Proposals”) from electrical contractors (each individually, a “Proposer” or collectively, the “Proposers”) to provide all services necessary to perform street light electrical system modifications (the “Project”) in the south neighborhood of Battery Park City which is bounded by the southern side of West Thames Street to the north, Little West Street to the east and Battery Place to the south and west (the “South Neighborhood”). The electrical infrastructure in the South Neighborhood is almost 30 years old, and while BPCA is not experiencing significant failures of the street lights in the South Neighborhood, additional failures are anticipated if repairs and replacements to the electrical system are not completed. The Project shall include, but not be limited to: removing all existing underground electrical feeders in the South Neighborhood, cleaning existing conduits and roadway boxes, providing temporary lighting as needed throughout the project area, replacing defective conduits, excavation and concrete work as required in connection with the modifications, grounding the completed electrical system and installing new feeder cables, stainless steel bolts and gaskets, and conduits as appropriate, as indicated in the Drawings and Specifications by Ensign Engineers dated April 17, 2014. Such Drawings and Specifications are available on BPCA’s website (www.bpca.ny.gov).

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

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

II. DESCRIPTION OF BPCA

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

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

Since its inception, BPCA has caused the staged development of Battery Park City, in individual parcels, creating a richly diversified mixed use community providing residential and commercial space, with related amenities such as parks, plazas, recreational areas and a waterfront esplanade. Most individual parcels of land in Battery Park City were developed into residential and commercial buildings by tenants (“Ground Lease Tenants”) under long-term ground leases with

BPCA. The Ground Lease Tenants are responsible for the maintenance, insurance and defense and indemnification of BPCA with regard to those leased parcels.

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

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

III. SERVICES REQUIRED

A. If selected, Proposer will be responsible for the services (the "Services Required") delineated in Exhibit A (the "Scope of Work") attached hereto, including any referenced drawings and specifications.

B. All work to be performed by the selected Proposer shall be performed under the supervision of a Project Manager in charge of this engagement (the "Lead PM") who must ensure that the work completed for BPCA is performed competently and in a timely manner.

IV. KEY DATES, CONTRACT TERM AND MINIMUM QUALIFICATIONS

A. Key Dates

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

- Request for Proposals issued: February 10, 2015.
- Pre-proposal meeting: February 17, 2015 at 10:00 AM. Meeting Location: BPCA Offices, 200 Liberty St, 24th Floor, New York, NY 10281 (attendance is highly recommended).

Deadline to submit questions to BPCA: February 19, 2015 by 5:00 p.m. (by email only). All questions regarding this RFP should be submitted in writing via email to the "Designated Contact": Michael LaMancusa, Battery Park City Authority, at Michael.LaMancusa@bpca.ny.gov.

- Deadline for BPCA's response to substantive questions: February 25, 2015 (via BPCA Website.)

■ **DUE DATE FOR RESPONSES TO RFP: March 5, 2015 by 5:00 p.m. (the "Due Date").**

- Anticipated Contract start date: Approximately April 1, 2015 (subject to change)
- Anticipated Commencement of Project: Seven (7) to ten (10) days following full execution of Contract.

B. Anticipated Contract Term

It is anticipated that the term of the contract awarded pursuant to this RFP (the "Contract") will be for a period of twelve (12) months, with a three (3) to five (5) month approximate construction duration. BPCA reserves the right to terminate the Contract at any time, with or without cause, upon thirty (30) days written notice. BPCA reserves the

right to terminate the Contract at any time, without prior notice, if the employee identified in the Proposal as the Lead PM for this engagement ceases to be employed by the selected Proposer.

C. Minimum Qualification Requirements

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

- 1) The Proposer must be licensed to do business in the City and State of New York.
- 2) The Proposer must have at least three (3) years of street light electrical system maintenance experience.

V. GENERAL REQUIREMENTS

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

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

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

B. Restricted Period

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

C. Submission of Proposals

Proposals are due no later than 5:00 p.m. on March 5, 2015.

Proposers must submit six (6) paper copies of their Proposals and one (1) electronic CD-Rom copy in a sealed package clearly marked “**Proposal Enclosed – South Neighborhood Street Light Electrical System Repair and Replacement**” to the Designated Contact by messenger, overnight courier or certified mail to the following address:

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

BPCA is not responsible for any internal or external delivery delays that may cause any Proposal to arrive beyond the stated Due Date. To be considered, Proposals must arrive at the time and place specified herein and be time stamped by BPCA’s time stamp prior to the Due Date. Please leave ample time for building security, as late Proposals will not be accepted. Proposals submitted by fax or electronic transmission will NOT be accepted. A Proposer may, after

submitting a Proposal, amend its Proposal by submitting a second, amended Proposal, clearly labeled “**Amended Proposal Enclosed –South Neighborhood Street Light Electrical System Repair and Replacement**” as long as the amended Proposal is submitted by the Due Date.

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

D. Mandatory Forms

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

These Mandatory Forms include the following:

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

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

3) W-9 form.

4) Statement of Non-Collusion.

5) Diversity Forms.

VI. PROPOSAL FORMAT AND CONTENTS

A. Proposal Format

The Proposal must be printed on either 8½” x 11” or 8½” x 14” paper. The Proposal will be evaluated on the basis of its content, not length. BPCA reserves the right to disqualify Proposals that fail to comply with any of these instructions.

B. Proposal Content

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

1) Cover Letter, as follows:

The Proposal must include a signed cover Letter from a person within the firm who is authorized to bind the firm. Cover letters must be signed. **Proposals with unsigned Cover Letters will be rejected.**

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

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

C. RFP Questions

1. Describe your firm's background, size, and history as it may be relevant to the Services Required, and describe your firm's experience with street light and electrical installations and maintenance.
2. Identify the Lead PM who will be the primary contact and lead person in providing services to BPCA, and who will be listed as a "key person" in any contract with BPCA.
3. Describe your proposed team's experience (including both direct contract work and work performed under subcontracts) with similar work for other public agencies and authorities, with a particular emphasis on New York State and City agencies and authorities or Federal government agencies or authorities. Include contract dates, the nature of the work performed, the contracting agency, the contract number (if known) and the agency supervisor for each.
4. Submit a discussion of your approach to the work that addresses your conceptual step-by-step approach and procedures for completion of the work.
5. Itemize the work you intend to perform with your firm's resources and/or workforce as well as the work for which you propose to utilize sub consultants.
6. Provide a list of all proposed subcontractors for the completion of the work.
7. Provide a list of all proposed suppliers for the completion of the work.
8. Submit a **bar chart schedule** for completion of the work. This should include sequencing of the work, manpower staffing level, work shifts, project milestones and successful overall completion.
9. Within the past three years, have there been any significant developments in your firm such as changes in ownership or restructuring? Do you anticipate any significant changes in the near future? If so, please describe.
10. Are there any potential conflict of interest issues in providing the Services Required for BPCA?
11. Has your firm or any of the firm's partners/employees been disciplined or censured by any regulatory body within the last five years? If so, please describe the relevant facts.
12. Within the last five years, has your firm, or a partner or employee in your firm, been involved in litigation or other legal proceedings relating to the provision of services? If so, please provide an explanation and the current status or disposition of the matter.
13. Are any of your employees or principals former employees of BPCA? If so, please list their names, current titles, and dates of employment with BPCA.
14. List any professional or personal relationships your firm's employees may have with BPCA's Board and/or staff members of BPCA, as listed on Exhibit C.
15. Proposers shall identify any and all exceptions taken to BPCA's standard form of contract attached hereto as Exhibit C, detailing the reasons for such exceptions. No exceptions to the contract will be considered by BPCA after submission of the proposals. BPCA maintains the right to reject proposals based on non-conformance with the standard form of contract.
16. Please provide any additional information that would serve to distinguish your firm from other firms and that you believe may be relevant to this RFP and your capability to perform the Services Required.

D. RFP Additional Information Request

1) Insurance/Bonding:

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

- b. Describe the levels of coverage for any insurance your firm carries. List the insurance carrier(s) or provide an insurance certificate showing your firm's coverage in accordance with the following:
- Commercial General Liability Insurance limits shall not be less than **\$1,000,000** per each occurrence and **\$2,000,000** in the aggregate,
 - Umbrella Liability limits shall not be less than **\$8,000,000**;
 - Automobile liability (Combined Single Injury, Bodily Injury and Property Damage) limits shall not be less than **\$1,000,000**;
 - Workman's Compensation shall not be less than statutory limits;
 - Employers Liability shall not be less than **\$1,000,000**;
 - Disability Insurance as required by applicable provisions of law; and
 - Products/Completed Operations in the value of **\$2,000,000**

Policies should provide coverage on primary and non-contributory basis and there should be waiver of subrogation against all additional insured (BPCA, BPCPC and State of New York).

The contractor/sub-contractor should provide evidence of insurance (including declaration page and appropriate endorsements) satisfactory to BPCA before commencement of work.

The costs of the insurance shall be included in the Proposal. BPCA, BPCPC and the State of New York shall be listed as Additional Insured on CG 2010 (11/85) or similar form and should be included as such on all subcontracts. Policies should contain no limitations/exclusions for Labor Law claims.

- c. The selected Proposer will be required to furnish a performance bond in an amount at least equal to the Contract price for the performance of the Services Required and a payment bond in an amount equal to the Contract price for the payment of all persons performing labor or providing materials. State whether or not you can provide such payment and performance bonds, the amounts thereof (both single and aggregate) and the name of your bonding company. Provide a letter from your surety stating that you are able to provide 100% bonding for this project.

2) References:

Please provide at least three (3) client references for whom your firm has performed similar work to that requested in this RFP. For each client, please provide a name, address, telephone number and e-mail address.

3) Appendices:

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

- 4) Financial Statements: Please provide a copy of your firm's most recent audited financial statements (within the last year).

E. Cost Proposal

Each “Cost Proposal” must provide a “not-to-exceed” amount for the services contemplated herein, and the additional forms described below. As noted in the Cost Proposal Form attached hereto as Exhibit D, there is an allowance in the not-to-exceed amount of \$50,000 for the removal and replacement of defective underground conduits. **To submit a complete Cost Proposal, Proposer must submit each of the following:**

- 1) Cost proposal in the form attached hereto as Exhibit D (“Cost Proposal Form”).
- 2) Labor rates in the form attached hereto as Exhibit E (“Labor Rates”).
- 3) A unit price schedule which shall be an itemized breakdown of your Cost Proposal Form, in the form attached hereto as Exhibit F (“Unit Price Schedule”).

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

VII. THE EVALUATION PROCESS

A. Objectives

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

- That demonstrates a thorough understanding of the scope of the engagement and the specific responsibilities that it entails;
- Possesses adequate resources to handle assigned responsibilities and to handle unforeseen circumstances that may arise;
- Assigns highly skilled, experienced, diligent, responsible and professional personnel to perform the Services Required;
- Maintains high ethical standards and has an unblemished reputation; and
- Has no conflict of interest in its performance of the Services Required for BPCA.

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

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

B. Interviews

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

C. Evaluation Criteria for Selection

Selection will be based upon the following criteria:

- | | | |
|---|--|-----|
| 1 | Expertise & experience with relevant electrical work | 40% |
| 2 | Staffing and approach to work | 35% |
| 3 | Project Schedule | 10% |
| 4 | Proposed MBE/WBE utilization plan (the “Utilization Plan”) and/or Firm MBE/WBE status: | 15% |

D. 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 and reasonable and represents the best value for BPCA given the requirements of the Project.

VIII. NON-COLLUSION

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

IX. IRAN DIVESTMENT ACT

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

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

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

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

New York State businesses have a substantial presence in State contracts and strongly contribute to the economies of the state and the nation. In recognition of their economic activity and leadership in doing business in New York State, Proposers for this Contract for commodities, services or technology are strongly encouraged and expected to consider

New York State businesses in the fulfillment of the requirements of the Contract. Such partnering may be as subcontractors, suppliers, protégés or other supporting roles.

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

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

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

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

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

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

EXHIBIT A

SCOPE OF WORK

The selected Proposer shall provide all materials, labor, equipment, and supervision for the modification of the South Neighborhood street light electrical system in accordance with the drawings and specifications of Ensign Engineers dated April 17, 2014, which are available on BPCA's website (the "Project"). The services to be provided by the selected Proposer shall include, but not be limited to the following:

- File and obtain all necessary permits in connection with the Project.
- Trace and identify all circuits to be disconnected before commencement of physical removal and/or installation work.
- Submit any required drawings to BPCA.
- Provide and install temporary lighting in the project area.
- Disconnect and remove all existing underground feeders in the South Neighborhood street light electrical system.
- Clean and perform a condition verification of the existing conduits.
- Replace defective conduits.
- Clean all existing roadway boxes of debris and all other materials.
- Install new main feeder cables throughout the system, including a 24 hour hot line.
- Install new stainless steel bolts and gaskets.
- Install new ground rod to existing hand holes.
- Refurbish handholds with stainless steel parts.
- Ground the completed system.
- Install new conduits on First Place and Little West St., including excavation of the area prior to installation, backfill of trenches for conduits, and resurfacing of bituminous road way.
- Investigate existing conduits, as shown on drawing, on Second Place. If conduits are in proper working condition, incorporate into street light grid by installing new main feeder cables.
- Install new conduit on Little West St.
- Modify Second Place control panel.
- Test new electrical wiring, new replacement power and control equipment in the Second Place control panel, and new grounding system.

EXHIBIT B

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

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

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

Business Participation Opportunities for MBE/WBEs and minorities and women

For purposes of this solicitation, BPCA hereby establishes an overall goal of 30% for MBE/WBE participation, 15 % for MBE participation and 15% for WBE participation (based on the current availability of qualified MBEs and WBEs). A contractor (“Contractor”) on the Contract must document good faith efforts to provide meaningful participation by MBE/WBEs as subcontractors or suppliers in the performance of the Contract and Contractor agrees that BPCA may withhold payment pending receipt of the required MBE/WBE documentation. The directory of New York State Certified MBE/WBEs can be viewed at: <http://www.esd.ny.gov/mwbe.html>.

For guidance on how BPCA will determine a Contractor’s “good faith efforts,” refer to 5 NYCRR §142.8.

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

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

By submitting a bid or Proposal, a Proposer agrees to submit the following documents and information as evidence of compliance with the foregoing:

- A. Proposers are required to submit a Utilization Plan with their bid or Proposal. Any modifications or changes to the Utilization Plan after the Contract award and during the term of the Contract must be reported on a revised Utilization Plan and submitted to BPCA.
- B. BPCA will review the submitted Utilization Plan and advise the Proposer of BPCA’s acceptance or issue a notice of deficiency within 30 days of receipt.

C. If a notice of deficiency is issued, Proposer agrees that it shall respond to the notice of deficiency within seven (7) business days of receipt by submitting to BPCA, at the address specified in this RFP, or by facsimile at 212-417-2279 a written remedy in response to the notice of deficiency. If the written remedy that is submitted is not timely or is found by BPCA to be inadequate, BPCA shall notify the Proposer and direct the Proposer to submit, within five (5) business days, a request for a partial or total waiver of MBE/WBE participation goals. Failure to file the waiver form in a timely manner may be grounds for disqualification of the bid or Proposal.

D. BPCA may disqualify a Proposer as being non-responsive under the following circumstances:

- 1) If a Proposer fails to submit a Utilization Plan;
- 2) If a Proposer fails to submit a written remedy to a notice of deficiency;
- 3) If a Proposer fails to submit a request for waiver; or
- 4) If BPCA determines that the Proposer has failed to document good faith efforts.

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

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

Equal Employment Opportunity Requirements

The Contractor is required to ensure that it and any subcontractors awarded a subcontract over \$25,000 for the construction, demolition, replacement, major repair, renovation, planning or design of real property and improvements thereon (the "Work") except where the Work is for the beneficial use of the Contractor, shall 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.

Proposer further agrees to submit with the Proposal a staffing plan identifying the anticipated work force to be utilized on the Contract and if awarded a Contract, will submit to BPCA a workforce utilization report identifying the workforce actually utilized on the Contract. Contractor will be required to make good faith efforts to achieve a participation goal of 30% of the total number of employees required for the work who are minority group members and a participation goal of 5% of the total number of employees required for the work who are women to perform the work.

Further, pursuant to Article 15 of the Executive Law (the "Human Rights Law"), all other New York State and Federal statutory and constitutional non-discrimination provisions, the Contractor and sub-contractors will not discriminate against any employee or applicant for employment because of race, creed (religion), color, sex, national origin, sexual orientation, military status, age, disability, predisposing genetic characteristic, marital status or domestic violence victim status, and shall also follow the requirements of the Human Rights Law with regard to non-discrimination on the basis of prior criminal conviction and prior arrest.

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

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

EXHIBIT C

BPCA's standard form of contract

(attached)

CONSULTANT AGREEMENT

between

HUGH L. CAREY BATTERY PARK CITY AUTHORITY

and

[NAME OF COMPANY, INC. CORP, CO.]

Dated as of [DATE]

Contract No. [xx-xxxx]

[(PROJECT NAME)]

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EXHIBITS

CONSULTANT AGREEMENT

AGREEMENT made as of [DATE] between HUGH L. CAREY BATTERY PARK CITY AUTHORITY, (“BPCA” or “Owner”), a body corporate and politic, constituting a public benefit corporation, having a place of business at One World Financial Center, New York, New York 10281, and [NAME OF COMPANY, incorporated in the State of _____, having an office at [Street, City, State, Zip Code] (“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 is in the process of creating the staged development of 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. Consultant shall complete the Scope of Work on or before [DATE] (the “Term”) unless: (1) this Agreement is otherwise terminated as hereinafter provided; or (2) 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 [AMOUNT] (“Fee”), paid in

accordance with [EXHIBIT] hereto. The Fee [does/does not] include any and all reimbursable expenses to be incurred by Consultant in performing the Work.

[(b) The Fee includes payment for reimbursable expenses, 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.

- or -

(b) The Fee does not include payment for reimbursable expenses. Owner's total reimbursement for Consultant's reimbursable expenses shall not exceed [AMOUNT]. Payment for reimbursable expenses set forth in [EXHIBIT] shall be made 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 one or more written requests for payment on or about the first (1st) day of the calendar month for Work actually performed and/or reimbursable expenses actually incurred prior to that date. All invoices for payment shall include the name, address, and telephone number of the Consultant and a description of services or goods provided, and be accompanied by appropriate Time Sheets, in the form annexed hereto as Exhibit D.

(d) Not later than the thirtieth (30th) day following Owner's receipt of each written request for payment, Owner shall pay Consultant so much of the amount requested as may be approved by Owner. Any item(s) of Work indicated in any Exhibit hereto as attributable to a specific phase of the Work which 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.

(e) All requests for payment should be addressed as follows:

Office of the Treasurer
Hugh L. Carey Battery Park City Authority
One World Financial Center, 24th Fl.
New York, NY 10281-1097
Attn.: Accounts Payable

A duplicate copy is to be sent to the attention of [NAME OF BPCA CONTACT, TITLE].

4. Increase and Decrease in the Scope of Consultant's Work

Owner shall have the right to make changes or to increase or reduce the scope of the Work, or to 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 an additional fee computed in accordance with the hourly rate(s) set forth in Section 3(a) *supra*, or if no such rates are set forth, upon terms to be agreed.

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 which 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 which has not theretofore been paid to Consultant and which 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 which 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.

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 8 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

Consultant shall not assign the Agreement in whole or in part without Owner's prior written consent; however, Owner may assign the Agreement in whole or in part without Consultant's prior written consent.

9. Ownership of Documents

(a) All material specifically prepared for the Project and excluding any intellectual property already owned by Consultant which 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 which is the subject of the Work is and shall be deemed Work Made for Hire on behalf of BPCA and that BPCA 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 BPCA 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. Insurance

(a) Consultant shall carry the following insurance:

(i) Workers' Compensation and New York State Disability Benefit Insurance covering all persons employed or retained by Consultant in connection with the Work, as required by New York State Law.

(ii) Professional Liability Insurance with limits of liability in amounts not less than [AMOUNT] for Consultant and not less than [AMOUNT] for each Subconsultant, insuring Consultant and any of its respective officers, directors, stockholders, partners and employees for liability arising out of the carrying out of Consultant's professional responsibilities for the Work. All such professional liability policies shall include coverage for contractual liability, including the matters set forth in Section 17 of this Agreement. All policies shall be subject to a deductible of not more than [AMOUNT] per claim. The maximum permitted self-insured retention shall be [AMOUNT], or an amount approved by Owner in writing.

(iii) 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.

(iv) Commercial General Liability Insurance with contractual, products and completed operations coverages issued to and covering the liability of Consultant for all the Work and operations relating thereto and all obligations assumed by Consultant under this Agreement, with a combined single limit for Bodily Injury, Personal Injury and Property Damage of at least [AMOUNT] per occurrence and aggregate. Said insurance shall, where applicable, be written on an occurrence basis. The limit may be provided through a combination of primary and umbrella/excess liability policies. The coverage shall provide and encompass at least the following:

(A) An endorsement naming Owner, Battery Park City Parks Conservancy Corporation, the State of New York, and such other entities as identified by Owner, as additional

insureds (“Additional Insureds”).

(B) The policy or policies must be endorsed to be primary as respects the coverage afforded the Additional Insureds and such policy or policies shall be primary to any other insurance maintained by Owner. Any other insurance maintained by Owner shall be excess of and shall not contribute with Consultant’s insurance, regardless of the existence of any “other insurance” clause contained in Owner’s own policy or policies of insurance.

(v) Automobile Liability and Property Damage Insurance covering the use in connection with the Work of all owned, leased, hired, and non-owned vehicles bearing, or under the circumstances under which such vehicles are used are required to bear license plates by the Motor Vehicle Laws of the State of New York, with a combined single limit for Bodily Injury and Property Damage of at least [AMOUNT] per occurrence.

(vi) Excess Liability Insurance with an aggregate limit of not less than [AMOUNT].

(vii) Comprehensive Crime/Employee Dishonesty Insurance in a reasonable amount or an amount which is customary in the applicable industry, trade or profession.

(viii) If the Work involves the removal, repair, installation or testing of underground petroleum storage tanks, or petroleum remediation operations, or the performance of work or services related to excavation, loading, transporting or unloading of hazardous or contaminated materials, Consultant shall provide Environmental Engineers and Consultants Professional Liability Insurance with a limit of [AMOUNT]. Coverage shall provide and encompass the following:

(A) Consultant’s negligent acts, errors or omissions in rendering or failing to render services of an engineering or consulting nature arising out of their environmental engineering or consulting.

(B) Maximum self-insured retention of [AMOUNT], or an amount acceptable to Owner.

(b) All required insurance shall be maintained with responsible insurance carriers authorized to do business in the State of New York and rated at least B+ by A.M. Best and Company, or meet such other requirements as are acceptable to Owner, and shall be approved by Owner. Upon execution of this Agreement and before commencing any performance hereunder, Consultant shall deposit with Owner the original policies of insurance, or certificates therefor, bearing notations or accompanied by other evidence satisfactory to Owner of the payment of all premium payments thereunder. **Such policies or certificates shall be delivered to [NAME AND TITLE] at Owner’s place of business, immediately upon signing this Agreement.** Thereafter, certification of all premium payments shall be deposited with Owner not less than ten (10) days before the expiration dates of the policies. In the case of Valuable Papers Insurance, original policies, not certificates, must be deposited. Submission of a policy or certificate of insurance with Owner shall constitute a warranty by Consultant that the insurance coverage

described is in effect for the policy term shown.

(c) Riders providing substantially as follows shall be made a part of the insurance policies described in Subsection 10(a) hereof, as applicable:

(i) the policy shall not be canceled or terminated, or the coverage thereof materially reduced, until thirty (30) days after receipt of written notice thereof by certified or registered mail, return receipt requested addressed to Owner; and

(ii) violation of any of the terms of the policy, or any other policy issued by the Company, shall not by itself invalidate such policy.

(d) The insurance policies required by this Section 10 shall be kept in full force and effect for the periods specified hereunder:

(i) Workers' Compensation Insurance and New York State Disability Benefits Insurance shall be kept in force until receipt of final payment by Consultant hereunder. This Agreement shall be void and of no force or effect unless, in compliance with the Workers' Compensation Law, Consultant shall secure Workers' Compensation Insurance for the such of their respective employees engaged in the performance of the Work as are required to be insured under said law.

(ii) Professional Liability Insurance and, if applicable, Environmental Engineers and Consultants Professional Liability Insurance, shall be kept in force for the earlier of three (3) years after the completion of the performance of the Work hereunder or termination of this Agreement. If the insurance policy provided pursuant to Section 10(a)(ii) or 10(a)(viii) above shall be canceled or not renewed, Consultant shall purchase at its sole expense an extended discovery clause covering the period of three years after Work under this Agreement is completed.

(iii) Valuable Papers Insurance shall be kept in full force and effect until final delivery of all documents prepared by or on behalf of Consultant in connection with the Work.

(e) Should Consultant engage any Subconsultant(s), the same conditions as are applicable to Consultant under this Section 10 shall apply to each Subconsultant of every tier. However, Consultant shall keep Subconsultant's certificates of insurance on file, and shall produce same upon demand by Owner.

(f) Should Consultant fail to provide or maintain any insurance required by this Agreement, Owner may, after providing verbal notice to Consultant, purchase any insurance required under this Agreement and charge back such purchase to Consultant.

(g) At any time that the coverage provisions and limits on the insurance policies required under this Agreement do not meet the provisions and limits set forth above, Consultant shall immediately cease work on the Project. Consultant shall not resume work on the project until authorized to do so by Owner. Any delay or time lost as a result of Consultant not having the

insurance required under this Section 10 shall not entitle Consultant to receive additional compensation or a time extension.

(h) Notwithstanding any other provisions in this Section 10, Owner may require Consultant to provide, at Owner's expense, any other form or limit of insurance necessary to secure Owner's interests.

(i) Consultant shall secure, pay for, and maintain Property Insurance necessary for protection against the loss of owned, borrowed or rented equipment, tools and materials used in Consultant's performance of the Work. The requirement to secure and maintain such insurance is solely for the benefit of Consultant. Consultant's failure to secure such insurance or to maintain adequate levels of coverage shall not render Owner or any Additional Insureds, or their agents and employees, responsible for any such losses, and Owner, the Additional Insureds, and their agents and employees shall have no such liability.

(j) Neither the procurement nor the maintenance of any type of insurance by Owner and Consultant shall in any way be construed or deemed to limit, discharge, waive or release Consultant from any of the obligations and risks accepted by Consultant, or be a limitation on the nature or extent of said obligations and risks.

(k) Consultant shall not violate, or permit to be violated, any term or condition of its insurance policies, and shall at all times satisfy Owner's safety requirements and any requirements of the insurance companies issuing such policies. Consultant shall take every reasonable precaution against injuries to persons or damage to property, and for the safety of persons engaged in performing the Work or working in connection with the Project. Consultant shall establish and maintain safety procedures in connection with the Work as required by the New York labor law and regulations of the Occupational Safety and Health Act, as applicable.

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.

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 which Consultant, and/or its 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 or of 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 which 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 which 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. Indemnity

(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 of the provisions set forth in Section 16 hereof, and Consultant agrees that it shall defend any suit or action brought against Owner or any Member, officer, agent or employees of Owner which 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

No modification, amendment, change, termination or attempted waiver of any of the provisions of this Agreement shall be binding unless in writing and signed by the party to be bound.

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 (each, a “Notice”) from either party to the other shall be in writing and shall be deemed given when received by overnight mail or when deposited with the United States Postal Service in a postage prepaid envelope, certified or registered mail, addressed to the other party at the addresses set forth above. If to Owner, Notices shall be sent to the attention of [BPCA PERSON, TITLE], with a copy to the General Counsel, and if to Consultant, Notices shall be sent to the attention of [CONSULTANT CONTACT]. 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. Definitions

The following terms shall have the meanings set forth below for the purposes of this Article 26:

(a) "Certified Business." A business verified as a minority or women-owned business enterprise by the Division or such other New York State agency authorized to make such certification.

(b) "Diversity Program." The program by which Owner shall monitor Consultant's compliance with the requirements set forth in (i) the MBE/WBE Required Participation Plan and (ii) the Utilization Plan.

(c) "Division." The Division of Minority and Women's Business Development of the New York State Department of Economic Development.

(d) "Director." The Director or the Executive Director of the Division.

(e) "Directory." The directory of certified businesses prepared by the Director for use by Owner and consultants in complying with the provisions of the Executive Law of the State of New York, Article 15-A.

(f) "MBE/WBE Required Participation Plan." The plan previously submitted by a Consultant to Owner listing the certified MBEs and/or WBEs which the Consultant intends to use in the performance of this agreement in order to ensure that MBEs and WBEs are awarded a fair share of the total dollar value that is to be paid for the Work.

(g) “Minority Group Member.” A United States citizen or permanent resident alien who is and can demonstrate membership in one of the following groups:

- (1) Black persons having origins in any of the Black African racial groups;
- (2) Hispanic persons of Mexican, Puerto Rican, Dominican, Cuban, Central or South American descent of either Indian or Hispanic origin, regardless of race;
- (3) Native American or Alaskan native persons having origins in any of the original peoples of North America; or
- (4) Asian and Pacific Islander persons having origins in any of the Far East countries, South East Asia, the Indian subcontinent or the Pacific Islands.

(h) “Minority-owned Business Enterprise” (“MBE”). A business enterprise, including a sole proprietorship, partnership or corporation that is:

- (1) at least 51 percent owned by one or more Minority Group Members;
- (2) an enterprise in which such minority ownership is real, substantial and continuing;
- (3) an enterprise in which such minority ownership has and exercises the authority to control and operate, independently, the day-to-day business decisions of the enterprise; and
- (4) an enterprise authorized to do business in the State of New York and is independently owned and operated.

(i) “Subcontract.” An agreement providing for a total expenditure in excess of \$25,000 for the performance of any portion of the Work between Consultant and any individual or business enterprise, including a sole proprietorship, partnership, corporation, or not-for-profit corporation, in which a portion of a contractor’s obligation is undertaken or assumed.

(j) “Utilization Plan.” A plan previously submitted by Consultant to Owner which sets forth the proposed percentages of employees who are either Minority Group Members or women and who will be used by Consultant to perform the Work.

(k) “Women-owned Business Enterprise” (“WBE”). A business enterprise, including a sole proprietorship, partnership or corporation that is:

- (1) at least 51 percent owned by one or more United States citizens or permanent resident aliens who are women;
- (2) an enterprise in which the ownership interest of such women is real,

substantial and continuing;

(3) an enterprise in which such women ownership has and exercises the authority to control and operate, independently, the day-to-day business decisions of the enterprise; and

(4) an enterprise authorized to do business in the State of New York and which is independently owned and operated.

26.2. Equal Employment Opportunities for Minority Group Members and Women

(a) During the performance of the Work, Consultant agrees as follows:

(1) Consultant shall not discriminate against any employee or applicant for employment because of race, creed, color, national origin, sex, age, disability or marital status; shall undertake or continue existing programs of diversity to ensure that Minority Group Members and women are afforded equal employment opportunities without discrimination; and shall make and document its good faith effort to achieve prompt and full utilization of Minority Group Members and women at all levels and in all segments of its work force where deficiencies exist.

(2) At the request of Owner, 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.

(3) Consultant shall state in all solicitations or advertisements for employees that in the performance of the Work, all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status.

(4) Consultant and any Subconsultant shall be required to submit compliance reports in accordance with this Section 26 relating to their operations and the implementation of the Diversity Program in effect as of the date of execution of this Agreement.

(5) Contractor shall submit an EEO policy statement to Owner within seventy-two hours of notice from Owner of the awarding of this contract to Contractor. If Contractor does not have an existing EEO policy

statement, Owner may provide to Contractor a model statement.

(6) For purposes of providing meaningful participation by MBE/WBE's for the Work and achieving the goals established herein, Consultant and its Subconsultants should reference the directory of New York State Certified MBE/WBE's found at the following internet address: <http://www.esd.ny.gov/mwbe.html>.

Additionally, Consultant and its Subconsultants are encouraged to contact the Division of Minority and Woman Business Development at (518) 292-5250, (212) 803-2414, or (716) 846-8200), to discuss additional methods of maximizing participation by MBE/WBE's on the Work.

(7) Where MBE/WBE goals have been established herein, Consultant must document "good faith efforts," pursuant to 5 NYCRR §142.8, to provide meaningful participation by MBE/WBE's as Subconsultants or suppliers in the performance of the Work.

(b) Consultant shall include the provisions of subdivision (a) of this section in every Subcontract in such a manner that the provisions will be binding upon each Subconsultant as to the Work in connection with this contract's execution.

(c) Miscellaneous provisions:

(1) The provisions of this section shall not be binding upon Consultant or its Subconsultants in the performance of any other work or the providing of services, or any other activities that are unrelated, separate or distinct from this Agreement as expressed by its terms.

(2) The requirements of this section shall not apply to any employment outside New York State, or application for employment outside such state, or solicitations, or advertisements therefore, or any existing programs of diversity regarding employment outside New York State and the effect of contract provisions required by this section shall be so limited.

(d) Enforcement. The parties agree to be bound by provisions of Article 15-A of the Executive Law of the State of New York and by the regulations adopted pursuant thereunder.

26.3. Workforce Participation

(a) Consultant is required to make good faith efforts to achieve the participation of [X]% Minority Group Members and/or women in the personnel utilized by Consultant in the Work as set forth in the Utilization Plan.

(b) 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 this contract by the specified categories listed, including ethnic background, gender, and Federal

occupational categories. Consultant shall complete the staffing plan form and submit it as part of their bid or proposal or within a reasonable time, but no later than the time of award of the contract.

(c) The participation for Minority Group Members and women employees must be substantially uniform throughout the work.

(d) Consultant shall not participate in the transfer of Minority Group Member employees or women employees from employer to employer or from project to project for the sole purpose of satisfying the participation goals above set forth.

(e) In achieving such participation, Consultant is required to make good faith efforts to find and employ qualified Minority Group Members and women supervisory personnel and staff.

(f) Consultant shall meet with Owner, and such other persons as Owner may invite, on a periodic basis as required by Owner to discuss issues relating to Minority Group Members and women workforce participation. At such meetings, Consultant shall report on the names of its Subconsultants then engaged on the Project to which the Work relates or which within 60 days are scheduled to be engaged on such Project, on the nature of the work and anticipated schedule of Consultant and Subconsultants, on the anticipated hiring needs of Consultant and Subconsultants, on the names of the responsible supervisors directly employed by Consultant, and such information requested by Owner that will then promote the employment of Minority Group Members and women. Consultant shall use its best efforts to obtain the above information and shall, upon Owner's request, cause its Subconsultants to attend said meetings and provide the above information.

(g) Compliance reports with respect to the Utilization Plan ("Utilization Compliance Reports") which shall be submitted to Owner's Diversity officer on a monthly basis and shall be in accordance with the following:

(1) Owner may require that Consultant submit Utilization Compliance Reports for the duration of this contract to Owner regarding Consultant's operation and implementation of the Utilization Plan portion of the Diversity Program in effect as of the date of execution of this Agreement.

(2) The Utilization Compliance Reports shall include information on any Subconsultant involved in the performance of the contract with regard to the Subconsultant's compliance with the Diversity Program.

(3) The Utilization Compliance Reports shall include, but are not limited to the following:

(i) a breakdown of the Subconsultants by ethnic background, gender or such other categories as may be required by Owner;

(ii) the actions the Consultant and Subconsultants have taken to

meet the components of the Diversity Program;

(iii) how Consultant and Subconsultants intend to utilize participation of Minority Group Members and women in their workforce in connection with the performance of the Work and timetables therefor during the remainder of their performance of the Work.

(h) Any failure by Consultant to submit a required Utilization Compliance Report, including information on any of its Subconsultant's compliance, may be deemed a breach of contract with respect to this agreement.

(i) Consultant shall include the provisions of Section 26.3 in every Subcontract, and such provisions shall be binding upon each Subconsultant.

26.4. Minority Business Enterprise (MBE) Participation and Women's Business Enterprise (WBE) Participation

(a) Consultant shall make good faith efforts to attain the participation of [X%] MBEs and/or WBEs in the total dollar value of the Work.

(b) The total dollar value of the Work for purposes of determining compliance with the MBE/WBE Required Participation Plan shall be calculated as follows:

(1) if an MBE and WBE is not the Consultant -- the dollar value of the Work subcontracted to MBEs and WBEs; provided, however, that where materials are purchased from an MBE and WBE which acts merely as a conduit for goods manufactured or produced by a non-MBE and non-WBE, only that portion of the price paid for such materials which will accrue as profit to the MBE or WBE and/or the Fee received by the MBE and WBE shall be included;

(2) if Consultant is a joint venture including one or more MBEs and WBEs as joint venturers -- the Fee multiplied by the percentage of the joint venture's profits (or losses) which are to accrue to the MBE and WBE joint venturer(s) under the joint venture agreement; and

(3) if an MBE and WBE is Consultant or where Consultant is a joint venture consisting entirely of MBEs and WBEs -- the Fee.

(c) Compliance reports with respect to the MBE/WBE Required Participation Plan ("MBE/WBE Compliance Reports") shall be required as follows:

(1) MBE/WBE Compliance Reports shall be submitted to Owner and shall include information with respect to:

(i) dividing the Work to be subcontracted into smaller portions, where economically and technically feasible;

(ii) actively and affirmatively making a good faith effort to solicit bids for subcontracts from qualified MBEs and WBEs identified in the directory of certified businesses available at the office of the Owner's Diversity Officer, including the circulation of solicitations to minority contractor associations. Consultant shall maintain records detailing the efforts made to provide for meaningful MBE and WBE participation in the Work, including the names and addresses of all MBEs and WBEs contacted and, if any such MBE or WBE is not selected as a joint venture or subcontractor, the reasons for such decision;

(iii) making plans and specifications for prospective work available to MBEs and WBEs in sufficient time for review;

(iv) utilizing the services and cooperating with those organizations providing technical assistance to Owner in connection with the participation of MBEs and WBEs in the project to which the Work relates;

(v) encouraging the formation of joint ventures, partnerships or other similar arrangements among subcontractors where appropriate;

(vi) ensuring that provision is made to provide progress payments to MBEs and WBEs on a timely basis; and

(vii) not requiring bonds from and/or providing bonds and insurance for MBEs and WBEs where appropriate, and/or assisting in obtaining bonds and insurance for MBEs and WBEs where feasible.

(2) MBE/WBE Compliance Reports which shall be submitted to the Diversity Department on the monthly basis.

(3) MBE/WBE Compliance Reports shall also include, but not be limited to, the following information:

(i) the name, address and telephone number of each certified MBE and WBE which Consultant is using or intends to use to comply with the MBE/WBE Required Participation Plan.

(ii) a brief description of the contract scope of work to be performed for the Consultant by each certified MBE and WBE and

the scheduled dates for performance;

(iii) a statement of whether Consultant has a written agreement with each certified MBE and WBE which Consultant is using or intends to use, and if requested, copies of such agreements;

(iv) the actual total cost of the contract scope of work to be performed by each certified MBE and WBE for this Agreement; and

(v) The actual amounts of any payments made by Consultant to each certified MBE and WBE as of the date the MBE/WBE Compliance Report was submitted.

(d) Consultant shall provide Owner with M/WBE and/or Workforce Monthly Utilization Reports, by the last calendar day of each month, in the form of [EXHIBIT] hereto. Failure to provide such reports shall be an event of default of contractor's obligations pursuant to this Section.

(e) Consultant shall provide proof of payment to all subcontractors and materialmen in the form of a waiver of lien or cancelled check, with each request for payment. Failure to provide such proof of payment shall be an event of default of contractor's obligations pursuant to this Section.

26.5 Failure to Comply

(a) In accordance with 5 NYCRR §142.13, Contractor acknowledges that if it is found to have willfully and intentionally failed to comply with the M/WBE participation goals set forth herein or any other requirements set forth in this Article 27, such finding constitutes a breach of contract and Owner may withhold payment from the Contractor as liquidated damages.

(b) Such liquidated damages shall be calculated based on the actual cost incurred by Owner related to Owner's expenses for personnel, supplies and overhead related to establishing, monitoring, and reviewing certified M/WBE programmatic goals and Diversity and Equal Opportunity compliance.

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 which 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. Termination for Failure to Disclose Under NYS Finance Law §139k

The Hugh L. Carey Battery Park City Authority reserves the right to terminate this contract in the event it is found that the certification filed by Contractor/Consultant pursuant to New York State Finance Law §139-k was intentionally false or intentionally incomplete. Upon such finding, Hugh L. Carey Battery Park City Authority may exercise its termination right by providing written notification to the Contractor/Consultant in accordance with the written notification terms of this contract. If a contract is terminated in accordance with State Finance Law §139k(5), Hugh L. Carey Battery Park City Authority, its subsidiaries and affiliates, will include a statement in Hugh L. Carey Battery Park City Authority's procurement record describing the basis for any action taken under the termination provision.

33. 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).

34. Form of Agreement not an Offer

Notwithstanding anything herein to the contrary, the submission of this form of Agreement by the Authority to Consultant shall not constitute an offer, and execution hereof by Consultant shall not be considered acceptance of an offer. A binding contract between the parties shall exist only if and at such time as both parties have executed this document.

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: _____

[CONSULTANT COMPANY NAME]

By: _____

Name: _____

Title: _____

FEIN# :

EXHIBIT D

FORM OF COST PROPOSAL

(Proposer to submit executed Cost Proposal on its letterhead)

Date:

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

Attention: Mr. Michael LaMancusa
Contracts Administrator

Dear Mr. LaMancusa,

The undersigned (the “Proposer”) hereby proposes to provide all work necessary to perform the work for the **South Neighborhood Street Light Electrical System Repair and Replacement** project (the “Project”). The Proposer agrees to commence the work immediately upon receipt of the Initial Letter of Intent in accordance with the terms stipulated in the following pages, up to the “not-to-exceed” amount written below.

A. Base Proposal

A total Not to Exceed amount of \$_____ (_____ Dollars and _____ Cents) to perform all work as described in Exhibit A (Scope of the Work) of the Authority’s Request for Proposals for the Project.

Allowance For Defective Conduits

The Proposer shall be given a total Not to Exceed amount of \$50,000 (Fifty Thousand Dollars and 00 Cents) as an allowance to perform the removal and replacement of defective underground conduits.

B. Unit Price Schedule and Labor Rates

1. The Proposer has submitted with its cost proposal an itemized cost for the work, according to the attached Unit Price Schedule, in the form of Exhibit F to the Authority’s Request for Proposals for the Project.
2. The Proposer has submitted with its cost proposal, labor rates in the form of Exhibit E to the Authority’s Request for Proposal for the Project, for all trades, including all costs except overhead and profit. Prices shown include base hourly rate, overtime rate, insurance and benefits.

Name of Proposer:

By: _____

Title: _____

EXHIBIT E

LABOR RATES

The following labor rates are to be listed by craft and classification (Foreman, Journeyman, etc.) and are to include base wages, benefits, taxes, insurance and payroll costs complete. Overhead and profit are not to be included:

<u>CRAFT</u>	<u>CLASSIFICATION</u>	<u>HOURLY RATES</u>	<u>OVERTIME</u>
<u>LABORER</u> <u>CONCRETE</u>	_____	_____	_____
<u>CARPENTER</u>	_____	_____	_____
<u>IRON WORKER</u>	_____	_____	_____
<u>LABORER</u>	_____	_____	_____
<u>LABORERS - LESS</u> <u>SKILLED</u>	_____	_____	_____
<u>OPERATING</u> <u>ENGINEER</u>	_____	_____	_____
<u>FIELD</u> <u>SUPERVISOR</u>	_____	_____	_____
<u>FOREMAN</u>	_____	_____	_____
<u>TEAMSTER</u>	_____	_____	_____
<u>ELECTRICIAN</u>	_____	_____	_____
<u>PLUMBER</u>	_____	_____	_____

<Name of Company>
<Name of Proposer>

Signed

Date

By: <Printed Name>

EXHIBIT F

<u>UNIT PRICE SCHEDULE FOR BATTERY PARK- SOUTH OF THAMES LIGHTING UPGRADE-</u>				
DESCRIPTION OF WORK	QTY	UNIT	COST	TOTAL
DATE: February 2015				
<u>General Conditions</u>				
File and obtain all NYC DOT Street opening permits		LS		
Mobilization		LS		
De-Mobilization and Site Restoration if Required		LS		
Tracing and identification of the existing to be disconnected and removed branch circuit wiring and identification of the load/branch circuit assignments.		LS		
Submittals, Shop Drawings, etc.		LS		
AS-Built Drawings				
Overhead and Profit				
<u>Subtotal General Conditions</u>				
<u>Site Construction</u>	-	-	-	-
2' W x 3' D Excavation for installation of 2" conduit across Little West St		CuFT		
2'W x 3'D Excavation for installation of 2" conduit along 2nd Place		CuFT		
Backfill of trench for conduits and resurfacing with concrete		CuFt		
Backfill of trench for conduits and resurfacing with pavers (100Ft)		CuFt		
Resurfacing of bituminous roadway		Sq Ft		
<u>Subtotal Site Construction</u>	-		-	-

<u>Demolition work</u>				
Provide and install temporary feed to pedestrian lights		LS		
Provide and install temporary Lighting		LS		
Provisions for continuous power supply for 24 Hour loads during construction.		LS		
Disconnection and removal of the existing power/control equipment and mounting hardware installed inside the Second Place Load/Control Cabinet.		LS		
Removal of the corroded parts of the existing Second Place Load/Control Cabinet. Cleaning cabinet of all debris		LS		
Disconnection and removal of wiring from the existing damaged conduits. Conduits to be left in the ground and capped.		LS		
Removal of pavement for excavation of concrete 100 FT		SF		
Removal of pavement for excavation of pavers 40ft		Sq Ft		
Cleaning of the existing conduits to remain		LS		
Removal and replacement with new of the existing damaged hardware in hand holes		LS		
Removal and replacement with new of the existing damaged pull boxes and junction boxes		LS		
Disconnection and removal of the existing wiring supplying all lighting poles in the area of Work		CLF		
Disconnection and removal of the existing In-Line Fuseholders and Fuses installed in existing poles, to be rewired in those lighting poles.		EA		
Disconnection and removal of the existing pole mounted receptacles		EA		
Removal of the existing cable mounting hardware in existing electrical handholes		LS		
Disconnection and Removal of the existing grounding hardware in existing electrical handholes		LS		
<u>Subtotal Demolition Work</u>				
-				

New Construction Work

Replacement of the existing corroded metal parts of the Second Place Cabinet	-	LS	\$ -	\$ -
New power and control components installed in the newly refurbished Second Place Load/Control Cabinet	-	LS	\$ -	\$ -
New equipment mounting hardware installed in the refurbished Second Place Load/Control Cabinet	-	LS	\$ -	\$ -
Reconnection of the existing incoming CON ED cables to the new Second Place service equipment.	-	LS	\$ -	\$ -
Provide and install new ground rod to existing load box	-	Ea		
Reconfigure load box to the original wiring	-	LS	\$ -	\$ -
Label and identify all circuits in the Load Box	-	LS		
Rewire all poles with new wiring with XHHW-2, 600V Type		LF	\$ -	\$ -
New replacement In-Line Fuseholders and Fuses installed in poles having existing fuses and fuse holders		Ea		
Replace old receptacles with GFCI receptacles in poles		Ea		
Replace main feeders as shown on the drawings		LS		
Refurbish handholes with stainless steel parts		LS		
Run new branch feeders from hand holes to poles		EA		
Connect branch circuits to main feeders and waterproof the joints		EA		
Provide and install new ground rod to existing hand holes. Ground the hand holes. Connect grounding straps from box to covers with lugs		EA		
Install new conduits across Little West Street and Second Place and run wiring through		LF		
Replacement of the existing damaged underground conduits with new conduits		LF		
Provide and install all new stainless steel hardware in the hand holes for cable support		LS		

Drill and tap hand holes to bolt on covers. Provide waterproof gasket and theft proof stainless steel screws		CLF		
Provide and Install stainless steel mounting hardware for cables in existing electrical handholes		LS		
Installation of new grounding lugs on existing metal covers in existing electrical handholes and man holes		LS		
Installation of new grounding hardware in existing electrical handholes including new grounding rod		LS		
Testing of the new electrical wiring (megger test)		LS		
Testing of the new replacement power and control equipment in the refurbished Second Place Load/Control Cabinet.		LS		
Testing of the new grounding system		LS		
<u>Subtotal New Construction Work</u>				
-				
<u>Allowances</u>				
Additional Trenching (2'W x 3' D)	100FT	CuFt		
Allowance for the removal of underground conduits found defective to be removed and replace with new conduits.	1	LS	\$ 50,000.00	\$ 50,000.00
<u>Subtotal Allowances</u>				
<u>Total Construction Cost</u>				

EXHIBIT G
DRAWINGS & SPECIFICATIONS

A detailed line drawing of a city street grid, oriented vertically. The grid consists of several rectangular blocks. A dashed rectangular box is drawn over a portion of the grid, specifically enclosing a block on the left side. Inside this dashed box, the text "TASK 6" is written in a bold, sans-serif font. The drawing is a simple line art style with no shading or color.

TASK 6



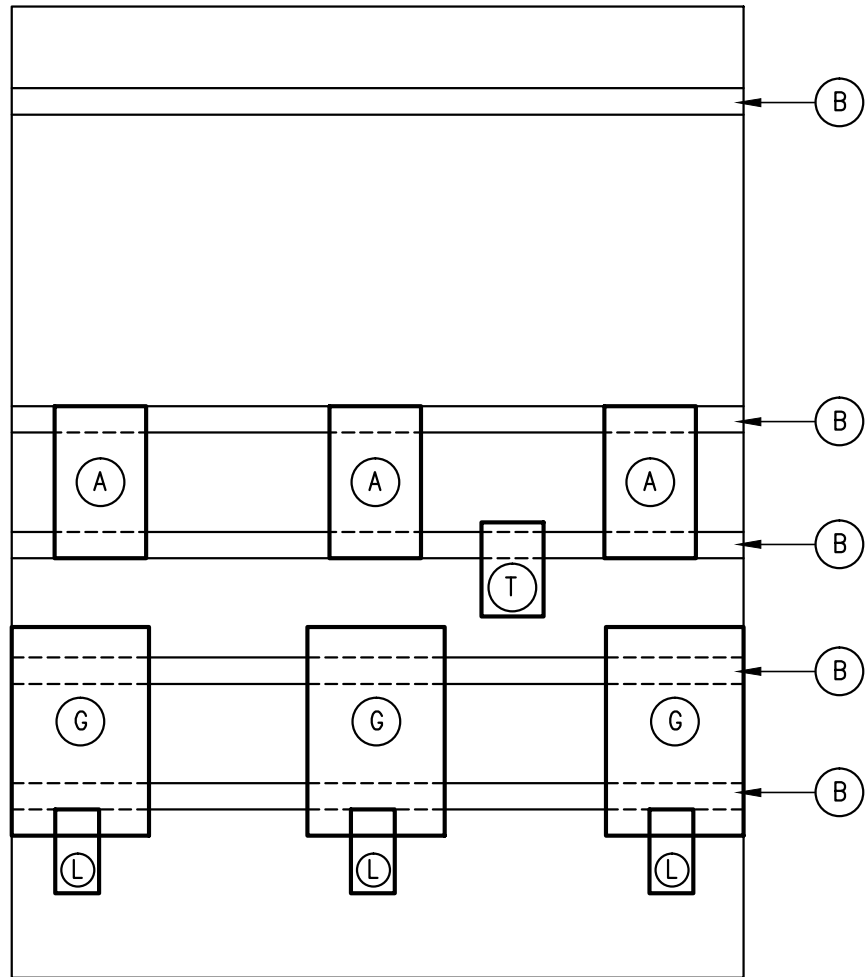
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Key Plan: SHADED AREA = AREA OF WORK

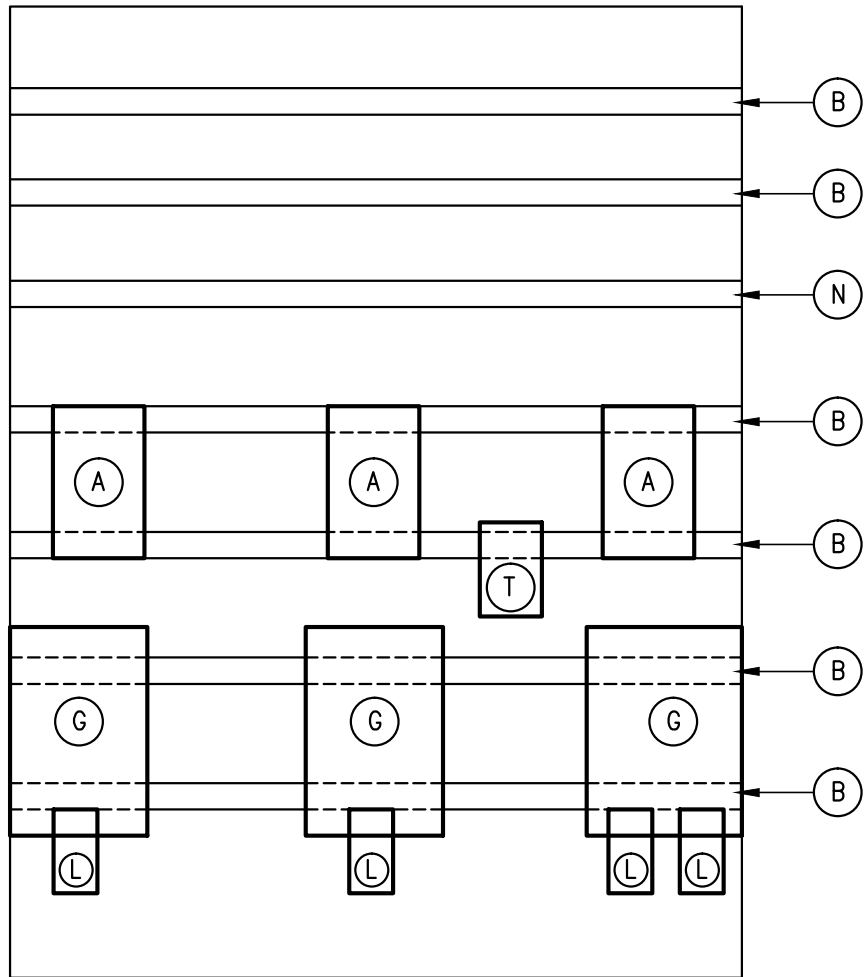
Design No. or LLW No.:	Facility Code:	Date:
—	N/A	04/17/14

Drawing Title:	<h1 style="margin: 0;">TITLE SHEET</h1>
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01 of 14



EXISTING STREET SIDE CABINET DOOR



EXISTING STREET SIDE CABINET DOOR



LEGEND

SYMBOL	DESCRIPTION
(A)	EXISTING 100A, 120V SINGLE POLE RELAY.
(B)	EXISTING MOUNTING METAL BRACKET.
(G)	EXISTING SINGLE POLE BLOCK WITH FUSE AND DISCONNECT.
(T)	EXISTING TIME SWITCH.
(L)	EXISTING LUG.
(N)	EXISTING NEUTRAL BUS BAR.
(P)	EXISTING STREET SIDE CABINET DOOR MOUNTED PHOTOCELL.

NOTES

- ALL ELECTRICAL ITEMS SHOWN AND IDENTIFIED ON THIS DRAWING AS EXISTING IN THE SECOND PLACE LOAD BOX SHALL BE DISCONNECTED AND REMOVED.
- PRIOR TO COMMENCING THE DISCONNECTION AND REMOVAL WORK THE CONTRACTOR SHALL SUBMIT TO THE OWNER A PLAN FOR PROVIDING TEMPORARY LIGHTING FOR THE ENTIRE PROJECT AREA FROM SUNSET UNTIL SUNRISE AND AS REQUIRED DURING THE LOW LIGHT CONDITIONS OF THE DAY. A MINIMUM ILLUMINATION OF 0.5 FOOT-CANDLE AT SIDEWALK SHALL BE MAINTAINED.
- THE PLAN SUBMITTED TO THE OWNER FOR APPROVAL SHALL DETAIL THE QUANTITY AND LOCATION OF LIGHTS AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR COSTS AND MONITORING TEMPORARY LIGHTING UNTIL THE EXISTING POWER/CONTROL CABINET HAS BEEN INSTALLED, MADE OPERATIONAL AND APPROVED BY BPCA AND NYC DIVISION OF STREET LIGHTING ALONG WITH THE SOUTH OF THAMES REWIRED LIGHT GRID.
- CONTRACTOR SHALL MAINTAIN SUPPLIED WITH POWER AT ALL TIMES, THE 24 HOUR BRANCH CIRCUITS USED TO SUPPLY THE SCHOOL LIGHTS AND POLICE.
- EXISTING MOUNTING BRACKETS INSIDE THE LOAD/CONTROL CABINET SHALL BE REMOVED.
- CONTRACTOR SHALL COORDINATE PHASING OF THE DISCONNECTION AND REMOVAL WORK WITH THE UTILITY AND BPCA.
- CONTINUITY OF THE GROUNDING CONDUCTOR AND THE INTEGRITY OF THE GROUNDING SYSTEM SHALL BE MAINTAINED AT ALL TIMES DURING THE PROCESS OF DISCONNECTION AND REMOVAL.
- THE EXISTING CON ED POWER FEEDER TO THE SECOND PLACE POWER/CONTROL LOAD BOX SHALL BE DISCONNECTED AND THE ENDS SHALL BE TAPED TO RENDER THE INSIDE OF THE BOX SAFE FOR WORKING BEFORE THE PROCESS OF REFURBISHING/REBUILDING OF THE LOAD BOX BEGINS. COORDINATE PHASING OF THE WORK WITH CON ED AND BPCA.



Consultants:

ENSIGN ENGINEERING, P.C.

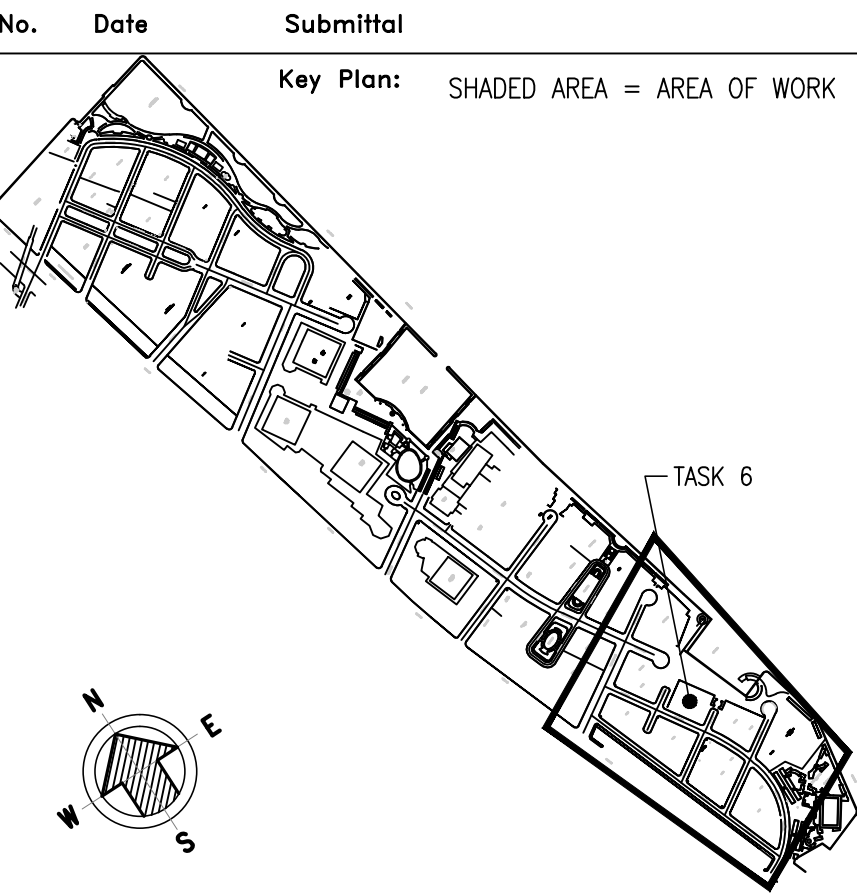
1111 CALHOUN AVENUE
Bronx, N.Y. 10465

TEL. 718-863-5590 FAX. 718-863-6178
www.ensignengineering.com

NOTE: Drawing may be
printed at reduced scale.
Refer to graphic scale.

No.	Date	Revision

01 04-17-14 CONTRACTOR BID



Project Engineer:	JIWAN GANDHI, P.E.	
Designer:	JIWAN GANDHI, P.E.	
Drawn by:	RAFAEL LIZ	
Checked by:	CARL J. CANNIZZARO, P.E.	
Design No. or LLW No.:	Facility Code:	Date:
—	N/A	04/17/14

Project:
**SOUTH NEIGHBORHOOD PHASE III
STREET LIGHT UPGRADE
Battery Park City Authority**

Address:
MANHATTAN
NEW YORK, NY

Drawing Title:
**ELECTRICAL DEMO POWER
DIAGRAM & DETAILS**

Drawing No.:

ED301.00

Sheets in Contract:
07 of 14

DEMOLITION NOTES

1. PRIOR TO COMMENCING THE DEMOLITION WORK CONTRACTOR SHALL COORDINATE PHASING OF THE WORK WITH BPCA, CON ED AND NYC DOT.

2. CONTRACTOR SHALL DISCONNECT AND REMOVE EXISTING WIRING SUPPLYING STREET LIGHTING LOADS, INSTALLED IN EXISTING TO REMAIN UNDERGROUND CONDUITS AND HANDHOLES, IN THIS PROJECT AREA.

3. DISCONNECT AND REMOVE EXISTING LIGHT POLE MOUNTED DUPLEX RECEPTACLES AND THE RESPECTIVE OUTLET BOXES.
4. CONTRACTOR SHALL PROVIDE TEMPORARY LIGHTING FOR THE ENTIRE PROJECT AREA DAILY FROM SUNSET UNTIL SUNRISE. A MINIMUM ILLUMINATION OF 0.5 FOOT-CANDLE AT SIDEWALK SHALL BE MAINTAINED. CONTRACTOR SHALL SUBMIT A TEMPORARY LIGHTING PLAN TO OWNER DETAILING QUANTITY AND LOCATION OF LIGHTS FOR APPROVAL. CONTRACTOR SHALL BE RESPONSIBLE FOR COSTS AND MONITORING TEMPORARY LIGHTING UNTIL THE EXISTING STREET LIGHTING HAS BEEN REWIRED, TESTED AND APPROVED BY BPCA AND NYC DIVISION OF STREET LIGHTING.

5. THE CONTRACT DRAWINGS ARE DIAGRAMMATIC IN NATURE AND MAY NOT REFLECT THE EXACT ROUTING OF EXISTING UNDERGROUND CONDUITS OR EXISTING CIRCUITING.
6. THE EXISTING CON ED POWER FEEDER TO THE LOAD BOX SHALL BE DISCONNECTED AND THE ENDS SHALL BE TAPED TO RENDER THE INSIDE OF THE PEDESTAL SAFE FOR WORKING, PRIOR TO ANY WORK BEING DONE ON THE SECOND PLACE LOAD BOX. CONTRACTOR SHALL COORDINATE WITH CON ED AND BPCA, PRIOR TO COMMENCING THE WORK.

7. CONTINUITY OF THE GROUNDING CONDUCTOR AND THE INTEGRITY OF THE GROUNDING SYSTEM SHALL BE MAINTAINED AT ALL TIMES DURING THE PROCESS OF CONSTRUCTION.
8. CONTRACTOR SHALL TRACE AND IDENTIFY ALL BRANCH CIRCUIT WIRING TO BE DISCONNECTED AND REMOVED PRIOR TO THEIR DISCONNECTION AND REMOVAL. IN THE EVENT THAT LOADS OTHER THAN THIS PROJECT LOADS ARE FOUND TO BE SUPPLIED BY WIRING INSTALLED IN CONDUITS WHERE THIS PROJECT WIRING IS TO BE DISCONNECTED AND REMOVED, CONTRACTOR SHALL IDENTIFY THE LOCATION OF THE LOADS, MAINTAIN THE CONTINUITY OF THE RESPECTIVE CIRCUITS DURING THE CONSTRUCTION AND INFORM BPCA.

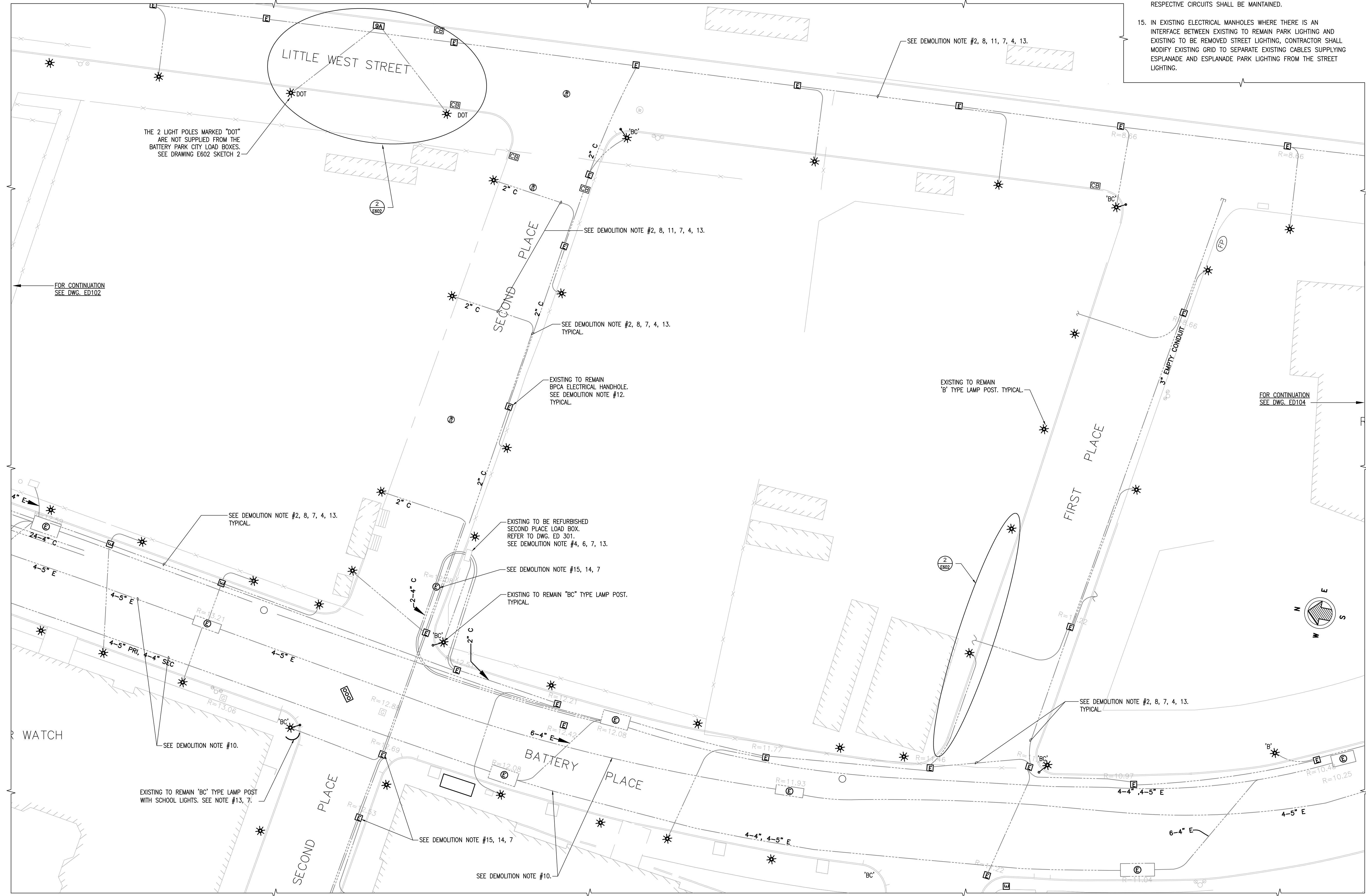
9. CONTRACTOR SHALL DISCONNECT EXISTING CABLES/CORDS SUPPLYING EXISTING TO REMAIN POLE MOUNTED FLOOD LIGHTS.
10. WIRING AND CONDUITS DEDICATED TO LOADS OTHER THAN THIS PROJECT AREA STREET LIGHTING LOADS SHALL REMAIN IN PLACE AND THE CONTINUITY OF THE RESPECTIVE CIRCUITS SHALL NOT BE DISRUPTED BY THIS PROJECT WORK. CONTRACTOR SHALL IDENTIFY LOADS AND CIRCUITS OUTSIDE THIS PROJECT STREET LIGHTING SCOPE OF WORK AND COORDINATE WITH BPCA.

11. IN THE EVENT THAT DOT WIRING, SUPPLYING DOT LOADS, IS FOUND TO BE INSTALLED IN CONDUITS WHERE THIS PROJECT WIRING IS TO BE DISCONNECTED AND REMOVED, CONTRACTOR SHALL MAINTAIN INTEGRITY OF THE RESPECTIVE CIRCUITS AND COORDINATE WITH BPCA AND DOT.
12. IN EACH EXISTING BPCA ELECTRICAL HANDHOLE, CONTRACTOR SHALL CHECK THE GROUNDING ROD, GROUNDING CONDUCTOR AND EXISTING HARDWARE FOR CORROSION AND SHALL DISCONNECT AND REMOVE CORRODED ITEMS FOR REPLACEMENT. CONTRACTOR SHALL MAINTAIN AT ALL TIMES CONTINUITY OF GROUNDING SYSTEM.

13. CONTRACTOR SHALL MAINTAIN SUPPLIED WITH POWER AT ALL TIMES THE 24 HOUR LOADS OF SCHOOL LIGHTS AND POLICE EQUIPMENT.

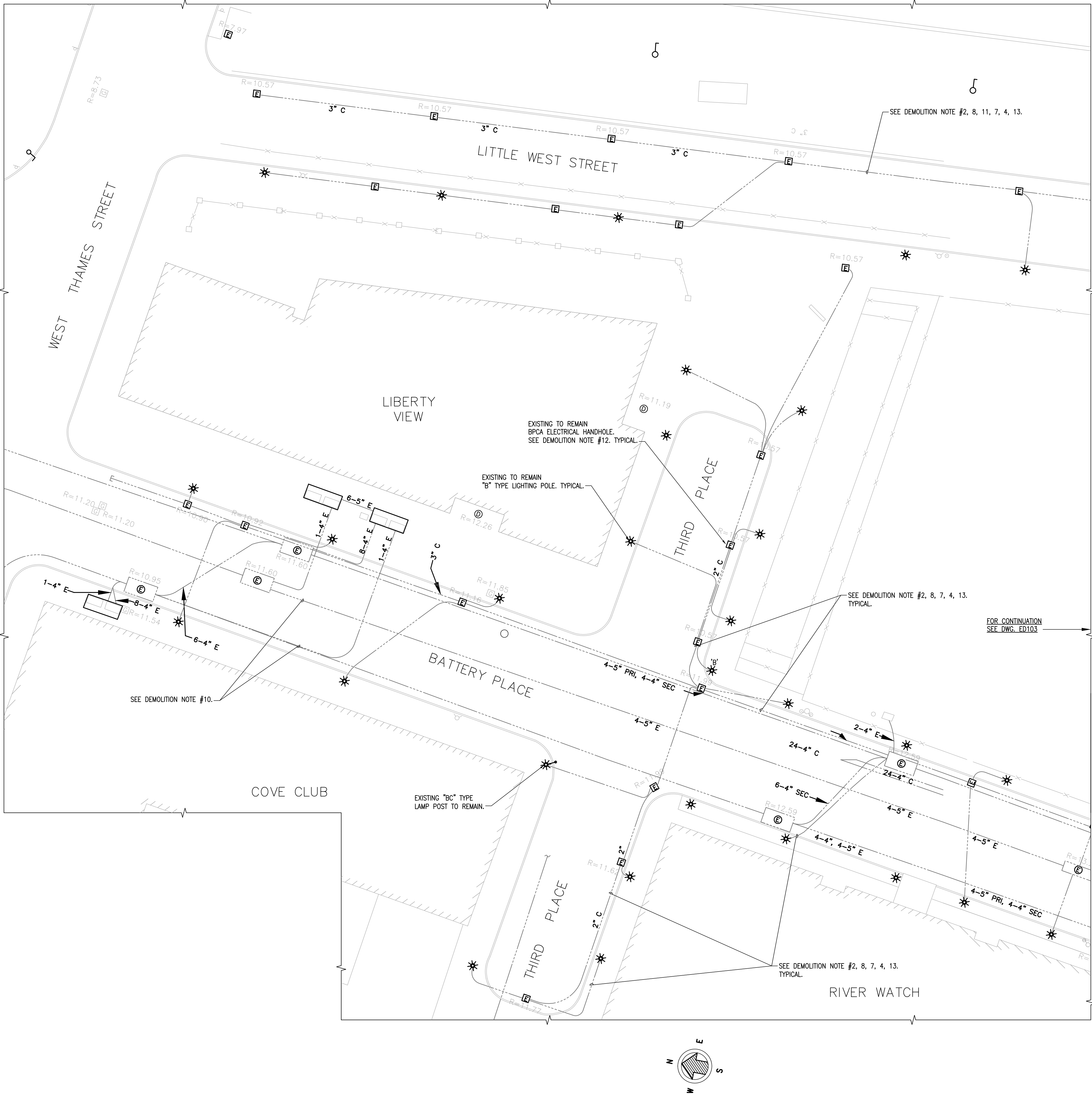
14. WIRING AND CONDUITS SUPPLYING EXISTING TO REMAIN LIGHTING IN ESPALANADE (UP TO WEST THAMES STREET) AND ESPALANADE PARK SHALL REMAIN IN PLACE AND CONTINUITY OF THE RESPECTIVE CIRCUITS SHALL BE MAINTAINED.

15. IN EXISTING ELECTRICAL MANHOLES WHERE THERE IS AN INTERFACE BETWEEN EXISTING TO REMAIN PARK LIGHTING AND EXISTING TO BE REMOVED STREET LIGHTING, CONTRACTOR SHALL MODIFY EXISTING GRID TO SEPARATE EXISTING CABLES SUPPLYING ESPALANADE AND ESPALANADE PARK LIGHTING FROM THE STREET LIGHTING.



DEMOLITION NOTES

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8. CONTRACTOR SHALL TRACE AND IDENTIFY ALL BRANCH CIRCUIT WIRING TO BE DISCONNECTED AND REMOVED PRIOR TO THEIR DISCONNECTION AND REMOVAL. IN THE EVENT THAT LOADS OTHER THAN THIS PROJECT LOADS ARE FOUND TO BE SUPPLIED BY WIRING INSTALLED IN CONDUITS WHERE THIS PROJECT WIRING IS TO BE DISCONNECTED AND REMOVED, CONTRACTOR SHALL IDENTIFY THE LOCATION OF THE LOADS, MAINTAIN THE CONTINUITY OF THE RESPECTIVE CIRCUITS DURING THE CONSTRUCTION AND INFORM BPCA.
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15. IN EXISTING ELECTRICAL MANHOLES WHERE THERE IS AN INTERFACE BETWEEN EXISTING TO REMAIN PARK LIGHTING AND EXISTING TO BE REMOVED STREET LIGHTING, CONTRACTOR SHALL MODIFY EXISTING GRID TO SEPARATE EXISTING CABLES SUPPLYING ESPALANADE AND ESPALANADE PARK LIGHTING FROM THE STREET LIGHTING.



0 10' 20' 40'

SITE DEMOLITION PLAN
SCALE 1"=20'-0"

1



Consultants:



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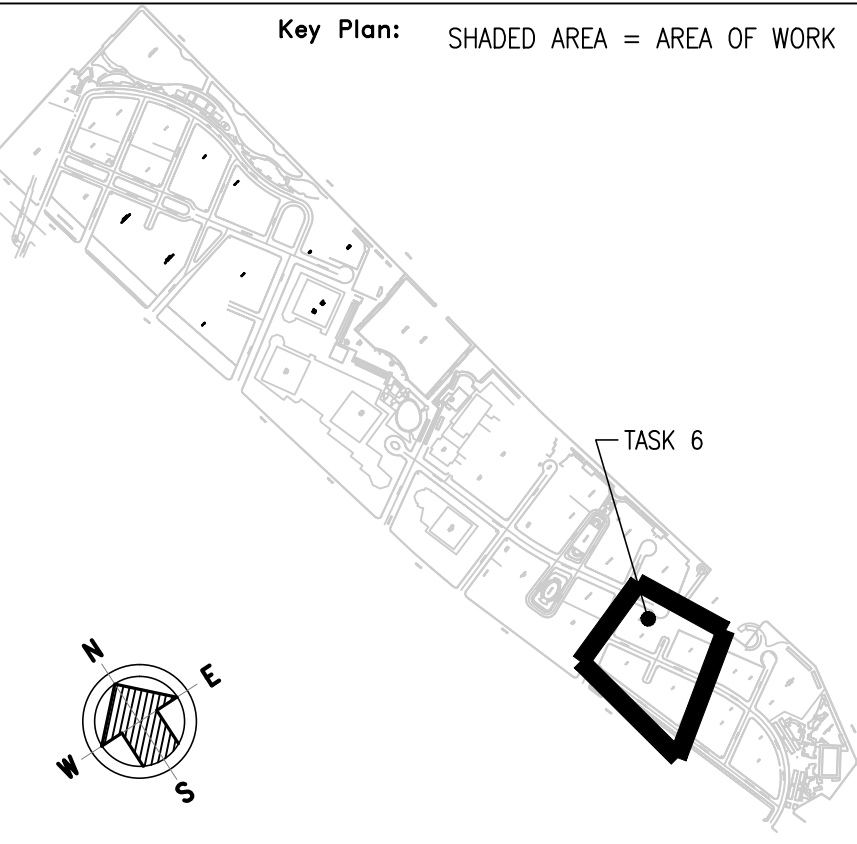
NOTE: Drawing may be
printed at reduced scale.
Refer to graphic scale.

No. Date Revision

01 04-17-14 CONTRACTOR BID

No. Date Submittal

Key Plan: SHADED AREA = AREA OF WORK



Project Engineer: JIWAN GANDHI, P.E.

Designer: JIWAN GANDHI, P.E.

Drawn by: RAFAEL LIZ

Checked by: CARL J. CANNIZZARO, P.E.

Design No. or LLW No.:	Facility Code:	Date:
-	N/A	04/17/14

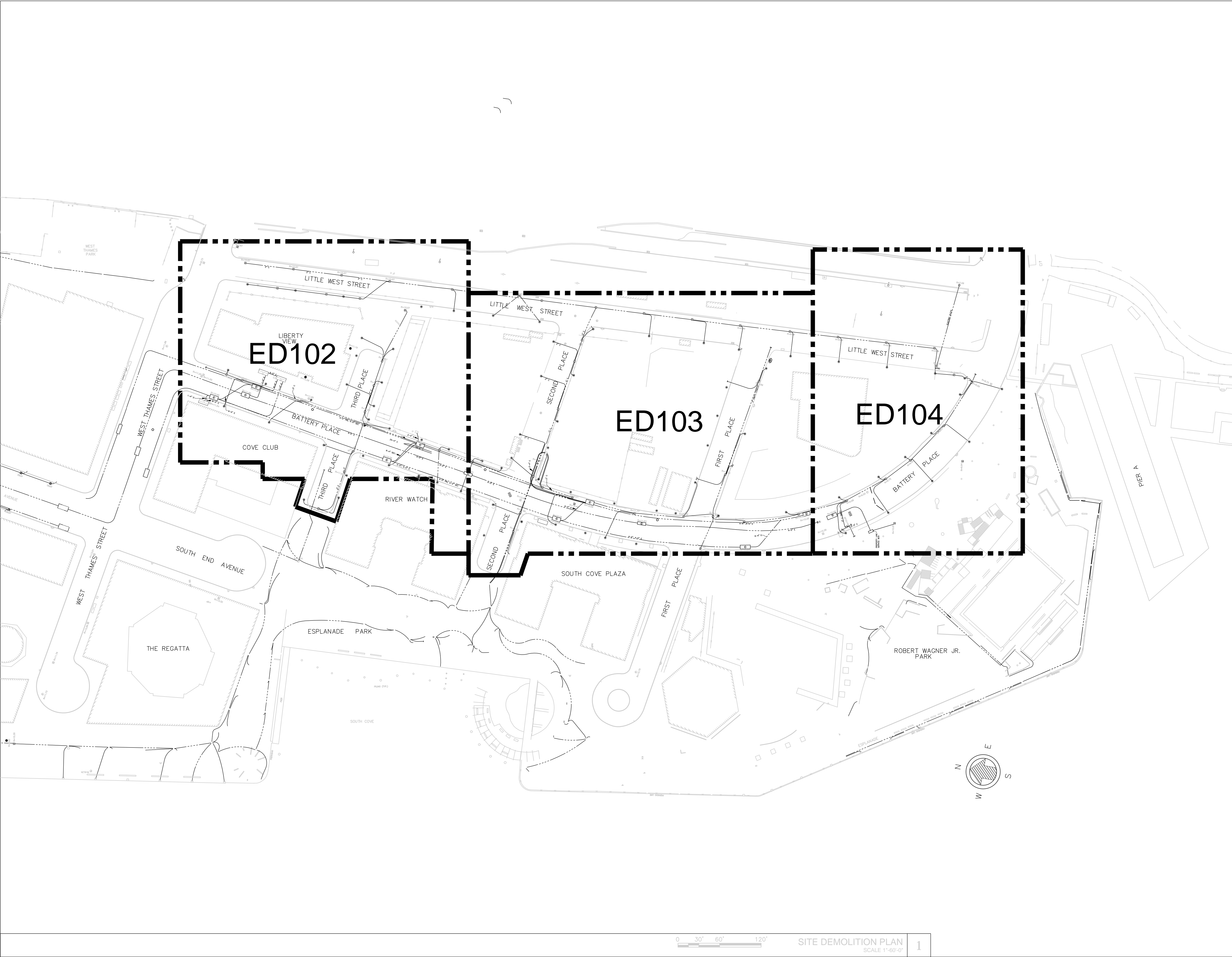
Project:
**SOUTH NEIGHBORHOOD PHASE III
STREET LIGHT UPGRADE**
Battery Park City Authority
Address:
MANHATTAN
NEW YORK, NY

Drawing Title:
ELECTRICAL DEMO SITE PLAN

Drawing No.:

ED102.00

Sheets in Contract:
04 of 14



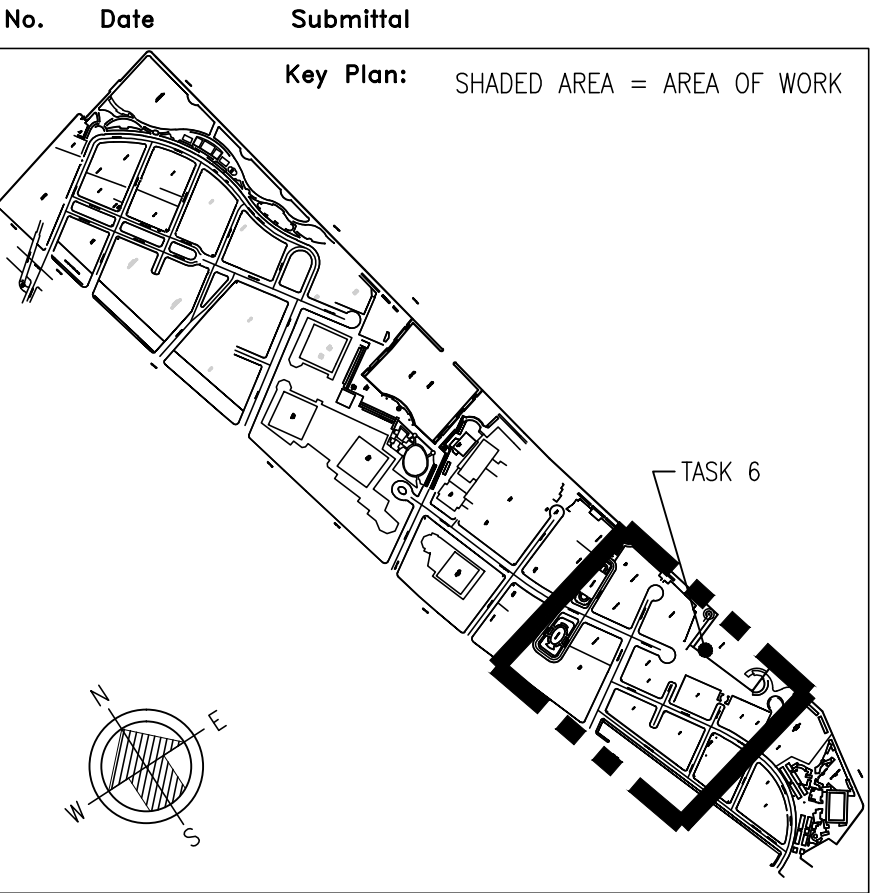
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No.	Date	Revision

01 04-17-14 CONTRACTOR BID



Project Engineer: JIWAN GANDHI, P.E.		
Designer: JIWAN GANDHI, P.E.		
Drawn by: RAFAEL LIZ		
Checked by: CARL J. CANNIZZARO, P.E.		
Design No. or LLW No.:	Facility Code:	Date:
—	N/A	04/17/14

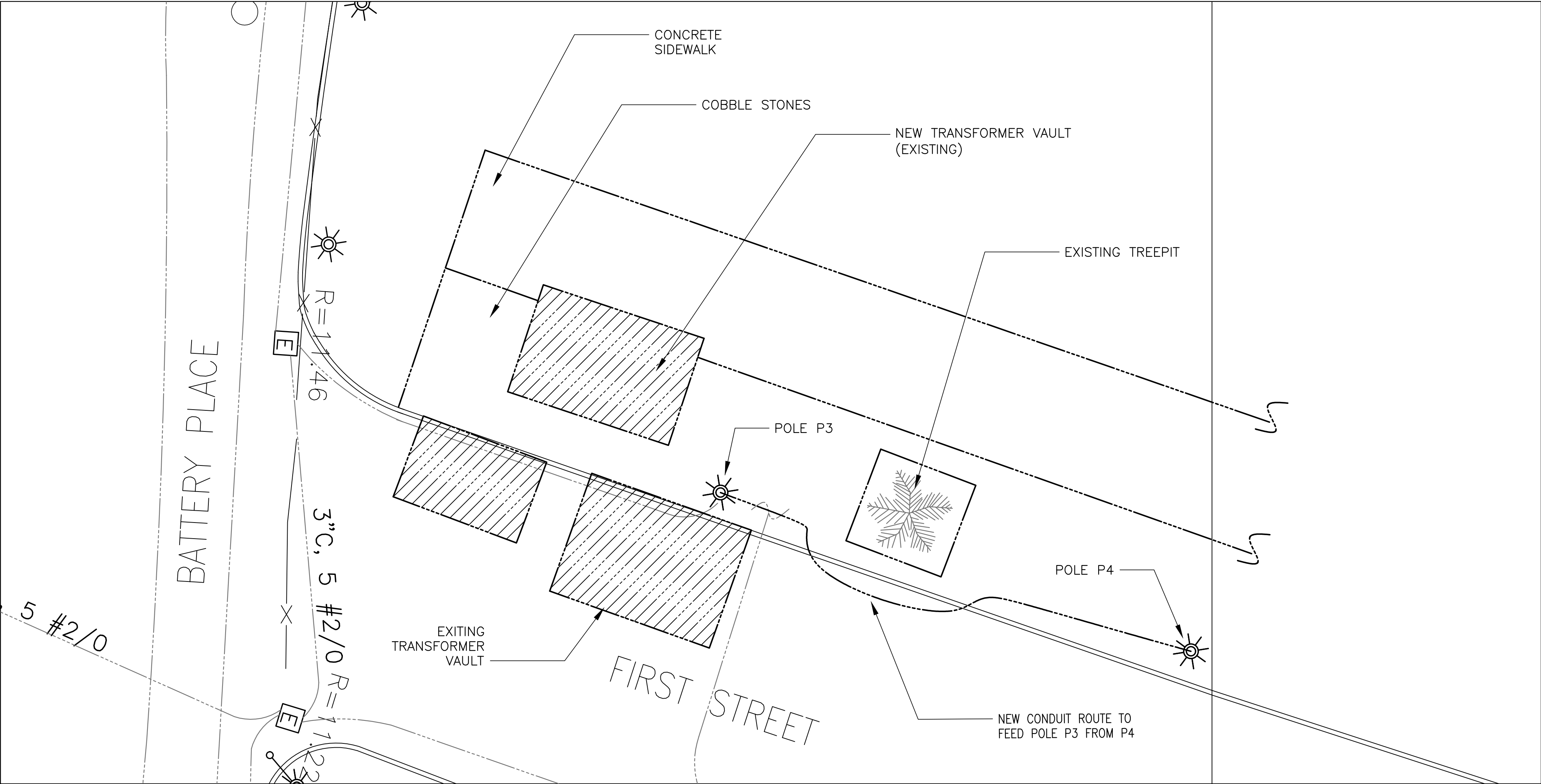
Project: SOUTH NEIGHBORHOOD PHASE III
STREET LIGHT UPGRADE
Battery Park City Authority
Address: MANHATTAN
NEW YORK, NY

Drawing Title:
ELECTRICAL DEMOLITION
SITE PLAN

Drawing No.:

ED101.00

Sheets in Contract:
03 of 14



1 CORNER OF FIRST PLACE AND
BATTERY PLACE DETAIL
N.T.S.



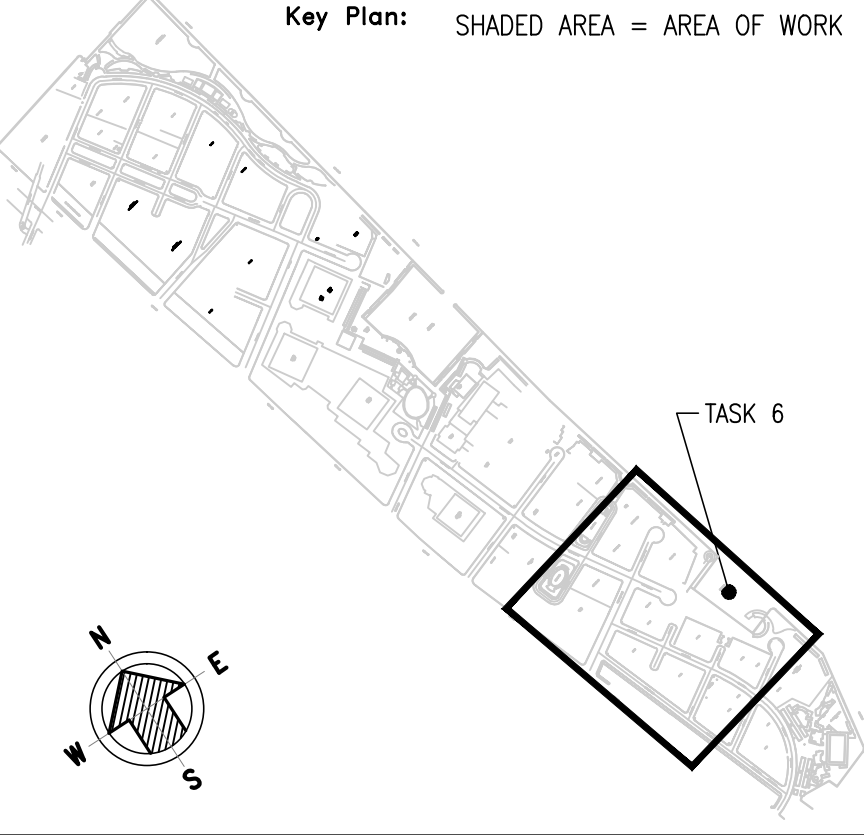
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01 04-17-14 CONTRACTOR BID

No.	Date	Submittal
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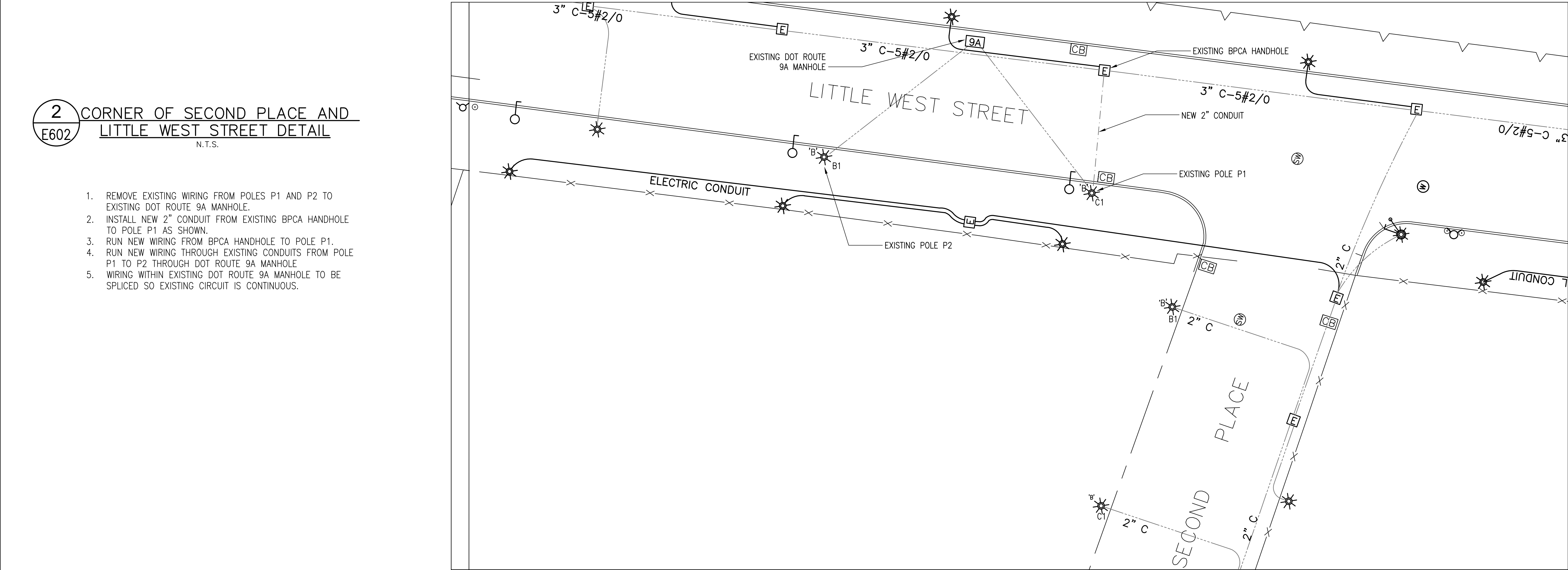
Project Engineer: JIWAN GANDHI, P.E.
Designer: JIWAN GANDHI, P.E.
Drawn by: MICHAEL LILLIS
Checked by: CARL J. CANNIZZARO, P.E.

Design No. or LLW No.:	Facility Code:	Date:
-	N/A	04/17/14

Project:
**SOUTH NEIGHBORHOOD PHASE III
STREET LIGHT UPGRADE**
Battery Park City Authority
Address:
MANHATTAN
NEW YORK, NY

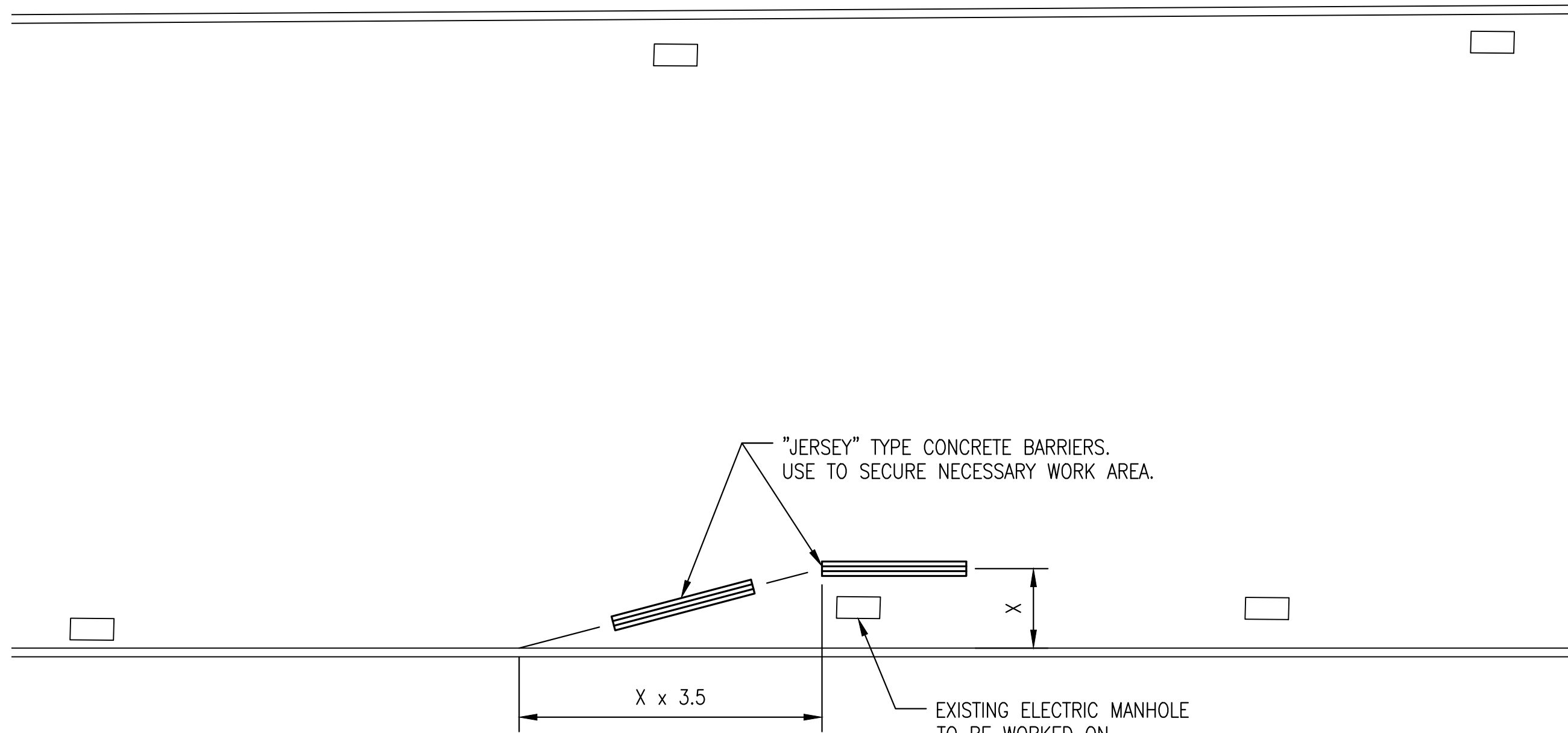
Drawing Title:
WIRING DETAILS

Drawing No.:
E602.00
Sheets in Contract: 14 of 14



2 CORNER OF SECOND PLACE AND
LITTLE WEST STREET DETAIL
N.T.S.

1. REMOVE EXISTING WIRING FROM POLES P1 AND P2 TO EXISTING DOT ROUTE 9A MANHOLE.
2. INSTALL NEW 2" CONDUIT FROM EXISTING BPCA HANDHOLE TO POLE P1 AS SHOWN.
3. RUN NEW WIRING FROM BPCA HANDHOLE TO POLE P1.
4. RUN NEW WIRING THROUGH EXISTING CONDUITS FROM POLE P1 TO P2 THROUGH DOT ROUTE 9A MANHOLE
5. WIRING WITHIN EXISTING DOT ROUTE 9A MANHOLE TO BE SPLICED SO EXISTING CIRCUIT IS CONTINUOUS.

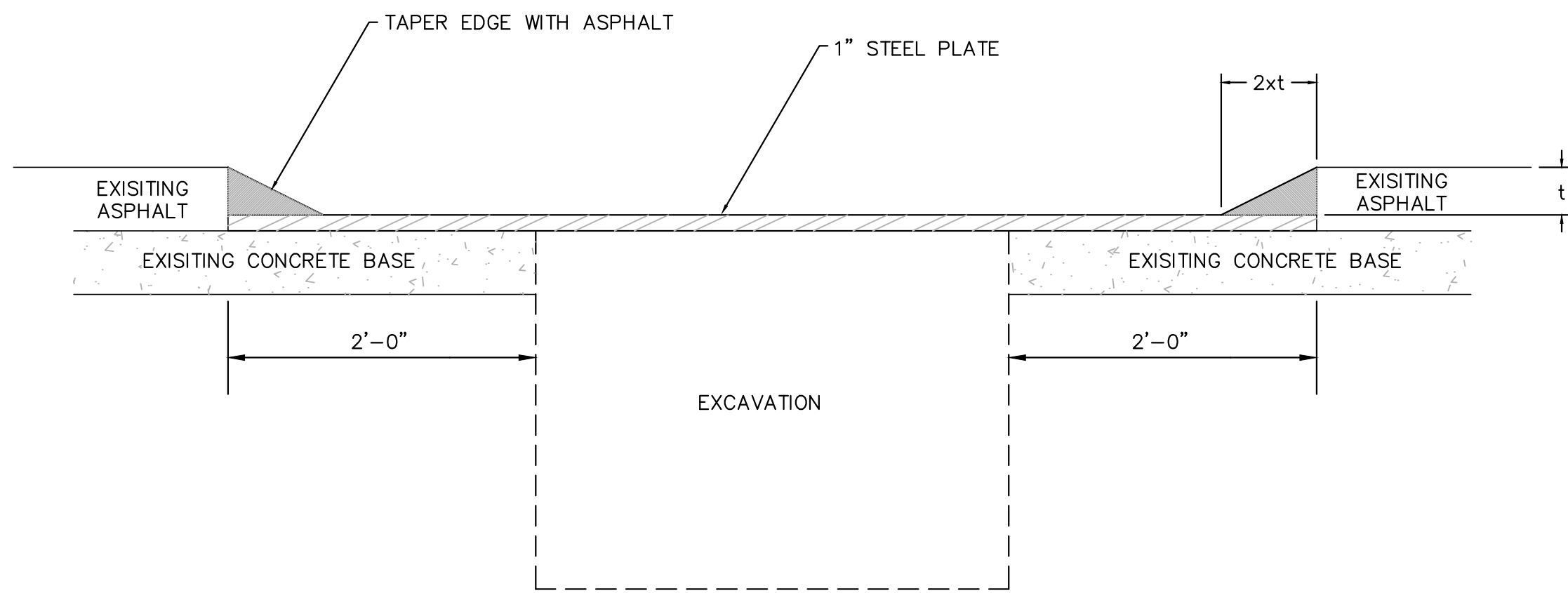


NOTE:
CONCRETE BARRIERS MUST BE PLACED AT WORK LOCATION IN ADVANCE TO ENSURE NO CARS WILL BE PARKED WITHIN WORK AREA.

A E601

TRAFFIC PROTECTION DETAIL

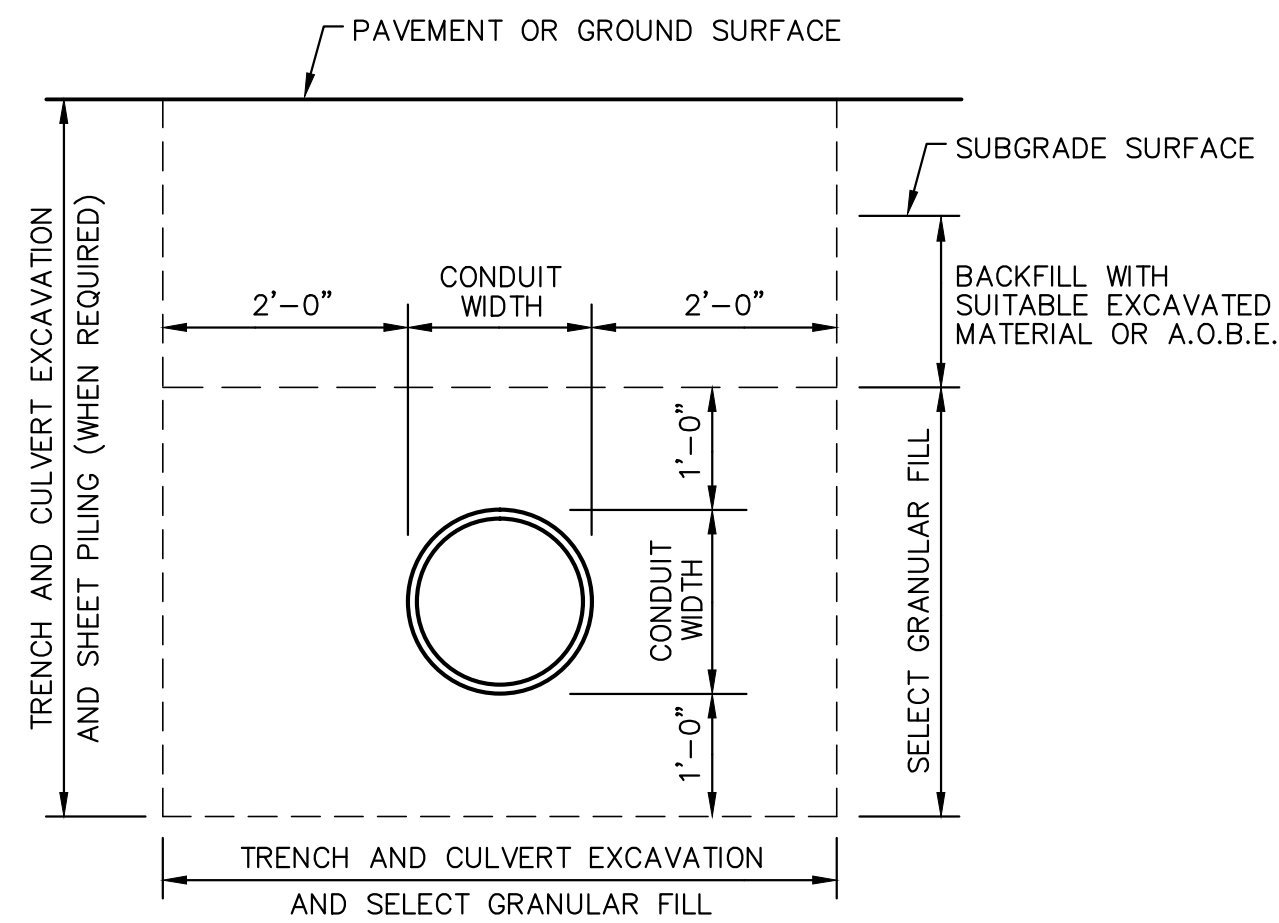
1" = 10'-0"



B E601

TEMPORARY PLATING DETAIL

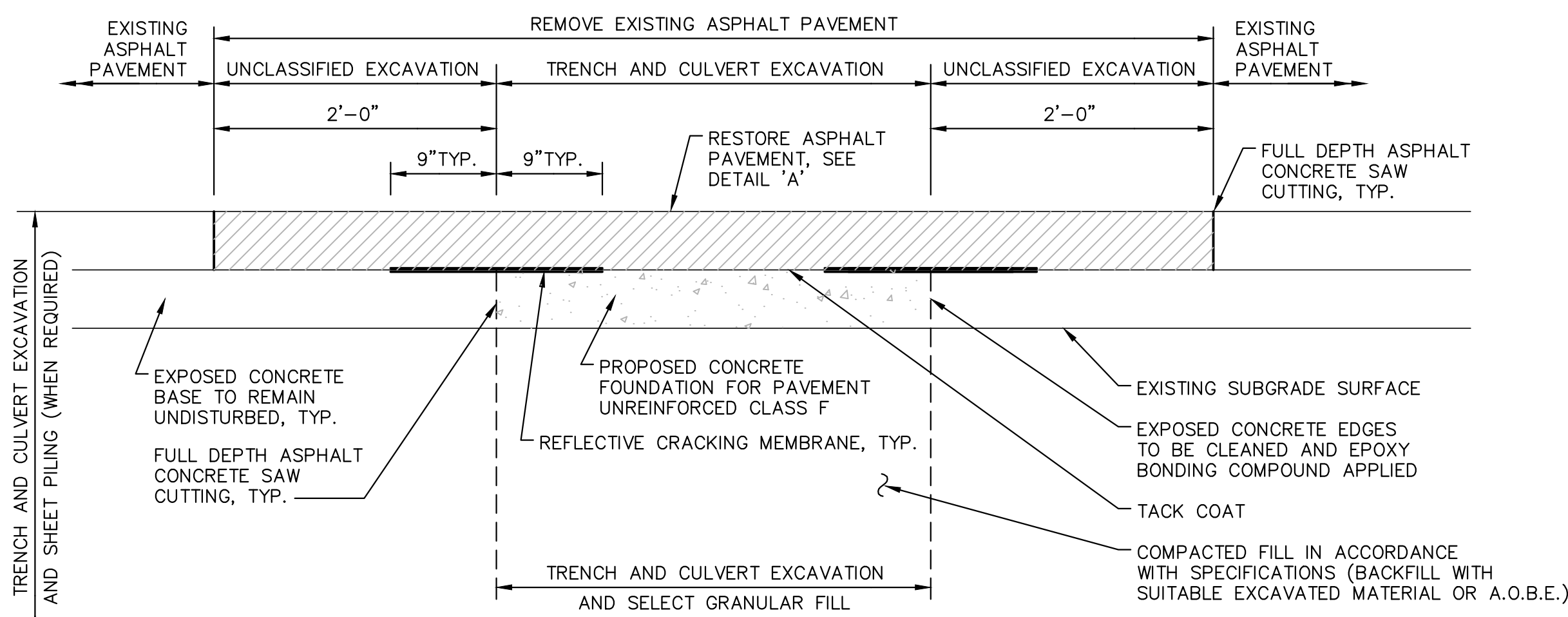
N.T.S.



C E601

CONDUIT ON BEDDING MATERIAL

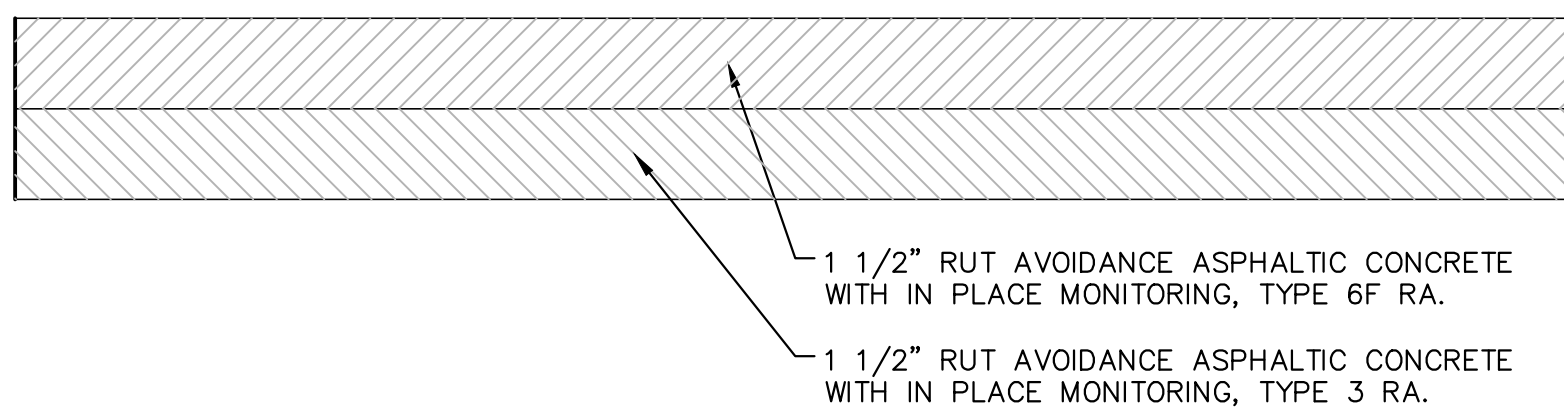
N.T.S.



D E601

PAVEMENT RESTORATION

N.T.S.



E E601

DETAIL 'A' ASPHALT PAVEMENT

N.T.S.

- NOTES:
- ALL CONSTRUCTION DETAILS SHOWN ON THE DRAWING SHALL COMPLY WITH NYCDOT STANDARDS AND BE SUBJECT TO APPROVAL BY SAME NYCDOT AND BATTERY PARK CITY AUTHORITY.
 - REQUIRED STREET CLOSING SHALL BE COORDINATED AND APPROVED BY NYCDOT AND BATTERY PARK CITY AUTHORITY.

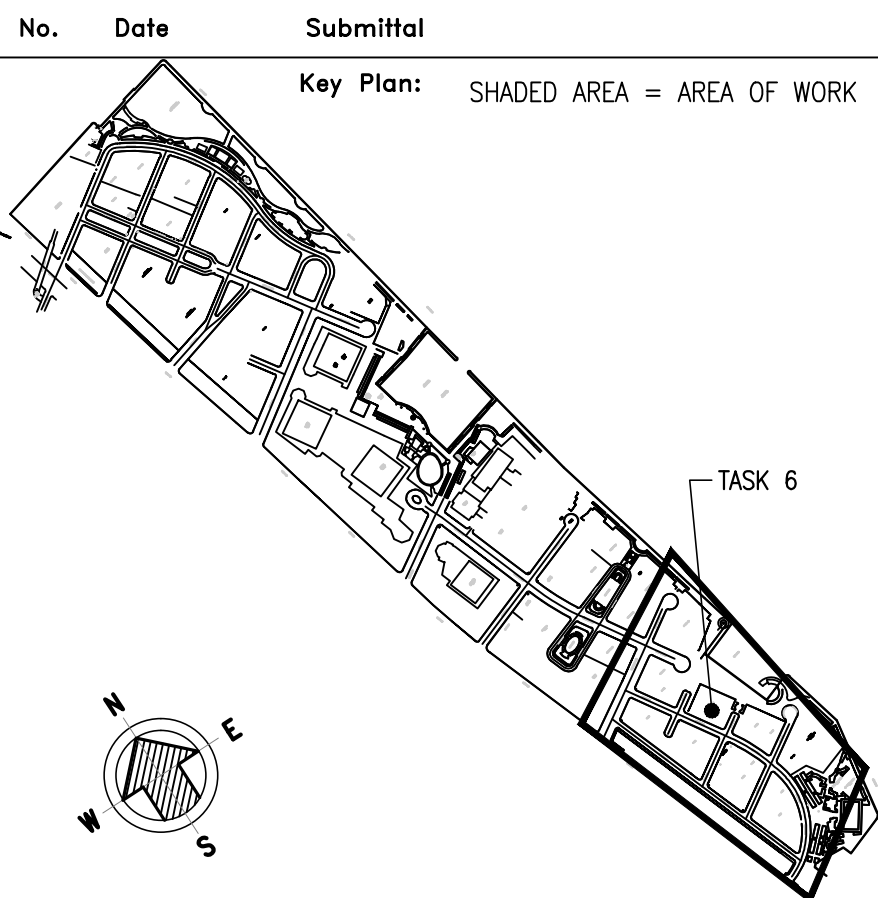


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01 04-17-14 CONTRACTOR BID



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Drawn by:	RAFAEL LIZ	
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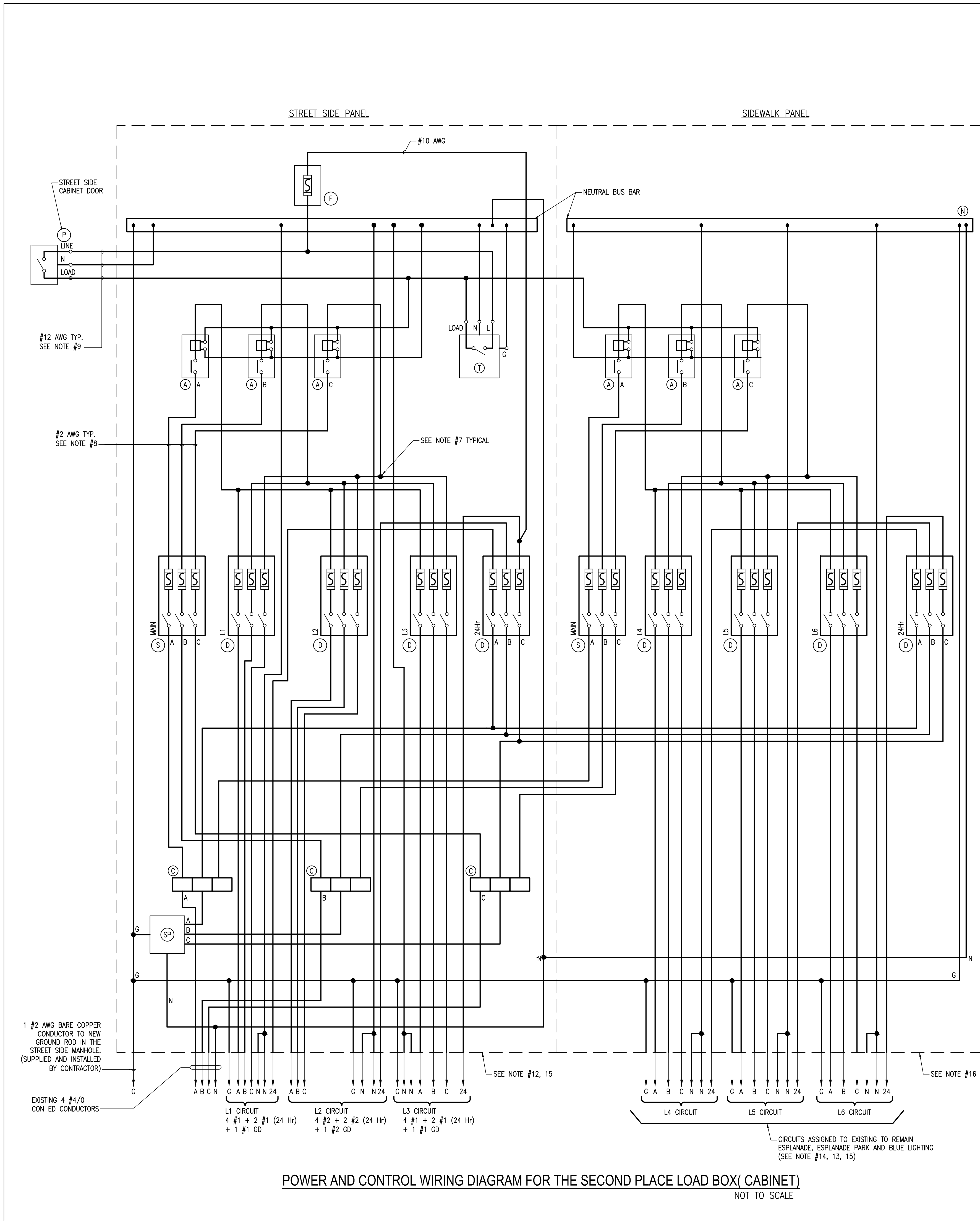
Project:
**SOUTH NEIGHBORHOOD PHASE III
STREET LIGHT UPGRADE
Battery Park City Authority**
Address:
MANHATTAN
NEW YORK, NY

Drawing Title:
ELECTRICAL DETAILS

Drawing No.:

E601.00

Sheets in Contract:
13 of 14

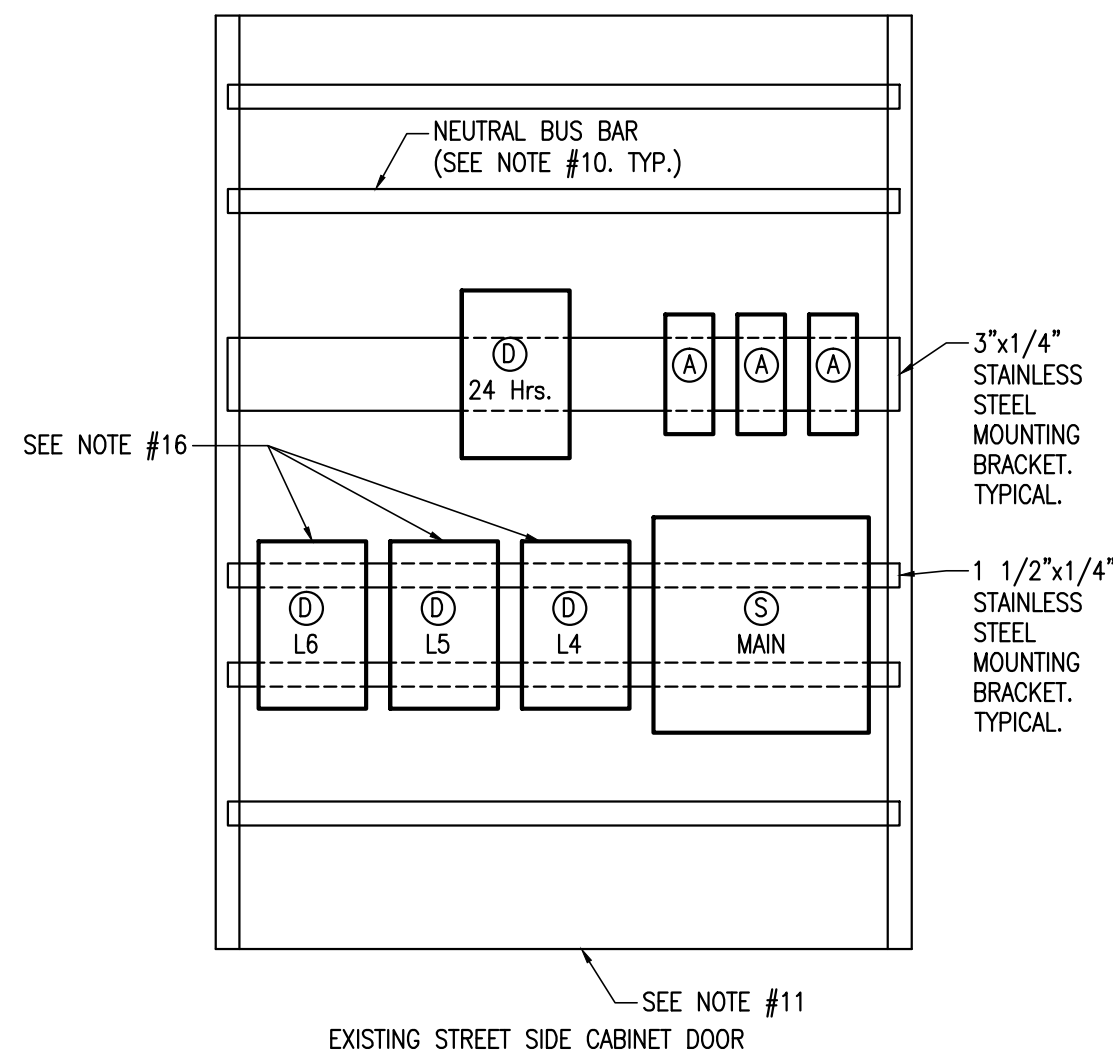
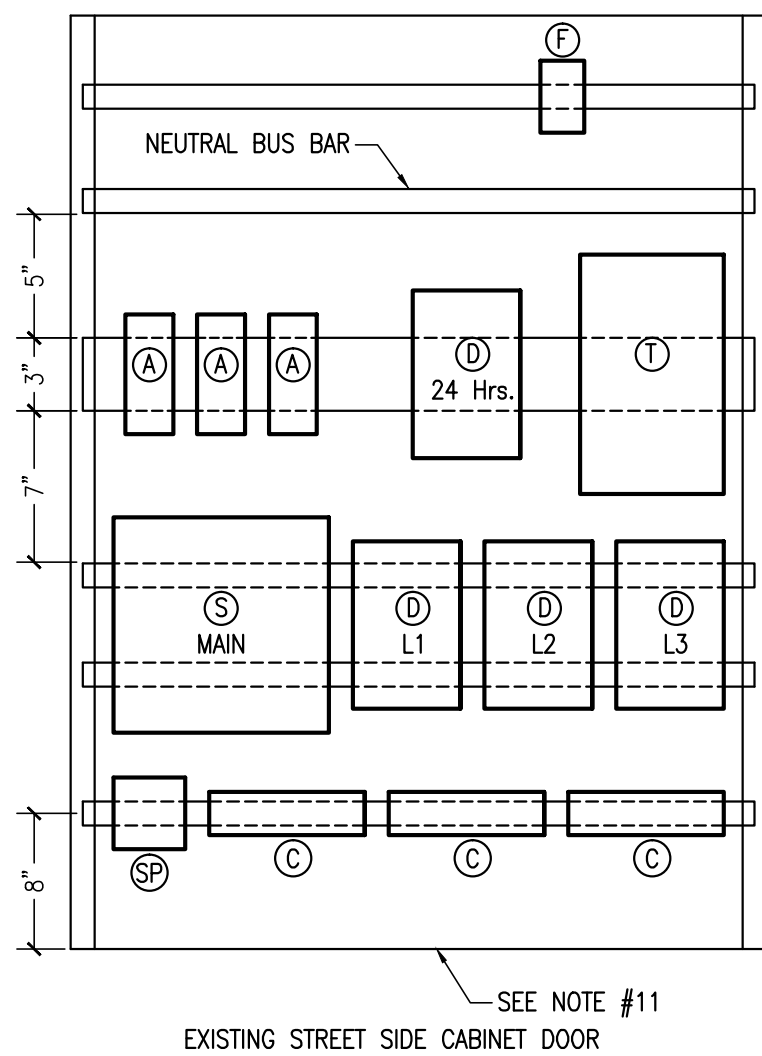


NOTES

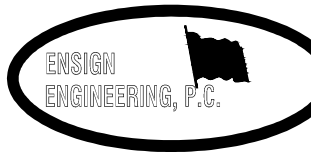
- THE NEW SECOND PLACE POWER AND CONTROL LOAD BOX (CABINET) IS A NYCDOT 6 RELAY CONTROL CABINET MODIFIED AS PER WIRING DIAGRAM SHOWN ON THIS DRAWING.
- ALL NEW EQUIPMENT MOUNTING BRACKETS ANGLE AND FLAT SHALL BE STAINLESS STEEL.
- ALL FASTENING HARDWARE SHALL BE STAINLESS STEEL. MOUNTING AND ACCESS HARDWARE SHALL BE TAMPER RESISTANT TO PREVENT UNAUTHORIZED ACCESS TO ELECTRICITY OR LIVE PARTS.
- PROVIDE FLAME PROOF IDENTIFICATION NAME PLATES ON ALL EQUIPMENT INSTALLED INSIDE THE POWER AND CONTROL CABINET ON EITHER SIDE.
- CONTRACTOR SHALL CLEAN THE INSIDE OF CABINET OF DEBRIS, ETC.
- CONTRACTOR SHALL REMOVE THE RUST FROM THE CABINET SIDE WALLS AND SHALL REPAINT THE RESPECTIVE PARTS. PARTS BEYOND REPAIR SHALL BE REPLACED WITH STAINLESS STEEL.
- FOR ALL CONNECTION POINTS SHOWN ON THE POWER AND CONTROL WIRING DIAGRAM ON THIS DRAWING, CONTRACTOR SHALL USE MULTI-CONNECTORS AS MANUFACTURED BY BURNDY OR APPROVED EQUAL.
- ALL INTERIOR LOAD BOX POWER INTERCONNECTING WIRES SHALL BE #2 AWG, UNLESS OTHERWISE NOTED.
- ALL INTERIOR LOAD BOX CONTROL INTERCONNECTING WIRES SHALL BE #12 AWG, UNLESS OTHERWISE NOTED.
- NEUTRAL BUS BAR SHALL BE BONDED TO ALL CONDUITS IN THE LOAD BOX WITH #6 AWG BARE, TINNED, STRANDED, COPPER WIRE.
- ELECTRICAL CONTRACTOR SHALL PROVIDE STAINLESS STEEL MOUNTING HARDWARE AS REQUIRED. EXACT SPACING OF HARDWARE SHALL BE SUITABLE FOR THE APPROVED EQUIPMENT. EXACT LAYOUT OF THE EQUIPMENT SHALL BE AS PER APPROVED EQUIPMENT AND AS PER FIELD CONDITIONS AND SHALL TAKE INTO ACCOUNT MINIMUM BENDING RADIUS OF THE WIRING.
- CIRCUITS DESIGNATED L1, L2, L3 SHOWN SUPPLIED FROM THE STREET SIDE OF THE LOAD BOX/CABINET ARE ASSIGNED FOR STREET LIGHTING WITH EACH CIRCUIT ASSIGNED TO A DEFINED AREA AS SHOWN ON LAYOUT DRAWINGS.
- CIRCUITS DESIGNATED L4, L5, L6 SUPPLIED FROM THE SIDEWALK SIDE OF THE LOAD BOX/CABINET ARE ASSIGNED FOR ESPLANADE (UP TO WEST THAMES STREET) AND ESPLANADE PARK EXISTING TO REMAIN LIGHTING AS WELL AS FOR SUPPLYING THE 3 EXISTING TO REMAIN PEDESTAL MOUNTED LOAD BOXES SUPPLYING THE BLUE LIGHTS.
- CONTRACTOR SHALL SEPARATE EXISTING TO REMAIN PARK WIRING FROM THE NEW STREET WIRING AND SHALL PROVIDE AS REQUIRED NEW CONNECTORS, WIRING AND CONDUIT TO CONNECT EXISTING PARK LIGHTING TO THE SIDEWALK PANEL OF THE SECOND PLACE LOAD BOX. CONTRACTOR SHALL MODIFY EXISTING TO REMAIN GRID AS PER FIELD CONDITIONS BY USING NEW CONNECTORS, WIRING AND CONDUIT SO AS TO FOLLOW THE CONFIGURATION OF THE REFURBISHED LOAD BOX WITH 3 (3 PHASE) CIRCUITS (L4, L5, L6) ASSIGNED FOR THE EXISTING ESPLANADE PARK LIGHTING. THE NEW CONFIGURATION OF THE REFURBISHED LOAD BOX IS FOR THE PURPOSES OF PROVIDING SELECTIVITY.
- THE QUANTITY OF GROUNDING CONDUCTORS (ONE PER CIRCUIT) IS SHOWN ON THE WIRING DIAGRAM IN THIS DRAWING. DESIGNATE THAT EACH CIRCUIT ASSIGNED AREA WILL HAVE A GROUNDING CONDUCTOR RUN WITH ITS CIRCUIT CONDUCTORS.
- ON THE SIDEWALK PANEL OF THE LOAD BOX/CABINET, FUSIBLE PULLOUT SWITCHES ASSIGNED FOR CIRCUIT L4, L5, L6 SHALL BE ORDERED ONLY AFTER THE MODIFICATION OF THE EXISTING GRID WAS PERFORMED AS PER FIELD CONDITIONS, TO SUIT THE CONFIGURATION OF THE REFURBISHED LOAD BOX AS SHOWN ON THE WIRING DIAGRAM THIS DWG.
- ALL POWER FUSES SHOWN ON THIS DWG. SHALL BE BY ONE MANUFACTURER.

ELECTRICAL EQUIPMENT SCHEDULE INSTALLED IN THE SECOND PLACE LOAD BOX

SYMBOL	TYPE	QUANTITY/LOCATION
(A)	DURAKOOL MERCURY DISPLACEMENT CONTACTOR, 1 POLE, 120VAC, 60HZ, 100 AMPS, SINGLE THROW - NORMALLY OPEN, CFC-718, AS MANUFACTURED BY AMERICAN ELECTRONIC COMPONENTS, INC. OR APPROVED EQUAL.	6/3 ON EACH SIDE OF THE LOAD BOX
(C)	MULTITAP CONNECTORS SIMILAR TO UNITAP AS MANUFACTURED BY BURNDY OR APPROVED EQUAL.	AS REQUIRED FOR ALL CONNECTIONS ON EITHER SIDE OF THE LOAD BOX.
(D)	30AMPS, 600VAC, 3 POLE, CLASS, J FUSIBLE PULLOUT SWITCH CATALOG NUMBER PJ361 AS MANUFACTURED BY BOLTSWITCH OR APPROVED EQUAL. MUST BE UL LISTED AS PULLOUT SWITCHES AND FOR USE ON CIRCUITS HAVING AVAILABLE FAULT CURRENTS OF 200,000 RMS SYMMETRICAL AMPERES. FUSES SHALL BE AJT30, TIME-DELAY/CLASS J AS MANUFACTURED BY FERRAZ SHAWMUT OR APPROVED EQUAL.	8/4 ON EACH SIDE OF THE LOAD BOX
(F)	1 POLE,30AMPS, 250VAC, CLASS R FUSE HOLDER BLOCK LISTED WITH A SHORT CIRCUIT CURRENT RATING OF 200KA, FOR USE WITH LOW PEAK, LPN-RK, CURRENT LIMITING, CLASS RK1 15AMPS FUSE AS MANUFACTURED BY BUSSMANN OR APPROVED EQUAL.	1/STREETSIDE OF THE LOAD BOX
(P)	THERMAL TYPE FIXED POSITION PHOTOCCELL (CADMIUM SULFATE) WITH WEATHERPROOF WALL PLATE WITH NEOPRENE GASKET RATED 120VAC, 15AMPS, MODEL K4321C AS MANUFACTURED BY INTERMATIC OR APPROVED EQUAL.	1/STREET SIDE CABINET DOOR
(S)	100AMPS, 600VAC, 3 POLE, CLASS J HEAVY DUTY FUSIBLE DISCONNECT SWITCH, TESTED TO UL98 AND APPROVED FOR USE AS 'SERVICE ENTRANCE', COMPACT CONSTRUCTION, DIRECT SIDE OPERATION, SCCR:200KA, MODEL NUMBER FB1100350X AS MANUFACTURED BY MERSEN (FERRAZ-SHAWMUT), OR APPROVED EQUAL. FUSES SHALL BE AJT100, TIME-DELAY/CLASS J AS MANUFACTURED BY FERRAZ SHAWMUT OR APPROVED EQUAL.	2/1 ON EACH SIDE OF THE LOAD BOX
(SP)	SURGE PROTECTIVE DEVICE MODEL NUMBER SDSA3650 AS MANUFACTURED BY SQUARED, SURGELOGIC OR APPROVED EQUAL, TYPE 1 RATED DEVICE, 6 MODES OF PROTECTION; SUPPRESSION VOLTAGE-750V L-N, 1500V L-L, SCCR-200KA.	1 FOR THE ENTIRE LOAD BOX.
(T)	ASTRONOMIC DIAL TIME SWITCH WITH 'SKIPPER' AND 'CARRYOVER' FEATURES, WITH A MINIMUM OF 16 HOURS OF CARRY OVER OPERATION, 120V, 60 HZ-CLOCK MOTOR, SPOLE SINGLE THROW SWITCH, 120V, 40 AMPS - RESISTIVE, TUNGSTEN, 20AMPS-INDUCTIVE, MODEL NUMBER V45471CR42, AS MANUFACTURED BY INTERMATIC OR APPROVED EQUAL.	1/STREET SIDE OF THE LOAD BOX



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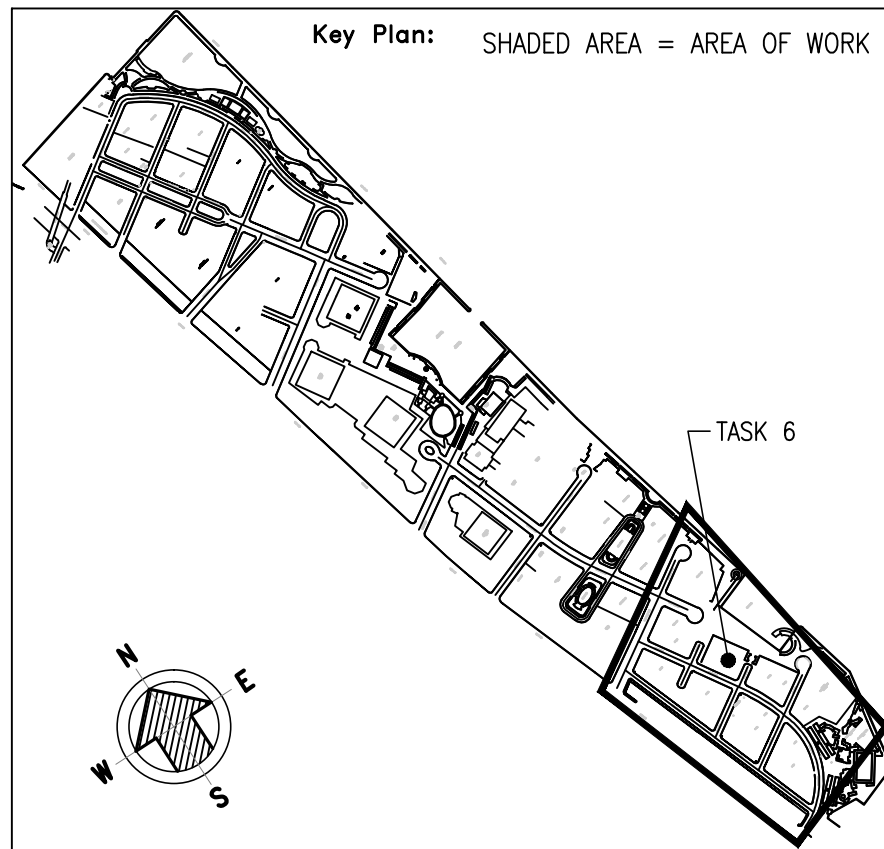
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No. Date Revision

01 04-17-14 CONTRACTOR BID

No. Date Submittal

Key Plan: SHADED AREA = AREA OF WORK



Project Engineer: JIWAN GANDHI, P.E.

Designer: JIWAN GANDHI, P.E.

Drawn by: RAFAEL LIZ

Checked by: CARL J. CANNIZZARO, P.E.

Design No. or LLW No.: - Facility Code: N/A Date: 04/17/14

Project: SOUTH NEIGHBORHOOD PHASE III
STREET LIGHT UPGRADE
Battery Park City Authority
Address: MANHATTAN
NEW YORK, NY

Drawing Title:
ELECTRICAL POWER DIAGRAM
& DETAILS

Drawing No.:

E301.00

Sheets in Contract:
12 of 14

11 of 14

SEQUENCE OF CONSTRUCTION - NOTES

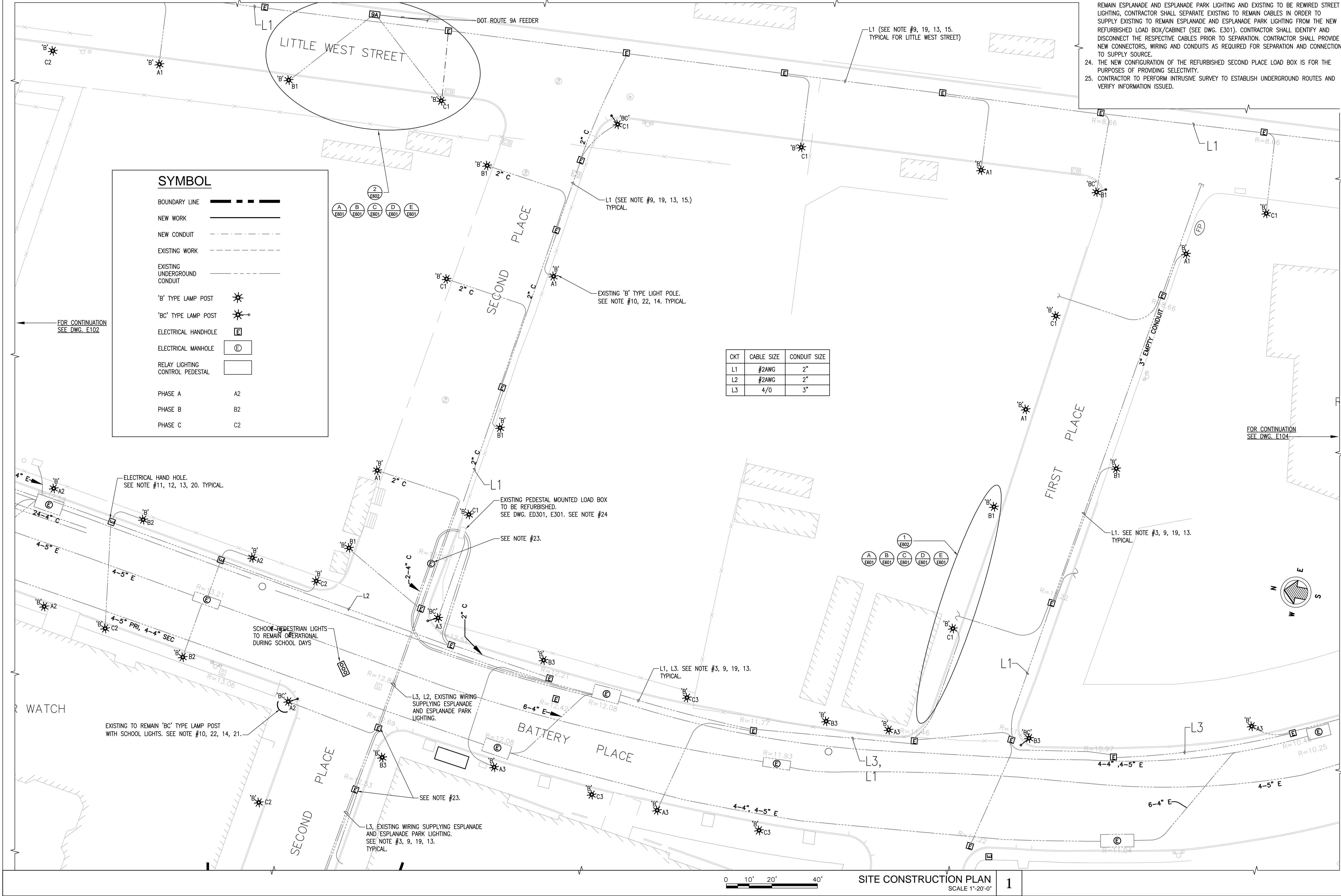
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2. TEST CONDUIT BY PULLING THROUGH CONDUIT A CYLINDRICAL MANDREL NOT LESS THAN TWO PIPE INSIDE DIAMETERS LONG, HAVING AN OUTSIDE DIAMETER EQUAL TO 90 PERCENT OF THE INSIDE DIAMETER OF THE CONDUIT. NOTIFY ENGINEER IF CONDUIT FOUND TO BE BLOCKED OR OTHERWISE DAMAGED. DAMAGED CONDUITS SHALL BE REPLACED UNDER THE SUPERVISION OF THE BPCA. CONTRACTOR SHALL EXCAVATE THE GROUND OR THE PAVED GROUND AS REQUIRED FOR THE INSTALLATION OF THE REPLACEMENT CONDUIT AND SHALL RESTORE THE PAVEMENT TO THE ORIGINAL CONDITIONS IN ACCORDANCE WITH THE LATEST DOT STANDARDS. PAYMENT SHALL BE BASED ON 10' LENGTHS OF CONDUIT IN ACCORDANCE WITH THE UNIT PRICES SUBMITTED AS PART OF THE BID DOCUMENTS.
3. IN THE EVENT THAT LOADS OTHER THAN BPCA LOADS ARE FOUND TO BE SUPPLIED BY WIRES INSTALLED IN EXISTING CONDUITS WHICH ARE TO BE REWIRED FOR BPCA LIGHTING AS PART OF THIS PROJECT, CONTRACTOR SHALL IDENTIFY THE LOADS, MAINTAIN CONTINUITY OF THE CIRCUITS AND INFORM BPCA.

4. REMOVE ALL EXISTING GASKETING MATERIAL FROM THE RIM AND COVER OF LIGHTING. PULL/DISTRIBUTION HANDHOLE.
5. CLEAN AND RE-TAP EACH OF THE EXISTING FRAME BOLT HOLES.
6. CLEAN EACH OF THE LIGHTING PULL/DISTRIBUTION HAND HOLE OF ALL SOIL, DEBRIS, CONCRETE RUNOFF, WATER, ETC.
7. TAG ALL CONDUITS AT THE ENDS AND IN ALL INTERMEDIATE BOXES, HANDHOLES AND OTHER ENCLOSURES USING STAINLESS STEEL TAGS ATTACHED WITH STAINLESS STEEL WIRE.
8. FURNISH AND INSTALL A NEW 1/8" THICK NEOPRENE GASKET FOR EACH BOX. GASKET SHALL BE FASTENED USING A PLIABLE ADHESIVE AS RECOMMENDED BY THE GASKET MANUFACTURER.
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10. FURNISH AND INSTALL AN IN-LINE FUSE HOLDER ON THE HOT LEG INSIDE EACH LIGHT POLE. FUSE HOLDERS SHALL BE RATED FOR 600 VOLTS AC AND SHALL BE SUITABLE FOR #6 AWG STRANDED COPPER LINE AND LOAD CRIMPED CONNECTIONS. FUSE HOLDERS SHALL

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11. RE-INSTALL EXISTING LIGHTING HANDHOLE COVERS USING NEW 3/8" DIAMETER STAINLESS STEEL HEX HEAD SHOULDER BOLTS. ALL MOUNTING DEVICES SHALL BE TAMPER RESISTANT TO PREVENT UNAUTHORIZED ACCESS TO LIVE PARTS. PROVIDE BONDING JUMPER FOR GROUNDING OF THE COVER AS PER NYCEC.
 12. IN EACH STREET OR GRASSY AREA LIGHTING HANDHOLE & MANHOLE CONTRACTOR SHALL WELD A GROUNDING LUG ON THE UNDERSIDE OF EACH HANDHOLE & MANHOLE COVER FOR CONNECTION TO THE HANDHOLE & MANHOLE GROUND ELECTRODE (ROD).
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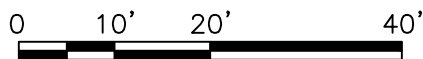
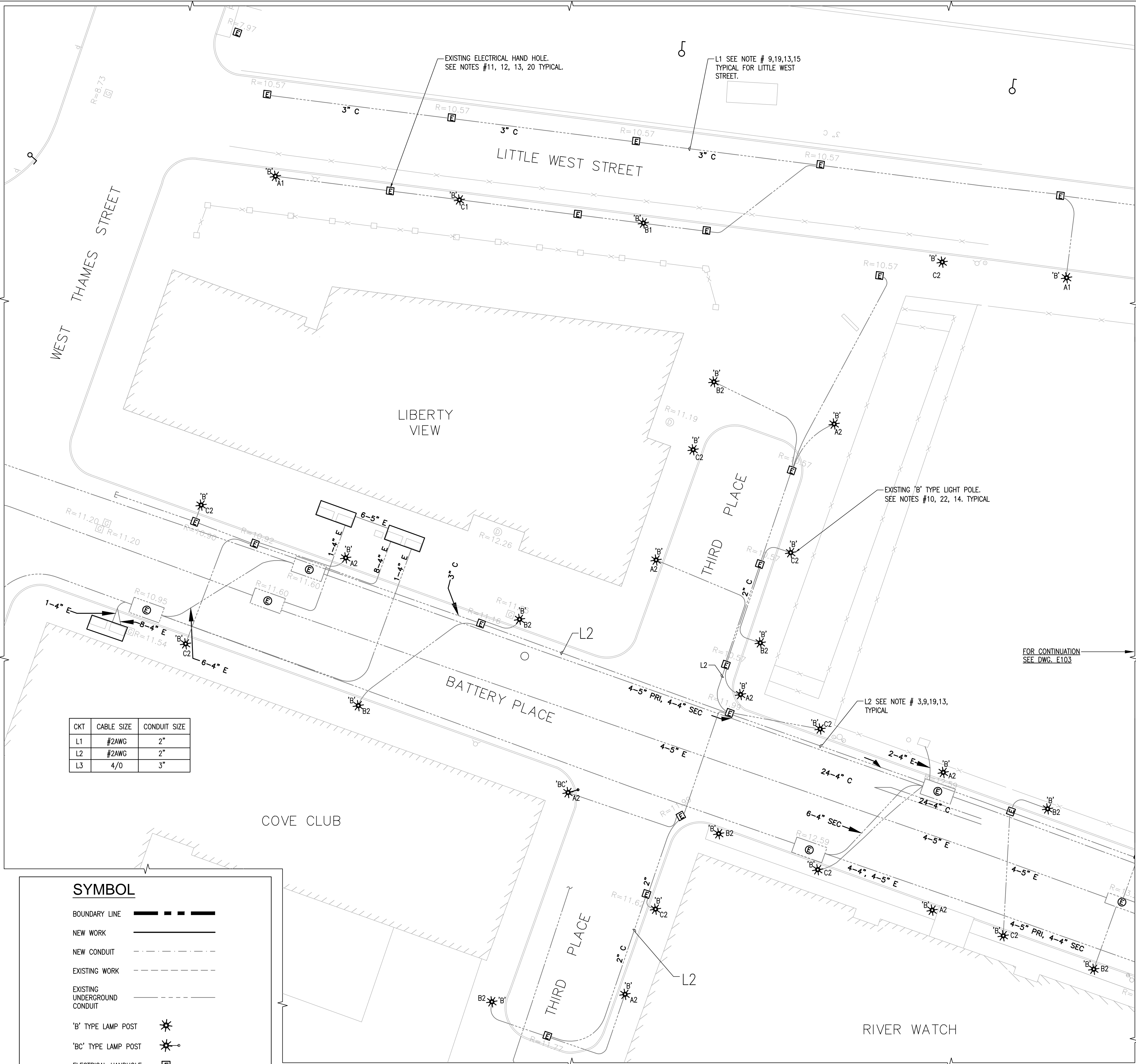
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CKT	CABLE SIZE	CONDUIT SIZE
L1	#2AWG	2"
L2	#2AWG	2"
L3	4/0	3"

SYMBOL

BOUNDARY LINE	
NEW WORK	
NEW CONDUIT	
EXISTING WORK	
EXISTING UNDERGROUND CONDUIT	
'B' TYPE LAMP POST	
'BC' TYPE LAMP POST	
ELECTRICAL HANDHOLE	
ELECTRICAL MANHOLE	
RELAY LIGHTING CONTROL PEDESTAL	
PHASE A	A2
PHASE B	B2
PHASE C	C2



SITE CONSTRUCTION PLAN
SCALE 1"=20'-0"

1



Consultants:

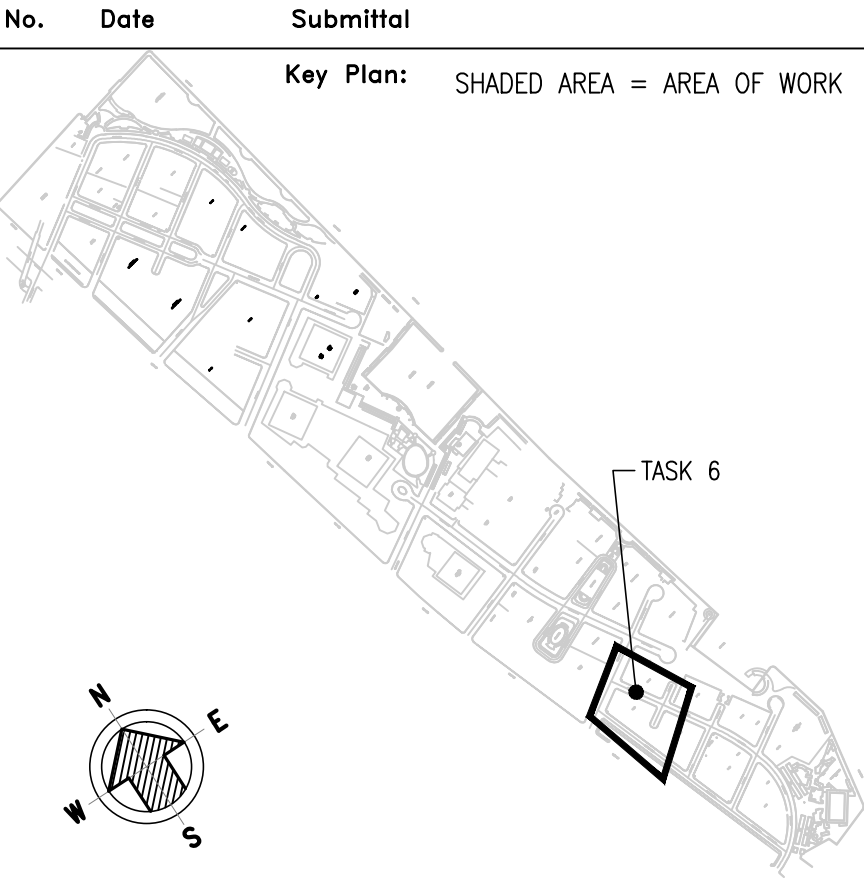


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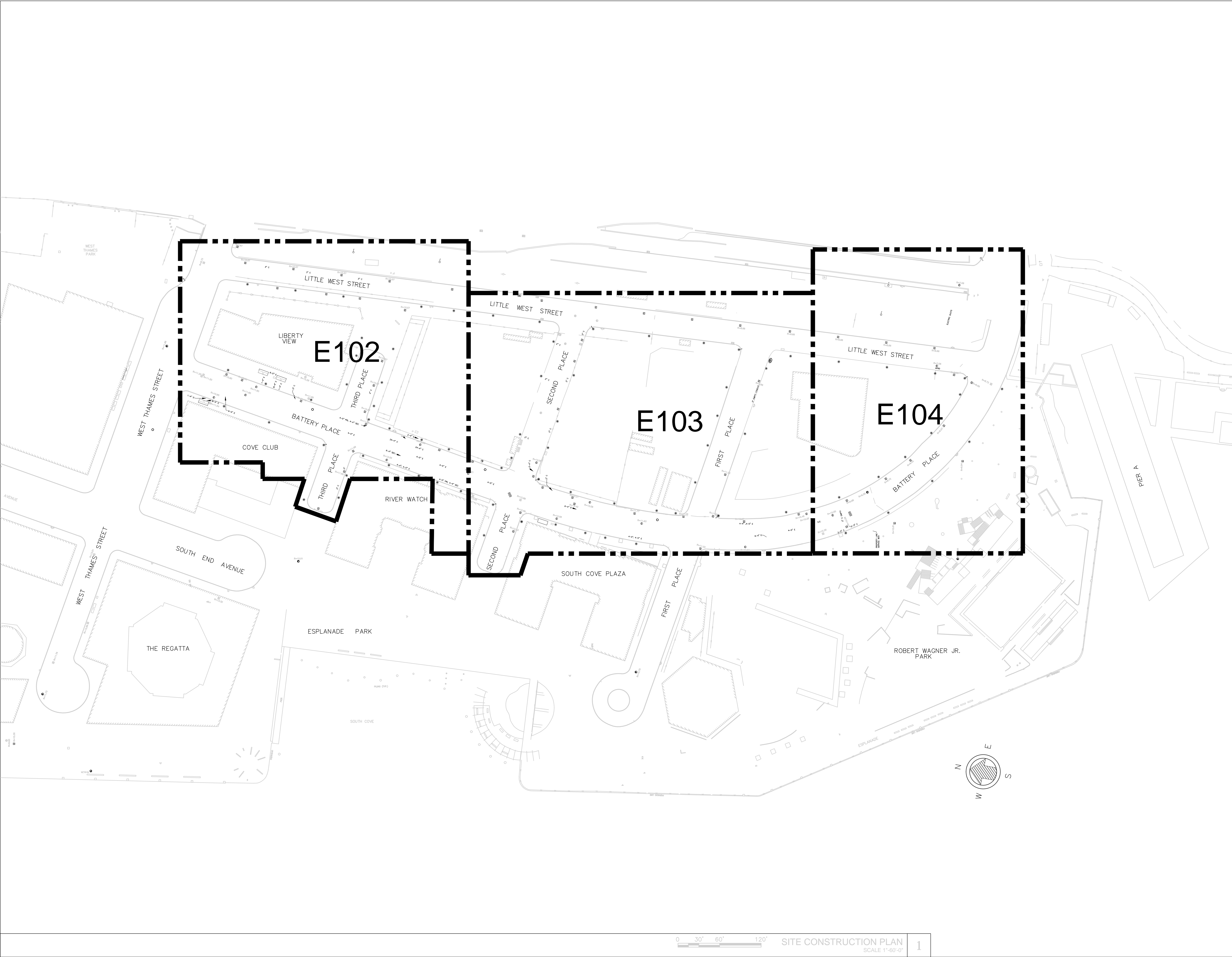
Project Engineer:		JIWAN GANDHI, P.E.
Designer:		JIWAN GANDHI, P.E.
Drawn by:		RAFAEL LIZ
Checked by:		CARL J. CANNIZZARO, P.E.
Design No. or LLW No.:	Facility Code:	Date:
—	N/A	04/17/14

Project:
**SOUTH NEIGHBORHOOD PHASE III
STREET LIGHT UPGRADE**
Battery Park City Authority
Address:
MANHATTAN
NEW YORK, NY
Drawing Title:
ELECTRICAL SITE PLAN

Drawing No.:

E102.00

Sheets in Contract:
09 of 14



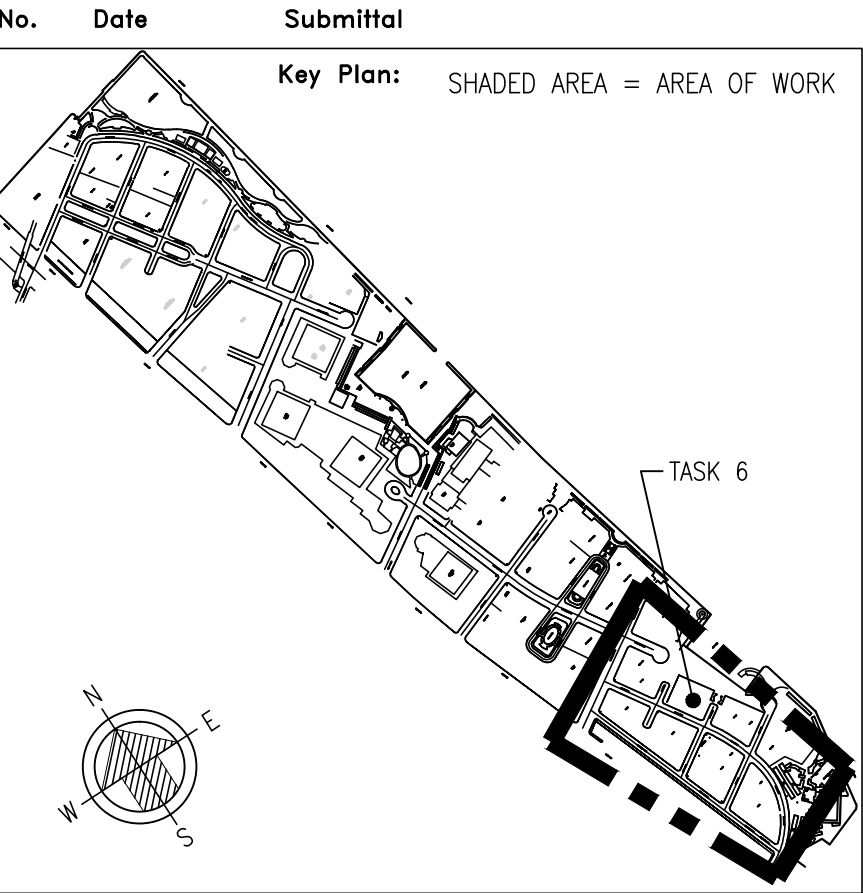
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08 of 14

GENERAL NOTES

1.

CONTRACTOR SHALL PROVIDE TEMPORARY LIGHTING FOR THE ENTIRE PROJECT AREA DAILY FROM SUNSET UNTIL SUNRISE. A MINIMUM ILLUMINATION OF 0.5 FOOT-CANDLE AT SIDEWALK SHALL BE MAINTAINED. CONTRACTOR SHALL SUBMIT A TEMPORARY LIGHTING PLAN TO OWNER DETAILING QUANTITY AND LOCATION OF LIGHTS FOR APPROVAL. CONTRACTOR SHALL BE RESPONSIBLE FOR COSTS AND MONITORING TEMPORARY LIGHTING UNTIL THE EXISTING LIGHTING HAS BEEN REWIRED, TESTED AND APPROVED BY BPCA AND NYC DIVISION OF STREET LIGHTING.
2.

FOR THE EXISTING HANDHOLES WITHIN THE PROJECT AREA, THE CONTRACTOR SHALL VERIFY THE SIZE OF GASKETS, QUANTITY OF BOLTS REQUIRED, ETC.
3.

ALL WIRE SHALL BE STRANDED COPPER WITH XLP INSULATION UL LISTED AS TYPE XHHW-2, SIZE AS INDICATED ON THE DRAWINGS.
4.

ALL REPLACEMENT CONDUITS SHALL BE PVC COATED HEAVY WALL, RIGID GALVANIZED STEEL, SIZE AS REQUIRED TO MATCH EXISTING.
5.

THE CONTRACT DRAWINGS ARE DIAGRAMMATIC IN NATURE AND MAY NOT REFLECT THE EXACT ROUTING OF EXISTING UNDERGROUND CONDUITS. AT THE COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL FURNISH TO THE ENGINEER A SET OF CERTIFIED AS-BUILT DRAWINGS DETAILING THE LAYOUT OF THE EXISTING CONDUIT SYSTEM, LIGHTING CIRCUITING AND CONTROL SCHEMATICS. ALL CONDUIT AND WIRE TAGS SHALL BE INDICATED ON THE AS-BUILT DRAWINGS.
6.

THE EXISTING CON ED POWER FEEDER TO THE POWER/CONTROL PEDESTAL SHALL BE DISCONNECTED AND THE ENDS SHALL BE TAPED TO RENDER THE INSIDE OF THE PEDESTAL SAFE FOR WORKING, BEFORE THE PROCESS OF REFURBISHING/REBUILDING OF THE SECOND PLACE LOAD BOX BEGINS. CONTRACTOR SHALL COORDINATE PHASING OF THE WORK WITH CON ED AND BPCA.
7.

ALL SPLICES AND WIRE TAPS SHALL BE COMPRESSION TYPE. ALL SPLICES AND TAPS INSTALLED WITHIN THE STREET LIGHTING ROADWAY BOXES SHALL UTILIZE SCOTCHCAST RESIN-FILLED SPLICES AS MANUFACTURED BY 3M, OR EQUAL.
8.

IN ALL EXISTING STREET OR GRASSY AREA LIGHTING HANDHOLES, WHERE WATER IS PRESENT ON A REGULAR BASIS, CONTRACTOR SHALL USE TYPE SLWB/SLOWB SUBMERSIBLE STREET LIGHT CONNECTORS AS MANUFACTURED BY POLARIS OR APPROVED EQUAL. COORDINATE WITH BPCA.
9.

ALL WORK SHALL BE IN ACCORDANCE WITH N.Y.C. DIVISION OF STREETS LIGHTING (BUREAU OF ELECTRICAL CONTROL) STANDARDS. UPON COMPLETION OF THIS CONTRACT, WORK IS TO BE ACCEPTED BY B.P.C.A. & N.Y.C. DIVISION OF STREET LIGHTING.
10.

ALL MATERIAL AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF N.Y.C. DIVISION OF STREET LIGHTING.
11.

ALL NEW REPLACEMENT MOUNTING HARDWARE SHALL BE STAINLESS STEEL.
12.

ALL TAGS SHALL BE STAINLESS STEEL ATTACHED WITH STAINLESS STEEL WIRES.
13.

ALL CONDUCTORS INSTALLED INSIDE THE REFURBISHED LOAD BOX SHALL BE FLAMEPROOF.
14.

ITEM DESIGNATED AS TYPICAL IS TYPICAL FOR ALL ITEMS OF THE SAME KIND UNLESS OTHERWISE NOTED.

SCOPE OF WORK NOTES

1.

WORK SHOWN ON THESE DRAWINGS IS LIMITED TO STREET LIGHTING UPGRADE:

a.

ALL EXISTING HAND HOLE COVERS SHALL BE GROUNDED AS SHOWN ON THESE DWGS.

b.

ANY EXISTING LIGHT POLE MOUNTED WITH RECEPTACLES SHALL BE REPLACED WITH GFCI, WEATHERPROOF "IN-USE" RECEPTACLES.

c.

MODIFICATIONS OF THE EXISTING TO REMAIN GRID AS PER FIELD CONDITIONS, USING NEW CONNECTORS, CONDUITS AND WIRING TO SUPPLY EXISTING TO REMAIN STREET LIGHTING FROM THE SIDEWALK SIDE OF THE LOAD BOX FOLLOWING THE NEW CONFIGURATION OF THE REFURBISHED LOAD BOX.
2.

SOUTH OF WEST THAMES STREET NEIGHBORHOOD STREET LIGHTING UPGRADE CONSISTS OF THE FOLLOWING:

a.

UPGRADE OF STREET LIGHTING ON LITTLE WEST STREET, BATTERY PARK PLACE, FIRST PLACE, SECOND PLACE AND THIRD PLACE, OF LIGHTS AS SHOWN IN THE DRAWINGS

b.

ALL MAIN FEEDERS MARKED L1, L2 & L3 AS SHOWN IN THE DRAWINGS ARE TO BE REPLACED. ALL WIRES SUPPLYING POWER TO THE STREET LIGHT POLES FROM HAND HOLES OR POLE TO POLE ARE TO BE REPLACED.

c.

CLEANING AND CONDITION VERIFICATION OF THE EXISTING CONDUITS USED FOR STREET LIGHTING.

d.

REPLACEMENT OF EXISTING DEFECTIVE CONDUITS.

e.

INSTALLATION OF NEW WIRING TO SUPPLY EXISTING TO REMAIN STREET LIGHT POLES IN THE PROJECT AREA.

f.

REPLACEMENT OF THE EXISTING IN LINE FUSES AND FUSE HOLDERS INSIDE EXISTING TO REMAIN STREET LIGHT POLES, AFTER THEIR DISCONNECTION AND REMOVAL.

g.

DISCONNECTION AND REMOVAL OF THE EXISTING POWER AND CONTROL EQUIPMENT INSIDE SECOND PLACE LOAD BOX/CABINET AND INSTALLATION OF NEW POWER AND CONTROL EQUIPMENT TO A NEW CONFIGURATION IN SECOND PLACE LOAD BOX/CABINET, AS SHOWN ON THIS PROJECT DWGS.

h.

COMPLETE REFURBISHMENT OF EXISTING HAND HOLES AND MAN HOLES.

i.

INSTALLATION OF GROUND ROD FOR EACH HAND HOLE, GROUNDING OF THE EXISTING TO REMAIN HAND HOLES AND GROUNDING OF HAND HOLE COVERS.

j.

VERIFICATION AND PROVISIONS FOR THE ASSURANCE OF GROUNDING CONTINUITY.

k.

TEMPORARY LIGHTING.
3.

TWO POLES AT THE CORNER OF LITTLE WEST STREET AND SECOND PLACE:

a.

ALL WORK HERE TO BE DONE AS PER DWG # E-602.
4.

POWER TO POLE AT THE CORNER OF BATTERY PLACE AND FIRST PLACE

a.

ALL WORK HERE TO BE DONE AS PER DWG # E-602.

ABBREVIATION LIST

AWG	AMERICAN WIRE GAGE
BPCA	BATTERY PARK CITY AUTHORITY
RGS	RIGID GALVANIZED STEEL
AC	ALTERNATING CURRENT
SP	SPARE
DWG	DRAWING
CKT	CIRCUIT
TYP.	TYPICAL
PVC	POLYVINYL CHLORIDE PLASTIC
NYCEC	NEW YORK CITY ELECTRICAL CODE
N.T.S.	NOT TO SCALE
NEC	NATIONAL ELECTRICAL CODE
DOT	DEPARTMENT OF TRANSPORTATION
NYCDOT	NEW YORK CITY DEPARTMENT OF TRANSPORTATION

SYMBOL

BOUNDARY LINE	
NEW WORK	
NEW CONDUIT	
EXISTING WORK	
EXISTING UNDERGROUND CONDUIT	
'B' TYPE LAMP POST	
'BC' TYPE LAMP POST	
ELECTRICAL HANDHOLE	
ELECTRICAL MANHOLE	
RELAY LIGHTING CONTROL PEDESTAL	
PHASE A	A2
PHASE B	B2
PHASE C	C2

LIST OF DRAWINGS

G001.00	TITLE SHEET
E001.00	ELECTRICAL NOTES SYMBOLS AND ABBREVIATIONS
ED101.00	ELECTRICAL DEMO SITE PLAN
ED102.00	ELECTRICAL DEMO SITE PLAN
ED103.00	ELECTRICAL DEMO SITE PLAN
ED104.00	ELECTRICAL DEMO SITE PLAN
ED301.00	ELECTRICAL DEMO POWER DIAGRAM AND DETAILS
E101.00	ELECTRICAL SITE PLAN
E102.00	ELECTRICAL SITE PLAN
E103.00	ELECTRICAL SITE PLAN
E104.00	ELECTRICAL SITE PLAN
E301.00	ELECTRICAL POWER DIAGRAM AND DETAILS
E601.00	ELECTRICAL DETAILS
E602.00	WIRING DETAILS



Consultants:

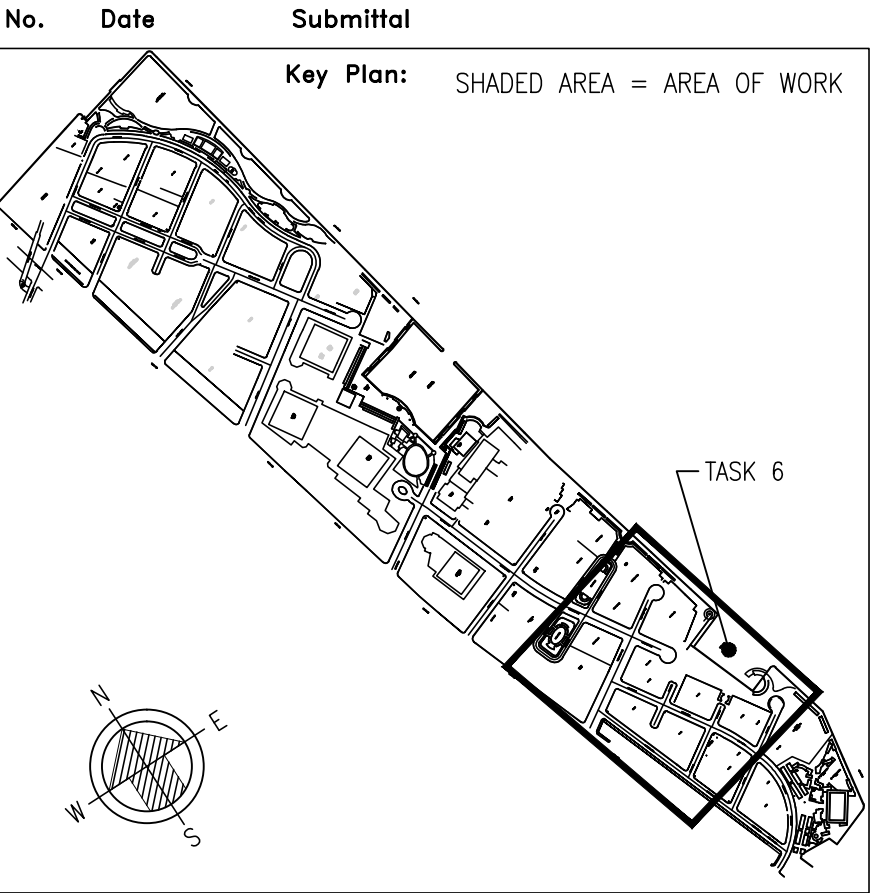


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NOTE: Drawing may be printed at reduced scale. Refer to graphic scale.

No.	Date	Revision

01	04-17-14	CONTRACTOR BID
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Project Engineer: JIWAN GANDHI, P.E.		
Designer: JIWAN GANDHI, P.E.		
Drawn by: RAFAEL LIZ		
Checked by: CARL J. CANNIZZARO, P.E.		
Design No. or LLW No.: -	Facility Code: N/A	Date: 04/17/14

Project: SOUTH NEIGHBORHOOD PHASE III STREET LIGHT UPGRADE
Battery Park City Authority
Address: MANHATTAN
NEW YORK, NY

Drawing Title: ELECTRICAL NOTES, SYMBOLS AND ABBREVIATIONS

Drawing No.:

E001.00

Sheets in Contract: 02 of 14

SECTION 16521**EXTERIOR LIGHTING****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Exterior luminaires with lamps and ballasts, but not mounted on exterior surfaces of buildings.
- B. Related Sections include the following:

1.3 SUBMITTALS

- A. Product Data: For each luminaire, arranged in the order of lighting unit designation. Include data on features, accessories, finishes, and the following:
 - 1. High-intensity-discharge ballasts.
 - 2. High-intensity-discharge lamps.
 - 3. Electrical and energy-efficiency data for ballasts.
- B. Wiring Diagrams: Power and control wiring.
- C. Coordination Drawings: Mounting and connection details, drawn to scale, for exterior luminaires.
- D. Samples for Verification: For exterior luminaires designated for sample submission in the Exterior Luminaire Schedule.
 - 1. Lamps: Specified units installed.
 - 2. Ballast: 120-V models of specified ballast types.
 - 3. Finishes: For each finished metal used in support components.
- E. Source quality-control test reports.
- F. Field quality-control test reports.
- G. Operation and Maintenance Data: For luminaires to include in maintenance manuals.
- H. Warranties: Special warranties specified in this Section.

1.4 QUALITY ASSURANCE

Task 6

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NYCEC 2011, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. FMG Compliance: Fixtures for hazardous locations shall be listed and labeled for indicated class and division of hazard by FMG.
- C. Comply with IEEE C2, "National Electrical Safety Code."
- D. Comply with NYCEC 2011.

1.5 COORDINATION

1.6 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace lamps that fail in materials or workmanship; corrode; or fade, stain, or chalk due to effects of weather or solar radiation within specified warranty period. Manufacturer may exclude lightning damage, hail damage, vandalism, abuse, or unauthorized repairs or alterations from special warranty coverage.
 - 1. Warranty Period for Lamps: Replace lamps and fuses that fail within **12** months from date of Substantial Completion; furnish replacement lamps and fuses that fail within the second **12** months from date of Substantial Completion.

1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Lamps: **10 for every 100** of each type and rating installed. Furnish at least one of each type.
 - 2. Ballasts: **10 for every 100** of each type and rating installed. Furnish at least one of each type.
 - 3. Globes and Guards: **10 for every 20** of each type and rating installed. Furnish at least one of each type.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
 - 2. Products: Subject to compliance with requirements, provide one of the products specified.

2.2 LUMINAIRES, GENERAL

- A. Complying with UL [1572] [1598] and listed for installation in wet locations.

Task 6

- B. Metal Parts: Free of burrs and sharp corners and edges.
- C. Sheet Metal Components: Corrosion-resistant aluminum, unless otherwise indicated. Form and support to prevent warping and sagging.
- D. Housings: Rigidly formed, weather- and light-tight enclosures that will not warp, sag, or deform in use. .
- E. Exposed Hardware Material: Stainless steel.
- F. Plastic Parts: High resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
 - 1. N.A.

2.3 HIGH-INTENSITY-DISCHARGE LAMP BALLASTS

- 1. N.A.

2.4 HIGH-INTENSITY-DISCHARGE LAMPS

- A. N.A.

2.5 FACTORY FINISHES

- A. Field Painting Finish: Manufacturer's standard prime-coat finish ready for field painting.
- B. N.A.

2.6 SOURCE QUALITY CONTROL

- A. Provide services of a qualified, independent testing and inspecting agency to factory test luminaires with ballasts and lamps;

PART 3 - EXECUTION**3.1 INSTALLATION- N.A.****3.2 CONNECTIONS**

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.3 FIELD QUALITY CONTROL

- A. Inspect each fixture for damage. Replace damaged fixtures and components.
- B. Tests and Observations: Verify normal operation of lighting units after installing luminaires and energizing circuits with normal power source. Measure light intensities at night. Use photometers with calibration referenced to NIST standards. Comply with the following IESNA testing guide(s):

Task 6

1. IESNA LM-5.
 2. IESNA LM-50.
 3. IESNA LM-52.
 4. IESNA LM-64.
 5. IESNA LM-72.
- C. Check that all circuits with their lights are working are working by simulating night conditions at the photocell.
- D. 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.

END OF SECTION 16521

SECTION 16475
FUSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:

- 1. Fuses.
- 2. Spare fuse cabinet.

1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data for each fuse type specified.
- C. Product Data for each fuse type specified. Include the following:
 - 1. Descriptive data and time-current curves.
 - 2. Let-through current curves for fuses with current-limiting characteristics.
 - 3. Coordination charts and tables and related data.
- D. Field test reports indicating and interpreting test results.
- E. Maintenance data for tripping devices to include in the operation and maintenance manual specified in Division 1.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain fuses from one source and by a single manufacturer.
- B. Comply with NYCEC 2011 for components and installation.
- C. Listing and Labeling: Provide fuses specified in this Section that are listed and labeled.
 - 1. The Terms "Listed" and "Labeled": As defined in the National Electrical Code, Article 100.
 - 2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7.

1.5 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents.
 - 1. Spare Fuses: Furnish quantity equal to 20 percent of each fuse type and size installed, but not less than 1 set of 3 of each type and size.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering fuses that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide fuses by one of the following:
 - 1. Cooper Industries, Inc.; Bussmann Div.
 - 2. Eagle Electric Mfg. Co., Inc.
 - 3. MERSEN (Ferraz Shawmut Corp.)
 - 4. General Electric Co.; Wiring Devices Div.
 - 5. Tracor, Inc.; Littelfuse, Inc. Subsidiary.

2.2 CARTRIDGE FUSES

- A. Characteristics: NEMA FU 1, nonrenewable cartridge fuse; class as specified or indicated; current rating as indicated; voltage rating consistent with circuit voltage.
- B. In line fuses holders: 600VAC, Model 'FEB' as manufactured by Ferraz Shawmut or equal. Fuses: 5 - Ampere Ferraz Shawmut type 'TRM' or equal.
- C. Class 'G' fuse holders, 600VAC, for SC fuses as manufactured by Bussmann or equal.

2.3 SPARE FUSE CABINET

- A. Cabinet: Wall-mounted, 0.05-inch- (1.27-mm-) thick steel unit with full-length, recessed piano-hinged door with key-coded cam lock and pull.
 - 1. Size: Adequate for orderly storage of spare fuses specified with 15 percent spare capacity minimum.
 - 2. Finish: Gray, baked enamel.
 - 3. Identification: Stencil legend "SPARE FUSES" in 1-1/2-inch (40-mm) letters on door.
 - 4. Fuse Pullers: For each size fuse.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine utilization equipment nameplates and installation instructions to verify proper fuse locations, sizes, and characteristics.

- B. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 FUSE APPLICATIONS

- A. Main Service: Class T, fast acting, Class J, time-delay.
- B. Main Feeders: Class J, time delay.
- C. Branch Circuits: 600V, Class G, Time delay, Type SC as manufactured by Bussmann or equal.
- D. Light pole: Midget type 'TRM' as manufactured by Ferraz Shawmut or equal.

3.3 INSTALLATION

- A. Install fuses in fusible devices as indicated. Arrange fuses so fuse ratings are readable without removing fuse.
- B. Install spare fuse cabinet where indicated.

3.4 IDENTIFICATION

- A. Install typewritten labels on inside door of each fused switch to indicate fuse replacement information.

END OF SECTION 16475

SECTION 16452
GROUNDING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes grounding of electrical systems and equipment and basic requirements for grounding for protection of life, equipment, circuits, and systems. Grounding requirements specified in this Section may be supplemented in other Sections of these Specifications.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 16 Section "Wires and Cables" for requirements for grounding conductors.

1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data for grounding rods, connectors and connection materials, and grounding fittings.
- C. Qualification data for firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- D. Field tests and observation reports certified by the testing organization and indicating and interpreting the test reports for compliance with performance requirements.

1.4 QUALITY ASSURANCE

- A. Testing Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7, or a full member company of the InterNational Electrical Testing Association (NETA).
 - 1. Testing Agency Field Supervision: Use persons currently certified by NETA or the National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.
- B. Comply with NYCEC 2011.
- C. Comply with UL 467.
- D. Listing and Labeling: Provide products specified in this Section that are listed and labeled.

1. The Terms "Listed" and "Labeled": As defined in the National Electrical Code, Article 100.
2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Apache Grounding; Nashville Wire Products.
 2. Boggs: H. L. Boggs & Co.
 3. Chance: A. B. Chance Co.
 4. Dossert Corp.
 5. Erico Inc.; Electrical Products Group.
 6. Galvan Industries, Inc.
 7. Hastings Fiber Glass Products, Inc.
 8. Heary Brothers Lightning Protection Co.
 9. Ideal Industries, Inc.
 10. ILSCO.
 11. Kearney.
 12. Korns: C. C. Korns Co.
 13. Lightning Master Corp.
 14. Lyncole XIT Grounding.
 15. O-Z/Gedney Co.
 16. Raco, Inc.
 17. Salisbury: W.H. Salisbury & Co., Utility.
 18. Thomas & Betts, Electrical.
 19. Utilco Co.

2.2 GROUNDING AND BONDING PRODUCTS

- A. Governing Requirements: Where types, sizes, ratings, and quantities indicated are in excess of National Electrical Code (NEC) requirements, the more stringent requirements and the greater size, rating, and quantity indications govern.

2.3 WIRE AND CABLE GROUNDING CONDUCTORS

- A. Comply with Division 16 Section "Wires and Cables." Conform to NEC Table 8, except as otherwise indicated, for conductor properties, including stranding.
 1. Material: Aluminum and copper. Use only copper wire throughout the project.
- B. Equipment Grounding Conductors: Insulated with green color insulation.
- C. Grounding-Electrode Conductors: Stranded cable.

- D. Underground Conductors: Bare, tinned, stranded, except as otherwise indicated.
- E. Bare Copper Conductors: Conform to the following:
 - 1. Solid Conductors: ASTM B 3.
 - 2. Assembly of Stranded Conductors: ASTM B 8.
 - 3. Tinned Conductors: ASTM B 33.

2.4 MISCELLANEOUS CONDUCTORS

- A. Grounding Bus: Bare, annealed-copper bars of rectangular cross section.
- B. Braided Bonding Jumpers: Copper tape, braided No. 30 AWG bare copper wire, terminated with copper ferrules.
- C. Bonding Straps: Soft copper, 0.05 inch (1 mm) thick and 2 inches (50 mm) wide, except as indicated.

2.5 CONNECTOR PRODUCTS

- A. Pressure Connectors: High-conductivity-plated units.
- B. Bolted Clamps: Heavy-duty type.
- C. Exothermic-Welded Connections: Provided in kit form and selected per manufacturer's written instructions for specific types, sizes, and combinations of conductors and connected items.

2.6 GROUNDING ELECTRODES AND TEST WELLS

- A. Grounding Rods: Copper-clad steel.
- B. Grounding Rods: Sectional type; copper-clad steel.
 - 1. Size: 3/4 inch by 120 inches (19 by 3000 mm).
 - 2. Size: 5/8 inch by 96 inches (16 by 2400 mm).
- C. Plate Electrodes: Copper, square or rectangular shape. Minimum 0.10 inch (3 mm) thick, size as indicated.
- D. Test Wells: Fabricate from 15-inch- (400-mm-) long, square-cut sections of 8-inch- (200-mm-) diameter, Schedule 80, PVC pipe.

PART 3 - EXECUTION

3.1 APPLICATION

- A. Equipment Grounding Conductors: Comply with NYCEC Article 250 for types, sizes, and quantities of equipment grounding conductors, except where specific types, larger sizes, or more conductors than required by NYCEC are indicated.

1. Install equipment grounding conductor with circuit conductors for the items below in addition to those required by Code:
 - a. Feeders and branch circuits.
 - b. Lighting circuits.
 - c. Receptacle circuits.
 - d. Flexible raceway runs.
 - e. Armored and metal-clad cable runs.
- B. Metal Poles Supporting Outdoor Lighting Fixtures: Ground pole to a grounding electrode in addition to separate equipment grounding conductor run with supply branch circuit.

3.2 INSTALLATION

- A. General: Ground electrical systems and equipment according to NYCEC requirements, except where Drawings or Specifications exceed NEC requirements.
- B. Grounding Rods: Locate a minimum of 1-rod length from each other and at least the same distance from any other grounding electrode.
 1. Drive until tops are 2 inches (50 mm) below finished floor or final grade, except as otherwise indicated.
 2. Interconnect with grounding-electrode conductors. Use exothermic welds, except at test wells and as otherwise indicated. Make these connections without damaging copper coating or exposing steel.
- C. N.A,
- D. Underground Grounding Conductors: Use bare copper wire. Bury at least 24 inches (600 mm) below grade.
- E. Test Wells: One for each driven grounding electrode, except as otherwise indicated. Set top of well flush with finished grade or floor. Fill with 1-inch- (25-mm-) maximum-size crushed stone or gravel.

3.3 CONNECTIONS

- A. General: Make connections so possibility of galvanic action or electrolysis is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.
 1. Use electroplated or hot-tin-coated materials to assure high conductivity and to make contact points closer in order of galvanic series.
 2. Make connections with clean, bare metal at points of contact.
 3. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.
- B. Exothermic-Welded Connections: Use for connections to structural steel and for underground connections, except those at test wells. Comply with manufacturer's written instructions. Welds that are puffed up or that show convex surfaces indicating improper cleaning are not acceptable.

- C. Equipment Grounding-Wire Terminations: For No. 8 AWG and larger, use pressure-type grounding lugs. No. 10 AWG and smaller grounding conductors may be terminated with winged pressure-type connectors.
- D. Noncontact Metal Raceway Terminations: Where metallic raceways terminate at metal housings without mechanical and electrical connection to housing, terminate each conduit with a grounding bushing. Connect grounding bushings with a bare grounding conductor to grounding bus or terminal in housing. Bond electrically noncontinuous conduits at both entrances and exits with grounding bushings and bare grounding conductors, except as otherwise indicated.
- F. Connections at Test Wells: Use compression-type connectors on conductors and make bolted- and clamped-type connections between conductors and grounding rods.
- F. Tighten screws and bolts for grounding and bonding connectors and terminals according to manufacturer's published torque-tightening values. Where these requirements are not available, use those specified in UL 486A and UL 486B.
- G. Compression-Type Connections: Use hydraulic compression tools to provide correct circumferential pressure for compression connectors. Use tools and dies recommended by manufacturer of connectors. Provide embossing die code or other standard method to make a visible indication that a connector has been adequately compressed on grounding conductor.
- H. Moisture Protection: Where insulated grounding conductors are connected to grounding rods or grounding buses, insulate entire area of connection and seal against moisture penetration of insulation and cable.

3.4 UNDERGROUND DISTRIBUTION SYSTEM GROUNDING

- A. Manholes and Handholes: Install a driven grounding rod close to wall and set rod depth so 4 inches (100 mm) will extend above finished floor. Where necessary, install grounding rod for manhole and provide a No. 1/0 AWG bare, tinned-copper conductor from grounding rod into manhole through a waterproof sleeve in manhole wall. Protect grounding rods passing through concrete floor with a double wrapping of pressure-sensitive tape or heat-shrunk insulating sleeve from 2 inches (50 mm) above to 6 inches (150 mm) below concrete. Seal floor opening with waterproof, nonshrink grout.
- B. Connections to Manhole Components: Connect exposed metal parts, such as inserts, cable racks, pulling irons, ladders, and cable shields within each manhole or handhole, to grounding rod or grounding conductor. Make connections with minimum No. 4 AWG stranded, hard-drawn copper wire. Train conductors plumb or level around corners and fasten to manhole walls. Connect to cable armor and cable shields as recommended by manufacturer of splicing and termination kits.
- C. Grounding System: Ground pad-mounted equipment and noncurrent-carrying metal items associated with substations by connecting them to underground cable and grounding electrodes.

3.5 FIELD QUALITY CONTROL

- A. Independent Testing Agency: Engage an independent electrical testing organization to perform tests described below.
- B. Tests: Subject the completed grounding system to a megger test at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, and at ground test wells. Measure ground resistance not less than 2 full days after the last trace of precipitation, and without the soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance. Perform tests by the 2-point method according to IEEE 81.

- C. Maximum grounding to resistance values are as follows:
 - 1. Equipment Rated 500 kVA and Less: 10 ohms.
 - 2. Equipment Rated 500 to 1000 kVA: 5 ohms.
 - 3. Equipment Rated More than 1000 kVA: 3 ohms.
 - 4. Unfenced Substations and Pad-Mounted Equipment: 5 ohms.
 - 5. Manhole Grounds: 10 ohms.
- D. Excessive Ground Resistance: Where resistance to ground exceeds specified values, notify Owner promptly and include recommendations to reduce ground resistance and to accomplish recommended work.
- E. Report: Prepare test reports, certified by the testing organization, of ground resistance at each test location. Include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.

3.6 ADJUSTING AND CLEANING

- A. Restore surface features, including vegetation, at areas disturbed by work of this Section. Reestablish original grades, except as otherwise indicated. Where sod has been removed, replace it as soon as possible after backfilling is completed. Restore areas disturbed by trenching, storing of dirt, cable laying, and other activities to their original condition. Include topsoiling, fertilizing, liming, seeding, sodding, sprigging, and mulching. Comply with Division 2 Section "Landscaping." Maintain restored surfaces. Restore disturbed paving as indicated.

END OF SECTION 16452

SECTION 16289
TRANSIENT VOLTAGE SURGE SUPPRESSION

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK



- A. Provide complete transient voltage surge suppression for the protection of the low voltage, control and communication systems.

1.02 SUPPLEMENTAL SUBMITTALS

- A. Product Certificates

Signed by manufacturers of transient voltage suppression devices, certifying that the products furnished comply with the following testing and labeling requirements:

1. UL 1283 certification.
2. UL 1449 3rd Edition listing and classification

- B. Operation and Maintenance instructions.

- C. **Certificate of compliance with Quality Assurance requirements.**

- D. **Certificate of compliance with field quality control.**

- E. **Warranty.**

- F. Training videotape as specified under paragraph 3.05 herein.

1.03 QUALITY ASSURANCE

- A. Source Limitations: Obtain suppression devices and accessories through one source from a single manufacturer.

- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

Task 6

- C. IEEE Compliance: Comply with IEEE C62.41, "IEEE Guide for Surge Voltages in Low Voltage AC Power Circuits," and test devices according to IEEE C62.45, "IEEE Guide for Surge Suppressor Testing."
- D. NEMA Compliance: Comply with NEMA LS 1, "Low Voltage Surge Protective Devices."
- E. UL Compliance: Comply with UL 1283, "Electromagnetic Interference Filters," and UL 1449 3rd Edition, "Transient Voltage Surge Suppressors."

1.05 WARRANTY

- A. The surge suppressor manufacturer shall warrant the surge suppression device and supporting components against defects and workmanship for a period of 10 years from date of substantial completion.
- B. The Contractor shall provide preventative maintenance during the warranty period. Maintenance shall include, but no be limited to:
 - 1. Labor and materials, to repair, test and adjust surge suppression devices.
 - 2. Regular inspections.

PART 2- PRODUCTS**2.01 APPROVED MANUFACTURERS**

- A. The approved manufacturers for the surge suppression devices shall be Cutler-Hammer, Siemens Energy & Automation, Square D, Leviton, MCG Electronics, LEA International, Advanced Protection Technologies, Current Technology, Ademco and Transjector Systems.

2.02 SURGE SUPPRESSION DEVICES

- A. Service Entrance Suppressors



Modular type suppression devices shall be installed, inside or adjacent to electrical service entrance panel and shall have the following features and accessories:

Task 6

1. LED indication lights (Green & Red) for power and protection status.
2. Audible alarm, with silencing switch, to indicate when protection has failed.
3. One set of Form C dry contacts (normally open/normally closed) rated at 5 Amp, 250 VAC, for remote monitoring of protection status.
4. Suppression elements shall be between each phase conductor and neutral, between each phase conductor and ground and between neutral conductor and ground.
5. Fuses, rated at 200 KA interrupting capacity.
6. Minimum single impulse current rating (L-N + L-G): 240,000 amps per phase for service entrance
7. UL1449 3rd Edition (ANSI C62.41-2002) clamping voltage for service entrance shall not exceed the following:

<u>VOLTAGE</u>	<u>L-N</u>	<u>L-G</u>	<u>N-G</u>
120/208	700	700	700

8. Suppressors shall exhibit redundant protection with redundant fusing for each phase and consist of solid state components and shall operate bi-directionally. Gas diodes or silicon avalanche diodes in surge path are not acceptable. Series installed protectors are not acceptable.

B. Panelboard Suppressors

Modular type suppression devices shall be installed, inside or adjacent to electrical panel and shall have the following features and accessories:

1. LED indication lights (Green & Red) for power and protection status.
2. Audible alarm, with silencing switch, to indicate when protection has failed.

Task 6

3. One set of dry contacts rated at 5 Amp, 250 VAC, for remote monitoring of protection status.
4. The suppressor shall be capable of interrupting a 200 KA, short circuit current delivered from the AC power line.
5. Minimum single impulse current rating (L-N + L-G): 120,000 amps per phase for panelboard.
6. UL1449 3rd Edition (ANSI C62.41-2002) clamping voltage for local panel shall not exceed the following:

<u>VOLTAGE</u>	<u>L-N</u>	<u>L-G</u>	<u>N-G</u>
120/208	700	700	700

C. Enclosures

NEMA 250, with type matching the enclosure of panel or device being protected, unless factory installed within equipment enclosure.

PART 3- EXECUTION**3.01 SERVICE ENTRANCE**

- A. Install devices at service entrance on line side, with ground lead bonded to service entrance ground.
- B. Conductors between suppressor and point of attachment shall be at least #10 AWG stranded copper conductor or larger. The conductors shall be kept as short and straight as possible for best performance. Lead length of connecting conductors shall be within 36 inches.

3.02 LOCAL PANELS

- A. Install devices for panelboard with conductors between suppressor and points of attachment as short and straight as possible. Do not exceed manufacturer's recommended lead length. Do not bond neutral and ground.

Task 6

- B. A 20A overcurrent protection is required at the panel to protect the leads used to connect the surge protector to the panel.

3.03 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.04 FIELD QUALITY CONTROL

- A. Perform the following field quality-control testing:
 - 1. Complete startup checks according to manufacturer's written instructions.
 - 2. Perform each visual and mechanical inspection and electrical test stated in NETA ATS, Section 7.19. Certify compliance with test parameters.
- B. Contractor shall engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including piping and electrical connections. Report results in writing.
 - 1. Certify that electrical wiring installation complies with manufacturer's installation requirements.

3.05 TRAINING

The Contractor shall arrange with the manufacturer of the equipment to instruct school personnel in the proper operation and care of the surge suppression system. In addition, the Contractor shall provide the following:

- A. A set of simple operating instructions for operation and maintenance of the equipment shall be delivered to the Authority.
- B. Training of Personnel shall be videotaped.

LIST OF SUBMITTALS

Task 6

SUBMITTAL
APPROVEDDATE SUBMITTEDDATE

Product Data

Shop Drawings

Product Certificates

Certificate of compliance with
Quality Assurance requirements

Certificate of compliance
with field quality control

Warranty

Operation and Maintenance
instructions

Training videotape

* * *

SECTION 16145
LIGHTING CONTROL DEVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes time switches, photoelectric relays, photoelectric sensors, and multipole lighting relays and contactors.
- B. Related Sections include the following:
 - 1. Division 16 Section "Wiring Devices".

1.3 SUBMITTALS

- A. Product Data: Include dimensions and data on features, components, and ratings for lighting control devices.
- B. Samples: Occupancy sensors for color selection and evaluation of technical features.
- C. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.
- D. Maintenance Data: For lighting control devices to include in maintenance manuals specified in Division 1.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain lighting control devices from a single source with total responsibility for compatibility of lighting control system components specified in this Section, in Division 13 Section "Lighting Controls," and in Division 16 Section "Dimming Controls."
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, for their indicated use and installation conditions by a testing agency acceptable to authorities having jurisdiction.
- C. Comply with 47 CFR 15, Subparts A and B, for Class A digital devices.
- D. Comply with NYCEC 2011.

1.5 COORDINATION

- A. Coordinate features of devices specified in this Section with systems and components specified in other Sections to form an integrated system of compatible components. Match components and interconnections for optimum performance of specified functions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Contactors and Relays:
 - a. Automatic Switch Co.
 - b. Challenger Electrical Equipment Corp.
 - c. Cutler-Hammer Products; Eaton Corporation.
 - d. Furnas Electric Co.
 - e. GE Lighting Controls.
 - f. Hubbell Lighting, Inc.
 - g. Siemens Energy and Automation, Inc.
 - h. Square D Co.; Power Management Organization.
 - i. Zenith Controls, Inc.
 - j. American Electronic Components, Inc. (Durakool)
 - 2. Time Switches:
 - a. Diversified Electronics, Inc.
 - b. Grasslin Controls Corp.
 - c. Intermatic, Inc.
 - d. Leviton Manufacturing.
 - e. Paragon Electric Co., Inc.
 - f. Tork, Inc.
 - g. Zenith Controls, Inc.
 - 3. Photoelectric Relays:
 - a. Allen-Bradley/Rockwell Automation.
 - b. Area Lighting Research, Inc.
 - c. Fisher Pierce.
 - d. Grasslin Controls, Corp.
 - e. Intermatic, Inc.
 - f. Paragon Electric Co., Inc.
 - g. Rhodes: M H Rhodes, Inc.
 - h. SSAC, Inc.
 - i. Tork, Inc.

2.2 TIME SWITCHES

- A. Description: Solid-state programmable units with alphanumeric display complying with UL 917.
- B. Description: Electromechanical-dial type complying with UL 917.

1. Astronomic dial.
2. Two contacts, rated 30 A at 277-V ac, unless otherwise indicated.
3. Two pilot-duty contacts, rated 2 A at 240-V ac, unless otherwise indicated.
4. Eight-day program uniquely programmable for each weekday and holidays.
5. Skip-day mode.

2.3 PHOTOELECTRIC RELAYS

- A. Description: Solid state, with single-pole, double-throw dry contacts rated to operate connected relay or contactor coils or microprocessor input, and complying with UL 773A.
- B. Light-Level Monitoring Range: 0 to 3500 fc (0 to 37 673 lx), with an adjustment for turn-on/turn-off levels.
- C. Time Delay: Prevents false operation.
- D. Indoor Ceiling- or Wall-Mounting Units: Adjustable for turn-on/turn-off levels, semiflush, calibrated to detect adequacy of daylighting in perimeter locations, and arranged to turn artificial illumination on and off to suit varying intensities of available daylighting.
- E. Indoor Skylight Units: Housed in a threaded plastic fitting for mounting under skylight.
- F. Outdoor Sealed Units: Weathertight housing, resistant to high temperatures and equipped with sun-glare shield and ice preventer.

2.4 MULTIPOLE CONTACTORS AND RELAYS

- A. Description: Electrically operated and held, and complying with UL 508 and NEMA ICS 2.
 1. Current Rating for Switching: UL listing or rating consistent with type of load served, including tungsten filament, inductive, and high-inrush ballast (ballasts with 15 percent or less total harmonic distortion of normal load current).
 2. Control Coil Voltage: Match control power source.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install equipment level and plumb and according to manufacturer's written instructions.
- B. Mount lighting control devices according to manufacturer's written instructions and requirements in Division 16 Section "Basic Electrical Materials and Methods."

3.2 CONTROL WIRING INSTALLATION

- A. Install wiring between sensing and control devices according to manufacturer's written instructions and as specified in Division 16 Section "Conductors and Cables" for low-voltage connections.
- B. Wiring Method: Install all wiring in raceway as specified in Division 16 Section "Raceways and Boxes."

- C. Wiring Method: Install all wiring in raceway as specified in Division 16 Section "Raceways and Boxes," unless run in accessible ceiling space and gypsum board partitions.
- D. Bundle, train, and support wiring in enclosures.
- E. Ground equipment.
- F. Connections: 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.

3.3 IDENTIFICATION

- A. Identify components and power and control wiring according to Division 16 Section "Basic Electrical Materials and Methods."
- B. Identify components and power and control wiring according to Division 16 Section "Electrical Identification."

3.4 FIELD QUALITY CONTROL

- A. Schedule visual and mechanical inspections and electrical tests with at least seven days' advance notice.
- B. Inspect control components for defects and physical damage, testing laboratory labeling, and nameplate compliance with the Contract Documents.
- C. Check tightness of electrical connections with torque wrench calibrated within previous six months. Use manufacturer's recommended torque values.
- D. Verify settings of photoelectric devices with photometer calibrated within previous six months.
- E. Electrical Tests: Use particular caution when testing devices containing solid-state components. Perform the following according to manufacturer's written instructions:
 - 1. Continuity tests of circuits.
 - 2. Operational Tests: Set and operate devices to demonstrate their functions and capabilities in a methodical sequence that cues and reproduces actual operating functions.
 - a. Include testing of devices under conditions that simulate actual operational conditions. Record control settings, operations, cues, and functional observations.
- F. Correct deficiencies, make necessary adjustments, and retest. Verify that specified requirements are met.
- G. Test Labeling: After satisfactory completion of tests and inspections, apply a label to tested components indicating test results, date, and responsible agency and representative.
- H. Reports: Written reports of tests and observations. Record defective materials and workmanship and unsatisfactory test results. Record repairs and adjustments.

3.5 CLEANING

- A. Cleaning: Clean equipment and devices internally and externally using methods and materials recommended by manufacturers, and repair damaged finishes.

3.6 DEMONSTRATION

- A. Coordinate with training for low-voltage, programmable lighting control system specified in Division 13 Section "Lighting Controls."
- B. Engage a factory-authorized service representative to train Owner's maintenance personnel as specified below:
 - 1. Train Owner's maintenance personnel on troubleshooting, servicing, adjusting, and preventive maintenance. Provide a minimum of three hours' training.
 - 2. Training Aid: Use the approved final version of maintenance manuals as a training aid.
 - 3. Schedule training with Owner, through Architect, with at least seven days' advance notice.

3.7 ON-SITE ASSISTANCE

- A. Occupancy Adjustments: Within one year of date of Substantial Completion, provide up to three Project site visits, when requested, to adjust light levels, make program changes, and adjust sensors and controls to suit actual conditions.

END OF SECTION 16145

SECTION 16140
WIRING DEVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes receptacles, connectors, switches, and finish plates.

1.3 DEFINITIONS

- A. GFCI: Ground-fault circuit interrupter.

1.4 SUBMITTALS

- A. Product Data: For each product specified.
- B. Shop Drawings: Legends for receptacles and switch plates.
- C. Samples: For devices and device plates for color selection and evaluation of technical features.
- D. Maintenance Data: For materials and products to include in maintenance manuals specified in Division 1.

1.5 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.
- B. Comply with NEMA WD 1.
- C. Comply with NYCEC 2011.

1.6 COORDINATION

- A. Receptacles for Owner-Furnished Equipment: Match plug configurations.
 - 1. Cord and Plug Sets: Match equipment requirements.

1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents. Deliver extra materials to Owner.
 - 1. Weatherproof outlet box for 'In Use' pole mounted GFCI receptacle.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Wiring Devices:
 - a. Bryant Electric, Inc.
 - b. Eagle Electric Manufacturing Co., Inc.
 - c. GE Company; GE Wiring Devices.
 - d. Hubbell, Inc.; Wiring Devices Div.
 - e. Killark Electric Manufacturing Co.
 - f. Leviton Manufacturing Co., Inc.
 - g. Pass & Seymour/Legrand; Wiring Devices Div.
 - h. Pyle-National, Inc.; an Amphenol Co.

2.2 RECEPTACLES

- A. Straight-Blade and Locking Receptacles: Heavy-Duty grade.
- B. Straight-Blade and Locking Receptacles: General-Duty grade.
- C. GFCI Receptacles: Feed-through type, with integral NEMA WD 6, Configuration 5-20R duplex receptacle arranged to protect connected downstream receptacles on same circuit. Design units for installation in a ~~2-3/4-inch~~ (70-mm-) deep outlet box without an adapter.
- D. Industrial Heavy-Duty Receptacle: Comply with IEC 309-1.

2.5 FINISHES

- A. Color: Manufacturers standard, as selected by Architect.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install devices and assemblies plumb and secure.
- E. Arrangement of Devices: Unless otherwise indicated, mount surface, with long dimension vertical, and grounding terminal of receptacles on top.
- F. Protect devices and assemblies during painting.

3.2 IDENTIFICATION

- A. Comply with Division 16 Section "Basic Electrical Materials and Methods."
 - 1. Receptacles: Identify panelboard and circuit number from which served. Use machine-printed, pressure-sensitive, abrasion-resistant label tape on face of plate and durable wire markers or tags within outlet boxes.

3.3 CONNECTIONS

- A. Connect wiring device grounding terminal to outlet box with bonding jumper.
- B. Connect wiring device grounding terminal to branch-circuit equipment grounding conductor.
- C. Tighten electrical connectors and terminals according to manufacturers published torque-tightening values. If manufacturers torque values are not indicated, use those specified in UL 486A and UL 486B.

3.4 FIELD QUALITY CONTROL

- A. Test wiring devices for proper polarity and ground continuity. Operate each device at least six times.
- B. Test GFCI operation with both local and remote fault simulations according to manufacturer's written instructions.
- C. Replace damaged or defective components.

3.5 CLEANING

- A. Internally clean devices, device outlet boxes, and enclosures. Replace stained or improperly painted wall plates or devices.

END OF SECTION 16140

SECTION 16130
RACEWAYS AND BOXES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.

- 1. Raceways include the following:

- a. RMC.
 - b. IMC.
 - c. PVC externally coated, rigid steel conduits.
 - d. PVC externally coated, IMC.
 - e. FMC.
 - f. LFMC.
 - g. Wireways.

- 2. Boxes, enclosures, and cabinets include the following:

- a. Device boxes.
 - b. Outlet boxes.
 - c. Pull and junction boxes.
 - d. Cabinets and hinged-cover enclosures.

- B. Related Sections include the following:

- 1. Division 7 Section "Firestopping."
 - 2. Division 16 Section "Basic Electrical Materials and Methods" for raceways and box supports.
 - 3. Division 16 Section "Wiring Devices" for devices installed in boxes.

1.3 DEFINITIONS

- A. FMC: Flexible metal conduit.
- B. IMC: Intermediate metal conduit.
- C. LFMC: Liquidtight flexible metal conduit.
- D. RMC: Rigid metal conduit.

1.4 SUBMITTALS

- A. Product Data: For surface raceways, wireways and fittings, floor boxes hinged-cover enclosures, and cabinets.
- B. Shop Drawings: Include layout drawings showing components and wiring for nonstandard boxes, enclosures, and cabinets.

1.5 QUALITY ASSURANCE

- A. Listing and Labeling: Provide raceways and boxes specified in this Section that are listed and labeled.
 - 1. The Terms "Listed" and "Labeled": As defined in NFPA 70, Article 100.
 - 2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" as defined in OSHA Regulation 1910.7.
- B. Comply with NECA's "Standard of Installation."
- C. Comply with NFPA 70.

1.6 COORDINATION

- A. Coordinate layout and installation of raceways and boxes with other construction elements to ensure adequate headroom, working clearance, and access.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Metal Conduit and Tubing:
 - a. Alflec Corp.
 - b. Anamet, Inc.; Anaconda Metal Hose.
 - c. Anixter Brothers, Inc.
 - d. Carol Cable Co., Inc.
 - e. Cole-Flex Corp.
 - f. Electri-Flex Co.
 - g. Flexcon, Inc.; Coleman Cable Systems, Inc.
 - h. Grinnell Co.; Allied Tube and Conduit Div.
 - i. Monogram Co.; AFC.
 - j. Spiraduct, Inc.
 - k. Triangle PWC, Inc.
 - L. Wheatland Tube Co.
 - M. Thomas & Betts Corp.
 - 2. Conduit Bodies and Fittings:

- a. American Electric; Construction Materials Group.
 - b. Crouse-Hinds; Div. of Cooper Industries.
 - c. Emerson Electric Co.; Appleton Electric Co.
 - d. Hubbell, Inc.; Killark Electric Manufacturing Co.
 - e. Lamson & Sessions; Carlon Electrical Products.
 - f. O-Z/Gedney; Unit of General Signal.
 - g. Scott Fetzer Co.; Adalet-PLM.
 - h. Spring City Electrical Manufacturing Co.
 - i. Thomas & Betts corp.
3. Metal Wireways:
- a. Hoffman Engineering Co.
 - b. Keystone/Rees, Inc.
 - c. Square D Co.
4. Nonmetallic Wireways:
- a. Hoffman Engineering Co.
 - b. Lamson & Sessions; Carlon Electrical Products.
5. Boxes, Enclosures, and Cabinets:
- a. American Electric; FL Industries.
 - b. Butler Manufacturing Co.; Walker Division.
 - c. Crouse-Hinds; Div. of Cooper Industries.
 - d. Electric Panelboard Co., Inc.
 - e. Erickson Electrical Equipment Co.
 - f. Hoffman Engineering Co.; Federal-Hoffman, Inc.
 - g. Hubbell Inc.; Killark Electric Manufacturing Co.
 - h. Hubbell Inc.; Raco, Inc.
 - i. Lamson & Sessions; Carlon Electrical Products.
 - j. O-Z/Gedney; Unit of General Signal.
 - k. Parker Electrical Manufacturing Co.
 - l. Robroy Industries, Inc.; Electrical Division.
 - m. Scott Fetzer Co.; Adalet-PLM.
 - n. Spring City Electrical Manufacturing Co.
 - o. Thomas & Betts Corp.
 - p. Woodhead Industries, Inc.; Daniel Woodhead Co.

2.2 METAL CONDUIT AND TUBING

- A. Rigid Steel Conduit: ANSI C80.1.
- B. IMC: ANSI C80.6.
- C. Plastic-Coated Steel Conduit and Fittings: NEMA RN 1.
- D. Plastic-Coated IMC and Fittings: NEMA RN 1.
- E. FMC: Zinc-coated steel.
- F. LFMC: Flexible steel conduit with PVC jacket.

- G. Fittings: NEMA FB 1; compatible with conduit/tubing materials.

2.3 METAL WIREWAYS

- A. Material: Sheet metal sized and shaped as indicated.
- B. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.
- C. Select features, unless otherwise indicated, as required to complete wiring system and to comply with NFPA 70.
- H. Finish: Manufacturer's standard enamel finish.

2.4 OUTLET AND DEVICE BOXES

- A. Sheet Metal Boxes: NEMA OS 1.
- B. Cast-Metal Boxes: NEMA FB 1, Type FD, cast box with gasketed cover.
- C. Nonmetallic Boxes: NEMA OS 2.

2.6 ENCLOSURES AND CABINETS

- A. Hinged-Cover Enclosures: NEMA 250, Type 1, with continuous hinge cover and flush latch.
 - 1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
 - 2. Nonmetallic Enclosures: Plastic, finished inside with radio-frequency-resistant paint.
- B. Cabinets: NEMA 250, Type 1, galvanized steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel. Hinged door in front cover with flush latch and concealed hinge. Key latch to match panelboards. Include metal barriers to separate wiring of different systems and voltage, and include accessory feet where required for freestanding equipment.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces to receive raceways, boxes, enclosures, and cabinets for compliance with installation tolerances and other conditions affecting performance of raceway installation. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 WIRING METHODS

- A. Outdoors: Use the following wiring methods:
 - 1. Exposed: Rigid steel or IMC.
 - 2. Concealed: Rigid steel or IMC.

3. Underground, Single Run: PVC coated RGS.
4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
5. Boxes and Enclosures: NEMA 250, Type 3R or Type 4.

3.3 INSTALLATION

- A. Install raceways, boxes, enclosures, and cabinets as indicated, according to manufacturer's written instructions.
- B.
- C. Minimum Raceway Size: 3/4-inch trade size (DN21).
- D. Install raceways level and square and at proper elevations. Provide adequate headroom.
- E. Complete raceway installation before starting conductor installation.
- F. Support raceways as specified in Division 16 Section "Basic Electrical Materials and Methods."
- G. Use temporary closures to prevent foreign matter from entering raceways.
- H. Protect stub-ups from damage where conduits rise through floor slabs. Arrange so curved portion of bends is not visible above the finished slab.
- I. Make bends and offsets so ID is not reduced. Keep legs of bends in the same plane and straight legs of offsets parallel, unless otherwise indicated.
- J. Use raceway fittings compatible with raceways and suitable for use and location. For intermediate steel conduit, use threaded rigid steel conduit fittings, unless otherwise indicated.
- K. Run concealed raceways, with a minimum of bends, in the shortest practical distance considering the type of building construction and obstructions, unless otherwise indicated.
- L. Raceways Embedded in Slabs: Install in middle third of slab thickness where practical, and leave at least 1-inch (25-mm) concrete cover.
 1. Secure raceways to reinforcing rods to prevent sagging or shifting during concrete placement.
 2. Space raceways laterally to prevent voids in concrete.
 3. Run conduit larger than 1-inch trade size (DN27) parallel to or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support.
 4. Transition from nonmetallic tubing to Schedule 80 nonmetallic conduit, rigid steel conduit, or IMC before rising above floor.
- M. Install exposed raceways parallel to or at right angles to nearby surfaces or structural members, and follow the surface contours as much as practical.
 1. Run parallel or banked raceways together, on common supports where practical.
 2. Make bends in parallel or banked runs from same centerline to make bends parallel. Use factory elbows only where elbows can be installed parallel; otherwise, provide field bends for parallel raceways.
- N. Join raceways with fittings designed and approved for the purpose and make joints tight.

1. Make raceway terminations tight. Use bonding bushings or wedges at connections subject to vibration. Use bonding jumpers where joints cannot be made tight.
 2. Use insulating bushings to protect conductors.
- O. Tighten set screws of threadless fittings with suitable tools.
- P. Terminations: Where raceways are terminated with locknuts and bushings, align raceways to enter squarely and install locknuts with dished part against the box. Where terminations are not secure with 1 locknut, use 2 locknuts: 1 inside and 1 outside the box.
- Q. Where raceways are terminated with threaded hubs, screw raceways or fittings tightly into the hub so the end bears against the wire protection shoulder. Where chase nipples are used, align raceways so the coupling is square to the box and tighten the chase nipple so no threads are exposed.
- R. Install pull wires in empty raceways. Use No. 14 AWG zinc-coated steel or monofilament plastic line with not less than 200-lb (90-kg) tensile strength. Leave at least 12 inches (300 mm) of slack at each end of the pull wire.
- S. Stub-up Connections: Extend conduits through concrete floor for connection to freestanding equipment. Install with an adjustable top or coupling threaded inside for plugs set flush with the finished floor. Extend conductors to equipment with rigid steel conduit; FMC may be used 6 inches (150 mm) above the floor. Install screwdriver-operated, threaded flush plugs flush with floor for future equipment connections.
- U. Flexible Connections: Use maximum of 6 feet (1830 mm) of flexible conduit for recessed and semirecessed lighting fixtures; for equipment subject to vibration, noise transmission, or movement; and for all motors. Use liquidtight flexible conduit in wet or damp locations. Install separate ground conductor across flexible connections.
- V. Surface Raceways: Install a separate, green, ground conductor in raceways from junction box supplying the raceways to receptacle or fixture ground terminals.
1. Where a surface metal raceway extension is made from an existing outlet box on which a lighting fixture is installed, no additional surface-mounted outlet box is required. Provide a backplate slightly smaller than the fixture canopy.
- Z. Install hinged-cover enclosures and cabinets plumb. Support at each corner.

3.4 PROTECTION

- A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure coatings, finishes, and cabinets are without damage or deterioration at the time of Substantial Completion.
1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.

3.5 CLEANING

- A. On completion of installation, including outlet fittings and devices, inspect exposed finish. Remove burrs, dirt, and construction debris and repair damaged finish, including chips, scratches, and abrasions.

END OF SECTION 16130

SECTION 16120
CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes building wires and cables and associated connectors, splices, and terminations for wiring systems rated 600 V and less.

1.3 SUBMITTALS

- A. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.

1.4 QUALITY ASSURANCE

- A. Testing Agency Qualifications: In addition to requirements specified in Division 1 Section "Quality Control," an independent testing agency shall meet OSHA criteria for accreditation of testing laboratories, Title 29, Part 1907; or shall be a full-member company of the InterNational Electrical Testing Association.
 - 1. Testing Agency's Field Supervisor: Person currently certified by the InterNational Electrical Testing Association or the National Institute for Certification in Engineering Technologies, to supervise on-site testing specified in Part 3.
- B. Listing and Labeling: Provide wires and cables specified in this Section that are listed and labeled.
 - 1. The Terms "Listed" and "Labeled": As defined in NFPA 70, Article 100.
 - 2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" as defined in OSHA Regulation 1910.7.
- C. Comply with NYCEC 2011.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver wires and cables according to NEMA WC 26.

1.6 COORDINATION

- A. Coordinate layout and installation of cables with other installations.

- B. Revise locations and elevations from those indicated, as required to suit field conditions and as approved by BPCA.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Wires and Cables:
 - a. Alcan Aluminum Corporation; Alcan Cable Div.
 - b. American Insulated Wire Corp.; Leviton Manufacturing Co.
 - c. BICC Brand-Rex Company.
 - d. Carol Cable Co., Inc.
 - e. Senator Wire & Cable Company.
 - f. Southwire Company.
 - 2. Connectors for Wires and Cables:
 - a. AMP Incorporated.
 - b. General Signal; O-Z/Gedney Unit.
 - c. Monogram Co.; AFC.
 - d. Square D Co.; Anderson.
 - e. 3M Company; Electrical Products Division.

2.2 BUILDING WIRES AND CABLES

- A. UL-listed building wires and cables with conductor material, insulation type, cable construction, and rating as specified in Part 3 "Wire and Insulation Applications" Article.
- B. Rubber Insulation Material: Comply with NEMA WC 3.
- C. Thermoplastic Insulation Material: Comply with NEMA WC 5.
- D. Cross-Linked Polyethylene Insulation Material: Comply with NEMA WC 7.
- E. Ethylene Propylene Rubber Insulation Material: Comply with NEMA WC 8.
- F. Conductor Material: Copper.
- G. Stranding: Solid conductor for No. 10 AWG and smaller; stranded conductor for larger than No. 10 AWG.

2.3 CONNECTORS AND SPLICES

- A. UL-listed, factory-fabricated wiring connectors of size, ampacity rating, material, type, and class for application and service indicated. Comply with Project's installation requirements and as specified in Part 3 "Wire and Insulation Applications" Article.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine raceways and building finishes to receive wires and cables for compliance with requirements for installation tolerances and other conditions affecting performance of wires and cables. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 WIRE AND INSULATION APPLICATIONS

- A. Feeders: Type XHHW, in raceway.
- B. Feeders: Type UF, 90C insulation.

3.3 INSTALLATION

- A. Install wires and cables as indicated, according to manufacturer's written instructions and NECA's "Standard of Installation."
- B. Remove existing wires from raceway before pulling in new wires and cables.
- C. Pull Conductors: 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. Support cables according to Division 16 Section "Basic Electrical Materials and Methods."
- G. Identify wires and cables according to Division 16 Section "Basic Electrical Materials and Methods."

3.4 CONNECTIONS

- A. Conductor Splices: Keep to minimum.
- B. Install splices and tapes that possess equivalent or better mechanical strength and insulation ratings than conductors being spliced.
- C. Use splice and tap connectors compatible with conductor material.
- D. Use oxide inhibitor in each splice and tap connector for aluminum conductors.
- E. Wiring at Outlets: Install conductor at each outlet, with at least 12 inches (300 mm) of slack.

- F. Connect outlets and components to wiring and to ground as indicated and instructed by manufacturer.
- G. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.5 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing agency to perform field quality-control testing.
- B. Testing Agency: Engage a qualified independent testing agency to perform field quality-control testing.
- C. Testing: On installation of wires and cables and before electrical circuitry has been energized, demonstrate product capability and compliance with requirements.
 - 1. Procedures: Perform each visual and mechanical inspection and electrical test stated in NETA ATS, Section 7.3.1. Certify compliance with test parameters.
- D. Correct malfunctioning conductors and cables at Project site, where possible, and retest to demonstrate compliance; otherwise, remove and replace with new units and retest.

END OF SECTION 16120

SECTION 16050 –
BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following electrical materials and methods:
 - 1. Building wire, connectors, and splices for branch circuits and feeders.
 - 2. Supporting devices for electrical components.
 - 3. Concrete equipment bases.
 - 4. Electrical identification.
 - 5. Electrical demolition.
 - 6. Cutting and patching for electrical construction.
 - 7. Touchup painting.

1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data for each type of product specified.
- C. Shop Drawings detailing fabrication and installation of supports and anchorage for electrical items.
- D. Coordination Drawings for electrical installation.
 - 1. Prepare Coordination Drawings according to Division 1 Section "Submittals" to a 1/4-inch-equals-1-foot (1:50) scale or larger. Detail major elements, components, and systems of electrical equipment and materials in relation to each other and to other systems, installations, and building components. Indicate locations and space requirements for installation, access, and working clearance. Show where sequence and coordination of installations are important to the efficient flow of the Work. Coordinate drawing preparation with effort specified in other Specification Sections. Include the following:
 - a. Provisions for scheduling, sequencing, moving, and positioning large equipment.
 - b. Floor plans, elevations, and details, including the following:
 - 1) Clearances to meet safety requirements and for servicing and maintaining equipment, including space for equipment disassembly required for periodic maintenance.
 - 2) Equipment support details.
 - 3) Sizes and locations of required concrete pads and bases.

- E. Steel channel supports have 9/16-inch (14-mm) diameter holes at a maximum of 8 inches (203 mm) o.c., in at least 1 surface.
 - 1. Fittings and accessories mate and match with channels and are from the same manufacturer.
- F. Raceway and Cable Supports: Riser clamps, straps, threaded C-clamps with retainers and spring steel clamps or "click"- type hangers.
- G. Sheet-Metal Sleeves: 0.0276-inch (0.7-mm) or heavier galvanized sheet steel, round tube, closed with welded longitudinal joint.
- H. Pipe Sleeves: ASTM A 53, Type E, Grade A, Schedule 40, galvanized steel, plain ends.
- I. Expansion Anchors: Carbon-steel wedge or sleeve type.
- J. Toggle Bolts: All-steel springhead type.
- K. Powder-Driven Threaded Studs: Heat-treated steel..

1.4 QUALITY ASSURANCE

- A. Comply with NFPA 70 for components and installation.
- B. Listing and Labeling: Provide products specified in this Section that are listed and labeled.
 - 1. The Terms "Listed and Labeled": As defined in the National Electrical Code, Article 100.
 - 2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7.

1.5 SEQUENCING AND SCHEDULING

- A. Coordinate electrical equipment installation with BPCA..
- B. Coordinate installing required supporting devices.
- C. Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the Work. Coordinate installing large equipment requiring positioning.
- D. Coordinate connecting electrical service to components furnished under other Sections.
- E. Coordinate connecting electrical systems with exterior underground utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies.
- F. Coordinate installing electrical identification after completion of finishing where identification is applied to field-finished surfaces.
- G. Coordinate installing electrical identifying devices and markings.

PART 2 - PRODUCTS

2.1 BUILDING WIRE

- A. Connectors and Splices: Units of size, ampacity rating, material, type, and class suitable for service indicated. Select to comply with Project's installation requirements.

2.2 SUPPORTING DEVICES

- A. Channel and angle support systems, hangers, anchors, sleeves, brackets, fabricated items, and fasteners are designed to provide secure support in the man holes and hand holes for electrical components.
 - 1. Material: Steel, except as otherwise indicated, protected from corrosion with zinc coating or with treatment of equivalent corrosion resistance using approved alternative finish or inherent material characteristics.
 - 2. Metal Items for Use Outdoors or in Damp Locations: Hot-dip galvanized steel, except as otherwise indicated.
- B. Steel channel supports have 9/16-inch (14-mm) diameter holes at a maximum of 8 inches (203 mm) o.c., in at least 1 surface.
 - 1. Fittings and accessories mate and match with channels and are from the same manufacturer.
- D. Raceway and Cable Supports: Manufactured clevis hangers, riser clamps, straps, threaded C-clamps with retainers, ceiling trapeze hangers, wall brackets, and spring steel clamps or "click"-type hangers.
- E. Sheet-Metal Sleeves: 0.0276-inch (0.7-mm) or heavier galvanized sheet steel, round tube, closed with welded longitudinal joint.
- F. Pipe Sleeves: ASTM A 53, Type E, Grade A, Schedule 40, galvanized steel, plain ends.
- G. Cable Supports for Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug for nonarmored electrical cables in riser conduits. Plugs have number and size of conductor gripping holes as required to suit individual risers. Body constructed of malleable iron casting with hot-dip galvanized finish.
- H. Expansion Anchors: Carbon-steel wedge or sleeve type.
- I. Toggle Bolts: All-steel springhead type.
- J. Powder-Driven Threaded Studs: Heat-treated steel.

2.3 CONCRETE EQUIPMENT BASES

- A. Forms and Reinforcing Materials: As specified in Division 3 Section "Cast-in-Place Concrete."
- B. Concrete: 3000-psi (20.7-MPa), 28-day compressive strength as specified in Division 3 Section "Cast-in-Place Concrete."

2.4 ELECTRICAL IDENTIFICATION

- A. Manufacturer's Standard Products: Where more than one type is listed for a specified application, selection is Installer's option, but provide single type for each application category. Use colors prescribed by ANSI A13.1, NFPA 70, and these Specifications.

- B. Raceway and Cable Labels: Conform to ANSI A13.1, Table 3, for minimum size of letters for legend and minimum length of color field for each raceway or cable size.
 - 1. Type: Preprinted, flexible, self-adhesive, vinyl. Legend is overlaminated with a clear, weather- and chemical-resistant coating.
 - 2. Color: Black legend on orange field.
 - 3. Legend: Indicates voltage.
- C. Colored Adhesive Marking Tape for Raceways, Wires, and Cables: Self-adhesive vinyl tape not less than 3 mils thick by 1 inch wide (0.08 mm thick by 25 mm wide).
- D. Underground Line Warning Tape: Permanent, bright-colored, continuous-printed, vinyl tape with the following features:
 - 1. Size: Not less than 4 mils thick by 6 inches wide (0.102 mm thick by 152 mm wide).
 - a. Compounded for permanent direct-burial service.
 - 2. Embedded continuous metallic strip or core.
 - a. Printed Legend: Indicates type of underground line.
- E. Tape Markers: Vinyl or vinyl-cloth, self-adhesive, wraparound type with preprinted numbers and letters.
- F. Color-Coding Cable Ties: Type 6/6 nylon, self-locking type. Colors to suit coding scheme.
- G. Engraved, Plastic-Laminated Labels, Signs, and Instruction Plates: Engraving stock, melamine plastic laminate punched for mechanical fasteners 1/16-inch (1.6-mm) minimum thick for signs up to 20 sq. in. (129 sq. cm), 1/8 inch (3.2 mm) thick for larger sizes. Engraved legend in black letters on white face.
- H. Interior Warning and Caution Signs: Preprinted, aluminum, baked-enamel finish signs, punched for fasteners, with colors, legend, and size appropriate to the application.
- I. Exterior Warning and Caution Signs: Weather-resistant, nonfading, preprinted, cellulose acetate butyrate signs with 0.0396-inch (1-mm), galvanized steel backing, with colors, legend, and size appropriate to the application. 1/4-inch (6.4-mm) grommets in corners for mounting.
- J. Fasteners for Plastic-Laminated and Metal Signs: Self-tapping stainless-steel screws or No. 10/32 stainless-steel machine screws with nuts and flat and lock washers.

2.6 TOUCHUP PAINT

- A. For Equipment: Provided by equipment manufacturer and selected to match equipment finish.
- B. For Nonequipment Surfaces: Matching type and color of undamaged, existing adjacent finish.
- C. For Galvanized Surfaces: Zinc-rich paint recommended by item manufacturer.

PART 3 - EXECUTION

3.1 EQUIPMENT INSTALLATION REQUIREMENTS

- A. Install items level, plumb.
- B. Install equipment to facilitate service, maintenance, and repair or replacement of components. Connect for ease of disconnecting, with minimum interference with other installations.
- C. Give right of way to raceways and piping systems installed at a required slope.

3.2 ELECTRICAL SUPPORTING METHODS

- A. Damp Locations and Outdoors: Hot-dip galvanized materials or nonmetallic, U-channel system components.
- B. Conform to manufacturer's recommendations for selecting supports.
- C. Strength of Supports: Adequate to carry all present and future loads, times a safety factor of at least 4; 200-lb- (90-kg-) minimum design load.

3.4 INSTALLATION

- A. Install wires in raceway according to manufacturer's written instructions and NECA's "Standard of Installation."
- B. Conductor Splices: Keep to the minimum and comply with the following:
 - 1. Install splices and taps that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
 - 2. Use splice and tap connectors that are compatible with conductor material.
- C. Wiring at Outlets: Install with at least 12 inches (300 mm) of slack conductor at each outlet.
- D. Connect outlets and components to wiring systems and to ground as indicated and instructed by manufacturer. Tighten connectors and terminals, including screws and bolts, according to equipment manufacturer's published torque-tightening values for equipment connectors. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals according to tightening requirements specified in UL 486A.
- E. Install devices to securely and permanently fasten and support electrical components.
- F. Raceway Supports: Comply with NFPA 70 and the following requirements:
 - 1. Conform to manufacturer's recommendations for selecting and installing supports.
 - 2. Install individual and multiple raceway hangers and riser clamps to support raceways. Provide U bolts, clamps, attachments, and other hardware necessary for hanger assembly and for securing hanger rods and conduits.
 - 3. Support parallel runs of horizontal raceways together on trapeze- or bracket-type hangers.
 - 4. Spare Capacity: Size supports for multiple conduits so capacity can be increased by a 25 percent minimum in the future.
 - 5. Support individual horizontal raceways with separate, malleable iron pipe hangers or clamps.
 - 6. Hanger Rods: 1/4-inch (6-mm) diameter or larger threaded steel, except as otherwise indicated.

7. Spring Steel Fasteners: Specifically designed for supporting single conduits or tubing. May be used in lieu of malleable iron hangers for 1-1/2-inch (38-mm) and smaller raceways serving lighting and receptacle branch circuits above suspended ceilings and for fastening raceways to channel and slotted angle supports.
 8. In vertical runs, arrange support so the load produced by the weight of the raceway and the enclosed conductors is carried entirely by the conduit supports, with no weight load on raceway terminals.
- G. Vertical Conductor Supports: Install simultaneously with conductors.
- H. Miscellaneous Supports: Install metal channel racks for mounting cabinets, panelboards, disconnects, control enclosures, pull boxes, junction boxes, transformers, and other devices except where components are mounted directly to structural features of adequate strength.
- L. Fastening: Unless otherwise indicated, securely fasten electrical items and their supporting hardware. Perform fastening according to the following:
1. Fasten by means of wood screws or screw-type nails on wood; toggle bolts on hollow masonry units; concrete inserts or expansion bolts on concrete or solid masonry; and by machine screws, welded threaded studs, or spring-tension clamps on steel.
 2. Threaded studs driven by a powder charge and provided with lock washers and nuts may be used instead of expansion bolts, machine screws, or wood screws.
 3. Welding to steel structure may be used only for threaded studs, not for conduits, pipe straps, or any other items.
 4. In partitions of light steel construction use sheet-metal screws.
 5. Drill holes in concrete beams so holes more than 1-1/2 inches (38 mm) deep do not cut main reinforcing bars.
 6. Drill holes in concrete so holes more than 3/4 inch (19 mm) deep do not cut main reinforcing bars.
 7. Fill and seal holes drilled in concrete and not used.
 8. Select fasteners so the load applied to any fastener does not exceed 25 percent of the proof-test load.
- M. Install concrete pads and bases according to requirements of Division 3 Section "Cast-in-Place Concrete."
- N. DELETE PARA AND SUBPARAS BELOW WHERE DIVISION 16 SECTION "ELECTRICAL IDENTIFICATION" IS USED.
- O. Install identification devices where required.
1. Install labels where indicated and at locations for best convenience of viewing without interference with operation and maintenance of equipment.
 2. Coordinate names, abbreviations, colors, and other designations used for electrical identification with corresponding designations indicated on the Contract Documents or required by codes and standards. Use consistent designations throughout the Project.
 3. Self-Adhesive Identification Products: Clean surfaces of dust, loose material, and oily films before applying.
 4. Identify raceways and cables of certain systems with color banding as follows:
 - a. Bands: Colored adhesive marking tape. Make each color band 2 inches (51 mm) wide, completely encircling conduit, and place adjacent bands of 2-color markings in contact, side by side.
 - b. Wire sets in manhole near the control box shall be marked with circuit identification such as L1, L2 and L3
 - c. Colors: As follows:

- 1) Fire-Alarm System: Red.
 - 2) Security System: Blue and yellow.
 - 3) Telecommunications System: Green and yellow.
-
5. Tag or label power circuits for future connection and circuits in raceways and enclosures with other circuits. Identify source and circuit numbers in each cabinet, pull box, junction box, and outlet box. Color coding may be used for voltage and phase indication.
 6. Identify Paths of Underground Electrical Lines: During trench backfilling, for exterior underground power, control, signal, and communication lines, install continuous underground plastic line marker located directly above power and communication lines. Locate **6 to 8 inches (150 to 200 mm)** below finished grade. Where multiple lines installed in a common trench or concrete envelope do not exceed an overall width of **16 inches (400 mm)**, use a single line marker.
 7. For panelboards, provide framed, typed circuit schedules with explicit description and identification of items controlled by each individual breaker.

3.5 DEMOLITION

- A. Where electrical work to remain is damaged or disturbed in the course of the Work, remove damaged portions and install new products of equal capacity, quality, and functionality.
- B. Accessible Work Indicated to Be Demolished: Remove exposed electrical installation in its entirety.
- C. Abandoned Work: Cut and remove buried raceway and wiring indicated to be abandoned in place, **2 inches (50 mm)** below the surface of adjacent construction. Cap and patch surface to match existing finish.
- D. Removal: Remove demolished material from the Project site.
- E. Temporary Disconnection: Remove, store, clean, reinstall, reconnect, and make operational components indicated for relocation.

3.6 CUTTING AND PATCHING

- A. Perform cutting by skilled mechanics of the trades involved.
- B. Repair disturbed surfaces to match adjacent undisturbed surfaces.

3.7 TOUCHUP PAINTING

- A. Thoroughly clean damaged areas and provide primer, intermediate, and finish coats to suit the degree of damage at each location.
- B. Follow paint manufacturer's written instructions for surface preparation and for timing and application of successive coats.

END OF SECTION 16050

SECTION 16010
GENERAL PROVISIONS FOR ELECTRICAL WORK

PART 1 - GENERAL**1.01 SCOPE OF WORK**

- A. Provide labor, materials, tools, machinery, equipment, and services necessary to complete the Electrical Work under this Contract. All systems and equipment shall be complete in every aspect and all items of material, equipment and labor shall be provided for a fully operational system and ready for use. Coordinate the work with the work of the other trades in order to resolve all conflicts without impeding the job progress.
- B. When an item of equipment is indicated on a layout plan and not shown on associated diagram or vice-versa, the Contractor shall provide said item and all required conduit and wiring connections for a complete system as part of the Contract.

1.03 EXAMINATION OF SITE

- A. The Contractor shall be held to have examined the site and to have compared it with the Drawings and Specifications, and deemed to have been satisfied as to the conditions existing at the site, as relating to the actual conditions of the site at the time estimating the work, the storage and handling of materials, and all other matters as may be incidental to the Work under the Contract, before bidding, and no allowance will subsequently be made to the Contractor by reason of any error due to the Contractor's neglect to comply with the requirements of this clause.

1.04 RELATED DOCUMENTS

- A. Drawings and General Provisions of the Contract.

1.05 ELECTRICAL EQUIPMENT

- A. All electrical equipment shall be the latest of the current year in design, material and workmanship, and shall be the type or model called for in these Specifications.
- B. If the type or model specified has been superseded by a later type or model, the latest shall be submitted for approval and shall be provided as part of the Contract.

1.06 SUBMITTALS

Provide as outlined in each individual section of these Specifications, including but not limited to:

- A. Product Data: Submit manufacturer's product data for equipment including capacity, performance charts, test data, materials, dimensions, weights, and installation instructions.
- B. Shop Drawings: Submit manufacture's shop drawings indicating dimensions, weight loading, required clearances, location, and method of assembly of components.
Submittals are mandatory as noted in the respective specifications. Schedules, installation instructions, startup manuals, operation and maintenance manuals, and shop drawings are always required to be submitted.
- C. Samples
- D. Special Warranty

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- E. Quality Assurance submittals
- F. Test results and certificates

1.08 CUTTING AND PATCHING OF EXISTING ROADS

After cutting and trenching of existing roads and laying of conduits and wires, the contractor shall refill the trench with the excavated material and resurface the trench to the satisfaction of the authority.

1.09 WORK IN EXISTING LOCATIONS

- A. All existing material, fixtures, and equipment which have been removed shall not be used again unless specifically required by the Drawings or Specifications.
- B. Removals, Replacements, Adjustments
 - 1. The Contractor shall remove, relocate, replace, adjust or adapt, all existing conduit, wiring and other electric equipment or apparatus, as required, to provide a complete installation.
 - 2. The Work shall include, providing all materials, all necessary extensions, connections, cuttings, repairing, adapting and other Work incidental thereto, together with such temporary connections as may be required to maintain service pending the completion of the permanent Work. All Work shall be left in good working order and in a condition equal to the adjacent new or existing Work.
- C. Care in Removing Existing Conductors
 - 1. The Contractor shall use due care and diligence in removing existing conductors from existing conduits in order to prevent conductors from breaking and becoming an irretrievable obstruction within the conduits.
- D. Non-Interruption of Services
 - 1. It is imperative that all existing services (electric, light, power,.) be kept in operation at all times, unless prior written approval is received from the Authority.

1.10 TESTS

- A. The Contractor shall demonstrate to the Authority operation of all equipment and systems. All tests shall be completed to the satisfaction of the Authority. Each test shall be performed as indicated in the individual specification section.

1.11 GUARANTEES, WARRANTIES, BONDS, AND MAINTENANCE CONTROL

- A. Refer to individual equipment specifications for warranty requirements.
 - 1. Compile and assemble the warranties specified for Electrical work into a separated set of documents, tabulated and indexed for easy reference.
 - 2. Provide complete warranty information for each item to include product or equipment including duration of warranty or bond; and names, addresses, and telephone numbers and procedures for filing a claim and obtaining warranty services.

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3. Warranties for the equipment, workmanship and materials should be provided for the period of one year with the exception of the warranty on the refrigeration compressors. Five- (5) years warranty shall be provided for the refrigeration compressors.
4. Manufacturers', in addition to Contractors' warranties, shall be provided for all Electrical equipment and accessories.
5. All warranties are to start from the date of Substantial Completion.

1.12 OPERATIONS, TRAINING, AND MAINTENANCE MANUALS

N.A.

1.13 CLEANING AND REPAIR

- A. On completion of installation, inspect interior and exterior of installed equipment. Remove paint splatters and other spots. Vacuum dirt and debris; do not use compressed air to assist in cleaning. Repair exposed surfaces to match original finish.
- B. Contractor shall not leave sharp exposed metal edges (electrical equipment supports, etc.) that could otherwise present safety hazards to the work staff.

END OF SECTION

* * *

LIST OF SUBMITTALS

<u>SUBMITTAL</u>	<u>DATE SUBMITTED</u>	<u>DATE APPROVED</u>
Product Data	_____	_____
Shop Drawings	_____	_____
Samples	_____	_____
Special Warranty	_____	_____
Quality Assurance submittals	_____	_____
Test results and certificates	_____	_____

* * *

SECTION 09900**PAINTING****PART 1 - GENERAL****1.01 DESCRIPTION OF WORK**

A. This Section includes surface preparation and field painting of the following:

1. Exposed exterior items and surfaces.
2. Surface preparation, priming and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.

1.02 REFERENCES

A. References and industry standards listed in this Section are applicable to the Work. Unless more restrictive criteria or differing requirements are explicitly stated in the Specifications, or mandated by governing codes or regulations, the recommendations, suggestions, and requirements described in the referenced standards shall be deemed mandatory and applicable to the Work.

1. Federal Specifications (FS)
2. N.Y.S. Department of Environmental Conservation
3. U.S. Department of Labor
4. Occupational Safety and Health Administration (OSHA)
5. Steel Structures Painting Council (SSPC)

DEFINITIONS

A. The term "Painting" as used in this Section, means the application of all coatings such as paint, primer, enamel.

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- B. The term "Painting" also includes preparation of surfaces for such applications, and the clean-up as hereinafter specified.
- C. Touching-up bare spots specified for previously primed or painted surfaces is in addition to the coats specified for the paint system.
- D. Finishes:
 - 1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
 - 2. Satin refers to low-sheen finish with a gloss range between 15 and 35 when measured at a 60-degree meter.
 - 3. Semigloss refers to medium-sheen finish with a gloss range between 30 and 65 when measured at a 60-degree meter.
 - 4. Full gloss refers to high-sheen finish with a gloss range more than 65 when measured at a 60-degree meter.

1.04 SUBMITTALS**A. Product Data**

Provide manufacturers' product literature for all materials specified and material manufacturer's printed directions and recommendations for environmental conditions, surface preparation, priming, mixing, reduction, spreading rate, application, storage and VOC content, as applicable for each of the materials specified.

B. Samples**1. Initial Selection**

Submit manufacturer's color charts for each type of finish for approval by the Authority. Verify colors specified with manufacturers' color charts for availability and notify the Authority if any discrepancies should occur.

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2. Verification prior to installation
 - a. Contractor shall furnish color chips for surfaces to be painted.
3. All samples shall be labeled; and include the following information:
 - a. Manufacturer's name
 - b. Type of paint/stain/hardener
 - c. Manufacturer's stock number
 - d. Color: name and number
 - e. Federal Specification number, as specified
 - f. Federal regulations for amount of lead in paint.
 - g. VOC content

C. Quality Assurance

1. Certification that materials for each system are obtained from a single manufacturer.
2. Certification that Work shall be performed by personnel with a minimum of three years experience who meet the qualifications set forth in OSHA, 29 CFR 1926.62 (Lead In Construction Standard).
3. Certification that material meets or exceeds the performance requirements of Federal Specifications.

D. Guarantee

Provide Guarantee per Article 1.08.

Task 6**1.05 QUALITY ASSURANCE****A. General**

1. All painting materials shall arrive at the job ready-mixed.
3. Remove all rejected materials from the premises immediately.
4. All thinning and tinting materials shall be as recommended by the manufacturer. Generally, all paints shall not require additional thinning.
5. Verify that the specified shop prime paint for each applicable item in this Project is compatible with the total coating system, prior to application.

B. Qualifications

1. Work of this Section shall be performed by personnel with a minimum of three years experience in performing this type of Work.

F. Field Samples

1. Provide samples of each color and finish, under natural lighting conditions, in a location where each finish is to be applied.
2. Primer coat is to be inspected and approved in all locations before any subsequent finish coats are applied.

1.06 DELIVERY, STORAGE, AND HANDLING**A. Delivery**

Deliver materials to the site in original, unopened containers bearing manufacturers name and label containing the following information:

1. Product name or title of material

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2. Manufacturer's stock number, batch number, VOC content in grams per liter and date of manufacture.
3. Manufacturer's name
4. Federal Specification number, if applicable.
5. Federal regulations for amount of lead in paint (less the 0.06% lead in non-volatile ingredients)
6. Contents by volume for major pigment and vehicle constitutions
7. Thinning instructions
8. Application instructions
9. Color name and number

1.07 PROJECT CONDITIONS**A. Environmental Requirements**

1. Comply with manufacturer's recommendations as to environmental conditions under which coatings and coating systems can be applied.
2. Do not apply finish in areas where dust is being generated or will be generated while the material is drying.
3. Provide paint and coating products to comply with applicable environmental regulations, VOC requirements and local authorities.

1.08 GUARANTEES

- A. Adherence of workmanship and materials to Specifications requirements shall be maintained for the one year Contract guarantee period. These requirements shall include the following:

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1. There shall be no evidence of blistering, peeling, crazing, alligatoring, streaking, staining, or chalking.
 2. Dirt shall be removed without blemishing the finish by washing with mild soap and water.
 3. Colors of surfaces shall remain free from serious fading; the variation, if any, shall be uniform.
- B. Correct all defects, appearing within the guarantee period, by removal of the defective work and replacement as directed.
- C. All corrective measures shall be the Contractor's responsibility, and shall be made at no extra cost to the Authority. The requirements set forth in Part 3 of these Specifications shall be strictly adhered to.

PART 2 - PRODUCTS**2.01 MANUFACTURERS**

- A. Subject to compliance with specified requirements, provide "First Line" or "Top Quality" products of one of the following manufacturers:
1. Benjamin Moore and Co.
 2. Devoe and Reynolds Co.
 3. Glidden Coatings and Resins.
 4. PPG Industries, Pittsburgh Paints Inc.
 5. Pratt and Lambert
 6. The Sherwin-Williams Co.
 7. Tnemec Company, Inc.
 8. MAB Paints
 9. Carboline
 10. Mercury Paint Corp.

Task 6**2.02 MATERIALS**

- A. Provide products which meet all Federal regulations for amount of lead in paint (less than 0.06% lead in non-volatile ingredients).
- B. Provide best quality grade of various types of coatings as regularly manufactured by the paint materials manufacturers. Materials not displaying manufacturers' identification as a standard, best-grade product will not be acceptable.
- C. Use only thinners approved by paint manufacturers for applications intended and use only within recommended limits.

2.03 REFERENCE STANDARDS

- A. Paint materials shall meet or exceed the requirements of the following standards:

Federal Specifications

1. Primers, Sealers, Undercoats

- A. Acrylic Primer TT-P-650-C

2. Finish Paints

- A. Ext. Acrylic Latex Paint; Flat: FS TT-P-19

- B. Gloss Acrylic Latex Enamel: FS TT-P-1511-B

2.04 COLORS

A. Selection

- 1. Paint colors, surface treatments and finishes will be selected by the Authority.

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2. Color Schedule will be issued to the Contractor after award of the Contract.
 - a. Final acceptance of colors will be from actual job applications.

2.05 EXTERIOR PAINT SYSTEMS

- A. New Ferrous Metal
Structural steel, all ferrous metals, and steel window trim.
- 1st Coat - Touch up with epoxy Polyamide
Paint
- 2nd Coat - Polyamide Epoxy Paint
applied at the rate of -- 4.0 to 6.0
Mils DFT.
SSPC-PS
Guide 13.01
- 3rd Coat (Top Coat) - Acrylic Aliphatic
Polyurethane applied at rate of -- 1.5 to 2.0
Mils DFT.
SSPC-PS
Guide 17.00
Type 5.

PART 3 - EXECUTION**3.01 EXAMINATION**

- A. Verification of Conditions
1. The application of painter's finish to any surface shall be taken to indicate that the Contractor considers such surfaces suitable for a first-class finish.
 2. Do not apply painter's finish in any locations until the Work of other Contractors that might damage the new finish is completed.
 3. Notify the Authority in writing regarding Work by others that does not provide a suitable surface for the new finish.

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4. In case of dispute regarding the suitability of any surface, the Authority's decision shall be final and conclusive upon all concerned.
5. Contractor shall check the compatibility of previously painted surface with the new coating by applying a test panel 4 foot wide x wall height. Allow test panel to dry thoroughly; verify proper adhesion before proceeding with painting Work.

3.02 PREPARATION AND APPLICATION**A. Protection**

1. For exterior metal surfaces on the building or site the ground beneath the work area shall be surrounded on all sides by a washable construction tarp or 10-mil polyethylene. The covering need not be airtight; however, it must be of adequate size and durability to completely enclose the work area and prevent the dispersal of any paint chips or dust during paint removal activities. Any dust and debris shall be contained in the work area and shall be removed immediately upon generation. Protect from damage landscaping, paving, and other improvements near the building. Protect and seal all windows and openings within the work area with a minimum of 1 layer of 6-mil polyethylene sheeting.
2. All protection is to be carefully removed, cleaned or discarded after painting is complete.
3. Touch-Up
 1. Spot prime defects in existing Work and Work primed under other Paragraphs of Work as necessary to produce an even plane in the new finish.

B. Existing Metal:

- a. Prepare surfaces as indicated in Art. 3.02,C., Subparagraphs 1., 2., 3., 4., above.

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- b. Machine tool clean exposed steel to an SSPC-SP3 surface preparation.
- b. For steel surfaces exposed to view, repair defects in surfaces to provide for an even plane in the new finish. Use auto-body filler to even out surface and sand smooth.

3.03 APPLICATION**A. General**

- 1. No Work shall be performed where cement or plaster is being applied or is in the process of drying.
- 2. No Work shall be performed in spaces that are not broom clean and free of dust and waste.
- 3. Apply paint materials to produce smooth finished surfaces, free of brush or roller marks, drops, runs, or sags.
- 4. Paint materials shall be kept at a proper and uniform consistency.
- 5. Thin only when necessary to achieve best results.
- 6. Thinners shall be material recommended by manufacturer of paint, and in quantity as recommended.
- 7. Excessive use of thinner as indicated by variation in absorption, lack of "hide", thickness of dry film, mottled or streaky coat, shall be cause for rejection. Correct as directed.
- 8. Apply all coats with brush or roller, varying slightly the color of succeeding coats. Spraying will not be permitted.
- 9. Brush out or roll on first or prime coat; work well into surface.
- 10. Each coat shall be inspected, approved and dry before proceeding with additional coats.

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11. Allow at least 48 hrs for enamels and exterior oil paint to dry.

3.04 FIELD QUALITY CONTROL

A. The Authority reserves the right to require the following material testing procedures at any time, and any number of times during period of field painting:

1. Measurement of dry film thickness (DFT) by use of a dry film thickness gauge in accordance with use and calibration requirements of Structural Steel Painting Council [SSPC], "Method of Measurement of Dry Paint Thickness with Magnetic Gauges".
 - a. If the samples do not comply with requirements of the Specifications, costs of testing and remediation of rejected work shall be borne by Contractor.
 - b. If the tests find that the samples do comply with the requirements of the Specifications, the cost of the testing will be borne by the Authority.

3.05 CLEANING

A. General

Contractor shall clean-up behind each paint crew such that painting and clean-up will be a continuous uninterrupted operation. The practice of one general clean-up after completion of all painting will be strictly prohibited. This clean-up will include, but not be limited to the following:

1. Remove spots or defacement resulting from Work of this Section.
2. Retouch all damaged surfaces to leave Work in perfect finished condition.
3. If spots or defacement cannot be satisfactorily removed and retouched, re-finish the surfaces as directed.

Task 6**3.08 PROTECTION**

- A. Provide caution tape and/or locked entryways during paint removal activities in existing buildings to prevent access to the work area from unauthorized personnel.
- B. Provide "Wet Paint" signs to protect newly-painted finishes. Remove temporary protective wrappings provided by others for protection of their Work after completion of painting operations.
- C. At the completion of Work of other trades, touch-up and restore all damaged or defaced painted surfaces as

END OF SECTION

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LIST OF SUBMITTALS

<u>SUBMITTAL</u>	<u>DATE SUBMITTED</u>	<u>DATE APPROVED</u>
Product Data:	_____	_____
1. Manufacturer's product literature for all materials with directions and recommendations for environmental conditions, surface preparation, priming, mixing, reduction, spreading rate, application, storage and VOC content.		
Samples:	_____	_____
1. Initial selection: manufacturer's color charts for each type of finish.		
2. Verification prior to installation: color chips for surfaces to be painted.		
Quality Assurance:	_____	_____
1. Certification that materials for each system are obtained from a single manufacturer.		
2. Certification that Work shall be performed by personnel with a minimum of three years experience who meet the qualifications set forth in OSHA, 29 CFR 1926.62 (Lead In Construction Standard.		
Guarantees	_____	_____

* * *

SECTION 03733
CONCRETE REPAIR WORK

PART 1 - GENERAL**1.01 DESCRIPTION OF WORK**

- A. Provide labor, materials, equipment, and services to provide for the structural repair of concrete members with manufactured structural repair concrete/mortar as shown on Drawings and as specified herein

1.02 RELATED SECTIONS
(NOT USED)**1.03 REFERENCE STANDARDS**

References and industry standards listed in this Section are applicable to the Work. Unless more restrictive criteria or differing requirements are explicitly stated in the Specifications, or mandated by governing codes or regulations, the recommendations, suggestions, and requirements described in the referenced standards shall be deemed mandatory and applicable to the Work.

- A. American Society of Testing and Materials (ASTM)
- B. International Concrete Restoration Institute (ICRI)

1.04 SUBMITTALS

- A. Product Data

Provide manufacturer's information on the anti-corrosion coating and structural repair concrete/mortar, including application instructions and specifications.

- B. Quality Control Submittals

1. Certificates:

- a. Furnish manufacturer's certification that materials meet or exceed Specification requirements.

Task 6**2. Contractor Qualifications**

Provide proof of Installer and Manufacturer qualifications specified under "Quality Assurance".

1.05 QUALITY ASSURANCE**A. Qualifications**

1. Installer: Company specializing in the Work of this Section shall have a minimum of three years experience and at least two projects with similar quantity of materials. Contractor shall be trained by the repair mortar manufacturer and shall have a certificate of training on file from the manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Materials specified shall be delivered to the site in sealed, properly labeled containers. Containers shall indicate manufacturer's name, trade name of product, lot number, shelf life of product, and mix ratio (if applicable).
- B. Keep containers tightly closed when not in use. Comply with manufacturer's printed instructions for storing and protecting materials.
- C. Do not store liquid material in hot sun. Keep material from freezing.

1.07 ENVIRONMENTAL REQUIREMENTS

- A. Do not apply if the temperature is below 50°F or above 85°F unless the material manufacturer is consulted for recommendations.
- B. Do not use frozen materials or materials coated with ice or frost.
- C. Do not apply when there is expectation of rain within 24 hours.

PART 2 - PRODUCTS

Task 6**2.01 MANUFACTURERS**

- A. Sto Concrete Restoration Div., Atlanta, GA 30331
- B. Sika Corp, Lyndhurst, NJ 07071
- C. Strongwall Industries, Ridgewood, NJ 07451

2.02 MATERIALS

- A. Structural Repair Concrete/Mortar - Horizontal Application
 - 1. Shall have non-shrink characteristics and be of high compressive and bond strength. Material shall be capable of being poured or troweled in place for horizontal applications and for formed applications of sufficient dimensions to allow for proper placement of material and conform to the following properties:
 - a. Compressive strength of 5000 psi in 28 days when tested in accordance with ASTM C109.
 - b. Bond strength of 2000 psi in 28 days when tested in accordance with ASTM C882 modified). Results of tests showing failure of base material is acceptable alternative.
 - c. Flexural strength of 1600 psi in 28 days when tested in accordance with ASTM C78 or ASTM C293.
 - d. Maximum linear length change shall be maximum of 0.08% at 28 days when tested in accordance with ASTM C157.
 - e. Modulus of elasticity shall be between 3.0 and 3.5×10^6 when tested in accordance with ASTM C469.

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2. Repair concrete/mortar shall be "CR701 Sto Trowel-Grade Mortar" as manufactured by Sto Concrete Restoration Division, "Sikatop 122 Plus" as manufactured by Sika Corporation, or "SW-81/SW-81F" as manufactured by Strongwall Industries.

B. Anti-corrosion Coating

1. Corrosion-inhibiting, epoxy/acrylic resin, protective coating for steel reinforcing bars that will not form a vapor barrier or bond break with the repair mortar with the following properties:
 - a. Bond strength of 1800 psi in 2 hours when tested in accordance with ASTM C882.
 - b. Flexural strength of 2000 psi in 28 days when tested in accordance with ASTM C78.
 - c. Tensile strength of 800 psi in 28 days when tested in accordance with ASTM C190.
2. Anti-corrosion coating shall be "CR246 Sto Bonding and Anti-corrosion Agent" by Sto Concrete Restoration Division or "Armotec 110" as manufactured by Sika Corporation.

E. Miscellaneous Materials

1. Water: Potable water, ASTM C94
 2. J hooks: 1/4" diameter threaded rod, Type 316 stainless steel
3. Epoxy paste adhesive: ASTM C882
4. Coarse aggregate: Clean, washed crushed stone, 3/8" maximum size, conforming to ASTM C33.

Task 6**PART 3 - EXECUTION****3.01 EXAMINATION**

A. Examine all adjoining work on which this Work is in anyway dependent for proper installation and workmanship. Report to the Authority any conditions that prevent the performance of this Work.

B. The Contractor shall determine the most suitable material indicated in Part 2 of this Specification to be used for each application to achieve the most structural sound repair with appropriate finish, unless specifically indicated on the Drawings. As an example, the Contractor may decide to form an application on a vertical surface in lieu of using the overhead repair mortar. The contractor shall include in the repair work procedure what materials will be used where and how the repair will be achieved for both the structural integrity of the patch and the correct finish.

3.02 PREPARATION AND PROTECTION

A. Protection

Protect adjacent surfaces not to be restored. Protect sills, ledges, and projections from material droppings.

B. Surface Preparation

1. Remove spalled and weak concrete and remove all loose and foreign material. Chip substrate by bush hammering or other mechanical means acceptable to the repair concrete/mortar manufacturer to obtain a minimum aggregate-fractured surface profile of $1/8\pm$ " conforming to an ICRI CSP 7 or greater surface preparation. Minimum depth of repair shall be $1/2$ ", with the perimeter of the repair having a minimum of $1/8$ " in depth. Feather edging is not permitted.

2. If steel reinforcing is exposed, chip out behind the reinforcing steel. Chip a minimum of $1/2$ "

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behind the bar and 3" past the point where the bar is exposed. Concrete behind bars shall be removed enough to allow for the entire circumference of the bar to be cleaned. Remove concrete to the point past where sound material begins.

3. Exposed steel reinforcement and steel beams shall be free of all rust, scale, oil, paint, grease, loose mill scale, and all other foreign matter that will prevent bonding with the repair concrete. Use power chipping or power driven brushes and clean to an SSPC-SP2 or SP3 surface preparation.

2

3.03 ANTI-CORROSION COATING APPLICATION

- A. Mix anti-corrosion coating in accordance with manufacturer's instructions. Apply to dry reinforcing steel using a stiff bristle brush. Brush in well to ensure continuous coverage. Apply in two coats of approximately 10 mils each or as per manufacturer's latest recommendations.
- B. Protect coated steel from weather and allow to dry a minimum of 30-45 minutes between coats or repair concrete/mortar application. However, apply repair material within 24 hours after last coating. If 24 hour period elapses, reapply bonding agent and allow to dry as above.

3.04 REPAIR CONCRETE/MORTAR APPLICATION

- A. Mix structural repair concrete in accordance with manufacturer's instruction. Follow time limits set by manufacturer to prevent hardening of material prior to placement. For material requiring extension with aggregate due to depth of repair, provide 3/8" aggregate of proportions specified by the repair mortar manufacturer.
- B. Prior to application of material, thoroughly saturate surface with water. Remove any standing water prior to patching.

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- C. Apply a scrub coat of the repair material of proportions determined by manufacturer (indicate in written repair procedure). While still damp, apply repair concrete/mortar.
- D. N.A.
- E. N.A.
- F. Horizontal Repairs - Pour or trowel repair concrete/mortar, horizontal application, into hole until it is to the same level and at the same pitch as the surrounding slab. For deep repairs, extend mortar with clean aggregate by the amount recommended by the manufacturer. Provide finish as follows:
 - 1. Surfaces to receive bonded applied cementitious applications such as full-set terrazzo and vitreous ceramic tile: Darby and float surface and follow with a rough broom finish.
 - 2. Surfaces to receive floor coverings such as resilient flooring, thin-set terrazzo and vitreous ceramic tile, carpeting, wood floors, or surfaces which are intended as walking surfaces such as exposed or painted (cement finish), unless specified otherwise: Steel trowel surface to a smooth plane finish, free of score marks, grooves, depressions and ripples with a tolerance no greater than $\pm 1/8$ " in ten feet.
 - 3. Surfaces intended to receive roofing, waterproofing membranes: Darby and float surface. Leave surface free from depressions, bulges, rough spots, and other defects.
 - 4. Ramps, Exterior Concrete Steps: Level surface with wood float and follow with a broom finish perpendicular to direction of traffic.
- G. Formed Repairs
 - 1. Apply repair concrete, horizontal application, on vertical members where formwork can be utilized

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to confine the concrete and the width of repair permits its proper installation.

2. Apply flowable repair mortar for repairs to be formed, especially for thin repairs.
3. Place so as not to leave voids. Vibrate forms with pencil vibrator to removed air bubbles. Remove formwork as soon as possible and trowel exposed surface smooth and to same shape and finish as the adjacent existing surface.

3.05 CURING

- A. As soon as surface of patch has hardened, cure patch a minimum of 48 hours by applying water-based acrylic curing compounds conforming to ASTM C309 or C1315, misting, wet burlap, etc. For patches to be covered with other material, only use curing compounds acceptable to the finish material manufacturer, unless the compound is removed prior to placing the finish material in a manner acceptable to the finish manufacturer.
- B. Follow manufacturer's latest recommendations for any other recommendations. The curing provision of A above shall not be waved unless manufacturer does not permit it.

3.06 PROTECTION AND CLEANING

- A. Clean all adjacent areas of excess material. Remove misplaced materials from surfaces immediately.
- B. Protect material from freezing and from rainfall prior to final set.

3.07 FIELD QUALITY CONTROL

- A. The Authority will inspect surfaces and reject any that contain cracks or other defects. The repair will be tested for soundness and structural integrity. Any defective areas shall be fixed at Contractor's expense. Notify the Authority's representative in advance of the concrete repairs. The Authority's representative will review the mixing, surface preparation and proper application of all materials.

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- B. Engage the services of the material manufacturer's representative to inspect the surface preparation, instruct in the proper usage of the material and to inspect the work throughout the project. Pay for all required fees.

END OF SECTION

Task 6

LIST OF SUBMITTALS

<u>SUBMITTAL</u>	<u>DATE SUBMITTED</u>	<u>DATE APPROVED</u>
Product Data:	_____	_____
1. Anti-corrosion coating		
2. Repair concrete/mortar		
Certificates:	_____	_____
1. Material certification		
2. Training certificate		
Qualifications	_____	_____
1. Installer		
2. Manufacturer		

* * *

SECTION 02201
EARTHWORK

PART 1 - GENERAL**1.01 DESCRIPTION OF WORK**

- A. Remove all items designated to be removed and excavate for new construction, fill and backfill as required, prepare subgrades and place aggregate bases for pavements. Protect existing vegetation and all adjoining properties and existing structures from damage.

1.02 RELATED SECTIONS

(NOT USED)

1.03 REFERENCES

References and industry standards listed in this Section are applicable to the Work. Unless more restrictive criteria or differing requirements are explicitly stated in the Specifications, or mandated by governing codes or regulations, the recommendations, suggestions, and requirements described in the referenced standards shall be deemed mandatory and applicable to the Work.

- A. American Society of Testing and Materials (ASTM) standards, latest editions.
- B. United States Department of Labor (USDOL), Occupational Safety and Health Administration (OSHA):

29 CFR 1910, Occupational Safety and Health Standards
- G. All Applicable New York City Environmental Protection (NYCEP) Rules and Regulations
- H. All applicable New York City Department of Transportation (NYCDOT), Department of Sanitation (NYCDOS), Department of Buildings (NYCDOB) Rules and Regulations

Task 6**1.04 DEFINITIONS****A. Excavation**

Excavation is considered unclassified and consists of removal of material encountered to contract level, stockpiling, testing, loading, handling, transporting and subsequent legal disposal of such.

B. Improvements

Man-produced items such as concrete, brick, asphalt, piping, etc. Those items not naturally occurring.

C. Non-Hazardous Excavated Material

Material that may include or contain mixtures of the following: soil (including, but not limited to, natural undisturbed material), debris, concrete and concrete products (including steel or fiberglass reinforcing rods that are embedded in the concrete), asphalt pavement, brick, glass, rock, municipal solid waste, refuse, and incidental ash. This material includes material defined in Title 6 New York Code of Rules and Regulations 360-7.1(b)(1)(i) and will exceed 6 NYCRR 375-6 Unrestricted Use and Restricted Use Soil Cleanup Objectives and NYSDEC CP-51: Soil Cleanup Guidance Supplemental Soil Cleanup Objectives.

All material excavated from the site is assumed to meet the definition of non-hazardous excavated material.

D. Environmentally Clean Fill and Backfill

1. For fill and backfill proposed for use below cover material (as defined in the previous paragraph) and underneath areas with no potential for public contact (e.g., pavement), environmentally clean fill is defined as soil that has been tested utilizing methods which yield laboratory reporting limits that are below the regulatory comparison criteria and found to contain:

a. No detectable concentrations of volatile organic compounds;

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- b. No other organic compounds or inorganic analytes at concentrations above the lower of DER-10 Technical Guidance for Site Investigation and Remediation, Appendix 5, "Allowable Constituent Levels for Imported Fill or Soil" Restricted Residential Use and Ecological Resources Soil Cleanup Objectives; and,
- c. No other organic compounds or inorganic analytes at concentrations above the lower of the NYSDEC CP-51: Soil Cleanup Guidance Residential Use, Protection of Ecological Resources, and Protection of Groundwater Supplemental Soil Cleanup Objectives.
- d. For sites with no ecological resources (as described in CP-51, Section V.C.) the Soil Cleanup Objectives for Ecological Resources shall not apply. The determination regarding whether ecological resources are present shall be made by the IEH Division of the Authority.

1.05 SUBMITTALS**A. Product Data**

Provide manufacturer's information on the compaction equipment to be used on each type of material for review.

B. Shop Drawings

Submit shop drawings and associated calculations for sheeting, shoring, and bracing. Shop drawings and calculations shall be signed and sealed by a New York State licensed professional

D. Quality Control Submittals**1. Contractor Qualifications**

Provide proof of Contractor qualifications specified under "Quality Assurance".

Task 6**1.06 QUALITY ASSURANCE****A. Qualifications**

1. Company specializing in performing the Work of this Section shall have a minimum of 3 years experience and shall have worked on 3 projects of similar size.

B. Regulatory Requirements

1. Work of this Section shall conform to all requirements of and all applicable regulations and guidelines of all governmental authorities having jurisdiction, including, but not limited to, safety, health, and anti-pollution regulations. Where more stringent requirements than those contained in the Building Code or other applicable regulations are given in this Section, the requirements of this Section shall govern.
2. Conform to requirements of "Safety and Health Standards, Subpart P - Excavations, Trenching and Shoring" - OSHA.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Stockpile material in such a manner as to prevent erosion and dust. Provide silt curbs if necessary.
- B. Testing and certification of all imported environmentally clean fill and aggregate are the responsibilities of the Contractor.

1.08 PROJECT/SITE CONDITIONS

- A. Obtain all available on the site affecting or being affected by the project construction.
- B. Prior to clearing and removal or abandonment of improvements, ascertain the exact locations of all existing underground utilities. Protect these during subsequent operations.

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1. Demolish and remove underground utilities designated to be removed. Coordinate with utility companies and BPCA authorized personnel for shut-off of services if lines are active.
2. Consult immediately with the owner for directions should uncharted or incorrectly charted piping or other utilities be encountered during excavation. Cooperate with the owner in keeping their respective services and facilities in operation. Repair damaged utilities to the satisfaction of the Utility Owner.
3. Do not interrupt existing utilities serving facilities occupied others during occupied hours, except when permitted in writing by the owner, and only after acceptable temporary utility service has been provided. Do not proceed with interruption of services without providing a minimum of 48 -hours notice to the affected parties including BPCA and receiving their written approval.

C. Coordination

Examine drawings to determine sequence of operations, and relation to work of other trades. Start of work will signify acceptance of field conditions and will acknowledge coordination with other trades.

1.09 SEQUENCING AND SCHEDULING

- A. Perform work in such a manner to ensure a minimum interference with roads, walks, adjacent properties, and facilities to remain open. Do not close or obstruct these items without obtaining permission of the owner.

PART 2 - PRODUCTS**2.01 MATERIALS**

- A. Restricted Excavated Material

Remove all debris not explicitly designated to be salvaged (to remain) from improvements and soil excavated during construction from premises and legally dispose of away from premises as part of the base bid.

Task 6**B. Fill and Backfill**

Only environmentally clean fill (as defined in Paragraph 1.04F of this Section) shall be used as fill and backfill. Composition shall consist of angular sands and gravels. Flat structured material such as mica (the main component of "mole" rock) falling into the acceptable gradation or other material affecting the permeability and structural characteristics of the sand material shall be no more than .4% of the total material. Material shall not contain salts or foreign materials of any kind and the material shall show a percentage of wear by the Los Angeles wear test (ASTM C131) of not more than 35%. These fill materials shall contain no particles exceeding 4" in the largest dimension. No more than 30% of the material by weight shall be retained on a $\frac{3}{4}$ " sieve. Of the material passing the No. 4 sieve, no more than 10% shall pass the No. 200 sieve by weight. The Contractor shall provide the Authority with laboratory data on material proposed for use as fill/backfill. Samples shall be collected from imported material and material proposed for reuse on-site. The Contractor shall collect and analyze one representative sample of each material for every 500 cubic yards of imported fill/backfill brought to the site or material proposed for reuse on site for the complete list of 6 NYCRR Part 375 and NYSDEC CP-51 Supplemental Soil Cleanup Objectives Parameters as defined in Paragraph 1.04F.

2.02 EQUIPMENT

- A. Provide proper compaction equipment to properly compact subgrade, fill and backfill, aggregate base, crushed stone and broken stone base.

2.03 SOURCE QUALITY CONTROL**1. Contractor's Responsibility**

Inspections and testing performed by the Authority's agent(s) shall not relieve the Contractor of responsibility for performing all other testing and inspection specified herein or otherwise necessary to meet the quality control and quality assurance requirements of this Section.

Task 6**PART 3 - EXECUTION****3.01 EXAMINATION****A. Verification of Conditions**

Verify existing site conditions match those of the Drawings and pre-bid inspections. Notify the Authority in writing prior to commencement of Work of any discrepancies.

B. Preparation

1. Before starting any excavation work for new construction, ascertain the exact locations of all existing underground drain lines, piping, and conduits. Consult with the Mechanical Trades.
2. At location where any of the above services interfere with the excavation work, notify the Authority at BPCA.

3.02 PREPARATION AND PROTECTION**A. General**

1. Provide adequate protection measures to protect workmen and pedestrians at the site.
2. Prevent damage to existing improvements designated to remain. If they are damaged during construction, restore improvements to their original condition.
3. Prevent damage to improvements on the site. Restore damaged improvements to their original condition to the satisfaction of the owner. Restore grades and vegetation to their original condition or better.
4. Salvable Improvements
 - a. Carefully remove and protect all items to be saved and reused. Replace any items which are damaged by removal at own cost.

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- b. Notify the Authority in writing of any item which is damaged prior to removal so that they may ascertain the item's condition.

B. Condition Survey

- 1. General: The Contractor shall perform a condition survey of the adjoining structures prior to beginning excavation. Note damage to existing structures.

C. Shoring, Sheeting, and Bracing**1. General**

- a. Inspect site, examine existing conditions and make all necessary preparations for the safe and proper sequence of work.
- b. Properly guard and protect excavations so as to prevent them from becoming dangerous to person or property.
- c. Brace, shore, and protect existing structures when excavations are made adjacent to the existing structures or within a distance that they will be affected by the excavation.
- d. Maintain sides and slope of excavation in safe condition until backfilling or other work is complete. Maintain shoring and bracing in place till completion of work.
- e. Provide materials for work in good serviceable order.
- f. All shoring, bracing, etc. is to be removed upon completion of the work where they are installed.

C. Workability of Excavation Subgrade

- 1. Take all steps necessary to prepare or improve existing conditions for proposed work, including general excavation throughout the project site.

Task 6

2. Properly grade site and perform operations to avoid disturbing the existing subgrade and any intermediate subgrade.
3. If subgrade conditions are disturbed that prevent earthwork operations or safe operation of installation equipment, the Contractor shall take steps to improve subgrade conditions at own expense.

3.03 EXCAVATION - GENERAL

- A. No additional compensation will be allowed for excavation or foundation work carried below the levels shown on Drawings unless same has been authorized in writing by the Authority. Contractor is responsible for all remedial work due to unauthorized excavation.
- B. For pavements, excavate to depths required for installation of aggregate base or pavement as specified herein or shown on Drawings.
- C. Remove all excavated material from the site and legally dispose of away from the premises, in accordance with the requirements specified in this section. Burning of material on the site is not permitted.

3.04 FILLING AND GRADING

- A. Placement and Compaction of Aggregate Bases
 1. Provide aggregate base under all exterior pavements and wherever else indicated on the Drawings or specified herein. Provide crushed stone under all interior slabs. Provide 6" minimum unless specified otherwise elsewhere.
- B. Inspection
 1. Contractor's Responsibility: The Contractor shall notify the Authority at least 48 hours prior to filling operations, pouring of footings, and installation of excavation support to allow for the

Task 6

Authority to have the appropriate personnel at the site.

2. Contractor's Inspections: Inspections and testing performed by the Authority shall not relieve the Contractor of responsibility for performing all other testing and inspection specified herein or otherwise necessary to meet the quality control and quality assurance requirements of this Section.

C. Responsibility

1. All required testing and/or analysis not specifically defined as being provided by the Authority shall be provided by the Contractor as part of the included Work and costs of this Project.
2. No testing and/or analysis by the Authority shall relieve the Contractor of the responsibility of conforming to the requirements of these specifications.
3. Time for conducting the tests and/or inspections defined in these specifications shall be considered as part of the Work of this Project and neither extension of time nor additional costs shall be accepted as a result.

3.04 PROTECTION

- A. Protect graded and compacted areas from traffic and erosion. Keep free of trash and debris.
- B. When completed compacted areas are disturbed by subsequent construction or weather, scarify surface, re-shape, and compact to required density prior to further construction.
- C. Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

END OF SECTION

LIST OF SUBMITTALS

SUBMITTAL

DATE SUBMITTED

DATE APPROVED

Qualifications:

1. Contractor

* * *

EXHIBIT H
BPCA & BPCPC STAFF LIST

Battery Park City Authority

Employee List

NAME	EMPLOYEE ID	TITLE	DEPARTMENT, LOCATION
Alvarez, Elsa	98446	Financial Analyst	FINANCE, WFC
Anderson, Davina	983562	Intern - Human Resources	HR, WFC
Bailey, Kathleen	98386	Admin. Asst.	FINANCE, WFC
Blake-Reeder, Nidia	013615	Permits Coordinator	AFFIRM, WFC
Brotman, Marc	983581	Assoc. General Counsel	LEGAL, WFC
Brugess, Lauren	98348	Admin. Asst.	LEGAL, WFC
Buquicchio, Anthony	983580	Dir., Site Mgmt & Security	REAL PRPTY, WFC
Connor, Eric	983582	Intern - Finance	AFFIRM, WFC
Crabb, Deshay	98346	Facility Asst./Sfty Insp.	REAL PRPTY, REGATTA
Curiale, Daniel J	983567	Dir, Financial Reporting	FINANCE, WFC
Dawson, Gwen	98857	Snr, V.P. Real Prop Mgt.	REAL PRPTY, WFC
Dopson, Tonia	983596	Intern - External Affairs	AFFIRM, WFC
Ellison, AnnMaria	98389	Special Assistant	LEGAL, WFC
Forst, Robin	983594	V P External Affairs	AFFIRM, WFC
Ganci, Joseph	983605	Director, Design	REAL PRPTY, WFC
Garcia, Julissa	983607	Admin. /Asst. Permit Cord	PUBLIC INFOM, WFC
Garcia, Luis	047340	Assistant Treasurer	FINANCE, WFC
Gordon, Neresia M.	049535	Network Administrator	MIS, WFC
Henry, Sonia A.	053531	Dir., Human Resources	HR, WFC
Howard, Angela	983571	Snr. Dir., Project Mgmt.	REAL PRPTY, WFC
Hurley, Cherish	983586	Intern - Human Resources	[None], [None]
Hyman, Shari	983597	President & COO	EXEC, WFC
Jones, Benjamin	983609	VP, Administration	[None], [None]
Kim, Susie	983608	Assoc. General Counsel	[None], [None]
Koenig, Karl	98858	Controller	FINANCE, WFC
LaMancusa, Michael	983595	Contracts Admin.	REAL PRPTY, WFC
Lee, Della	053655	Admin. Asst.	REAL PRPTY, WFC
Maisonet, Evelin	983560	Accounts Payable Coord.	FINANCE, WFC
McCabe, Kevin	983565	Special Assistant	EXEC, WFC
McIntyre, Brenda	983569	Snr. ,V.P. Human Resource	HR, WFC
McNeill, Shinay	983577	Intern - Diversity	HR, WFC
Narcisse, Bertha L.	080426	Payroll Accountant	FINANCE, WFC
Nesmith, Robert	983573	Chief Contracting Officer	ADMIN, WFC
Ng, SiuMay	983599	Sr. Programmer Analyst	MIS, WFC
Pena, Dahlia	085228	Senior Accountant	FINANCE, WFC
Peterson, Anthony J.	085756	Dep. Chief Cont. Officer	ADMIN, WFC
Pustilnik, Alix	983601	General Counsel	LEGAL, WFC
Quon, Robert	983590	IT Manager	MIS, WFC
Robinson, Anthony M.	089312	Office Manager	ADMIN, WFC
Rodriguez, Andrea	983574	Human Resources Assistant	HR, WFC
Rowe, Decorey	983553	Part-time Facilities Asst	SITEOPS, REGATTA
Serpico, Robert M.	092053	Exec. V.P. Fin. /CFO	REAL PRPTY, WFC
Sewraj-Kumar, Rekha	98575	Manager, Accounting	FINANCE, WFC

Battery Park City Authority

Employee List

NAME	EMPLOYEE ID	TITLE	DEPARTMENT, LOCATION
Singh, Seema	983558	Deputy General Counsel	LEGAL, WFC
Soriero, Linda M.	093690	Financial Assistant	FINANCE, WFC
Stewart, Jessica	983611	Intern - Human Resources	HR, WFC
Tam, John	983587	MIS Director	MIS, WFC
Torres, Alexis	983598	Spcl Advisor to the Pres	EXEC, WFC
Wade, Sharon B.	096151	Executive Assistant	REAL PRPTY, WFC
Whitehead, Angela	983578	Employee Relations Coord.	HR, WFC
Windman, Kenneth	097450	Director, Facilities	REAL PRPTY, WFC
Zheng, Bingxin	983593	Junior Accountant	FINANCE, WFC
Total Employees		52	

Battery Park City Parks Conservancy Corporation
Employee List

First Name	Last Name	First Name	Last Name
1 Dana	Anders	61 Sean	Simon
2 Anthony	Andriano	62 Kemnarine	Singh
3 Stephen	Arciold	63 Timothy	Skipper
4 Freddy	Belliard	64 Kareem	Starks
5 Scott	Birdseye	65 Jerome	Sturiano
6 Nancy	Buivid	66 Ryan	Torres
7 Eileen	Calvanese	67 Kenneth	Toto
8 Monica	Centeno	68 Douglas	Van Horn
9 Betty	Chin	69 Noe	Velasquez
10 Adam	Choper	70 Antonio	Velez
11 Carlton	Chotalal	71 Evangelio	Villalobos
12 Kevin	Colon	72 Peter	Wheelwright
13 Marie	Corneille	73 Arthur	White
14 Gilbert	DePadua	74 Eric	White
15 Paul	Diaz-Larui	75 Al	Wright
16 Abigail	Ehrlich	76 Jouli B.	Yohannes
17 Richard L.	Faraino		
18 Eric	Fleisher		
19 Lenron	Goode		
20 Patrick	Greene		
21 Ned	Greenberg		
22 Evelyn	Gregg		
23 Robert	Hansen		
24 Nicole	Heater		
25 Sankar	Heerah		
26 Craig	Hudon		
27 Tessa	Huxley		
28 Amy	Jogie		
29 Roland	Kemp		
30 Kurtis	King		
31 Betzayda	Laboy		
32 Leandro	Lafuente		
33 Tony	Lee		
34 Marianna	Lerner		
35 Robert	Maggi		
36 Evonne	Marche		
37 Rickeshia	Martin		
38 Phillip	Mason		
39 Ellen	McCarthy		
40 Princess	McNeill		
41 Vanessa	Mesine		
42 Ronnie	Mohammed		
43 Yoshihiro	Nishida		
44 Hector	Oyola		
45 Willem	Paillant		
46 Gladys	Pearlman		
47 Churaman	Persaud		
48 Bruno	Pomponio		
49 Sandra	Power		
50 Madelin	Ramirez		
51 Manuel	Rivera		
52 Nelson	Rogers		
53 Jose	Rosado		
54 Holly	Ross		
55 Madeline	Ruggiero		
56 Carlos	Santiago		
57 Gary	Satriano		
58 Jean	Schwartz		
59 Lindsey	Senn		
60 Nicholas	Sens-Castet		