



December 22, 2020

**ADDENDUM #4 to PIN 072201931CPD**

Re: Medium Voltage Feeders and Substation  
Upgrades at Rikers Island

Dear Prospective Bidder:

Pursuant to §3-02(i) of the Procurement Policy Board (PPB) Rules, the Department of Correction (DOC) is issuing Addendum # 4 to the solicitation for the services referenced above.

The due date for questions in regard to this procurement must be submitted via email no later than **Wednesday, November 4, 2020 @ 3:00pm**. The bid opening will be on **Friday, January 8, 2021 @ 11:00am**

**Responses to previous questions posed by prospective bidders:**

**Q.1** Will there be any restricted workhours, specifically related to lane closures on the bridge?

**A.1** When there is need for a lane closure, the contractor shall avoid such closure during a shift change period, which is 6AM to 10AM and 2PM to 5PM. Please refer to security requirements noted in the contract.

**Q.2** Will there be any "Black-out" dates that contractors will not be allowed to work on the bridge or Island?

**A.2** There are no black-out dates.

**Q.3** Please provide the Phasing Exhibit.

**A.3** Suggested Phasing is noted on drawing E002.00 – Phasing Sequence.

**Q.4** Are MH located within the restricted areas? If so, please provide the procedure to gain access and the quantity of manholes in the restricted areas.



**A.4** Contractor shall coordinate with DOC Construction Management Unit (CMU) for access to all the manholes in the project.

**Q.5** Are Temporary Steel Plates allowed on bridge?

**A.5** Temporary steel plates in compliance with DOT requirements for size, weightage, construction and road signage shall be allowed. Coordinate all such works including the allowed duration, advance notices with DOC.

**Q.6** ☐ Please identify the location contractors will be able to set up a trailer and storage container.

**A.6** Trailer set up will be allowed and a suitable location will be provided to the winning contractor of this bid.

**Q.7** What is the maximum distance a lane can be closed on the bridge?

**A.7** There no pre-set distance for a lane closure. The contractor shall coordinate with CMU for a review of lane closure need and the CMU shall review and advise.

**Q.8** What is the maximum amount of time a lane can be closed on the bridge?

**A.8** The contractor will be allowed lane closures to provide access to manholes and perform work as many times as required, But the contractor must coordinate such need in advance with CMU.

**Q.9** Please provide any photos that may have been taken of bridge, pulling platforms, MH, substations, cubicle, damaged vacuum CB, etc. in order to provide information for quote on this project.

**A.9** See below photos No.4.

**Q.10** Please provide specifications for pumping manholes.

**A.10** See notes on pumping of manholes on addendum drawing E-002.00.



**Q.11** During the site visit, the Engineer stated that there is a limited amount of water that could be pumped into the sewers. Is the limit per day or per manhole?

**A.11** See notes on pumping of manholes on addendum drawing E-002.00. The discharge and manhole volumes determine where the water is discharged.

**Q.12** Are there any tidal manholes, if so where and how many?

**A.12** There are no tidal manholes.

**Q.13** When testing and id of feeders will contractors be required to remove and replace arc proofing?

**A.13** Yes. Arc-proofing shall be removed and replaced.

**Q.14** Will we be required to install arc proofing on those feeders that currently do not have arc proofing?

**A.14** No. Field conditions of any existing feeders that are not required to be disturbed under this project and that do not have arc proofing shall be brought to the attention of DOC.

**Q.15** Will the agency's electrician's coordinate with the contractor when we have to Hi-Pot new and existing feeder runs?

**A.15** Yes. It is the contractor's responsibility to seek such coordination with DOC.

**Q.16** The damaged Vacuum Circuit Breakers: Will we be required to re-build the entire cubicle as part of the scope?

**A.16** Scope of work is to replace only the vacuum circuit breaker and damaged parts in the cubicle.

**Q.17** In relation to the replacement of the Vacuum Circuit Breakers, will the Switchgear down stream have to be tested?

**A.17** Yes, the downstream switchgear has to be tested for any faults.



**Q.18** What will be the procedure be if there are damaged conduits on the bridge that prevent the cable from being removed or installed?

**A.18** Any field conditions of damaged conduits on the bridge shall be brought to the attention of DOC.

**Q.19** Are all manholes Type M11-6?

**A.19** All manholes unless otherwise noted on drawing E-003 are not Con Edison manholes.

**Q.20** Will the Department of Corrections be involved in scheduling feeder outages/swingovers with Con Edison?

**A.20** Contractor shall coordinate all scheduling of feeder outages/swing-overs with Con Edison in consultation with DOC.

**Q.21** ☐ Are Con Edison Fees, if any excluded from the Contract?

**A.21** The contractor shall pay all Con-Edison fees as a part of this project.

**Q.22** In reference to Note 8 on dwg E-30.100 (Sht# 7), does the new feeder cable need to be in a paralleled or triplex construction?

**A.22** No. Three single conductors shall be required as shown on drawings.

**Q.23** In reference to Note B.9. on dwg T002.00 (Sht# 2) do the manholes need to be GPS tagged electronically, in addition to be identified via GPS coordinates?

**A.23** GPS coordinates need not be tagged electronically, only shall be identified via coordinates on As-Builts and demonstrated to DOC for accuracy.

**Q.24** In reference to E-301.00 (Sht# 7), please provide size of the incoming Con Edison feeders at Property Line Manholes?



**A.24** Con Edison feeder shall be the same size as the replacement feeders. Contractor shall field verify and coordinate with Con Edison for the size of the actual feeder prior to performing the splice work.

**Q.25** In reference to Keynote 32 on dwg E-401.00 (Sht# 8), are replacement covers required for any of the 5kV and 27kV manholes on the site, or is painting enough?

**A.25** Painting is sufficient and replacement covers will not be required for existing manholes unless otherwise noted.

**Q.26** In Reference to Keynote 32 on dwg E-401 (Sht#8), are replacement covers required for any of the manholes shown in Detail 2 on the same drawing?

**A.26** No. Replacement covers shall not be required for the manholes shown on Plan No.2 titled "Existing Electrical Site Plan – Continuation" as shown on drawing E-401.

**Q.27** Will the contractors be replacing the blown Equipment?

**A.27** Yes, substation breakers and related work to be replaced.

**Q.28** Is there a specific company for testing and splicing?

**A.28** The contractor shall hire NETA accredited company for testing and splicing of all medium voltage feeders.

**Q.29** In the existing manholes, does the whole system get HI-Pot Tested after ARC Tape is removed?

**A.29** Contractor shall follow NETA MTS standards and recommendations for testing.

**Q.30** What direction is taken if any Feeders in existing manholes do not pass testing?

**A.30** Decision will be taken by DOC after submission of the testing report by the contractor.



**Q.31** The medium voltage cable pull that we have on the job; it doesn't show us if we are allowed to splice in any of the manholes on the bridge or are we supposed to assume that we need to pull the whole run in one shot and only splice in the beginning and end of the bridge? If you could provide us with any clarification that would be great, if not I understand.

**A.31** Splices shall be provided in each manhole. See details on drawings E-801 and E-802.

\_\_\_\_\_  
Ava B. Rice  
Agency Chief Contracting Officer

**I acknowledge receipt of this addendum.**

\_\_\_\_\_  
**Bidder/Company Name (Print)**

\_\_\_\_\_  
**Authorized Representative (Print Name)**

\_\_\_\_\_  
**Authorized Representative (Signature)                      Date**



SECTION 261300 - MEDIUM-VOLTAGE SWITCHGEAR TESTING

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. This Section includes testing of existing metal-enclosed interrupter switchgear and metal-clad, circuit-breaker switchgear and the replacement of two existing 27 KV draw-out type vacuum power circuit breakers with the following optional components, features, and accessories:**
- 1. Copper, silver-plated main bus at connection points.**
  - 2. Communication modules.**
  - 3. Analog instruments.**
  - 4. Relays.**
  - 5. Surge arresters.**
  - 6. Provisions for future devices.**
  - 7. Control battery system.**
  - 8. Mimic bus.**

**1.3 DEFINITIONS**

- A. ATS: Acceptance Testing Specifications.**
- B. GFCI: Ground-Fault Circuit Interrupter.**

**1.4 SUBMITTALS**

- A. Product Data: For each type of switchgear and related equipment, include the following:**
- 1. Rated capacities, operating characteristics, furnished specialties, and accessories for individual interrupter switches, circuit breakers interrupter switches.**
  - 2. Time-current characteristic curves for overcurrent protective devices, including circuit-breaker relay trip devices.**
- B. Shop Drawings: For each type of switchgear and related equipment, include the following:**
- 1. Dimensioned plans, elevations, sections, and details, including required clearances and service space around equipment. Show method of field assembly and location and size of each field connection. Include the following:**



- a. Tabulation of installed devices with features and ratings.
  - b. Outline and general arrangement drawing showing dimensions, shipping sections, and weights of each assembled section.
  - c. Drawing of cable termination compartments showing preferred locations for conduits and indicating space available for cable terminations.
  - d. Floor plan drawing showing locations for anchor bolts and leveling channels.
  - e. Current ratings of buses.
  - f. Short-time and short-circuit ratings of switchgear assembly.
  - g. Nameplate legends.
2. **Wiring Diagrams:** For each type of switchgear and related equipment, include the following:
  - a. Power, signal, and control wiring.
  - b. Three-line diagrams of current and future secondary circuits showing device terminal numbers and internal diagrams.
  - c. Schematic control diagrams.
  - d. Diagrams showing connections of component devices and equipment.
- C. **Coordination Drawings:** Floor plans showing dimensioned layout, required working clearances, and required area above and around switchgear where piping and ducts are prohibited. Show switchgear layout and relationships between components and adjacent structural and mechanical elements. Show support locations, type of support, and weight on each support. Identify field measurements.
- D. **Qualification Data:** For professional engineer and testing agency.
- E. **Source quality-control test reports.**
- F. **Field quality-control test reports.**
- G. **Operation and Maintenance Data:** For switchgear and switchgear components to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 01 Section "Operation and Maintenance Data," include the following:
  1. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.
  2. Time-current curves, including selectable ranges for each type of overcurrent protective device.

## **1.5 QUALITY ASSURANCE**

- A. **Testing Agency Qualifications:** An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the InterNational Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.
  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. **Testing Agency Qualifications:** An independent agency, with the experience and capability to conduct the testing indicated, that is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7.
- C. **Source Limitations:** Obtain each type of switchgear and associated components through one source from a single manufacturer.
- D. **Product Options:** Drawings indicate size, profiles, and dimensional requirements of switchgear and are based on the specific system indicated. Refer to Division 01 Section "Product Requirements."
- E. **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.
- F. **Comply with IEEE C2.**

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. **Deliver in sections of lengths that can be moved past obstructions in delivery path as indicated.**
- B. **Store switchgear indoors in clean dry space with uniform temperature to prevent condensation. Protect switchgear from exposure to dirt, fumes, water, corrosive substances, and physical damage.**
- C. **If stored in areas subjected to weather, cover switchgear to provide protection from weather, dirt, dust, corrosive substances, and physical damage. Remove loose packing and flammable materials from inside switchgear; install electric heating (250 W per section) to prevent condensation.**

#### 1.7 PROJECT CONDITIONS

- A. **Environmental Limitations:** Rate equipment for continuous operation at indicated ampere ratings for the following conditions:
  - 1. **Ambient temperature not exceeding 122 deg F.**
- B. **Installation Pathway:** Remove and replace building components and structures to provide pathway for moving switchgear into place.
- C. **Product Selection for Restricted Space:** Drawings indicate maximum dimensions for switchgear, including clearances between switchgear and adjacent surfaces and other items. Comply with indicated maximum dimensions.
- D. **Interruption of Existing Electrical Service:** Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electrical service according to requirements indicated:



1. Notify Owner no fewer than two days in advance of proposed interruption of electrical service.
2. Do not proceed with interruption of electrical service without Owner's written permission.

## **1.8 COORDINATION**

- A. Coordinate layout and installation of switchgear and components with other construction including conduit, piping, equipment, and adjacent surfaces. Maintain required clearances for workspace and equipment access doors and panels.
- B. Coordinate size and location of concrete bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.

## **PART 2 - PRODUCTS**

### **2.1 EXISTING MANUFACTURERS**

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
  1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
    1. Controlled Power Corporation, owned by Myers Power Ohio.
    2. Or Approved equal.

### **2.2 MANUFACTURED UNITS**

- A. Description: Factory assembled and tested, and complying with IEEE C37.20.1.
- B. Ratings: Suitable for application in 3-phase, 60-Hz, solidly grounded-neutral system.
- C. System Voltage: 38 kV maximum voltage.

### **2.3 METAL-ENCLOSED INTERRUPTER SWITCHGEAR**

- A. Available Manufacturers:
  1. ABB Control, Inc.
  2. Eaton Corporation; Cutler-Hammer Products.
  3. S&C Electric Company.
  4. Siemens Energy & Automation, Inc.
  5. Square D; Schneider Electric.
  6. Controlled Power Corporation (Myers Power-Ohio).
  7. Or Approved equal.
- B. Comply with IEEE C37.20.3.



- C. Comply with IEEE C37.20.7. Provide arc-resistant switchgear type 1.
- D. Design Level of Available-Source Fault Current: Integrated short-circuit rating consistent with value of fault current indicated.
- E. Ratings: Comply with standard ratings designated in IEEE C37.20.3 for maximum-rated voltage specified.
  - 1. Main-Bus Rating: 1200 A, continuous.
- F. Interrupter Switches: Stationary, gang operated, and suitable for application at maximum short-circuit rating of integrated switchgear assembly.
  - 1. Rating: 1200-A continuous duty and load break.
  - 2. Duty-Cycle, Fault Closing: 40,000 asymmetrical A.
  - 3. Switch Action: No external arc and no significant quantities of ionized gas released into the enclosure.
  - 4. Switch Construction: Supported entirely by interior framework of structure, with copper switchblades and stored-energy operating mechanism.
  - 5. Phase Barriers: Full length of switchblades and fuses for each pole; designed for easy removal; allow visual inspection of switch components if barrier is in place.
  - 6. Protective Shields: Cover live components and terminals.
  - 7. Fuses: De-energized if switch is open.
- G. Mechanical Interlock: Prevent opening switch compartment door unless switchblades are open, and prevent closing switch if door is open.
- H. Window: Permit viewing switchblade positions if door is closed.
- I. Power Fuses: Comply with the following and with applicable requirements in NEMA SG 2:
  - 1. Indicator: Integral with each fuse to indicate when it has blown.
  - 2. Mounting: Positively held in position with provision for easy removal and replacement from front without special tools.
  - 3. Current-Limiting Fuses: Full-range, fast-replaceable, current-limiting type that will operate without explosive noise or expulsion of gas, vapor, or foreign matter from tube.
  - 4. Expulsion Fuses: Furnished in disconnect-type mountings and renewable with replacement fuse units. Gases emitted on interruption are controlled and silenced by chambers designed for that purpose.

## **2.4 METAL-CLAD, CIRCUIT-BREAKER SWITCHGEAR**

- A. Available Manufacturers:
  - 1. ABB Control, Inc.
  - 2. Eaton Corporation; Cutler-Hammer Products.
  - 3. General Electric Distribution & Control.
  - 4. Siemens Energy & Automation, Inc.
  - 5. Or Approved equal.



5. Square D; Schneider Electric.
  6. Controlled Power Corporation (Myers Power-Ohio).
- B. Comply with IEEE C37.20.3.**
- C. Comply with IEEE C37.20.7. Provide arc-resistant switchgear, Type 1.**
- D. Nominal Interrupting-Capacity Class: 1500 MVA.**
- E. Ratings: Comply with IEEE C37.04.**
1. Main-Bus Rating: 1200 A, continuous.
- F. Circuit Breakers: Three-pole, single-throw, electrically operated, drawout-mounting units using three individual, vacuum-sealed sulfur hexafluoride insulated and sealed interrupter modules and including the following features:**
1. Designed to operate at rated voltage to interrupt fault current within its rating within three cycles of trip initiation. For systems with X/R ratio of 17 or less, transient voltage during interruption shall not exceed twice the rated line-to-ground voltage of the system.
  2. Contact-Wear Indicator: Readily accessible to field maintenance personnel.
  3. Minimum of six Types A and six Type B spare contacts.
  4. Interchangeability: Circuit breakers are interchangeable with vacuum circuit breakers of same current and interrupting ratings.
  5. Internal sulfur hexafluoride pressure is not to exceed 2.5 bars during normal operation.
    - a. Current Rating of Main Circuit Breaker: 1200 A.
    - b. Continuous Current Rating of Tie Circuit Breaker: 1200 A.
    - c. Continuous Current Rating of Feeder Circuit Breaker: 1200 A.
  6. Operating Mechanism: Electrically charged, mechanically and electrically trip-free, stored-energy operated.
    - a. Closing speed of moving contacts to be independent of both control and operator.
    - b. Design mechanism to permit manual charging and slow closing of contacts for inspection or adjustment.
      - 1) Control Power: 125 V dc for closing and tripping.
    - c. Provide shunt trip capability independent of overcurrent trip.
- G. Test Accessories: Relay and meter test plugs.**
- H. Low-DC-Voltage Alarm: Switchgear shall have a monitor for dc control power voltage with a remote alarm located where indicated. Alarm shall sound if voltage falls to an adjustable value to indicate an impending battery failure. Factory set alarm value at 80 percent of full-charge voltage.**



- I. **Grounding and Testing Device:** Suitable for phasing out, testing, and grounding switchgear bus or feeder if device is installed in place of circuit breaker. Include the following:
  - 1. **Portable Grounding and Testing Device:** Interchangeable with drawout-mounting, medium-voltage circuit breakers to provide interlocked electrical access to either bus or feeder; electrically operated.
  - 2. **System control cabinet** permanently mounted near switchgear.
  - 3. **Portable Remote-Control Station:** For grounding and testing device.
  - 4. **Control-Cabinet Coupler Cable:** Of adequate length to connect device inserted in any switchgear cubicle and control cabinet.
  - 5. **Remote-Control Coupler Cable:** 50 feet long to connect control cabinet and portable remote-control station.
  - 6. **Permanent Control Power Wiring:** From control cabinet to power source.
  - 7. **Protective Cover:** Fabricated of heavy-duty plastic and fitted to device.
  - 8. **Approval of Grounding and Testing Device System:** Obtain approval of final system design from utility company and agency designated by Owner to handle future maintenance of medium-voltage switchgear.
- J. **Circuit-Breaker Test Cabinet:** Separately mounted and containing push buttons for circuit-breaker closing and tripping, control relay, fuses, and secondary coupler with cable approximately 108 inches long. Include a set of secondary devices for operating circuit breaker if removed from switchgear and moved near test cabinet. Include provision for storage of test and maintenance accessories in cabinet.
- K. **Remote-Tripping Device:** Wall-mounting emergency control station to open circuit breakers; located in red cast-metal box with break-glass operation.

## 2.5 FABRICATION

- A. **Indoor Enclosure:** Steel.
- B. **Outdoor Enclosure:** Galvanized steel, weatherproof construction; integral structural-steel base frame with factory-applied asphaltic undercoating.
  - 1. Each compartment shall have the following features:
    - a. Structural design and anchorage adequate to resist loads imposed by 125-mph wind.
    - b. Space heater operating at one-half or less of rated voltage, sized to prevent condensation.
    - c. Louvers equipped with insect and rodent screen and filter, and arranged to permit air circulation while excluding rodents and exterior dust.
    - d. Hinged front door with locking provisions.
    - e. Interior light with switch.
    - f. Weatherproof GFCI duplex receptacle.
    - g. Power for heaters, lights, and receptacles to be provided by control power transformer as indicated.
  - 2. Weatherproof internal aisle construction shall have the following features:



- a. Common internal aisle of sufficient width to permit protective-device withdrawal, disassembly, and servicing in aisle.
  - b. Aisle access doors at each end with exterior locking provisions and interior panic latches.
  - c. Aisle space heaters operating at one-half or less of rated voltage thermostatically controlled.
  - d. Vaporproof fluorescent aisle lights with low-temperature ballasts, controlled by wall switch at each entrance.
  - e. GFCI duplex receptacles, a minimum of two, located in aisle.
  - f. Aisle ventilation louvers equipped with insect and rodent screen and filter, and arranged to permit air circulation while excluding rodents and exterior dust.
- C. Finish: Manufacturer's standard gray finish over rust-inhibiting primer on phosphatizing-treated metal surfaces.
- D. Bus Transition Unit: Arranged to suit bus and adjacent units.
- E. Incoming-Line Unit: Arranged to suit incoming line.
- F. Outgoing Feeder Units: Arranged to suit distribution feeders.
- G. Auxiliary Compartments: Arranged to suit house meters, relays, controls, and auxiliary equipment; isolated from medium-voltage components.
- H. Key Interlocks: Arranged to effect interlocking schemes indicated.
- I. Provisions for Future Key Interlocks: Mountings and hardware required for future installation of locks, where indicated.

## 2.6 COMPONENTS

- A. Main Bus: Copper full length of switchgear.
- B. Ground Bus: Copper, silver plated or copper, tin plated; minimum size 1/4 by 2 inches full length of switchgear.
- C. Bus Insulation: Covered with flame-retardant insulation.
- D. Instrument Transformers: Comply with IEEE C57.13.
- 1. Potential Transformers: Secondary voltage rating of 120 V and NEMA accuracy class of 0.3 with burdens of W, X, and Y.
  - 2. Current Transformers: Burden and accuracy class suitable for connected relays, meters, and instruments.
- E. Multifunction Digital-Metering Monitor: Microprocessor-based unit suitable for three- or four-wire systems, listed and labeled by an NRTL, and with the following features:



1. Inputs from sensors or 5-A current-transformer secondaries, and potential terminals rated to 600 V.
  2. Switch-selectable digital display with the following features:
    - a. Phase Currents, Each Phase: Plus or minus 1 percent.
    - b. Phase-to-Phase Voltages, Three Phase: Plus or minus 1 percent.
    - c. Phase-to-Neutral Voltages, Three Phase: Plus or minus 1 percent.
    - d. Three-Phase Real Power: Plus or minus 2 percent.
    - e. Three-Phase Reactive Power: Plus or minus 2 percent.
    - f. Power Factor: Plus or minus 2 percent.
    - g. Frequency: Plus or minus 0.5 percent.
    - h. Integrated Demand, with Demand Interval Selectable from 5 to 60 Minutes: Plus or minus 2 percent.
    - i. Accumulated energy, in megawatt hours, plus or minus 2 percent; stored values unaffected by power outages for up to 72 hours.
  3. Communications module suitable for remote monitoring of meter quantities and functions. Interface communication and metering requirements according to Division 26 Section "Electrical Power Monitoring and Control."
  4. Mounting: Display and control unit that is flush or semiflush mounted in instrument compartment door.
- F. Analog Instruments: Rectangular, 4-1/2 inches square, 1 percent accuracy, semiflush mounting, with antiparallax 250-degree scale and external zero adjustment, and complying with ANSI C39.1.
1. Voltmeters: Cover an expanded scale range of normal voltage plus 10 percent.
  2. Voltmeter Selector Switch: Rotary type with off position to provide readings of phase-to-phase and phase-to-neutral voltages.
  3. Ammeters: Cover an expanded scale range of bus rating plus 10 percent.
  4. Ammeter Selector Switch: Permits current reading in each phase and keeps current-transformer secondary circuits closed in off position.
  5. Locate meter and selector switch on circuit-breaker compartment door for indicated feeder circuits only.
  6. Watt-Hour Meters: Flush- or semiflush-mounting type, 5 A, 120 V, 3 phase, 3 wire; with 3 elements, 15-minute indicating demand register, and provision for testing and adding pulse initiation.
  7. Recording Demand Meter: Usable as totalizing relay or indicating and recording maximum demand meter with 15-minute interval.
    - a. Operation: Counts and records a succession of pulses entering two channels.
    - b. Housing: Drawout, back-connected case arranged for semiflush mounting.
- G. Relays: Comply with IEEE C37.90, integrated digital type; with test blocks and plugs.
- H. Surge Arresters: Distribution class, metal-oxide-varistor type. Comply with NEMA LA 1.
1. Install in cable termination compartments in each phase of circuit.
  2. Coordinate rating with circuit voltage.



- I. **Provision for Future Devices:** Equip compartments with rails, mounting brackets, supports, necessary appurtenances, and bus connections.
- J. **Fungus Proofing:** Permanent fungicidal treatment for switchgear interior, including instruments and instrument transformers.
- K. **Control Power Supply:** DC battery system.
- L. **Control Power Supply:** Control power transformer supplies 120-V control circuits through secondary disconnect devices. Include the following features:
  - 1. Dry-type transformers, in separate compartments for units larger than 3 kVA, including primary and secondary fuses.
  - 2. Two control power transformers in separate compartments with necessary interlocking relays; each transformer connected to line side of associated main circuit breaker.
    - a. Secondary windings connected through relay(s) to control bus to affect an automatic transfer scheme.
    - b. Secondary windings connected through an internal automatic transfer switch to switchgear control power bus.
  - 3. **Control Power Fuses:** Primary and secondary fuses provide current-limiting and overload protection.
- M. **Control Wiring:** Factory installed, complete with bundling, lacing, and protection; and complying with the following:
  - 1. Flexible conductors for No. 8 AWG and smaller, for conductors across hinges, and for conductors for interconnections between shipping units.
  - 2. Conductors sized according to NFPA 70 for duty required.

## 2.7 CONTROL BATTERY SYSTEM

- A. **System Requirements:** Battery shall have number of cells and ampere-hour capacity based on an initial specific gravity of 1.210 at 25 deg C with electrolyte at normal level and minimum ambient temperature of 13 deg C. Cycle battery before shipment to guarantee rated capacity on installation. Arrange battery to operate ungrounded.
- B. **Battery:** Lead-calcium type in sealed, clear plastic or glass containers, complete with electrolyte, fully charged and arranged for shipment with electrolyte in cells. Limit weight of each container to not more than **70 lb** and cells per container to not more than 3. System batteries shall be suitable for service at an ambient temperature ranging from minus 18 to 25 deg C. Limit variation of current output to 0.8 percent for each degree below 25 deg C down to minus 8 deg C.
- C. **Rack:** Two-step rack with electrical connections between battery cells and between rows of cells; include two flexible connectors with bolted-type terminals for output leads.
- D. **Accessories:**



1. Thermometers with specific-gravity correction scales.
2. Hydrometer syringes.
3. Set of socket wrenches and other tools required for battery maintenance.
4. Wall-mounting, nonmetallic storage rack fitted to store above items.
5. Set of cell numerals.

E. **Charger:** Static-type silicon rectifier equipped with automatic regulation and provision for manual and automatic adjustment of charging rate. Unit shall automatically maintain output voltage within 0.5 percent from no load to rated charger output current, with ac input-voltage variation of plus or minus 10 percent and input-frequency variation of plus or minus 3 Hz. Other features of charger include the following:

1. DC ammeter.
2. DC Voltmeter: Maximum error of 5 percent at full-charge voltage; operates with toggle switch to select between battery and charger voltages.
3. Ground Indication: Two appropriately labeled lights to indicate circuit ground, connected in series between negative and positive terminals, with midpoint junction connected to ground by normally open push-button contact.
4. Capacity: Sufficient to supply steady load, float-charge battery between 2.20 and 2.25 V per cell and equalizing charge at 2.33 V per cell.
5. Charging-Rate Switch: Manually operated switch provides for transferring to higher charging rate. Charger operates automatically after switch operation until manually reset.
6. AC power supply is 120 V, 60 Hz, subject to plus or minus 10 percent variation in voltage and plus or minus 3-Hz variation in frequency. After loss of ac power supply for any interval, charger automatically resumes charging battery. Charger regulates rate of charge to prevent damage due to overload and to prevent fuses or circuit breakers from opening.
7. Protective Feature: Current-limiting device or circuit, which limits output current to rating of charger but does not disconnect charger from either battery or ac supply; to protect charger from damage due to overload, including short circuit on output terminals.
8. Electrical Filtering: Reduces charger's audible noise to less than 26 dB.

## 2.8 IDENTIFICATION

- A. **Materials:** Refer to Division 26 Section "Identification for Electrical Systems." Identify units, devices, controls, and wiring.
- B. **Mimic Bus:** Continuous mimic bus applied to front of switchgear, arranged in single-line diagram format, using symbols and lettered designations consistent with approved final mimic-bus diagram.
1. Mimic-bus segments coordinated with devices in switchgear sections to which applied, to produce a concise visual presentation of principal switchgear components and connections.
  2. Medium: Painted graphics, as approved.
  3. Color: Contrasting with factory-finish background; selected by Architect.



## **2.9 SOURCE QUALITY CONTROL**

- A. Before shipment of equipment, perform the following tests and prepare test reports:**
  - 1. Production tests on circuit breakers according to ANSI C37.09.**
  - 2. Production tests on completed switchgear assembly according to IEEE C37.20.2.**
- B. Assemble switchgear and equipment in manufacturer's plant and perform the following:**
  - 1. Functional tests of all relays, instruments, meters, and control devices by application of secondary three-phase voltage to voltage circuits and injection of current in current transformer secondary circuits.**
  - 2. Functional test of all control and trip circuits. Connect test devices into circuits to simulate operation of controlled remote equipment such as circuit-breaker trip coils, close coils, and auxiliary contacts. Test proper operation of relay targets.**
- C. Prepare equipment for shipment.**
  - 1. Provide suitable crating, blocking, and supports so equipment will withstand expected domestic shipping and handling shocks and vibration.**
  - 2. Weatherproof equipment for shipment. Close connection openings to prevent entrance of foreign material during shipment and storage.**

## **2.10 FACTORY FINISHES**

- A. Finish: Manufacturer's standard color finish applied to equipment before shipping.**

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine elements and surfaces to receive switchgear for compliance with requirements for installation tolerances, required clearances, and other conditions affecting performance.**
  - 1. Proceed with installation only after unsatisfactory conditions have been corrected.**

### **3.2 INSTALLATION**

- A. Anchor switchgear assembly to 4-inch, channel-iron sill embedded in floor concrete base and attach by bolting.**
  - 1. Sills: Select to suit switchgear; level and grout flush into floor concrete base.**
  - 2. Design each fastener and support to carry load indicated by seismic requirements and according to seismic-restraint details. See Division 26 Section "Vibration and Seismic Controls for Electrical Systems" for seismic-restraint requirements.**
  - 3. Concrete Bases: 4 inches high, reinforced, with chamfered edges. Extend base no less than 3 inches in all directions beyond the maximum dimensions of switchgear,**



unless otherwise indicated or unless required for seismic anchor support. Construct concrete bases according to Division 26 Section "Hangers and Supports for Electrical Systems."

- B. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from switchgear units and components.**

### **3.3 IDENTIFICATION**

- A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs as specified in Division 26 Section "Identification for Electrical Systems."**
- B. Diagram and Instructions:**
  - 1. Frame under clear acrylic plastic on front of switchgear.**
    - a. Operating Instructions: Printed basic instructions for switchgear, including control and key-interlock sequences and emergency procedures.**
    - b. System Power Riser Diagrams: Depict power sources, feeders, distribution components, and major loads.**
  - 2. Storage for Maintenance: Include a rack or holder, near the operating instructions, for a copy of maintenance manual.**

### **3.4 CONNECTIONS**

- A. Cable terminations at switchgear are specified in Division 26 Section "Medium-Voltage Cables."**
- B. Tighten bus joints, electrical connectors, and terminals according to manufacturer's published torque-tightening values.**
- C. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems."**
- D. Connect wiring according to Division 26 Sections "Low-Voltage Electrical Power Conductors and Cables" and "Medium-Voltage Cables."**

### **3.5 FIELD QUALITY CONTROL**

- A. Prepare for acceptance tests as follows:**
  - 1. Test insulation resistance for each switchgear bus, component, connecting supply, feeder, and control circuit.**
  - 2. Test continuity of each circuit.**
- B. Manufacturer's Field Service: Engage a factory-authorized service representative to perform the following:**



1. Inspect switchgear, wiring, components, connections, and equipment installation. Test and adjust components and equipment.
  2. Assist in field testing of equipment including pretesting and adjusting of automatic power factor correction units.
  3. Report results in writing.
- C. Testing Agency:** Contractor will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.
- D. Perform the following field tests and inspections and prepare test reports:**
1. Perform each electrical test and visual and mechanical inspection stated in NETA ATS. Certify compliance with test parameters. Perform NETA tests and inspections for each of the following NETA categories:
    - a. Switchgear.
    - b. Circuit breakers.
    - c. Protective relays.
    - d. Instrument transformers.
    - e. Metering and instrumentation.
    - f. Ground-fault systems.
    - g. Battery systems.
    - h. Surge arresters.
    - i. Capacitors.
- E. Remove and replace malfunctioning units and retest as specified above.**
- F. Infrared Scanning:** After Substantial Completion, but not more than 60 days after Final Acceptance, perform infrared scan of each switchgear. Remove front and rear panels so joints and connections are accessible to portable scanner.
1. **Follow-up Infrared Scanning:** Perform an additional follow-up infrared scan of each switchgear 11 months after date of Substantial Completion.
  2. **Instrument:** Use an infrared-scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
  3. **Record of Infrared Scanning:** Prepare a certified report that identifies switchgear checked and that describes infrared-scanning results. Include notation of deficiencies detected, remedial action taken and observations after remedial action.

### **3.6 ADJUSTING**

- A. Set field-adjustable, protective-relay trip characteristics according to results in Division 26 Section "Overcurrent Protective Device Coordination Study."**

### **3.7 CLEANING**

- A. On completion of installation, inspect interior and exterior of switchgear. Vacuum dirt and debris; do not use compressed air to assist in cleaning. Repair damaged finishes.**



**3.8 PROTECTION**

- A. Temporary Heating:** Apply temporary heat to switchgear, according to manufacturer's written instructions, throughout periods when switchgear environment is not controlled for temperature and humidity within manufacturer's stipulated service conditions.

**3.9 DEMONSTRATION**

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain switchgear.**

END OF SECTION 261300



SECTION 00 01 50 – LIST OF

DRAWINGS LIST OF DRAWINGS

- A. The Contract Drawings, which accompany **this** Part C; Detailed Specifications/ Scope of Work and form a part of the Contract Documents, are listed on the Title Sheet **No. 2** of the Drawings.
- B. **NOT USED.**
- C. The Contractor shall examine the Contract drawings for related contracts to ascertain the relationship of the Work to the related contracts.
- D. List of drawings:

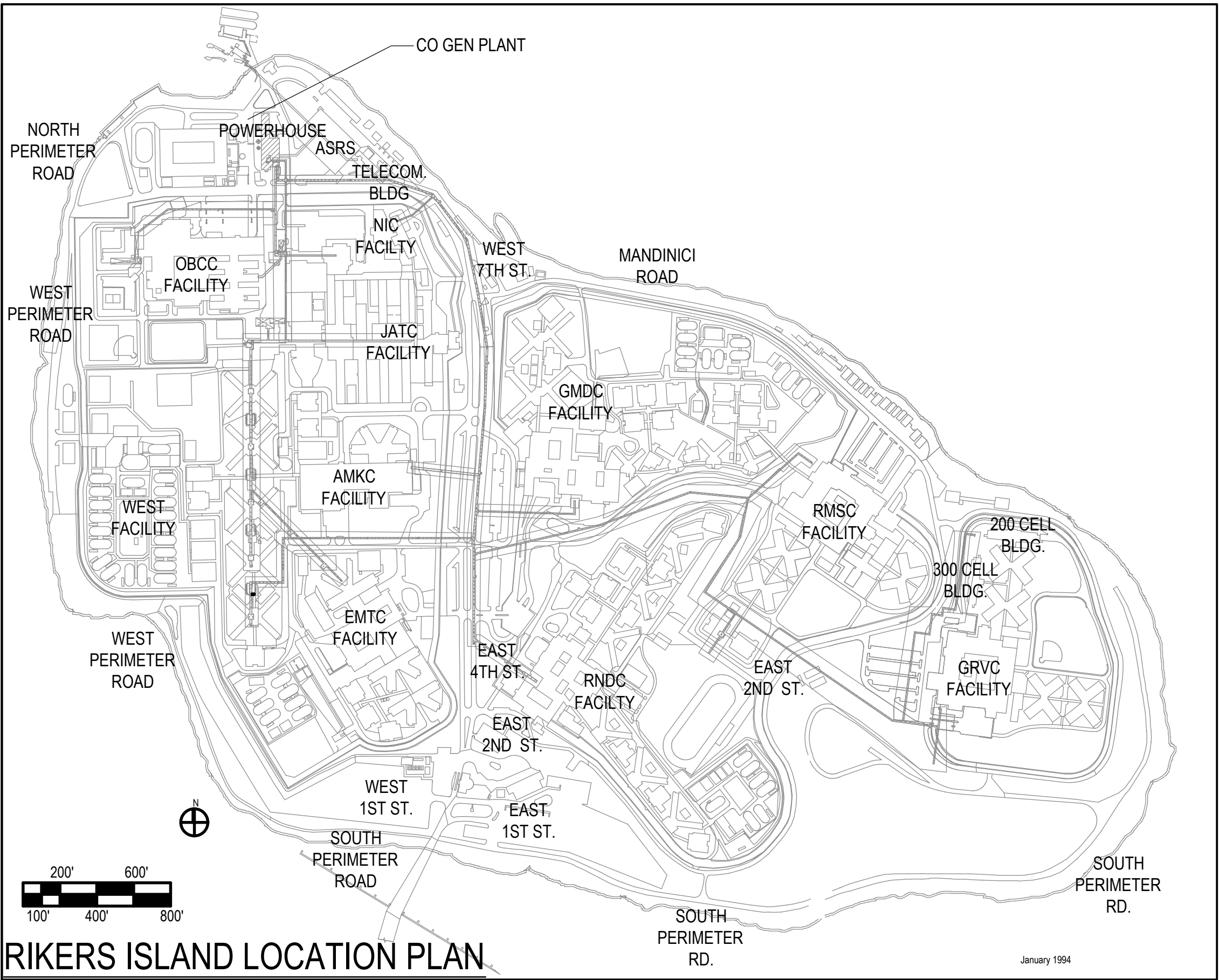
<u>No.</u>	<u>Dwg No.</u>	<u>Drawing Title</u>
1.	T001.00	Title Sheet No.1
2.	T002.00	Title Sheet No.2
3.	E001.00	Electrical – Symbols, Abbreviations
4.	E002.00	Electrical General Notes
5.	E003.00	Electrical part site (Existing feeders)
6.	DE301.00	Electrical 26.4 KV Feeders Removal
7.	E301.00	Electrical 26.4 KV New Feeders
8.	E401.00	Existing Electrical Site Plan
9.	E402.00	Existing Electrical Enlarged Part Site Plan - Sheet 1 of 4
10.	E403.00	Existing Electrical Enlarged Part Site Plan - Sheet 2 of 4
11.	E404.00	Existing Electrical Enlarged Part Site Plan - Sheet 3 of 4
12.	E405.00	Existing Electrical Enlarged Part Site Plan - Sheet 4 of 4
13.	E406.00	Existing Electrical Enlarged Part Site Plan - Substation R2
14.	E501.00	Electrical Part Plan – R1 Substation
15.	E502.00	Electrical Part Plan – R2 Substation
16.	E601.00	Electrical-Substation R1 Riser Diagram
17.	E602.00	Electrical-Substation R2 Riser Diagram
18.	E603.00	Electrical-Existing One Line Diagram Notes
19.	E801.0	Electrical-Details 1 of 2



20.	E802.00	Electrical-Details 2 of 2
21.	S100.00	Structural General Notes and Partial Bridge Plans Repair
22.	S200.00	<b>Structural Repair</b> Details

END OF SECTION 00 01 50





RIKERS ISLAND LOCATION PLAN

SITE SAFETY AND PROTECTION NOTES:

- SUBMIT TO THE OWNER FOR REVIEW A SITE SAFETY PLAN(S) PREPARED AND SIGNED BY A NEW YORK CITY LICENSED SITE SAFETY MANAGER. THE PLAN(S) SHALL BE COMPLETE, REFLECTING THE ENTIRE SITE AND SHALL SHOW ANY PHASED PROTECTION.
- THE SITE SAFETY PLAN(S) SHALL INCLUDE NOTES THAT ADDRESS ANY POTENTIAL INTERACTION BETWEEN ANY BUILDING OCCUPANTS, OWNER AND GENERAL PUBLIC AND EXPOSURE TO THE CONSTRUCTION PROCESS.
- AS WORK IS PERFORMED IN CONFINED AREAS, CONTRACTOR SHALL ENSURE FULL COMPLIANCE WITH ALL LAWS REGULATIONS, CODES AND STANDARDS AS REQUIRED TO PERFORM WORK IN SUCH SPACES.

SUMMARY OF WORK

GENERAL:

THE FOLLOWING SUMMARY OF WORK PROVIDES A VERY GENERAL OVERVIEW OF THE SCOPE OF WORK. ALL SCOPE OF WORK SHALL BE AS INCLUDED IN THIS DESCRIPTION PLUS ALL OTHER WORK REQUIRED TO MEET THE INTENT OF THE CONTRACT DOCUMENTS INCLUDED AS PART OF THE PROJECT CONTRACT.

SCOPE OF WORK

A. REPLACENT OF EXISTING 27 KV FEEDERS.

- REMOVE EXISTING 27 KV FEEDER BETWEEN MANHOLES AQ1 AND A1. EXISTING CONDUITS SHALL REMAIN.
- REMOVE EXISTING 27 KV FEEDER BETWEEN MANHOLES BQ1 AND B1. EXISTING CONDUITS SHALL REMAIN.
- REPLACE EXISTING FEEDER SUPPORTS IN ALL MANHOLES AND PLATFORMS WITH NEW.
- INSTALL NEW FEEDER BETWEEN MANHOLES AQ1 AND A1 IN EXISTING CONDUITS.
- INSTALL NEW FEEDER BETWEEN MANHOLES BQ1 AND B1 IN EXISTING CONDUITS.
- SPLICE NEW FEEDER TO EXISTING FEEDER IN MANHOLES AQ1 AND A1.
- SPLICE NEW FEEDER TO EXISTING FEEDER IN MANHOLES BQ1 AND B1.
- REPLACE THE COVERS AND RINGS AND PROVIDE ADDITIONAL RINGS AS REQUIRED FOR MANHOLES ON THE BRIDGE TO MAKE IT FLUSH WITH THE ROAD SURFACE.
- REPLACE EXISTING PLATFORMS UNDER THE MANHOLES ON EAST SIDE OF THE BRIDGE (BB1 THROUGH BB9) WITH NEW MATCHING EXISTING. SEE DETAILS.
- REPAIR EXISTING PLATFORMS UNDER THE MANHOLES ON WEST SIDE OF THE BRIDGE (AB1 THROUGH AB9).
- PROVIDE ALL REQUIRED MEANS TO PERFORM THE WORK INCLUDING BUT NOT LIMITED TO UNDER BRIDGE ACCESS SYSTEMS, ACCESS AND STAGING THROUGH WATERWAYS, ROADWAYS, ANY REQUIRED TRANSPORTATION, RIGGING, HOISTING, STORAGE, STAGING EQUIPMENT.
- CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ALL REQUIRED PERMITS, APPROVALS, LICENSES, CLEARANCES TO PERFORM ALL WORK AS SHOWN AND INTENDED INCLUDING BUT NOT LIMITED TO WORK ON PUBLIC ROADS, BRIDGES, WATERWAYS AND ON LAND.
- CONTRACTOR SHALL ENSURE UNINTERRUPTED TRAFFIC FLOW THROUGH THE BRIDGE AND ROADWAYS AT ALL TIMES.

- B. TEST, THE EXISTING 5 & 27 KV ELECTRICAL POWER FEEDER SYSTEM INCLUDING THE 5 KV & 27 KV SUBSTATIONS (R1, R2), ALL TRANSFORMERS, ALL FEEDERS INSIDE MANHOLES, PROTECTIVE RELAYS, LOAD INTERRUPTER SWITCHES, CIRCUIT BREAKERS IN SUBSTATIONS AT RIKERS ISLAND AND DISTRIBUTION. ALL TESTING SHALL BE DONE IN ACCORDANCE WITH ANSI/NETA MTS 2019 STANDARDS AND REQUIREMENTS. THE CONTRACTOR SHALL HIRE NETA ACCREDITED COMPANY FOR TESTING OF ALL EXISTING MEDIUM VOLTAGE EQUIPMENT AND FEEDERS. THE SCOPE SHALL INCLUDE POWER SYSTEM FROM MANHOLES LOCATED AT PROPERTY LINES AT THE INTERSECTION OF 19TH AVENUE AND HAZEN STREET AND END AT THE 1ST TERMINATION TO EACH LOAD IN THE FACILITY. THE SCOPE ITEMS SHALL INCLUDE THE FOLLOWING:

- SURVEY AND INVESTIGATE EXISTING LOAD INTERRUPTERS, AUTOMATIC TRANSFER SWITCHES (ATS) AND ASSOCIATED POWER DISCONNECT SWITCHES. FOLLOWING THE SURVEYS, PREPARE A CONDITIONS ASSESSMENT DOCUMENT LISTING ALL DEFICIENCIES;
- SURVEY ALL 5 & 27 KV POWER FEEDERS, SPLICES AND ASSOCIATED TERMINATIONS. PREPARE A CONDITIONS ASSESSMENT DOCUMENT LISTING ALL DEFICIENCIES;
- SURVEY ALL UNDERGROUND & ABOVE GROUND RACEWAY SYSTEMS INCLUDING ALL ASSOCIATED MANHOLES. PREPARE A CONDITION ASSESSMENT DOCUMENT LISTING ALL DEFICIENCIES;
- SURVEY ALL POWER SYSTEM PROTECTION RELAYS USED IN ALL HV SUBSTATIONS. PREPARE CONDITION ASSESSMENT DOCUMENT LISTING ALL DEFICIENCIES;
- SURVEY ALL 5 & 27 KV SUBSTATIONS AND PREPARE CONDITION ASSESSMENT DOCUMENT DOCUMENTING ALL DEFICIENCIES;
- PERFORM CALCULATIONS TO NOTE AVAILABLE FAULT CURRENTS AT EACH MANHOLE AND MAJOR POINTS;
- PREPARE AN UPDATED SET OF DOCUMENTS FOR THE COMPLETE POWER SYSTEM ON RIKERS ISLAND DELIVERING POWER TO EACH LOAD.
- IDENTIFY ALL 5 KV AND 27 KV MANHOLES WITH LETTERING 5 KV OR 27 KV AS APPLICABLE. SOME OF THE MANHOLES ARE CURRENTLY UNNUMBERED. CONTRACTOR TO ASSIGN FINAL NUMBERS IN CONSULTATION WITH DOC FOR ALL MANHOLES.
- ALL FIELD MANHOLES WILL BE IDENTIFIED VIA GPS COORDINATES.
- THE CONTRACTOR SHALL TAG ALL FEEDERS IN MANHOLES.

- CONTRACTOR SHALL PREPARE AS-BUILT PLANS OF THE ENTIRE ISLAND SITE INDICATING ALL THE EXISTING AND NEW MANHOLES AND FEEDERS IN AUTOCAD FILES INCLUDING ALL MANHOLE NUMBERS, FEEDER SIZES, TAGS, GPS COORDINATES AND SUBMIT TO DOC FOR THEIR REVIEW AND ACCEPTANCE. AS PART OF THE CLOSEOUT DOCUMENTATION, CONTRACTOR SHALL PROVIDE BOTH AUTOCAD FILES AND (4) HARD COPIES OF SUCH AS-BUILTS TO DOC.
- PROVIDE EXTENSION COLLAR TO RAISE THE MANHOLE FOR THE MANHOLES NOTED WITH "FV" ON DRAWING E401.00 TO MAKE THE MANHOLE COVER FLUSH WITH THE GRADE OR SURFACE.
- PERFORM LOAD BALANCING ACROSS ALL 4-27 KV FEEDERS.
- CALIBRATE ALL RELAYS IN SUBSTATIONS R1 AND R2.
- IN SUBSTATION R1, REPLACE EXISTING 27 KV DRAWOUT TYPE VACUUM POWER CIRCUIT BREAKER CB-H2 FOR CON EDISON FEEDER 1Q14 (CONTROLLED POWER CORP TYPE SVB3-35-WA-CR) WITH NEW VACUUM POWER CIRCUIT BREAKER MATCHING EXISTING RATED AT 1200A, 38KV, 1500MVA (EQUAL TO MYERS POWER PRODUCTS, 1200A, 38KV, HVF38 VACUUM CB, 31.5KA RATED INT. CURRENT A 120V DC COIL CLOSING OPERATION, 150KV BIL) INCLUDING ASSOCIATED RELAYS, CT, PT, SURGE ARRESTORS AND ACCESSORIES.
- PERFORM ARC FLASH ANALYSIS / STUDY AND LABEL ALL EQUIPMENT IN SUBSTATIONS R1 AND R2 BASED ON THE ARC FAULT ANALYSIS.
- IN SUBSTATION R1, REPLACE EXISTING 27 KV DRAWOUT TYPE VACUUM POWER CIRCUIT BREAKER CB-H1 (1Q 25) FOR CON EDISON FEEDER 1Q1 (CONTROLLED POWER CORP TYPE SVB3-35-WA-CR) WITH NEW VACUUM POWER CIRCUIT BREAKER MATCHING EXISTING RATED AT 1200A, 38KV, 1500MVA (EQUAL TO MYERS POWER PRODUCTS, 1200A, 38KV, HVF38 VACUUM CB, 31.5KA RATED INT. CURRENT A 120V DC COIL CLOSING OPERATION, 150KV BIL) INCLUDING ASSOCIATED RELAYS, CT, PT, SURGE ARRESTORS AND ACCESSORIES.

C. AFTER THE ABOVE WORK:

- EOR WILL ANALYZE AND DOCUMENT THE INFORMATION BY PREPARING UPDATED DRAWINGS SHOWING SINGLE LINE DIAGRAMS AND ALL POWER SYSTEM COMPONENTS INCLUDING EACH MANHOLE AND POWER DROP INTO EACH FACILITY.
- EOR WILL ANALYZE EXISTING DEFICIENCIES, ISSUES AND ITEMS REQUIRING RENEWAL, UPGRADE AND / OR REPLACEMENTS AND PREPARE A DETAIL SCOPE OF WORK FOR EACH OF THE ITEMS FOR THE 5 & 27 KV POWER SYSTEM.
- UPON CONCLUSION OF THE SCOPE OF WORK REPORT AND AFTER ESTABLISHING DEFINITIVE SCOPE AND BUDGET TO ADDRESS ANY DEFICIENCIES, SEPARATE BIDDABLE DOCUMENTS FOR CONSTRUCTION WORK WILL BE PREPARED BY EOR TO ADDRESS THE DEFICIENCIES.

D. ADD ALTERNATE

CONTRACTOR SHALL INCLUDE REPLACEMENT OF 4 MANHOLES AS PART OF HIS BID PRICE, THE DEPARTMENT, WILL DETERMINE AND AUTHORIZE AS TO HOW MANY OF THE 4 MANHOLES SHALL BE REPLACED DURING THE CONSTRUCTION PHASE. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION FROM CMU-PROJECT MANAGER.

DRAWING LIST

DRAWING #	DRAWING NAME	PAGE NUMBER
T-001.00	TITLE SHEET NO. 1	1 of 22
T-002.00	TITLE SHEET NO. 2	2 of 22
E-001.00	ELECTRICAL SYMBOLS, ABBREVIATIONS	3 of 22
E-002.00	ELECTRICAL GENERAL NOTES	4 of 22
E-003.00	ELECTRICAL PART SITE (EXISTING FEEDERS)	5 of 22
DE-301.00	ELECTRICAL 26.4KV FEEDERS REMOVAL	6 of 22
E-301.00	ELECTRICAL 26.4KV NEW FEEDERS	7 of 22
E-401.00	EXISTING ELECTRICAL SITE PLAN	8 of 22
E-402.00	EXISTING ELECTRICAL ENLARGED PART SITE PLAN - SHEET 1 OF 4	9 of 22
E-403.00	EXISTING ELECTRICAL ENLARGED PART SITE PLAN - SHEET 2 OF 4	10 of 22
E-404.00	EXISTING ELECTRICAL ENLARGED PART SITE PLAN - SHEET 3 OF 4	11 of 22
E-405.00	EXISTING ELECTRICAL ENLARGED PART SITE PLAN - SHEET 4 OF 4	12 of 22
E-406.00	EXISTING ELECTRICAL ENLARGED PART SITE PLAN - SUBSTATION R2	13 of 22
E-501.00	ELECTRICAL PART PLAN - R1 SUBSTATION	14 of 22
E-502.00	ELECTRICAL PART PLAN - R2 SUBSTATION	15 of 22
E-601.00	ELECTRICAL - SUBSTATION R1 RISER DIAGRAM	16 of 22
E-602.00	ELECTRICAL - SUBSTATION R2 RISER DIAGRAM	17 of 22
E-603.00	ELECTRICAL - EXISTING ONE LINE DIAGRAM NOTES	18 of 22
E-801.00	ELECTRICAL DETAILS 1 OF 2	19 of 22
E-802.00	ELECTRICAL DETAILS 2 OF 2	20 of 22
S100.00	STRUCTURAL GENERAL NOTES AND PARTIAL BRIDGE PLANS	21 of 22
S200.00	STRUCTURAL REPAIR DETAILS	22 of 22



## GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF THE 2011 NYC ELECTRICAL CODE AND THE NYC AMENDMENTS TO THE NEC-2011, THE APPLICABLE SECTIONS OF THE NFPA, THE 2014 NYC BUILDING CODE, DOC STANDARDS AND ALL GOVERNING LOCAL CODES, LAWS, AND REGULATIONS.
2. PROVIDE A COMPLETE OPERABLE SYSTEM IN A WORKMANLIKE MANNER. OUTLINE DESCRIPTION AND EQUIPMENT DO NOT LIMIT CONTRACTOR'S LIABILITY FOR THE INSTALLATION OF A COMPLETE OPERABLE SYSTEM.
3. 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 DRAWINGS AND SPECIFICATIONS
4. CONTRACTOR TO BE RESPONSIBLE FOR REVIEWING THE FULL SET OF BID DOCUMENTS TO BE AWARE OF THE TOTAL SCOPE PRIOR TO SUBMITTING BID. ALL WORK SHOWN ON THE DRAWINGS NOT SPECIFICALLY CALLED OUT AS EXISTING SHALL BE CONSIDERED WORK TO BE PERFORMED UNDER THIS CONTRACT.
5. BIDDERS, BEFORE SUBMITTING A PROPOSAL, SHALL VISIT AND CAREFULLY EXAMINE THE SITE TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS AND WITH THE DIFFICULTIES THAT WILL ATTEND THE EXECUTION OF THIS WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH EXAMINATION HAS BEEN MADE. LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED. NO ALLOWANCE WILL SUBSEQUENTLY BE MADE TO THE CONTRACTOR BY REASON OF ANY ERROR DUE TO THE CONTRACTOR'S NEGLIGENCE TO COMPLY WITH THIS REQUIREMENT. REPORT ANY DISCREPANCIES BETWEEN DRAWINGS AND FIELD CONDITIONS TO THE ENGINEER.
6. BEFORE COMMENCING WORK, THE CONTRACTOR SHALL FILE ALL REQUIRED CERTIFICATES OF INSURANCE WITH THE AUTHORITY HAVING JURISDICTION. OBTAIN ALL REQUIRED PERMITS, TEST REPORTS, CERTIFICATIONS FOR T.C.O. AND C.O. AND PAY ALL FEES REQUIRED..
7. ELECTRICAL CONTRACTOR SHALL TAKE DELIVERY AND RESPONSIBILITY FOR ALL EQUIPMENT PRE-PURCHASED BY THE OWNER FOR THIS PROJECT. WORK SHALL INCLUDE RECEIVING EQUIPMENT AT STREET-SIDE, MOVING IT TO INTERIM ONSITE SECURE STORAGE LOCATION, PROTECTING EQUIPMENT FROM DAMAGE, MOVING THE EQUIPMENT FROM STORAGE TO ITS FINAL POSITION, SETTING IN PLACE, AND COMPLETION OF ALL INSTALLATION, TESTING AND COMMISSIONING PROCEDURES REQUIRED FOR APPLICABLE EQUIPMENT.
8. UPON COMPLETION OF ALL ELECTRICAL WORK, ELECTRICAL CONTRACTOR SHALL ADJUST AND TEST ALL CIRCUITS, WIRING DEVICES AND ANY OTHER ELECTRICAL ITEMS INSTALLED. ANY DEFECTIVE ITEMS SHALL BE IMMEDIATELY REPAIRED OR REPLACED WITH NEW EQUIPMENT OR MATERIALS AND THAT PORTION OF THE SYSTEM SHALL BE RETESTED. ALL SUCH REMEDIAL WORK SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
9. ALL NOTATIONS OF "SCALE" ARE INTENDED AS APPROXIMATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE TO ASCERTAIN THE EXACT DIMENSIONS IN FIELD.
10. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC, SIZES AND LOCATION OF EQUIPMENT AND WIRING ARE SHOWN TO SCALE WHERE POSSIBLE, BUT MAY BE DISTORTED FOR CLARITY ON THE DRAWINGS.
11. UNLESS OTHERWISE NOTED, ELECTRICAL EQUIPMENT INCLUDING BUT NOT LIMITED TO PULL BOXES, JUNCTION BOXES, WIRING DEVICES, PANELBOARDS, LOW VOLTAGE SYSTEMS DEVICES, ETC WHERE INDICATED ON DRAWINGS, SHALL BE CONSIDERED SHOWN AT THEIR APPROXIMATE LOCATION. THE CONTRACTOR SHALL LOCATE THESE ITEMS AS FIELD CONDITIONS DICTATE AND AS APPROVED BY THE ARCHITECT OR HIS REPRESENTATIVE. .
12. ALL CONDUIT RUNS, WHEN SHOWN ON THE DRAWINGS, ARE SHOWN DIAGRAMMATICALLY TO OUTLINE THE GENERAL ROUTING OF MAJOR FEEDERS AND BRANCH WIRING. IT IS NOT WITHIN THE SCOPE OF THESE DRAWINGS TO SHOW ALL NECESSARY BENDS, OFFSETS, PULL BOXES AND OBSTRUCTIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL HIS WORK TO CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE.
13. ADDITIONAL PULL AND JUNCTION BOXES NOT SHOWN ON DRAWINGS SHALL BE PROVIDED WHERE REQUIRED BY APPLICABLE CODE REQUIREMENTS OR WHERE CALLED FOR BY FIELD CONDITIONS. PULL AND JUNCTION BOXES SHALL BE SURFACE TYPE IN UNFINISHED AREAS AND FLUSH TYPE IN FINISHED AREAS.
14. CONDUIT RUNS SHALL CLEAR ALL ARCHITECTURAL FEATURES (DOORS, WINDOWS, ETC) AND STRUCTURAL MEMBERS. CONDUIT INSTALLATION SHALL ALSO BE MADE TO AVOID INTERFERENCE WITH PIPES, DUCTS, OR OTHER EQUIPMENT CORRESPONDING TO OTHER TRADES, INCLUDING BUT NOT LIMITED TO MECHANICAL, PLUMBING AND FIRE PROTECTION. SHALL ANY OF THIS ELEMENTS PREVENT THE INSTALLATION OF RACEWAY AS DELINEATED ON THE CONTRACT DOCUMENTS, DEVIATION MUST BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. ANY VARIATION DUE TO FIELD CONDITIONS SHALL NOT REPRESENT AN ADDITIONAL COST TO OWNER.

## GENERAL NOTES

- SUPPORT ALL ELECTRICAL EQUIPMENT AND CONDUIT FROM BUILDING STRUCTURE AND/OR FRAMING IN AN APPROVED MANNER. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING OF SUPPORTS FOR EQUIPMENT, FURNISH ADDITIONAL FRAMING. ALL ELECTRICAL EQUIPMENT AND RACEWAY SHALL BE SUSPENDED FROM SUPPLEMENTAL SLOTTED CHANNEL FRAME. ALL SUCH MOUNTS, DEVICES, FASTENERS SHALL BE OF SUFFICIENT THICKNESS TO CARRY THE LOAD SUSPENDED AND SHALL BE SEISMICALLY RESTRAINED. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY ADDITIONAL SUPPLEMENTAL STEEL REQUIRED TO SUPPORT THE EQUIPMENT OR DEVICES.
16. PROVIDE OUTLET BOXES AND ENCLOSURES APPROPRIATE FOR THE PURPOSE AT ALL LOCATIONS WHERE THE DRAWINGS REQUIRE THE INSTALLATION OF ELECTRICAL DEVICES OR ELECTRICAL EQUIPMENT.
17. ALL EXPOSED NONCURRENT-CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT AND RACEWAYS SHALL BE GROUNDED. A SEPARATE GROUND CONDUCTOR SHALL BE RUN IN ALL CONDUITS IN ALL CASES. ENSURE CONTINUITY OF THE GROUNDING CIRCUIT FROM THE SUPPLYING PANELBOARD GROUNDING BUS TO THE LOAD GROUND TERMINAL. THE RESISTANCE FROM THE SERVICE EQUIPMENT GROUND BUS TO ANY LOAD GROUND TERMINAL SHALL NOT EXCEED 1 OHM.
18. ALL ELECTRICAL EQUIPMENT AND ACCESSORIES INSTALLED OUTSIDE OR EXPOSED TO WEATHER SHALL HAVE NEMA 3R ENCLOSURES AND SHALL BE TIGHTLY GASKETED FOR A COMPLETE RAIN-TIGHT INSTALLATION.
19. ALL EQUIPMENT SHALL HAVE COPPER CURRENT CARRYING PARTS INCLUDING GROUND BUS AND TERMINALS.
20. PROVIDE 4-INCH HIGH CONCRETE HOUSING PADS FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT. COORDINATE WITH GENERAL CONTRACTOR.
21. REMOVE ALL DEBRIS RESULTING FROM REMOVAL AND/OR INSTALLATION OF ELECTRICAL WORK FROM THE PREMISES.
22. CONTRACTOR TO PROVIDE LABOR AND MATERIALS REQUIRED FOR THE INSTALLATION AND MAINTENANCE OF TEMPORARY LIGHTING AND REQUIRED POWER SOURCES
23. UNLESS OTHERWISE NOTED, "INSTALL" MEANS TO BE PROVIDED AND INSTALLED BY THIS CONTRACTOR.
24. COORDINATE ALL WORK WITH CON EDISON.
25. CONTRACTOR SHALL PROVIDE FLAG MEN TO CONTROL TRAFFIC ON THE BRIDGE DURING REMOVAL AND INSTALLATION OF NEW FEEDERS.
26. PROVIDE ALL ACCESS SOURCES INCLUDING BUT NOT LIMITED TO BARGES, CRANES, TUGBOATS, TRANSPORTATION AS REQUIRED DURING REPLACEMENT OF PLATFORMS UNDER THE BRIDGE.
27. THE FEEDERS SHALL BE REPLACED ONE FEEDER AT A TIME.
28. THE CONTRACTOR SHALL PUMP OUT WATER FROM EXISTING MANHOLES IF REQUIRED. GROUND WATER VARIES AT VARIOUS LOCATIONS. THE GROUND WATER DEPTH AT A DIFFERENT LOCATION ON RIKERS ISLAND WAS MEASURED TO BE 10 FT. BELOW EXISTING GROUND SURFACE. IF THE MANHOLE WATER VOLUME EXCEEDS THE VOLUME OF THE MANHOLE THAN THE WATER SHALL BE DISCHARGED TO THE STORM SYSTEM PER SEWER USE REGULATIONS ESTABLISHED IN TITLE 15 OF THE RULES OF THE CITY OF NEW YORK (RCNY) CHAPTER 19.
29. ALL WORK SHALL BE PERFORMED ONLY BY QUALIFIED AND CERTIFIED CONTRACTOR FOR THE TYPE OF WORK INCLUDED IN THE PROJECT. ALL CERTIFICATIONS SHALL BE CURRENT AND VALID WITH ALL AUTHORITIES HAVING JURISDICTION.
30. SAFETY SHALL BE PARAMOUNT FOR ALL WORK DONE IN THE PROJECT. CONTRACTOR SHALL ENSURE ALL PROCESS AS REQUIRED BY ALL AUTHORITIES HAVING JURISDICTION FOR SAFE PERFORMANCE OF WORK.

## GENERAL DEMOLITION NOTES

1. U.O.N. PROVIDE ALL LABOR, EQUIPMENT, AND MATERIALS AS REQUIRED FOR THE DEMOLITION AND REMOVAL OF THE FOLLOWING: IN THE AREA OF WORK  
A) REMOVAL OF 27 KV FEEDERS AS SHOWN
2. THE DEMOLITION WORK SHALL BE CARRIED ON IN EVERY RESPECT IN A THOROUGH AND WORKMANLIKE MANNER.
3. ALL DEMOLITION, REMOVAL, AND DISPOSAL WORK SHALL BE IN COMPLIANCE WITH THE REQUIREMENTS OF THE PREVAILING FEDERAL AND STATE CODES AND REGULATIONS.
4. REMOVE ALL DEBRIS NOT EXPLICITLY DESIGNATED TO BE SALVAGED (TO REMAIN) FROM THE PREMISES AND LEGALLY DISPOSE OFF AWAY FROM PREMISES.
5. ITEMS INDICATED TO BE SALVAGED SHALL BE REMOVED EITHER BEFORE DEMOLITION OR DURING THE PROCESS OF THE WORK, STORED AND PROTECTED ON THE SITE IN A LOCATION DESIGNATED BY PROJECT ENGINEER. THESE ITEMS WILL BE IDENTIFIED AND RETAINED BY THE PROJECT ENGINEER.
6. CAREFULLY REMOVE AND PROTECT ALL ITEMS TO BE SAVED AND REUSED AS INDICATED ON DRAWINGS. REPLACE ANY ITEMS THAT ARE DAMAGED BY REMOVAL AT YOUR OWN COST. NOTIFY THE AUTHORITY IN WRITING OF ANY ITEM THAT IS DAMAGED PRIOR TO REMOVAL SO THAT THEY MAY ASCERTAIN THE ITEM'S CONDITION
7. PROTECT BUILDING MATERIALS, SURFACES AND STRUCTURES, WHICH ARE TO REMAIN, FROM DAMAGE; IF DAMAGE OCCURS, REPAIR OR REPLACEMENT SHALL BE MADE BY THE CONTRACTOR, TO THE SATISFACTION OF THE AUTHORITY, AND AT THE EXPENSE OF THE CONTRACTOR. ALL DISTURBED AREAS SHALL BE FINISHED TO MATCH EXISTING CONDITIONS.
8. DISCONNECT, REMOVE AND RELOCATE ANY ELECTRICAL EQUIPMENT NOT SHOWN ON THESE DRAWINGS AS PART OF THIS CONTRACT, BUT INTERFERES WITH THE WORK UNDER THIS CONTRACT. THIS WORK SHALL NOT BE CONSIDERED EXTRA AND SHALL BE DONE AT NO ADDITIONAL COST TO THE OWNER.
9. VISIT AND EXAMINE CAREFULLY THE AREAS AFFECTED BY THIS WORK TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND WITH THE DIFFICULTIES THAT ATTEND THE EXECUTION OF THIS WORK. LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT, OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED.
10. RELOCATE AND/OR ALTER THE EXISTING BUILDING COMPONENTS AS DIRECTED BY OWNERS' REPRESENTATIVE. ALL RELOCATION OR ALTERATIONS TO BUILDING SHALL BE RESTORED TO THEIR ORIGINAL WORKING CONDITIONS AFTER SUCH RELOCATION OR ALTERATION WORK.
11. COORDINATE WITH SITE PERSONNEL TO MINIMIZE IMPACT OF OPERATION OF THE BUILDING DURING DEMOLITION AND CONSTRUCTION.
12. WHEN POWER SHUTOFF IS REQUIRED, CONTRACTOR IS TO MAINTAIN CONTINUOUS SERVICE ON FEEDERS SERVING THE AREAS AFFECTED DURING ALL THE PERIOD THE AREA IS UNDER CONSTRUCTION. NO OUTAGES WILL BE PERMITTED IN THESE AREAS DUE TO THE CONSTRUCTION PHASE. ALL WORK REQUIRING TEMPORARY SHUTDOWN SHALL BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER. ANY APPROVAL FOR SHUTDOWNS SHOULD BE BROUGHT TO THE ATTENTION OF THE OWNER AND IT MUST BE NOTIFIED IN WRITING 72 (SEVENTY-TWO) HOURS IN ADVANCE.

## POWER SHUTDOWN

1. CONTRACTOR SHALL COORDINATE ALL POWER SHUTDOWNS WITH DOC.
2. POWER SHUTDOWN SHALL BE KEPT TO BE MINIMAL AND MUST BE APPROVED BY DOC.
3. COORDINATE ALL WORK INCLUDING BUT NOT LIMITED TO SHUTDOWN, DEENERGIZING, REPLACING, RE-ENERGIZING, TESTING WORK WITH CON EDISON FOR DISCONNECTION AND RECONNECTION OF 27KV FEEDERS TO CON EDISON FEEDERS.

## PHASING NOTES

1. CONFIRM WITH OWNER THE PHASING REQUIREMENTS OF THE PROJECT BEFORE BIDDING REGARDLESS OF WHETHER THE INFORMATION IS PRESENTED (OR OTHERWISE) IN THE CONTRACT DOCUMENTS.
2. ANY PHASING INFORMATION WHERE PROVIDED IN THE CONTRACT DOCUMENTS ARE TO PROVIDE THE INTENT OF PHASING WORK ONLY AND MAY NOT INCLUDE ALL INFORMATION REQUIRED TO MEET THE INTENT OF THE OWNERS REQUIREMENTS. IT IS THE CONTRACTORS REASONABILITY TO VERIFY THE PHASING REQUIREMENTS, METHODOLOGY, SCHEDULE, COORDINATION WITH THE OWNER.
3. IN ALL ASPECTS OF PHASING WORK, ALL ITEMS SHALL BE IN FULL COMPLIANCE WITH THE CURRENT CODE AND STANDARDS.
4. ALL PHASES OF THE PROJECTS SHALL ENSURE STANDALONE ONE FULLY FUNCTIONAL CODE COMPLIANT SYSTEM REQUIRED FOR AN OCCUPIED SPACE USE.
5. ALL PHASING COSTS SHALL BE INCLUDED IN THE PROJECT BID.

## PHASING SEQUENCE

1. REPLACE EXISTING 26.4 KV FEEDER 1Q15 WITH NEW FEEDER.
2. WHEN NEW 26.4 KV FEEDER 1Q15 IS INSTALLED, TESTED AND IS OPERATIONAL, REPLACE EXISTING 26.4 KV FEEDER 1Q02 AND ASSOCIATED PLATFORMS UNDER THE BRIDGE.
3. FOR TESTING OF ALL 5 KV AND 26.4 KV EQUIPMENT IN SUBSTATIONS R1 AND R2, COORDINATE / REVIEW WITH CMU.
4. FOR ALL WORK RELATED TO ALL 5 KV AND 26.4 KV UNDERGROUND FEEDERS AND MANHOLES, COORDINATE / REVIEW WITH CMU.
5. PHASING SEQUENCE IS THE SUGGESTED PHASING. CONTRACTOR SHALL PREPARE HIS OWN PHASING PLAN AND COORDINATE / REVIEW WITH CMU.

## TEMPORARY CONSTRUCTION POWER

1. CONTRACTOR SHALL PROVIDE PORTABLE GENERATOR FOR TEMPORARY CONSTRUCTION POWER DURING CONSTRUCTION AS REQUIRED.



THE CITY OF NEW YORK  
DEPARTMENT OF CORRECTION

## DIVISION OF CAPITAL POLICY AND DEVELOPMENT ENGINEERING UNIT

DESIGNED BY:



630 9th Avenue, Suite 1012  
New York, New York 10036  
Tel. 212.680.8945  
[www.iaqsys.com](http://www.iaqsys.com)

Project:

Project: **RIKERS ISLAND  
MEDIUM VOLTAGE FEEDERS  
AND SUBSTATION UPGRADES**

RIKERS ISLAND,  
EAST ELMHURST, NEW YORK 11370

			IT IS A VIOLATION OF THE STATE EDUCATION LAW SECTION 7209 (2) FOR ANY PERSON TO ALTER AN ITEM IN ANY WAY UNLESS SUCH PERSON IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, AND THE ENGINEER STAMPS SUCH CHANGES
			Executive Director: HARDEE SAINI
			Project Manager: BV
			Project Engineer: TS
			Drawn By: DB      Checked By: SB
No.	Date	Revision	PIN# 072201931CPD      Date: .

Drawing Title:

# ELECTRICAL GENERAL NOTES

Seal:

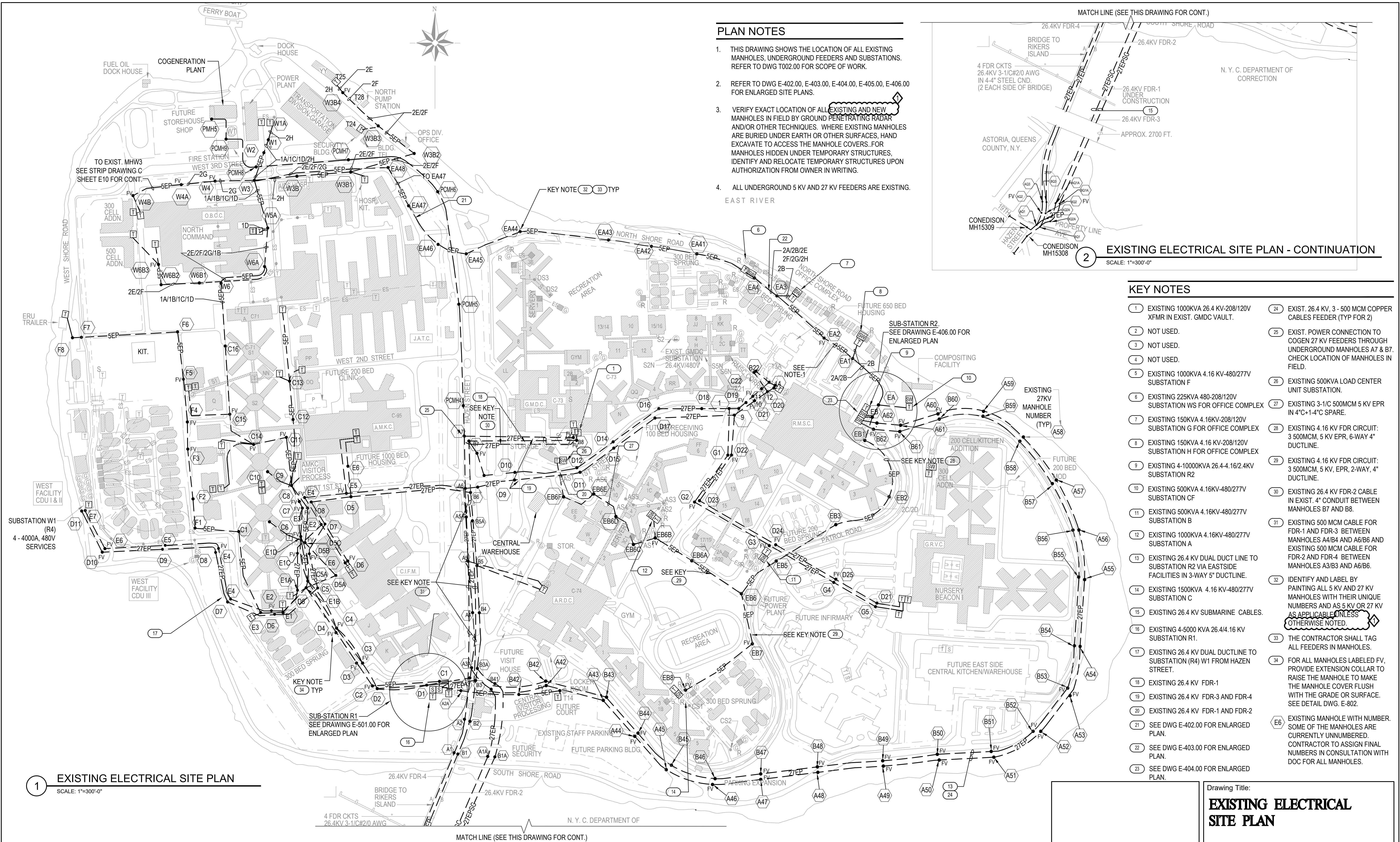
Drawing No.:

# E002.00

Scale: **NONE**

Sheet: **4** of **22**







1	CPT
2	CB - 43
3	CB - 41/42
4	CB - L4
5	CB - 34T
6	SPACE
7	CB - 31/32
8	CB - L3
9	CB - 23T
10	G & T DEVICE STORAGE
11	CB - 21/22
12	CB - L2
13	CB - 12T
14	SPACE
15	CB -11/12
16	CB -L1
17	CPT
18	5000 KVA TRANSFORMER

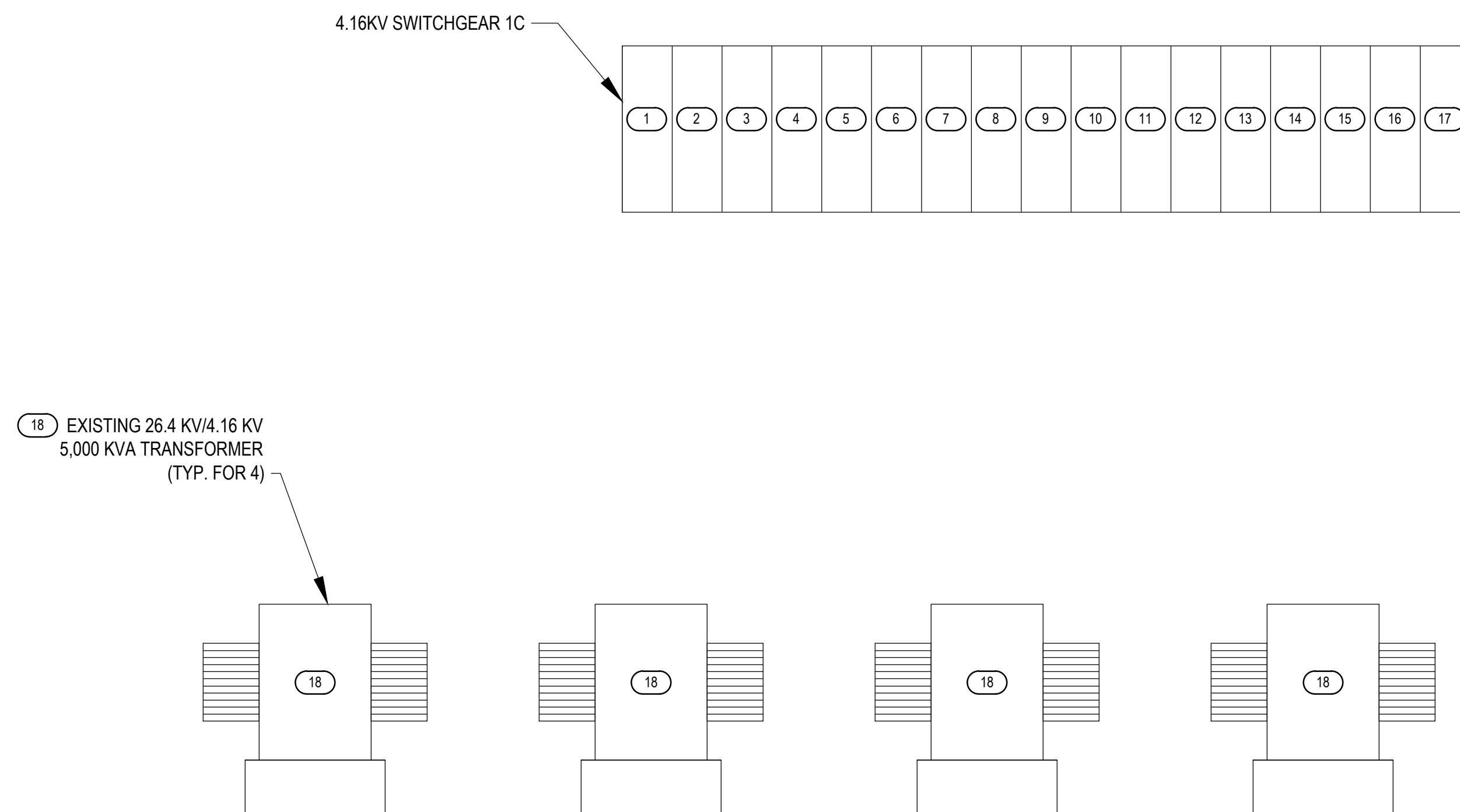
- |    |                      |
|----|----------------------|
| 19 | CPT                  |
| 20 | 1Q15 CB - H4         |
| 21 | 1Q15 AUXILIARY       |
| 22 | SPACE                |
| 23 | 1Q02 AUXILIARY       |
| 24 | 1Q02 CB - H3         |
| 25 | CPT                  |
| 26 | CPT                  |
| 27 | G & T DEVICE STORAGE |
| 28 | 1Q14 CB - H2         |
| 29 | 1Q14 AUXILIARY       |
| 30 | SPACE                |
| 31 | 1Q01 AUXILIARY       |
| 32 | 1Q01 CB - H1         |
| 33 | CPT                  |

1. THIS PLAN SHOWS THE PLAN OF THE EQUIPMENT IN SUBSTATIONS R1 TO BE TESTED. REFER TO DRAWING E-601.00 FOR THE SINGLE LINE DIAGRAM FOR SUBSTATION R1. VERIFY ALL EQUIPMENT IN FIELD.
2. VERIFY CON-EDISON FEEDER NUMBERS IN 26.4 KV SWITCHGEAR IN FIELD AND WITH CON-EDISON.
3. PERFORM ARC FLASH ANALYSIS / STUDY AND LABEL ALL EQUIPMENT IN SUBSTATION BASED ON THE ARC FAULT ANALYSIS.
4. 27KV ELECTRIC SERVICE FEEDER 1Q1 FROM CONEDISON FEEDS CIRCUIT BREAKERS LABELED 1Q25 IN SUBSTATION R1 AND R2.

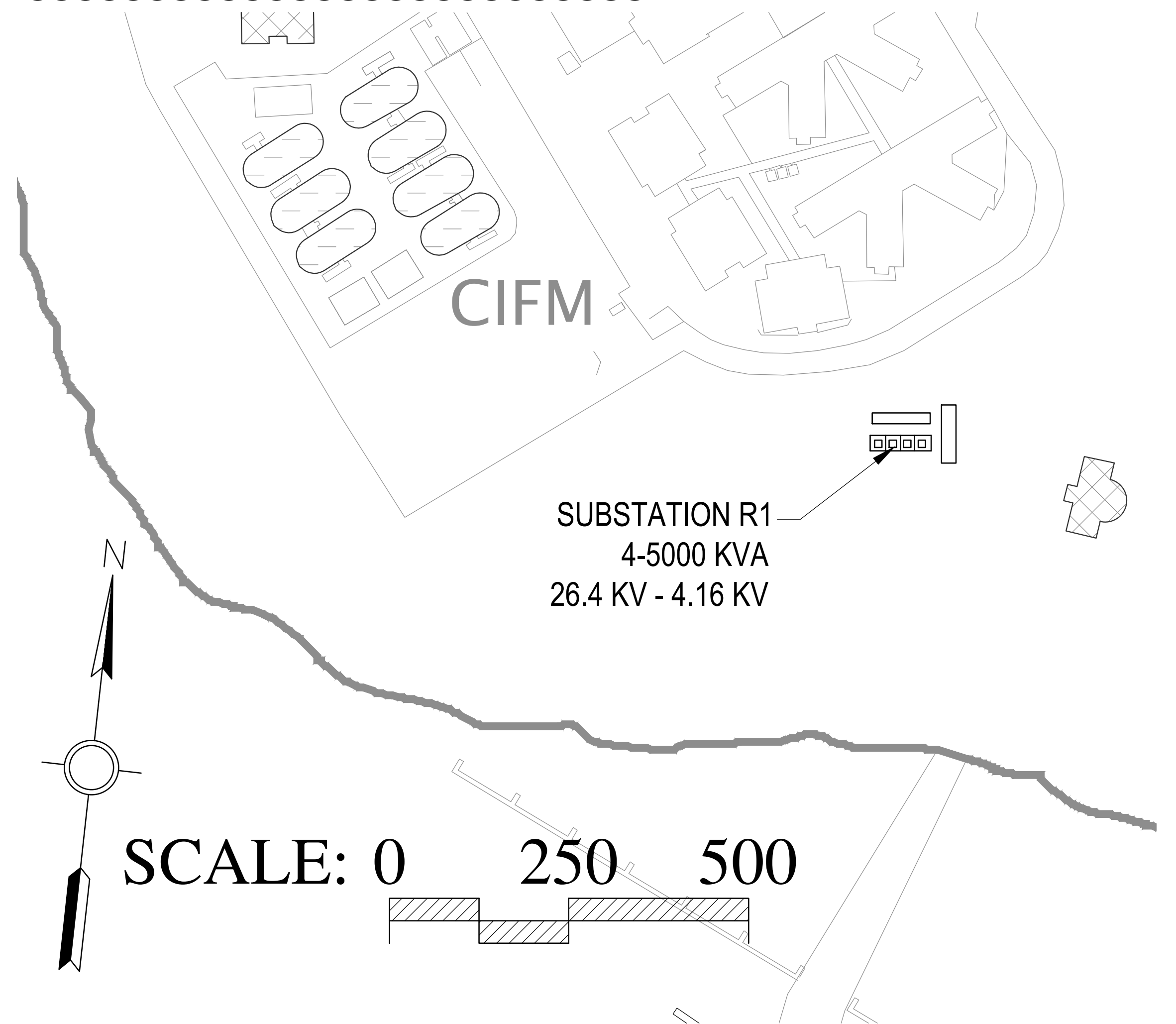
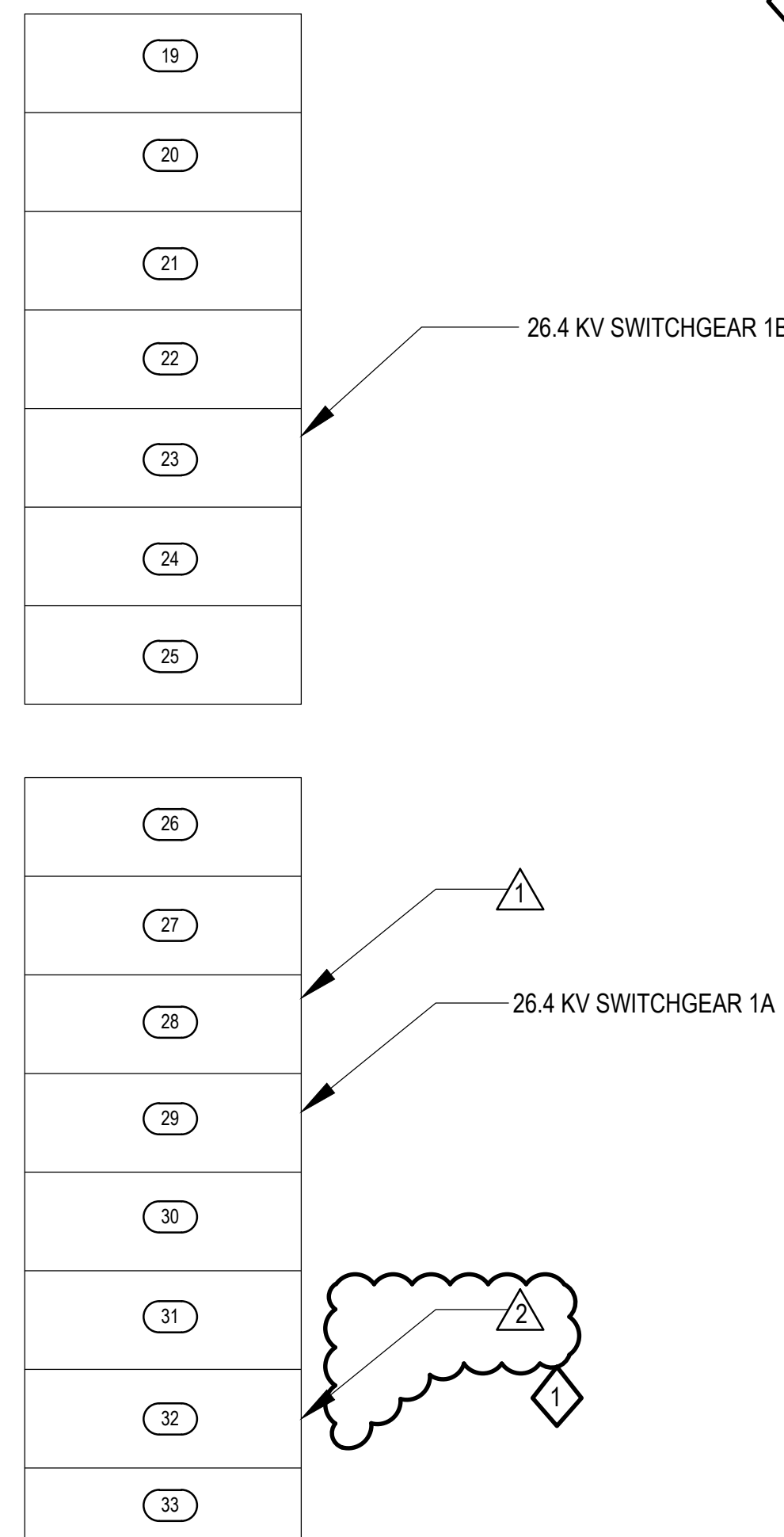
1. REPLACE EXISTING 27 KV DRAWOUT TYPE VACUUM POWER CIRCUIT BREAKER CB-H2 FOR CON EDISON FEEDER 10414 (CONTROLLED POWER CORP TYPE SVB3-35-WA-CR, SERIAL # R-90636A-2-47272-1, 85K PEAK MOMENTARY AMPS, 31.5 KA INTERRUPTING CURRENT, INT. TIME 5 CYCLES) WITH NEW VACUUM POWER CIRCUIT BREAKER MATCHING EXISTING RATED AT 1200A, 38 KV, 1500MVA (EQUAL TO MYERS POWER PRODUCTS, 1200A, 38 KV, HVF38 VACUUM CB, 31.5KA RATED INT. CURRENT, 120V DC COIL CLOSING OPERATION, 150KV VIL). NEW VACUUM POWER CIRCUIT BREAKER SHALL FIT IN THE EXISTING DRAW-OUT CIRCUIT BREAKER SPACE IN THE SWITCHGEAR. RECONNECT ALL EXISTING CONTROL WIRING FOR RELAYS TO NEW VACUUM POWER CIRCUIT BREAKER AS SHOWN ON DWG E601.00. NEW VACUUM POWER CIRCUIT BREAKER SHALL BE COMPATIBLE WITH EXISTING SWITCHGEAR MANUFACTURED BY CPC (CONTROLLED POWER CORP), NOW OWNED BY MYERS POWER-OHIO. CONTRACTOR SHALL PROVIDE ALL ACCESSORIES, CONTROL WIRING, TESTING FOR PROPER OPERATION OF THE CIRCUIT BREAKER IN THE EXISTING SWITCHGEAR. PROVIDE NEW PROTECTIVE RELAYS MATCHING WITH EXISTING, CURRENT TRANSFORMERS, VOLTAGE TRANSFORMERS, SURGE ARRESTERS, AMMETER AND VOLTMETER SWITCHES, INDICATING LIGHTS ASSOCIATED WITH THE NEW CIRCUIT BREAKER UNIT MATCHING WITH THE EXISTING CIRCUIT BREAKER TO BE REPLACED. CONTRACTOR SHALL COORDINATE ALL WORK WITH THE MANUFACTURER INCLUDING ANY SITE VISITS REQUIRED TO MATCH WITH THE EXISTING EQUIPMENT. CONTRACTOR SHALL INSPECT THE CIRCUIT BREAKER ENCLOSURE, STATIONARY STABS IN THE CUBICLE AND ALL ACCESSORIES FOR DAMAGE. REPLACE ALL COMPONENTS IN THE ENCLOSURE ASSOCIATED WITH THE CIRCUIT BREAKER FOR PROPER OPERATION. SEE KEY NOTE 3.

2. REPLACE EXISTING 27 KV DRAWOUT TYPE VACUUM POWER CIRCUIT BREAKER CB-H1 FOR CON EDISON FEEDER 1Q1 (CONTROLLED POWER CORP TYPE, SVB3-35-WA-CR SERIAL # R-90363A-3-4724-2, 1200AMP, 85K PEAK MOMENTARY AMPS, 31.5 KA INTERRUPTING CURRENT, INT. TIME 5 CYCLES) WITH NEW VACUUM POWER CIRCUIT BREAKER MATCHING EXISTING RATED AT 1200A, 38 KV, 1500MVA (EQUAL TO MYERS POWER PRODUCTS, 1200A, 38 KV, HVF38 VACUUM CB, 31.5KA RATED INT. CURRENT, 120V DC COIL CLOSING OPERATION, 150KV BIL). NEW VACUUM POWER CIRCUIT BREAKER SHALL FIT IN THE EXISTING DRAW-OUT CIRCUIT BREAKER SPACE IN THE SWITCHGEAR. RECONNECT ALL EXISTING CONTROL WIRING FOR RELAYS TO NEW VACUUM POWER CIRCUIT BREAKER AS SHOWN ON DWG E801.00. NEW VACUUM POWER CIRCUIT BREAKER SHALL BE COMPATIBLE WITH EXISTING SWITCHGEAR MANUFACTURED BY CPC (CONTROLLED POWER CORP), NOW OWNED BY MYERS POWER-OHIO. CONTRACTOR SHALL PROVIDE ALL ACCESSORIES, CONTROL WIRING, TESTING FOR PROPER OPERATION OF THE CIRCUIT BREAKER IN THE EXISTING SWITCHGEAR. PROVIDE NEW PROTECTIVE RELAYS MATCHING WITH EXISTING, CURRENT TRANSFORMERS, VOLTAGE TRANSFORMERS, SURGE ARRESTERS, AMMETER AND VOLTMETER SWITCHES, INDICATING LIGHTS ASSOCIATED WITH THE NEW CIRCUIT BREAKER UNIT MATCHING WITH THE EXISTING CIRCUIT BREAKER TO BE REPLACED. CONTRACTOR SHALL COORDINATE ALL WORK WITH THE MANUFACTURER INCLUDING ANY SITE VISITS REQUIRED TO MATCH WITH THE EXISTING EQUIPMENT. CONTRACTOR SHALL INSPECT THE CIRCUIT BREAKER ENCLOSURE, STATIONARY STABS IN THE CUBICLE AND ALL ACCESSORIES FOR DAMAGE. REPLACE ALL COMPONENTS IN THE ENCLOSURE ASSOCIATED WITH THE CIRCUIT BREAKER FOR PROPER OPERATION. SEE KEY NOTE 3.

CONTRACTOR SHALL INSPECT, TEST AND DETERMINE THE CAUSE OF THE BURNOUT OF EXISTING CIRCUIT BREAKER. CHECK FOR ANY GROUND FAULT, SHORT CIRCUIT OR OVERLOADED CIRCUITS IN THE 5 KV SWITCHGEAR OR FEEDERS FED FROM THIS CIRCUIT BREAKER BEFORE ENERGIZING THE NEW CIRCUIT BREAKER. ADJUST ALL RELAY SETTINGS FOR SAFE OPERATION.



2 EXISTING R1 SUBSTATION PART PLAN  
SCALE: 1/8"=1'-0"



1 R1 SUB-STATION KEY PLAN  
SCALE: AS NOTED















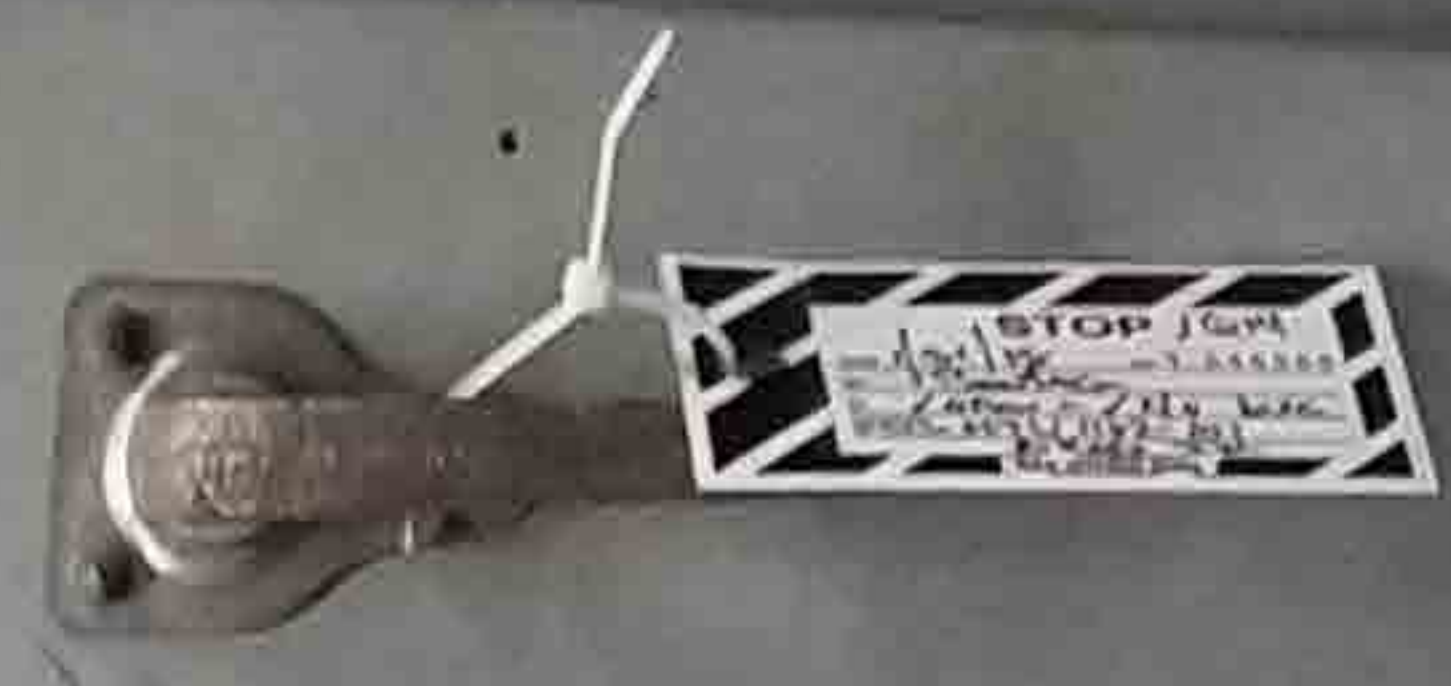


UNIT-A5  
CB-H2  
SE/14A

BKR

FEEDER  
1Q14  
H.T.V.-1182-Q

HTV-1182  
FDR-1Q14  
101



H3











EXIT

PHASING  
RECEPTACLE

COX EDISON  
METERING  
C.T.





**STOP**  
WARNING













**DANGER**  
**HIGH VOLTAGE**  
DO NOT OPEN SHUTTERS

A

B

C

LOAD



UNIT-A3  
CB-H1  
SE/O1A

BKR

FEEDER  
1001  
H.T.V - 1182-Q

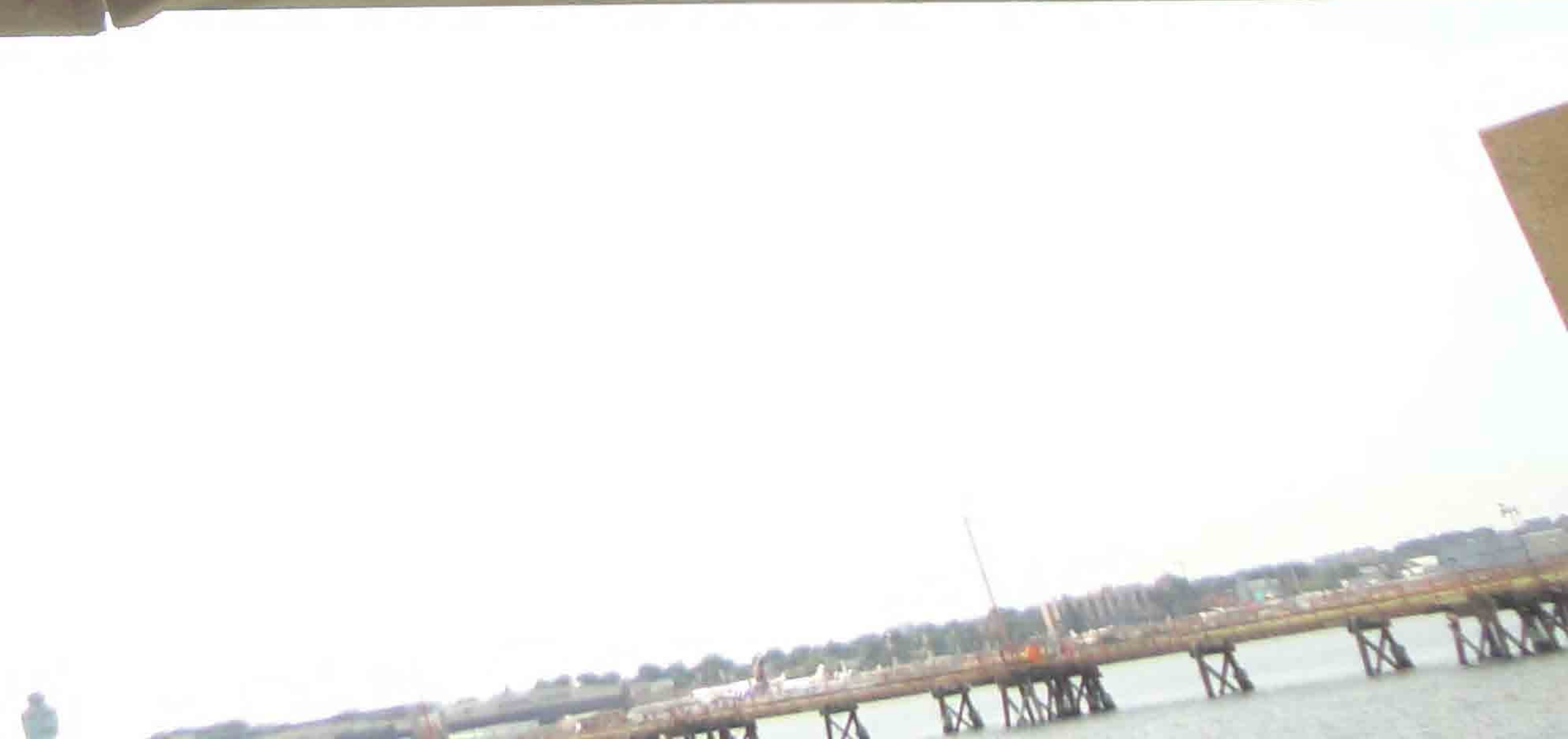
HTV-1182

FDR-1025

103































































PAT

8

MAH 8

























MH 10-1















PA1

MAH 8

8









































BID FORM & BID BREAKDOWN SHEETS  
Rikers Island – Medium Voltage Feeders and  
Substation Upgrades

PIN: 072201931CPD

**ADDENDUM #4**

**BID FORM**

Grand Total Price shall include all costs and expenses, including but not limited to labor, material, overhead and profit for all the Work described and shown in the Drawings and Specifications.

**ITEM A LUMP SUM PRICE TO PERFORM THE WORK**

Provide a lump sum bid price for all labor and material to complete the Work required by the Specifications and the Drawings,

Total Price for Labor

Total Price for Material

Total Price

\$ \_\_\_\_\_ \$ \_\_\_\_\_ \$ \_\_\_\_\_

**ITEM B: ADD ALTERNATE PRICE for ALL LABOR AND MATERIAL**

**Contractor shall include replacement of 4 manholes as part of add alternate bid price. The department will determine and authorize as to how many of the 4 manholes need replaced during construction phase. The contractor shall obtain authorization from CMU-Project manager prior to work.**

**The Unit price shall be used to replace additional manholes', if there are more than 4 quantities required.**

**Unit Price cost shall include all cost items necessary to complete the work including but not limited to cost of labor, material, all direct, indirect expenses, overhead and profit**

Item	Quantity	Labor Price	Material Price	Unit Price = (Labor Price + Material Price)	Total = (Quantity x Unit Price)
Manhole	4 Each	\$ _____	\$ _____	\$ _____	\$ _____
TOTAL					\$ _____

**GRAND TOTAL BID PRICE in FIGURES (Item A + Item B):** \$ \_\_\_\_\_ . \_\_\_\_ .

**GRAND TOTAL BID PRICE in words:**



BID FORM & BID BREAKDOWN SHEETS  
**Rikers Island – Medium Voltage Feeders and  
Substation Upgrades**

PIN: 072201931CPD

**ADDENDUM #4**

\_\_\_\_\_ DOLLARS and \_\_\_\_\_ CENTS.

The Contract shall be awarded to the qualified Bidder who submits the lowest responsive **Grand** Total Bid price, and who has been determined to be a responsible bidder.

**Notes:**

- (1) The bidder shall not alter the bid format from that required herein. Any alterations to the bid format will result in a determination of the respondent being “nonresponsive.”
- (2) Inclusion of disclaimers which contradict the requirements of this Invitation to Bid will also result in a determination of the respondent being “nonresponsive.”

Bidder’s Company Name:

\_\_\_\_\_  
Name of Bidder’s Representative:

\_\_\_\_\_  
Signature of Bidder’s Representative:

\_\_\_\_\_

Date: \_\_\_\_\_



**ADDENDUM #4**

**BID BREAKDOWN**

**SUBMISSION:** Bidders are advised that the requirement to submit a Bid Breakdown applies to each contract for which an "X" is indicated before the word "Yes". If required, the bidder must submit, with its bid, a completed Bid Breakdown. Failure to provide a completed Bid Breakdown may result in rejection of the bid as non-responsive.

\_\_\_\_\_ X YES \_\_\_\_\_ No

**LIMITATIONS ON USE OF BID BREAKDOWN:**

Bidders are advised that the Bid Breakdown shall be used for bid analysis purposes only and shall not be binding for any other purposes under the Contract, including, without limitation, for payment purposes or in connection with a contractor claim for extra work. If the form for the Bid Breakdown does not include an item of work required by the Contract Documents, such omission shall have no effect whatsoever, nor shall it be used by the contractor in connection with a claim for extra work (i.e., work for which the contractor is entitled to a change order).

**INSTRUCTIONS FOR PREPARING BID BREAKDOWN:**

- A. The Bid Breakdown is set forth on the following pages and is in accordance with the Construction Specification Institute (CSI) format. For all items of work listed in the Bid Breakdown, the bidder must indicate the price for labor and the price for material.
- B. In preparing its Bid Breakdown, the bidder shall submit prices that include all costs for overhead and profit. Overhead shall include, without limitation, all costs in connection with the following: administration, management, superintendence, small tools, insurance, bonds, and provision of services or items required by the General Conditions.
- C. If an item is set forth in the Bid Breakdown, but is not included in the Contract Documents (Drawings, Specifications, General Conditions, and/or Addenda), the bidder is advised to leave the item blank and exclude the cost of the item from its grand total. **In an attachment to its Bid Breakdown, the bidder shall provide a list of all items left blank.**
- D. If an item is not set forth in the Bid Breakdown, but is included in the Contract Documents (Drawings, Specifications, General Conditions, and/or Addenda), the bidder is advised to add the item to its Bid Breakdown and include the cost of the item in its grand total. **In an attachment to its Bid Breakdown, the bidder shall provide a list of all items added.**



**ADDENDUM #4**

**BID BREAKDOWN**

**ITEM A. LUMP SUM PRICE TO PERFORM THE WORK**

CSI Number	Description	Total Cost of Material	Total Cost of Labor	Total Cost: Materials and Labor
<b>DIV 03<sup>i</sup></b>	<b>CONCRETE</b>			
<b>DIV 05</b>	<b>METALS</b>			
<b>DIV 26</b>	<b>ELECTRICAL</b>			
<b>DIV 31</b>	<b>EARTHWORK</b>			
	<b>TOTAL</b>	\$ _____		

<b>Bid Breakdown Total</b> <b>NOTE: This is not the bidder's bid price. This bid breakdown total is for bid analysis purposes only.</b>	\$ _____
--	----------

<sup>i</sup> Division 01 specifications are intentionally omitted from the bid breakdown. Bidders are instructed to incorporate Division 01 costs into their breakdowns for the other Specification divisions.



BID FORM & BID BREAKDOWN SHEETS  
**Rikers Island – Medium Voltage Feeders and  
Substation Upgrades**

PIN: 072201931CPD

**ADDENDUM #4**

**List of Items Left Blank in the Bid Breakdown (if any):**



BID FORM & BID BREAKDOWN SHEETS  
**Rikers Island – Medium Voltage Feeders and  
Substation Upgrades**

PIN: 072201931CPD

**ADDENDUM #4**

**List of Items Added to the Bid Breakdown (if any):**