

January 31, 2022

Ms. Megan Kuczka Environmental Program Specialist, Region 9 New York State Department of Environmental Conservation 270 Michigan Avenue Buffalo, New York 14203

RE: ExxonMobil Former Buffalo Terminal Operable Units 2 East and 3 – BQ Energy Development, LLC Change of Use Letter Work Plan: 503, 623, 625, 635 Elk Street, Buffalo, NY (NYSDEC Sites #C915201D and #C915201B) LaBella Project # 2211232

Dear Ms. Kuczka:

On behalf of BQ Energy Development, LLC (BQ Energy), LaBella Associates, DPC has prepared this Change of Use Letter Work Plan for the construction of a solar energy generating facility on portions of Operable Unit No. 3 (OU-3) and Operable Unit No. 2 East (OU-2E) of the ExxonMobil Former Buffalo Terminal site (NYSDEC Sites #C915201D and #C915201B). Please see Figure 1 for the location of the respective Operable Units. This work plan was requested by the New York State Department of Environmental Conservation (NYSDEC) in a letter dated March 3, 2021 subsequent to the submittal of a Change of Use Form in January 2021 for development of the solar facility. Furthermore, this work plan is intended to comply with the requirements of the Excavation Work Plans (EWPs) contained in the respective Site Management Plans (SMPs) for OU-3 and OU-2E. As indicated on the attached Elk Street Solar Development Project Design Drawings, the solar facility will be constructed on the western portion of OU-3, above the Geo-Synthetic Liner (GSL) and stone cover system. The connection to the power grid will occur in the south-central portion of OU-2E, in the vicinity of the existing Powerhouse Building, also depicted on the attached design drawings.

Project Description

BQ Energy plans to construct a Photovoltaic (PV) solar facility that will generate 2.3 megawatts of alternating current (MWac) on approximately 10 acres encompassing portions of OU-3 and OU-2E. The limits of the PV facility are shown on the attached design drawings. The fixed-tilt solar PV System utilizing Remote Net Metering (RNM) will be installed and maintained by BQ Energy. Ongoing compliance with the Site Management Plans (SMPs) for OU-3 and OU-2E will continue to be the responsibility of the owner, Elk Street Commerce Park, LLC (ESCP).

Photovoltaic System

The PV System will consist of approximately 8,710 430-watt solar modules affixed to panels supported by a non-penetrating surface-mounted ballast racking system (see attached Design Drawings). Electrical service to the PV System will be provided via interconnection to the



existing electrical infrastructure on OU-2E. The existing asphalt access road servicing the Groundwater Treatment Facility (GWTF) will support construction and fire access to the PV System equipment pad to be located proximate the GWTF parking lot. Existing perimeter fencing will be supplemented where necessary with additional ballasted fencing and gates to be constructed to fully enclose the PV System for safety.

The PV array consists of approximately 28 east-west rows on the central portion of OU-3, spaced approximately 11' from front-to-back edge of rows, installed on a surface-mounted ballast racking system. The array was configured to avoid impeding access to, or operation of, the existing GWTF and associated access road and parking lot. Additionally, care was taken to provide a 10' minimum buffer around the existing monitoring wells, extraction wells, and conveyance piping. The minimum 10' working area will provide sufficient space for equipment and personnel to facilitate the construction and maintenance of the solar arrays while preventing damage to these components of the active groundwater remediation system. This setback will provide sufficient space for the continued operation and maintenance of the attraction wells and piping. The modules and electrical equipment will also be setback 5' and 10', respectively, from existing gas vents present on OU-3.

Electrical equipment associated with the PV System (i.e., switchboard, transformers, etc.) will be placed on a concrete equipment pad to be constructed above the existing OU-3 cover system to the east of the GWTF parking lot.

Within the limits of OU-3, wiring within the array will be mounted from rack-to-rack and in between rows via covered cable trays mounted above the ground surface on ballasted concrete piers, or on a cable hanger system mounted above the ground surface on ballasted poles as shown on the design drawings. Beyond the limits of OU-3, wiring will extend northward in underground conduit to a series of five utility poles to be installed to facilitate the interconnection with the existing National Grid system.

Planned Construction Activities

Operable Unit 3 - #C915201D

For the construction of the solar panel array, fencing, asphalt turnaround, and ancillary equipment placement, the construction will take place entirely above the GSL and overlying 12-inch stone cover that comprise the cover system in this area. This will be conducted with various ballasting techniques as depicted on the design drawings. Import Requests will be generated and submitted to NYSDEC for the ballast and leveling material.

No construction activities will penetrate the cover system exposing or disturbing remaining contamination within OU-3. Traversing, transporting, and solar equipment installation will be conducted with Low Ground Pressure (LGP) equipment as to protect the GSL. If needed, Bank Run #67 clean stone will be used to fulfill the stone cover system replacement. Further, it should be noted that the solar array construction will not interfere with the existing groundwater extraction and treatment system operation.

Operable Unit 2 East - #C915201B

Similar to the equipment installation techniques utilized for OU-3, the gates, fencing, conduit runs, and ancillary equipment will be situated with ballasting techniques to avoid penetrating the stone cover system and disturbing the remaining contamination in the underlying soils of OU-2E to the extent practical.

Intrusive activities into the stabilized, mixed soils of OU-2E will be limited to the installation of five utility poles, associated guy wires, and trenching for electrical conduit. The existing one foot of stone cover and the demarcation layer will be segregated prior to intrusive activities. The holes/trenching will be advanced to required depth (<6' below grade). The excavated spoils will be placed on poly sheeting. The installation of the necessary equipment will be conducted. The excavated spoils will then be used as backfill material and compacted. This material will be mounded to make every effort to shed water. The demarcation layer and clean stone will then be replaced. Should clean backfill material be required, an Import Request form will be initiated and submitted to NYSDEC for approval.

Construction Schedule

The construction of the solar facility is anticipated to begin in the late Spring of 2022. It is estimated that this construction will take approximately six months. NYSDEC will be updated appropriately of the schedule when the time nears.

As requested, City of Buffalo approvals from the Planning Department and the Building Department will be provided once they are obtained.

Anticipated Environmental Conditions

In-situ stabilized petroleum impacted media is expected to be encountered at the intrusive work locations west of the Powerhouse within OU-2E. This soil was stabilized as part of the final remedial construction effort conducted in 2018-2019. Groundwater is not expected to be encountered in this area of the Site at the depths the intrusive activities are expected (<6' below grade).

Compliance with EWP

The work will be completed in accordance with the EWPs and with applicable provisions of 29 CFR Part 1910.120. Components of the EWP that apply to this construction program include:

- Notification
- Soil Screening
- Material Staging, Transport & Disposal
- Cover System Restoration
- Community Air Monitoring Plan
- Dust Control



Pursuant to the EWP, the intrusive activities to be performed on OU-2E will be monitored for particulates and Volatile Organic Compounds (VOCs) as prescribed in the Community Air Monitoring Plan (CAMP) for the Site. This data will be provided to NYSDEC and NYSDOH daily for the extent of intrusive activities. Additionally, sediment and erosion control practices will be in place as prescribed on the design drawings for all excavations.

Health & Safety Plan

A copy of the Contractor's Health & Safety Plan will be submitted to NYSDEC prior to the commencement of solar facility construction.

Identification of Waste Disposal Facilities

Should it become necessary to dispose of waste materials, the material will be sampled and characterized. These materials will be containerized and disposed of at Allied Waste in Niagara Falls, New York or the Waste Management facility in Chaffee, New York.

Construction Completion Report and SMP Update

It is anticipated that the Construction Completion Report (CCR) and applicable updates to the SMP for the solar facility will be submitted within 90 days following completion of construction.

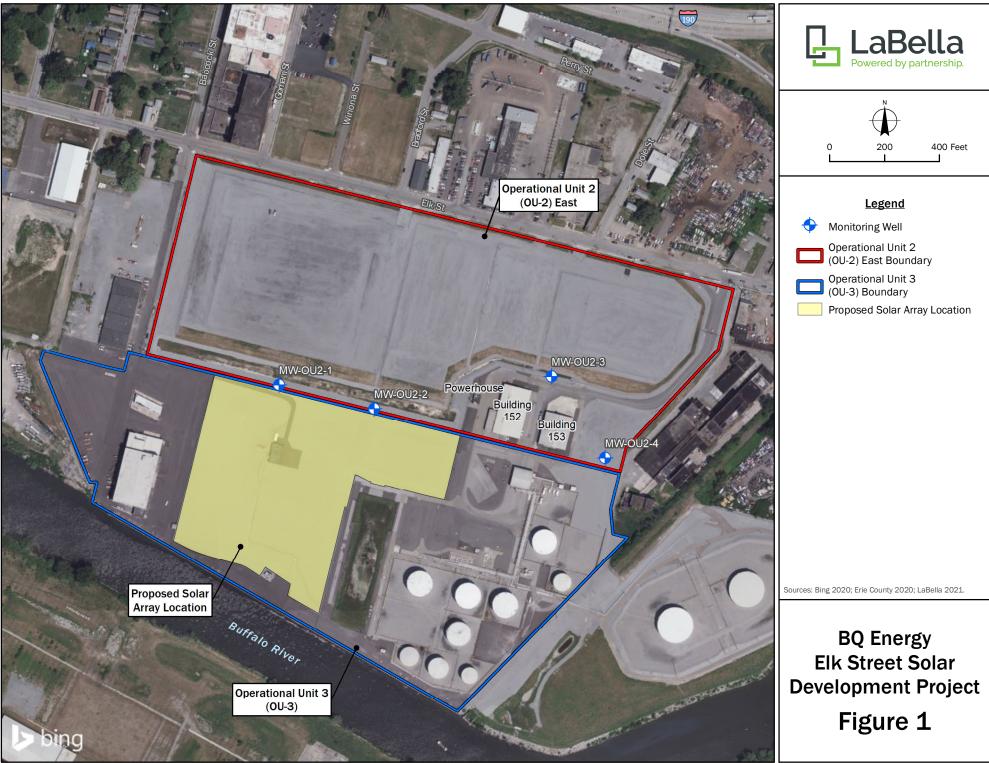
Respectfully submitted,

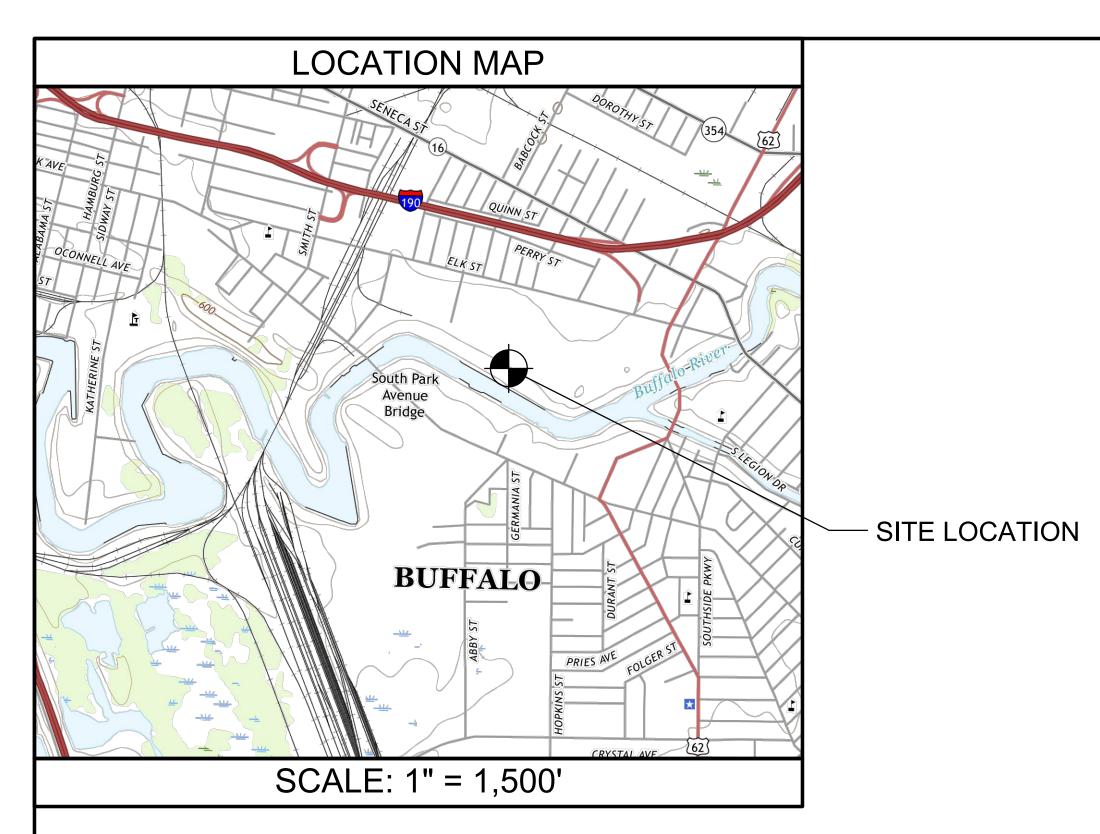
LaBella Associates

Andrew Janik, PG

Project Manager

cc: Eugene Melnyk, PE (NYSDEC) Alicia Scott (BQ Energy) Paul Neureuter (ESCP) Rob Napieralski (LaBella)





DRAWINGS:

T-0.0	TITLE SHEET
T-0.1	CONSTRUCTION NOTES SHEET 1
T-0.2	CONSTRUCTION NOTES SHEET 2
C-1.0	SITE PLAN EXISTING CONDITIONS
C-1.1	SITE PLAN PROPOSED OVERALL LAYOUT
C-1.2	TEMPORARY EROSION & SEDIMENT CONTF
C-1.3	PROPOSED FENCE PLAN
E-1.0	ELECTRICAL PLAN SECTION 1
E-1.1	ELECTRICAL PLAN SECTION 2
E-1.2	ELECTRICAL PLAN SECTION 3
E-1.3	ELECTRICAL PLAN SECTION 4
E-1.4	UTILITY POLE LAYOUT PLAN
C-5.0	CIVIL DETAILS
C-5.1	BALLASTED FENCE DETAILS

ELK STREET SOLAR DEVELOPMENT PROJECT

SITE ADDRESS: 503 ELK STREET, BUFFALO, NY 14210 TAX ID#: 123.13-1-2.111

PREPARED FOR:



ENGINEER:



C&A #: 5204.17 DATE: NOVEMBER 11, 2022 REVISED: JANUARY 28, 2022

ISSUED FOR NYSDEC CHANGE OF USE NOTIFICATION

- **ELECTRICAL DETAILS SHEET 1** E-5.0
- **ELECTRICAL DETAILS SHEET 2** E-5.1
- E-5.2 **ELECTRICAL DETAILS SHEET 3**
- E-5.3 **ELECTRICAL DETAILS SHEET 4**
- E-6.0 ELECTRICAL SCHEDULES & DIAGRAMS

ROL PLAN

BQ ENERGY DEVELOPMENT, LLC. 400 MARKET STREET INDUSTRIAL PARK, SUITE 32 WAPPINGERS FALLS, NY 12590

fax: (518) 828-2723 C COPYRIGHT



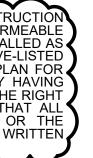
STAKEHOLDERS: DEVELOPER: BQ ENERGY DEVELOPMENT, LLC SURVEYOR: AMEC E&E P.C. DESIGNER: CRAWFORD & ASSOCIATES ENGINEERING, P.C. PERMIT ENGINEER: LABELLA ASSOCIATES, P.C. INTERCONNECTION DESIGN: JEM ENGINEERING SERVICES, LLC SITE OWNER: THE KROG GROUP POWER BUYER: COMMUNITY DISTRIBUTED GENERATION UTILITY: NATIONAL GRID PROJECT OWNER: ELK STREET SOLAR, LLC.

BROWNFIELD NOTES

- 1. THE CONTRACTOR SHALL PREPARE AND SUBMIT TO BQ ENERGY A SITE-SPECIFIC HEALTH AND SAFETY PLAN AT LEAST TWO WEEKS PRIOR TO START OF CONSTRUCTION. 2. ACCESS TO EXISTING EXCTRACTION WELLS MUST BE MAINTAINED ON SITE. NO STRUCTURES SHALL BE
- INSTALLED WITHIN A TEN (10) FOOT CLEARANCE FROM EXTRACTION WELLS ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO ENSURE THAT THE PROPOSED CONSTRUCTIONS WORK ASSOCIATED WITH THE SOLAR PROJECT SHALL NOT IN ANY WAY DAMAGE THE IMPERMEABLI GSL LINER, EXTRACTION WELLS, EXTRACTION WELL PIPING, OR OTHER SITE FEATURES INSTALLED AS PART OF THE SITE REMEDIATION PROJECT. IF DAMAGE OCCURS TO ANY OF THE ABOVE-LISTED COMPONENTS, THE CONTRACTOR SHALL NOTIFY BQ ENERGY IMMEDIATELY. A WRITTEN PLAN FOF REPAIR OF THE COMPONENTS SHALL BE PREPARED AND APPROVED BY THE AUTHORITY HAVING JURISDICTION AND ANY REPAIR WORK SHALL BE PROMPTLY COMPLETED. ESCP RESERVES THE RIGHT TO REVIEW AND APPROVE ANY WRITTEN PLANS FOR REPAIR OF COMPONENTS. NOTE THAT ALL CORRESPONDENCE WITH NYSDEC SHALL BE THROUGH ESCP. NEITHER BQ ENERGY OR THE CONTRACTOR(S) SHALL COMMUNICATE DIRECTLY WITH NYSDEC WITHOUT ADVANCE WRITTEN AUTHORIZATIÒN FROM ESCP.
- MINIMIZE WORK AND VEHICLE TRAVEL IN 10' SET-BACK ZONES FROM EXTRACTION WELLS TO PE ACCIDENTAL DAMAGE TO THESE STRUCTURES. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES, ALL MONITORING WELLS, AND OTHER EXISTING ABOVE-GROUND STRUCTURES OF TH PROJECT SITE SHALL BE FLAGGED FOR VISIBILITY AND PROTECTIVE BARRIERS SHALL BE PLACED AROUND SUCH STRUCTURES TO PREVENT DAMAGE BY VEHICLES ACCESSING THE CAP AREA.
- CONTACT DIG-SAFE NEW YORK (1-800-962-7962) PRIOR TO EXCAVATING AS REQUIRED BY NYCRR. AI OPERATORS PERFORMING DIĠGING OPERATIONS SHALL BE CERTIFIED BY DSNY CERTIFIED XCAVATOR PROGRAM AS REQUIRED BY LAW. O NOT USE STEEL PINS, GRADE STAKES, OR OTHER MARKING DEVICES THAT COULD PUNCTURE TH
- GSL LINER CAST THE FOUNDATION BLOCKS IN PLACE BY PUMPING CONCRETE OR WITH SPECIALIZED I GROUND PRESSURE EQUIPMENT (10 PSI MAXIMUM) TO CARRY CONCRETE TO THE BALLAST BLOCK LOCATION AS SPECIFIED BY THE RACKING MANUFÁCTURER. PRECAST FOOTINGS MAY BE USED AS
- LONG AS 10PSI GROUND PRESSURE LIMIT IS NOT VIOLATED. 8. IF WINTER WORK IS REQUIRED, THE CONTRACTOR SHALL SUBMIT A COLD-WEATHER CONCRETING PLAN SPECIFICALLY FOR THE INSTALLATION OF THE CONCRETE FOOTINGS. THE PLAN SHALL BE PREPARED IN GENERAL ACCORDANCE WITH ACL 306R GUIDE TO COLD WEATHER CONCRETING. OR OTHER EQUIVALENT INDUSTRIAL STANDARD. THE PLAN SHALL BE SUBMITTED TO BQ ENERGY AT LEAST TWO WEEKS PRIOR TO START OF CONSTRUCTION FOR APPROVAL

PROCEDURAL NOTES:

- PRIOR TO COMMENCEMENT OF ANY WORK, THE CONTRACTOR SHALL NOTIFY ENGINEER OF RECORDS OF ANY DISCREPANCIES NOTED TO EXISTING CONDITIONS, STRUCTURE, ELECTRICAL RUNS (SPECIFY EXISTING ITEMS), ETC. AMONG SITE CONDITIONS, MANUFACTURER RECOMMENDATIONS OR CODES, REGULATIONS OR RULES OF JURISDICTIONS HAVING AUTHORITY.
- 2. A PRE-CONSTRUCTION CONFERENCE IS TO BE HELD BETWEEN THE CONTRACTOR, DEVELOPER, ESCP, CITY OF BUFFALO BUILDING DEPARTMENT AND ANY OTHER INVOLVED PARTIES AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION.
- 3. ALL DIMENSIONS OF EXISTING CONDITIONS MUST BE VERIFIED PRIOR TO COMMENCING WORK.
- 4. THE CONTRACTOR IS RESPONSIBLE FOR ALL BRACING AND SHORING OF EQUIPMENT DURING INSTALLATION.
- CONTRACTORS SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS, OSHA REQUIREMENTS AND SAFETY MEASURES ON SITE. THE ENGINEER HAS NO OVERALL SUPERVISORY AUTHORITY AND NO DIRECT RESPONSIBILITY FOR THE SPECIFIC WORKING CONDITIONS OR FOR POSSIBLE EXISTING HAZARDS
- 6. CONTRACTOR SHALL PAY FOR AND SECURE ALL PERMITS AND UNDERWRITERS CERTIFICATES.
- 7. ALL METERS, INSTRUMENTS, CABLE CONNECTION EQUIPMENT AND APPARATUS NECESSARY FOR PERFORMING ALL TESTS SHALL BE FURNISHED BY THE CONTRACTOR.
- 8. CONTRACTOR INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE ENGINEER OF RECORD AND ESCP FOR APPROVAL PRIOR TO MAKING THE CHANGES. ESCP RESERVES THE RIGHT TO REVIEW AND APPROVE ANY CONTRACTOR INITIATED CHANGES. APPROVED CHANGES SHALL REQUIRE A DRAWING REVISION TO MAINTAIN CONTROL OVER THE ENGINEER APPROVED DESIGN. DEVIATION FROM THESE PLANS PRIOR TO ENGINEERING APPROVAL PLACES ALL LIABILITY ON THE CONTRACTOR.
- CONTRACTOR SHALL PROVIDE RED-LINED AS-BUILT DRAWINGS THAT INCLUDE ALL DEVIATIONS FROM THE TRENCH LAYOUT, STRING CONFIGURATIONS, OR OTHER CHANGES FROM THE ORIGINAL DESIGN. **GENERAL REQUIREMENTS:**
- ANY WASTE GENERATED AT THE SITE BY THIS WORK SHALL BE DISPOSED OF IN ACCORDANCE WITH THE SITE MANAGEMENT PLAN AND ANY APPLICABLE LOCAL. STATE OR FEDERAL LAWS. IN PARTICULAR. ANY WASTE SOIL GENERATED MUST BE CONTAINERIZED AND, IF REQUIRED, CATEGORIZED FOR OFFSITE DISPOSAL. MANIFESTS FOR SUCH DISPOSAL SHALL BE PROVIDED TO ESCP OR THEIR REPRESENTATIVE FOR INCLUSION IN THE ANNUAL PERIODIC REVIEW REPORT (RRR).
- 2. BULK STORAGE OF HAZARDOUS MATERIALS, INCLUDING BUT NOT LIMITED TO PETROLEUM PRODUCTS, SHALL NOT BE PERMITTED ON SITE WITHOUT THE EXPRESS WRITTEN APPROVAL OF ESCP.
- 3. ALL SYSTEMS INTENDED TO BE CONNECTED TO EXISTING FACILITIES AT ONE POINT OF COMMON
- COUPLING (PCC), SHALL BE IN COMPLIANCE WITH NEC ARTICLE 705.12 "POINT OF CONNECTION". 4. ALL DISCONNECTING COMBINERS, PULL/SPLICE BOXES, AND ENCLOSURES SHALL BE LISTED FOR ITS
- PURPOSE.
- 5. THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS AND DIMENSIONS PRIOR TO PERFORMING ANY WORK.
- 6. CONTRACTOR IS RESPONSIBLE FOR ALL WASTE PRODUCED AND PROPER DISPOSAL FROM THE SITE. 7. THE PROJECT DESIGN WILL COMPLY WITH THE REQUIREMENTS OF APPLICABLE LOCAL ELECTRICAL CODES FOR THE PROJECT SITE.
- 8. ALL EQUIPMENT SHALL BE INSTALLED IN A SECURE AREA.
- 9. THE INVERTER FOR THE PROPOSED SOLAR ELECTRIC SYSTEM SHALL BE IDENTIFIED FOR USE IN SOLAR PHOTOVOLTAIC SYSTEMS.
- 10. ALUMINUM POWER CABLE, WIRE CONNECTORS, AND INSULATING AND CODING TAPE MANUFACTURERS SHALL BE APPROVED BY THE OWNER PRIOR TO USAGE.
- 11. ALL DISCONNECTING COMBINERS SHALL BE SECURED FROM UNAUTHORIZED/UNQUALIFIED PERSONNEL BY LOCK OR LOCATION.
- 12. CONDUITS AND CABLES SHALL NOT ENTER THE TOP OF ANY OUTDOOR ENCLOSURE WITHOUT WRITTEN
- APPROVAL FROM THE OWNER 13. CONDUITS SHALL BE ORIENTED TO PREVENT WATER ENTRY INTO ENCLOSURES WHERE THE CONDUITS
- ARE ABOVE THE ENTRY TO THE ENCLOSURE.
- 14. A LISTED FITTING SHALL BE USED TO PREVENT THE ENTRY OF MOISTURE WHEN TRANSITIONING FROM FREE AIR TO CONDUCTORS IN CONDUIT.
- 15. IF THE LOCATIONS OF SOME EQUIPMENT AND DEVICES AT WHICH CIRCUITS TERMINATE ARE APPROXIMATE ACCORDING TO THE PLAN SET, THEY SHALL BE FIELD VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL INSTALL EACH CIRCUIT TO THE INTENDED EQUIPMENT TERMINATION POINT WITHOUT ADDITIONAL CHARGES TO THE OWNER, ALTHOUGH ITS FINAL LOCATION MAY SHIFT SOMEWHAT FROM THAT WHICH IS SHOWN.
- 16. AFTER ALL REQUIREMENTS OF THE DRAWINGS HAVE BEEN FULLY COMPLETED, REPRESENTATIVES OF THE OWNER WILL INSPECT THE WORK. THE CONTRACTOR SHALL PROVIDE COMPETENT PERSONNEL TO DEMONSTRATE THE OPERATION OF ANY ITEM OR SYSTEM TO THE FULL SATISFACTION OF EACH REPRESENTATIVE. FINAL ACCEPTANCE OF THE WORK WILL BE MADE BY THE OWNER AFTER DELIVERY OF RECEIPT OF APPROVAL AND RECOMMENDATION OF ACCEPTANCE FROM EACH REPRESENTATIVE.





DESIGN AND EQUIPMENT REQUIREMENTS

CONDOLETS SHALL NOT BE USED UNLESS APPROVED BY THE OWNER. 2. ALL WIRING METHODS AND INSTALLATION PRACTICES SHALL CONFORM TO THE NATIONAL ELECTRIC

- CODE, LOCAL STATE CODES AND OTHER APPLICABLE LOCAL CODES.
- 3. ALL ELECTRICAL EQUIPMENT SHALL BE LISTED BY A NATIONALLY RECOGNIZED TESTING LABORATORY FOR THE INTENDED PURPOSE.METALLIC L AND T CONDUIT BODIES SHALL NOT BE USED.
- 4. USE GASKETED HUBS LISTED FOR THE PURPOSE TO PROVIDE MOISTURE PROTECTION FOR CONDUIT ENTRANCES IN ALL APPLICABLE LOCATIONS AS REQUIRED BY NEC 314.15.
- PROTECT WIRE FROM SHARP EDGES WITH UV RATED SPIRAL WRAP, EDGE-GUARD, OR SPLIT LOOM.
- BENDS SHALL NOT DAMAGE THE RACEWAY OR SIGNIFICANTLY CHANGE THE INTERNAL DIAMETER OF THE RACEWAY.
- 7. DC CONDUCTORS USED AT GREATER THAN 600V MUST HAVE BENDING RADIUS IN COMPLIANCE WITH NEC 300.34.
- 8. ALL SOURCE CIRCUITS SHALL HAVE INDIVIDUAL SOURCE CIRCUIT PROTECTION FOR TESTING AND ISOLATION.
- 9. NO SPLICING SHALL BE PERMITTED IN MAINS OR DC FEEDERS WITHOUT PERMISSION FROM ENGINEER VIA RFI PROCESS. IF APPROVED, SPLICING SHALL BE WITHIN ENCLOSURE AND INDICATED ON FIELD REDLINES.
- 10. THE ELECTRICAL CONTRACTOR SHALL CONSIDER THE WEATHERING OF EQUIPMENT OVER TIME AND ELIMINATE THE POSSIBILITY OF DEGRADATION DUE TO CORROSION, WATER ENTRY AND UV EXPOSURE. AS A RESULT, THE USE OF UNISTRUT OR SIMILAR MOUNTING SYSTEMS IS REQUIRED TO MOUNT ENCLOSURES, PULL BOXES, LOAD CENTERS, FUSE BOXES, OR OTHER EQUIPMENT.
- 11. UNLESS OTHERWISE APPROVED ALL NEMA 4 BOXES SHALL BE EQUIPPED WITH LISTED DRAIN PLUGS INSTALLED TO ALLOW WATER TO DRAIN. ANY MODIFICATION TO AS-MANUFACTURED EQUIPMENT SHOULD BE DONE IN SUCH A WAY AS TO MAINTAIN ALL LISTED RATINGS.
- 12. ALL NEMA 3 BOXES SHALL BE EQUIPPED WITH A WEEP HOLE OR LISTED DRAIN PLUGS INSTALLED TO ALLOW WATER TO DRAIN.
- 13. ALL DC MATERIALS SHALL BE LISTED FOR 1500V DC, UNLESS OTHERWISE NOTED.
- 14. ALL DC AND AC COPPER TERMINATIONS SHALL HAVE KOPR-SHIELD, OR EQUIVALENT, APPLIED.
- 15. ALL BARE COPPER WIRES SHALL BE INSTALLED TO NOT COME INTO CONTACT WITH DISSIMILAR METALS.
- 16. ALL OUTDOOR ENCLOSURES REQUIRE AN OWNER-APPROVED MEANS OF VENTILATION AND DRAINAGE. 17. ALL ELECTRICAL CONDUIT. EQUIPMENT AND COMPONENTS MUST BE ADEQUATELY PROTECTED FROM DAMAGE AND VANDALISM BY THE USE OF BOLLARDS, SHIELDS, GUARDS OR OTHER ACCEPTABLE
- MEANS. SUCH MEANS SHALL BE SHOWN ON THE SITE PLAN AND APPROVED BY THE OWNER. 18. SUPPORT CONDUCTORS IN VERTICAL CONDUITS IN ACCORDANCE WITH THE REQUIREMENTS OF NEC 300.19.
- 19. PV STRING HOME RUNS SHALL BE LABELED ON BOTH ENDS, AT ARRAY AND AT COMBINER. COMBINER OUTPUT CONDUCTORS SHALL BE LABELED AT BOTH ENDS, AT COMBINER AND AT DISCONNECT.
- 20. WHERE PVC CONDUIT IS USED ABOVE GRADE, THE PVC CONDUIT SHALL BE SCHEDULE 80.
- 21. A 6" PVC SCHEDULE 80 SLEEVE WILL BE INSTALLED TO ALL UNDERGROUND PVC TO ABOVE GROUND TRANSITIONS.
- 22. LIQUID TIGHT FLEXIBLE METAL CONDUIT IS GENERALLY SUITABLE FOR INSTALLATION IN WET AND DRY LOCATIONS. SHOULD IT BE EMPLOYED, SUPPORTS WILL BE NO MORE 12 INCHES FROM BOXES (JUNCTION BOX, CABINETS, OR CONDUIT FITTING) AND SPACED NO MORE THAN 36 INCHES APART (NEC 350.30).
- 23. LONG STRAIGHT EXPOSED OR SHALLOW BURIED CONDUIT RUNS, 100 FEET OR MORE, SHALL HAVE EXPANSION FITTINGS INSTALLED PER NEC 300.7(B). EXPANSION FITTINGS SHALL ALSO BE USED WHEN CONDUIT SPANS AN EXPANSION JOINT.
- 24. WIRES AND FUSES SUBJECT TO TRANSFORMER INRUSH CURRENT SHALL BE SIZED ACCORDINGLY.
- 25. ALL INSTALLED CIRCUIT BREAKERS THAT ARE SUBJECT TO REVERSE POWER FLOW SHALL BE LISTED AND LABELED AS BACKFEED COMPATIBLE.
- 26. MINIMUM WIRE SIZE FOR CURRENT CARRYING CONDUCTORS WHEN IMPLEMENTING ALUMINUM AS A CONDUCTOR SHALL BE 1/0 AWG STRANDED AND SHALL BE APPROVED BY THE OWNER.
- 27. EXPOSED PV SOLAR MODULE WIRING WILL BE PV WIRE OR APPROVED EQUIVALENT, 90 DEGREE C, WET RATED AND UV RESISTANT, UNLESS OTHERWISE NOTED.
- 28. ALL EXPOSED CABLES, SUCH AS MODULE LEADS SHALL BE SECURED WITH MECHANICAL OR OTHER OWNER-APPROVED SUN-LIGHT RESISTANT MEANS. UNDER NO CIRCUMSTANCES WILL PLASTIC WIRE TIES BE USED.
- 29. FOR ALUMINUM CONDUCTORS, WHERE BOLTED CONNECTIONS ARE NOT POSSIBLE, MECHANICAL SCREW STYLE LUGS AND TERMINATIONS ARE APPROVED ONLY WHEN USED IN CONJUNCTION WITH A LISTED COPPER PIGTAIL COMPRESSION ADAPTOR. USE OF A "ONE-SHOT" CRIMPER OR "DIE-LESS CRIMPERS" WILL NOT BE ALLOWED.
- 30. ELECTRICAL AND MECHANICAL CONNECTIONS AND FASTENERS TO BE TORQUED PER DEVICE LISTING OR MANUFACTURERS RECOMMENDATIONS. SUCH CONNECTIONS WILL BE MARKED WITH PERMANANT MARKING PAINT, AFTER TORQUING.
- 31. SPLICES/CONNECTORS SHALL BE INSULATED AND WILL REQUIRE OWNER APPROVAL. UL LISTED ELECTRICAL TAPE ALONE IS NOT SUITABLE AS THE ONLY INSULATION MEANS. FOLLOW MANUFACTURERS INSTRUCTIONS FOR INSTALLATION, AND APPLICATION OF INSULATING PRODUCT.
- 32. INSULATING AND COLOR CODING TAPE SHALL BE APPROVED BY THE OWNER.
- 33. ALL LV AC WIRING SHALL BE TYPE THWN-2 RATED AT 90 DEGREES C, UNLESS OTHERWISE NOTED. XHHW-2 IS AN APPROVED ALTERNATE. THIS NOTE WILL BE SUPERCEDED BY ANY INVERTER SPECIFICATIONS REQUIRING LV AC WIRE TO MEET HIGHER VOLTAGE OR INSULATION STANDARDS.

- NOTED.

DISCONNECTING MEANS:

- MEANS.

INVERTER NOTES:

- INSTALLATION.

- LISTING AND WARRANTY.

34. BONDING OF TERMINAL LUGS TO ENCLOSURES SHALL FOLLOW NEC 250.8 AND NEC 250.12.

35. RACKING COMPONENTS AND RACKING STRUCTURAL SUPPORTS WILL FORM A BONDED SYSTEM IN ACCORDANCE WITH UL 2703.

36. MODULES SHALL BE GROUNDED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. 37. GROUNDING SYSTEM COMPONENTS SHALL BE LISTED FOR THEIR PURPOSE, INCLUDING BUT NOT LIMITED TO GROUND RODS, GROUNDING LUGS, GROUNDING CLAMPS, ETC.

38. ALL INSTALLED EQUIPMENT GROUNDING CONDUCTORS SHALL BE COPPER, UNLESS OTHERWISE

39. PHOTOVOLTAIC INVERTERS SHALL COMPLY WITH THE REQUIREMENTS OF UL1741 AND IEEE 1547.

1. MEANS SHALL BE PROVIDED TO DISCONNECT ALL CURRENT CARRYING CONDUCTORS OF THE PHOTOVOLTAIC POWER SOURCE FROM ALL OTHER EXISTING CONDUCTORS. 2. WHERE THERE IS A GROUNDED CONDUCTOR, IT MAY HAVE A BOLTED OR TERMINAL DISCONNECTING MEANS TO ALLOW MAINTENANCE OR TROUBLESHOOTING BY QUALIFIED PERSONNEL. 3. UNLESS DISCONNECT IS SERVICING A LINE-SIDE TAP, THE DISCONNECTING MEANS SHALL NOT BE REQUIRED TO BE SUITABLE AS SERVICE EQUIPMENT AND SHALL BE RATED IN ACCORDANCE WITH SECTION 690-17, UNLESS OTHERWISE NOTED. 4. THE OWNER WILL REVIEW AND APPROVE THE LOCATIONS OF ALL PHOTOVOLTAIC DISCONNECTING

5. MEANS SHALL BE PROVIDED TO DISCONNECT EQUIPMENT SUCH AS INVERTERS, BATTERIES, CHARGE CONTROLLERS, AND SIMILAR COMPONENTS FROM ALL UNGROUNDED CONDUCTORS OF ALL SOURCES. IF THE EQUIPMENT IS ENERGIZED FROM MORE THAN ONE SOURCE, THE DISCONNECTING MEANS SHALL BE GROUPED AND IDENTIFIED.

6. DISCONNECTING MEANS SHALL BE PROVIDED TO DISCONNECT A FUSE FROM ALL SOURCES OF SUPPLY IF THE FUSE IS ENERGIZED FROM BOTH DIRECTIONS AND IS ACCESSIBLE TO NON-QUALIFIED PERSONS. SUCH A FUSE IN A PHOTOVOLTAIC SOURCE CIRCUIT SHALL BE CAPABLE OF BEING DISCONNECTED NDEPENDENTLY OF FUSES IN OTHER PHOTOVOLTAIC SOURCE CIRCUITS.

7. ALL DISCONNECTS AND COMBINERS SHALL BE SECURED FROM UNAUTHORIZED AND UNQUALIFIED PERSONNEL BY EITHER LOCK OR LOCATION.

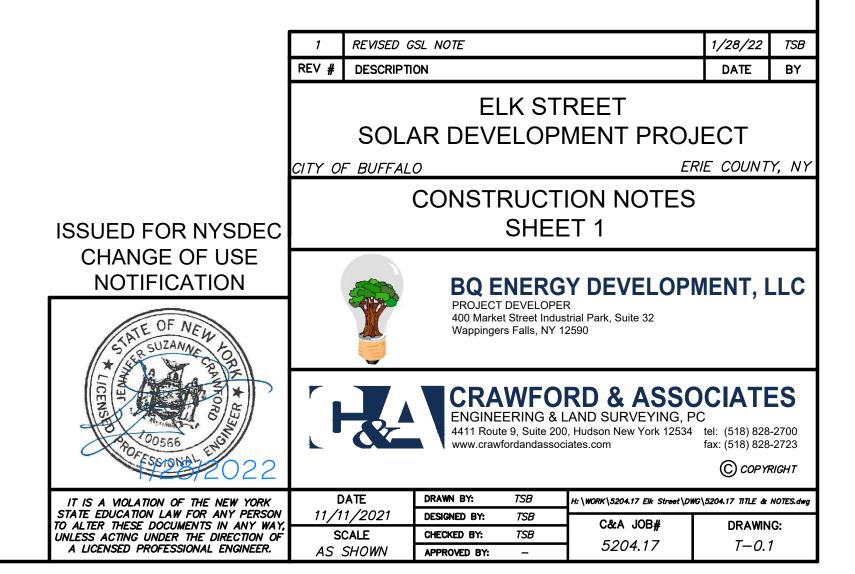
8. SWITCHES SHALL BE RATED NEMA TYPE 3R, UNLESS OTHERWISE NOTED

9. SWITCHES SHALL BE RATED TO INTERRUPT THE FULL DC LOAD USING A SINGLE POLE.

1. SYSTEM GROUNDING MEANS: ALL INVERTERS SHALL BE INSTALLED AS PART OF A PERMANENTLY GROUNDED ELECTRICAL SYSTEM PER THE NEC ANSI/NFPA 70. AN ENGINEERED GROUND CONNECTION FOR THE INVERTER MUST BE INSTALLED AND CONNECTED TO THE UNIT AS DESCRIBED IN THE INSTALLATION MANUAL. GROUND CONNECTION MUST BE MADE PRIOR TO OPERATING THE UNIT. 2. KEEP ALL WIRE BUNDLES AWAY FROM ANY SHARP EDGES IN ORDER TO AVOID DAMAGE TO WIRE

3. INVERTERS SHALL BE INSTALLED IN ACCORDANCE WITH INVERTER MANUFACTURER REQUIREMENTS. 4. INVERTER ENCLOSURE: ALL INVERTER ENCLOSURES SHALL BE APPROVED BY THE OWNER

5. ANY ALTERATIONS TO INVERTERS MUST BE APPROVED BY THE MANUFACTURER TO MAINTAIN ITS UL



ELECTRICAL NOTES:

REQUIREMENTS.

- 1. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL EQUIPMENT AND FOLLOWING ALL MANUFACTURER'S OR ENGINEER'S DIRECTIONS AND INSTRUCTIONS SHOWN HERE
- 2. THIS SOLAR PHOTOVOLTAIC SYSTEM IS TO BE INSTALLED FOLLOWING THE CONVENTIONS OF THE NATIONAL ELECTRIC CODE (NEC). ALL REFERENCES TO THE NEC IN THE CONTRACT DRAWINGS REFER TO THE 2017 NEC. ANY LOCAL CODES WHICH MAY SUPERCEDE THE NEC SHALL GOVERN.
- 3. THE ELECTRICAL CONTRACTOR IS ADVISED THAT ALL DRAWINGS & COMPONENT MANUALS, ESPECIALLY THE INVERTER MANUALS, ARE TO BE READ AND UNDERSTOOD PRIOR TO INSTALLATION OR ENERGIZING OF ANY EQUIPMENT. THE CONTRACTOR IS ALSO ADVISED TO HAVE ALL COMPONENT SWITCHES IN THE OFF (OPEN) POSITION AND FUSES REMOVED PRIOR TO INSTALLATION OF FUSE-BEARING COMPONENTS
- 4. DRAWINGS ARE DIAGRAMMATIC AND DO NOT REFLECT EXACT OR ENTIRE ROUTE. FOR BEST INSTALLATION, CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS, DISTANCES AND OBSTRUCTIONS.
- 5. IT IS INTENDED THAT ALL ITEMS OF WORK AND SYSTEMS BE FURNISHED AND INSTALLED COMPLETE IN ALL DETAIL AND READY FOR OPERATION OR SERVICE. APPARATUS REQUIRED SHALL BE FURNISHED AND INSTALLED ALTHOUGH NOT SPECIFICALLY MENTIONED HEREIN OR SHOWN ON THE DRAWINGS. 6. ALL ROWS OF MODULES SHALL BE LABELED ON BOTH ENDS TO REFLECT THE ROW NUMBERING
- OUTLINED ON THE STRING LAYOUT DRAWING SHEET(S). INSTALLATION CREW IS TO HAVE MINIMUM LISCENSING/CERTIFICATION AS REQUIRED BY LOCAL LAW. AT MINIMUM, ONE JOURNEYMAN LEVEL ELECTRICIAN OR ONE NABCEP CERTIFIED WORKER MUST BE ON
- SITE AT ALL TIMES WHEN ELECTRICAL WORK IS BEING PERFORMED. 8. FOR SAFETY IT IS RECOMMENDED THE INSTALLATION CREW ALWAYS HAVE A MINIMUM OF TWO PEOPLE WORKING TOGETHER.
- 9. ALL COMPONENTS TO BE INSTALLED WITH THIS SYSTEM ARE TO BE LISTED BY A THIRD PARTY TESTING AGENCY (UL, ETI., ETC.). EQUIPMENT SHALL BE NEMA 3R OUTDOOR RATED OR BETTER UNLESS OTHERWISE NOTED.
- 10. THE CONTRACTOR IS RESPONSIBLE FOR SELECTING AND PURCHASING EQUIPMENT THAT WILL LAST THE LIFETIME OF THE PV SYSTEM. ALL ENCLOSURES, CONDUITS, STRAPS, PAINTED METAL SURFACES, CONCRETE, GROUNDING EQUIPMENT, AND OTHER PRODUCTS SHALL BE SELECTED TO LAST THE LIFETIME OF THE PV MODULES. THE ENGINEER SPECIFIES THE MINIMUM REQUIRED EQUIPMENT AND SPECIFICATIONS TO ACCOMPLISH THE PROJECT AND THE ELECTRICAL CONTRACTOR IS RESPONSIBLE TO ENSURE THAT THESE SPECIFICATIONS ARE MET OR EXCEEDED WITH GOOD QUALITY EQUIPMENT WORKMANSHIP AND SKILL
- 11. DC VOLTAGE FROM THE ARRAY IS ALWAYS PRESENT AT THE DC DISCONNECT ENCLOSURE AND THE DC TERMINALS OF THE INVERTER DURING DAYLIGHT HOURS. ALL PERSONS WORKING ON OR INVOLVED WITH THIS PHOTOVOLTAIC SYSTEM MUST BE WARNED THAT SOLAR MODULES ARE ENERGIZED WHEN EXPOSED TO DAYLIGHT. THE LINE AND LOAD TERMINALS ON THE DC DISCONNECTS MAY BE ENERGIZED IN THE OPEN POSITION AND THE SWITCH IS TO BE LABELED TO COMPLY WITH ARTICLE 690.17 OF THE NEC REFLECTING THIS.
- 12. ALL PORTIONS OF THIS SOLAR ELECTRIC SYSTEM SHALL BE CLEARLY MARKED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE.
- 13. THE ELECTRICAL CONTRACTOR SHALL PERFORM INITIAL HARDWARE CHECKS AND PV/WIRING CONDUCTIVITY CHECKS PRIOR TO TERMINATING ANY WIRES. ALL AC AND DC WIRE RUNS SHALL BE ESTED FOR INSULATION RESISTANCE.
- 14. ALL JUNCTION BOXES AND OTHER LOCATIONS WHERE MODULE WIRING CONNECTIONS ARE MADE SHALL BE ACCESSIBLE. CLEARANCES AND ACCESSIBILITY AROUND ELECTRICAL EQUIPMENT SHALL CONFORM TO ALL APPLICABLE CODES.
- 15. FOR PROPER MAINTENANCE AND ISOLATION OF INVERTERS, REFER TO ISOLATION PROCEDURE IN INVERTER OPERATIONS MANUAL. CONTRACTOR PERFORMING THE MAINTENANCE IS RESPONSIBLE TO FOLLOW ALL LOCKOUT/TAGOUT PROCEDURES.
- 16. THE GROUNDING OF THE PHOTOVOLTAIC SYSTEM SHALL COMPLY WITH ARTICLES 250 AND 690 OF THE NEC. IF THE REQUIREMENTS DESCRIBED IN THIS DRAWING ARE CLOSELY FOLLOWED. THE GROUNDING REQUIREMENT WILL BE MET. ANY CHANGES WILL NEED TO BE REVIEWED AND DEEMED ACCEPTABLE BY THE ENGINEER, MANUFACTURER AND LISTING AGENCY FOR PRODUCT SAFETY.
- 17. THE CONTRACTOR IS RESPONSIBLE FOR MOUNTING ALL EQUIPMENT PER THE ENGINEER REPORT OR MANUFACTURER'S SPECIFICATIONS. IF SPECIFICATIONS ARE NOT APPARENT, THE CONTRACTOR SHALL USE DILIGENT EFFORTS TO MOUNT EQUIPMENT SUCH THAT IT WILL BE CLEAN, LEVEL, AND SOLID IN ORDER TO LAST THE LIFETIME OF THE SOLAR ELECTRICAL SYSTEM.
- 18. ANY METAL CHIPS RESULTING FROM SITE WORK SHALL BE CLEANED FROM ENCLOSURES, ROOF SURFACE, GROUND SURFACE, AND ANY ADDITIONAL AREA WHERE OXIDIZED OR CONDUCTIVE METAL SHAVINGS MAY CAUSE RUST, ELECTRICAL SHORT CIRCUITS, OR OTHER DAMAGE.
- 19. THE ELECTRICAL CONTRACTOR SHALL CONSIDER THE WEATHERING OF EQUIPMENT OVER TIME AND THE POSSIBILITY OF DEGRADATION OF EQUIPMENT DUE TO WATER ENTRY AND UV EXPOSURE. AS A RESULT, WE REQUIRE THE USE OF UNISTRUT OR SIMILAR MOUNTING SYSTEMS TO MOUNT ENCLOSURES, PULL BOXES, LOAD CENTERS, FUSE BOXES, OR OTHER EQUIPMENT TO PREVENT WATER BUILD-UP.
- 20. METHOD(S) FOR REMOVING AND PREVENTING THE BUILD-UP OF WATER OR MOISTURE SHALL BE PROVIDED IN ENCLOSURES WHERE CONDENSATION OR WATER BUILD-UP MAY OCCUR. MODIFICATION OF COMPONENTS AND ENCLOSURES SHALL COMPLY WITH THE MANUFACTURER'S RECOMMENDATIONS AND SHALL NOT VOID NEMA RATING AS SPECIFIED PER PLAN. CARE SHOULD BE TAKEN TO PREVENT PEST INTRUSION INTO ENCLOSURES WITH THE CHOSEN METHOD(S).
- 21. INSTALLER AND OWNER/OPERATOR SHALL SUPPLY ALL SITE AND EQUIPMENT LABELS AS REQUIRED BY NFPA 70E, OSHA, AND ANY OTHER CODES/AUTHORITIES NOT SPECIFIED IN THIS PLAN SET.
- 22. CONTRACTOR TO COORDINATE WITH OTHER TRADES FOR EXACT EQUIPMENT PLACEMENT AND
- 23. IN EVERY PULL BOX, TERMINAL BOX, AND AT ALL PLACES WHERE WIRES MAY NOT BE READILY IDENTIFIED BY NAMEPLATE MARKINGS ON THE EQUIPMENT TO WHICH THEY CONNECT. IDENTIFY EACH CIRCUIT WITH A PLASTIC LABEL OR TAG FOR NUMBER POLARITY OR PHASE.
- 24. THE LAYOUT OF CONDUIT SHOWN IN THESE PLANS IS INDICATIVE ONLY. CONTRACTOR SHALL ROUTE AND LOCATE THE CONDUITS TO SUIT SITE CONDITIONS BUT SHALL NOT EXCEED MAXIMUM CONDUCTOR LENGTHS IDENTIFIED ON THE WIRE SCHEDULE. CONTRACTOR SHALL COORDINATE ALL CHANGES IN WIRING AND CONDUIT WITH THE ENGINEER
- 25. WHERE WIRE AND CABLE ROUTING IS NOT SHOWN AND DESTINATION ONLY IS INDICATED, OR MAXIMUM CONDUCTOR LENGTHS WILL BE EXCEEDED, CONTRACTOR SHALL DETERMINE EXACT ROUTING AND LENGTHS REQUIRED. A SKETCH OF THE PROPOSED INSTALLATION SHALL BE SUPPLIED TO THE ENGINEER OF RECORD PRIOR TO INSTALLATION.
- 26. BENDS SHALL NOT DAMAGE THE RACEWAY OR SIGNIFICANTLY CHANGE THE INTERNAL DIAMETER OF RACEWAYS (NO KINKS).
- 27. SUPPORT CONDUCTORS IN VERTICAL CONDUITS IN ACCORDANCE WITH THE REQUIREMENTS IN NEC 300.19
- 28. INSTALL ALL WIRING MATERIALS IN A NEAT WORKMANLIKE MANNER. USE GOOD TRADE PRACTICES AS REQUIRED BY CHAPTER 3 OF THE NEC.
- 29. INSTALL CONDUIT TO MAINTAIN PROPER CLEARANCES AND IN A NEAT INCONSPICUOUS MANNER. PROVIDE BOXES, FITTINGS, AND BENDS FOR CHANGES IN DIRECTION. FASTEN CONDUIT SECURELY IN
- 30. ALL CONDUIT SHALL BE INDEPENDENTLY SUPPORTED FROM BUILDING STRUCTURES. CONDUIT SHALL NOT BE SUPPORTED FROM VENTILATION DUCTS, MECHANICAL PIPING, SUSPENDED CEILING GRIDS, OR THEIR HANGERS.
- 31. ALL EXTERIOR CONDUIT AND EQUIPMENT FITTINGS MUST BE WATERTIGHT.
- 32. PROVIDE PULL, JUNCTION, OR SECTIONALIZING WHERE REQUIRED TO FACILITATE THE INSTALLATION OF WIRING IN ADDITION TO THOSE SHOWN ON THE DRAWINGS. BENDS IN CONDUITS BETWEEN PULL BOXES SHALL NOT EXCEED THE EQUIVALENT OF FOUR 90 DEGREE BENDS. 33. WHEN FIELD CUTTING IS REQUIRED, THE CONDUIT SHALL BE CUT SQUARE AND DEBURRED.
- 34. CONDUIT SIZES NOT SPECIFIED SHOULD CONFORM TO NEC SPECIFICATIONS TO INCLUDE FILL FACTOR
- AND DERATING FOR NUMBER OF CONDUCTORS WITH A MINIMUM CONDUIT SIZE BEING 3/4". 35. THE MINIMUM ALLOWABLE WIRE SIZE FOR POWER CONDUCTORS IS #12 AWG. DATA AND
- COMMUNICATION WIRING MAY BE A SMALLER GAUGE, AND SHALL BE SIZED FOR THE APPLICATION. 36. THE WIRING SIZE IS BASED ON THE ESTIMATED CONDUIT ROUTING AS SHOWN IN THIS DRAWING PACKAGE. SHOULD THE CONDUIT'S LENGTH INCREASE DUE TO RELOCATION OF SOURCE AND/OR ROUTING, THE CONDUITS AND THE CONDUCTORS MAY NEED TO BE RESIZED. PLEASE CONTACT THE
- ENGINEER PRIOR TO MAKING ANY FIELD CHANGES. 37. ALL UL LISTED WIRE CONNECTIONS MUST BE TORQUED PER EQUIPMENT MANUFACTURER'S INSTALLATION INSTRUCTIONS AND THEN MARKED TO INDICATE IF TAMPERED.
- 38. IF NOT DESIGNATED BY A SCHEDULE WITHIN THIS DESIGN, ALL CONDUIT SHALL BE GALVANIZED EMT OR RMC METAL CONDUIT.
- 39. RMC, IMC, OR EMT CONDUIT RUNS, WHERE SUBJECT TO THERMAL EXPANSION AND CONTRACTION, MUST INCORPORATE UL LISTED EXPANSION JOINTS OR LIQUIDTIGHT FLEX METAL CONDUIT TO ALLOW FOR THE MOVEMENT, DO NOT USE RIGID METAL EXPANSION JOINTS FOR EMT
- 40. ALL WIRE MUST HAVE ADEQUATE STRAIN RELIEF. THERE MUST BE ADEQUATE WIRE SLACK TO ALLOW FOR THERMAL EXPANSION AND CONTRACTION OF CONDUIT RUNS WITHOUT STRAINING ANY CONDUCTOR OR CONNECTION.
- 41. WHERE PORTIONS OF A RACEWAY ARE SUBJECT TO DIFFERENT TEMPERATURES WHERE PASSING FROM INTERIOR TO THE EXTERIOR OF A BUILDING, THE RACEWAY SHALL BE FILLED WITH AN APPROVED MATERIAL TO PREVENT THE CIRCULATION OF WARM AIR TO A COLDER SECTION OF THE RACEWAY.

- 42. IF NOT DESIGNATED BY A SCHEDULE WITHIN THIS DESIGN, ALL WIRING SHALL BE RATED FOR ITS APPLICATION. WIRE IN CONDUIT SHALL BE THWN-2 AND 90 DEGREE CELSIUS RATED. DIRECT BURIED OR EXPOSED CONDUCTORS SHALL BE RATED FOR THAT ENVIRONMENT.
- 43. THE ELECTRICAL CONTRACTOR IS REQUIRED TO USE PERMANENTLY COLOR CODED INSULATION PER THE WIRE INSULATION COLOR CODE TABLE SHOWN ON THE DETAILS SHEET. PHASE TAPING BLACK CONDUCTORS DOES NOT MEET THIS REQUIREMENT. THE CONTRACTOR ACCEPTS ALL RISK AND LIABILITY IF THESE INSTRUCTIONS ARE NOT FOLLOWED.
- 44. STRING HOME RUNS AND EXTENSIONS SHALL USE CONNECTORS THAT ARE UL LISTED WEATHERPROOF, UV RESISTANT, FINGERSAFE PLUG-IN CONNECTORS. CONNECTORS SHALL BE OF LATCHING OR LOCKING TYPE. CONNECTORS READILY ACCESSIBLE AND OPERATING AT OVER 30V SHALL REQUIRE TOOL TO OPEN AND SHALL BE MARKED: "DO NOT DISCONNECT UNDER LOAD" OR "NO FOR CURRENT INTERRUPTING" IN ACCORDANCE WITH NEC 690.33. ALL CONDUITS SHALL BE FREE OF ANY OBSTRUCTIONS AND PROPERLY SECURED BEFORE WIRE IS PULLED
- 45. ALL UNDERGROUND CABLE SHALL BE MAPPED AND IDENTIFIED ALONG THEIR ENTIRE RUN WITH MYLAR HAZARD TAPE AS SHOWN.
- 46. DC WIRING AND COMMUNICATIONS CAN AND SHOULD USE WIREWAYS ON RACKING WHENEVER
- 47. WHERE CONDUIT DOES NOT TERMINATE AT A BOX, CONTRACTOR SHALL PROVIDE BELL ENDS AND SEAL WITH EXPANDING FOAM RATED FOR USE WITH WIRING
- 48. ALL AGGREGATION PANEL MAIN AND INTERTIE CIRCUIT BREAKERS OR FUSES SHALL BE RATED FOR BIDIRECTIONAL CURRENT. DO NOT USE BREAKERS WITH LINE AND LOAD SIDE INDICATED.
- 49. ALL METALLIC CONNECTORS AND FITTINGS SHALL BE NON-CORRODING, SUCH AS ALUMINUM, STAINLESS STEEL OR GALVANIZED.
- 50. ARRANGE CONDUIT TO MAINTAIN HEADROOM AND IN A NEAT INCONSPICUOUS MANNER. RUN PARALLEL AND AT RIGHT ANGLES TO STRUCTURAL MEMBERS. PROVIDE BOXES, FITTINGS AND BENDS FOR CHANGE IN DIRECTION. FASTEN CONDUIT SECURELY IN PLACE.
- 51. SUPPORT CONDUIT USING STEEL OR MALLEABLE IRON STRAPS, LAY-IN ADJUSTABLE HANGERS, CLEVIS HANGERS AND SPLIT-HANGERS. HANGER SPACING SHALL BE 10 FT MAXIMUM. USE APPROVED BEAM CLAMPS FOR CONNECTION TO STRUCTURAL MEMBERS.
- 52. SAFETY REGULATIONS (LOCK OUT-TAG OUT, ETC.) MUST BE OBSERVED BY THE CONTRACTOR DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE ALL NECESSARY EQUIPMENT, SIGNS, LABELS, LOCKS AND KEYS.
- 53. ELECTRICAL CONTRACTOR SHALL PROVIDE SIGNAGE AS SHOWN ON THESE DRAWINGS AND PER NEC ARTICLE 690 AND ALL OTHER APPLICABLE ARTICLES.
- 54. UNLESS OTHERWISE INDICATED, GROUND ALL EXPOSED NONCURRENT-CARRYING METALLIC PARTS OF ELECTRICAL EQUIPMENT, RACEWAY SYSTEMS, EQUIPMENT STRUCTURES AND THE NEUTRAL OF ALL WIRING SYSTEMS IN ACCORDANCE WITH THE NEC, STATE, AND OTHER APPLICABLE LAWS AND REGULATIONS. PROVIDE SEPARATE GROUNDING CONDUCTORS WITH ALL APPLICABLE CIRCUITS AND IN ALL CONDUITS.
- 55. RECEPTACLES SHALL BE DUPLEX AND RATED 20 AMPS AT 120 VAC, 2 POLE, 3 WIRE, NEMA TYPE 5-20R AND SPECIFICATION GRADE. ALL RECEPTACLES SHALL BE GFI AND WEATHERPROOF TYPE. DEVICE COVER PLATES SHALL BE SUITABLE FOR THE ENVIRONMENT IN WHICH THEY ARE INSTALLED AND THE TYPE OF SERVICE THEY ARE USED FOR.
- 56. HEAVY DUTY RATED SWITCHES FUSED OR NON-FUSIBLE AS INDICATED ON THE DRAWINGS, SHALL BE PROVIDED AS REQUIRED. GENERAL DUTY SWITCHES WILL NOT BE ALLOWED, SWITCHES SHALL HAVE "QUICK-BREAK" ACTUATING MECHANISMS AND SHALL BE ENCLOSED AS REQUIRED BY THE CONDITIONS OF INSTALLATION. THE COVER SHALL BE INTERLOCKED WITH THE SWITCH SUCH THAT THE ENCLOSURE CANNOT BE OPENED WITH THE SWITCH IN THE "ON" POSITION. THE "ON" AND "OFF" POSITIONS SHALL BE CLEARLY MARKED BY THE MANUFACTURER. THE SWITCH SHALL BE CAPABLE OF BEING LOCKED IN THE OPEN POSITION. PROVIDE ENCLOSURES SUITABLE FOR THE SPECIFIC TYPE OF LOCATION IN WHICH THEY ARE INSTALLED. ENCLOSURES SHALL BE LOCKABLE. PROVIDE VISIBLE BLADES SWITCHES WHERE REQUIRED BY CODE OR UTILITY. DISCONNECT SWITCHES SHALL BE MANUFACTURED BY CUTLER-HAMMER, SQUARE D OR EQUAL
- 57. CONTRACTOR SHALL BE REQUIRED TO REVIEW CONDUIT AND WIRING ROUTING TO PREVENT MOISTURE FROM ENTERING ANY EQUIPMENT BOXES. PROVIDE SUBMITTALS TO OWNER AND OWNER'S REPRESENTATIVE FOR APPROVAL OF ANY BRANCH OR SOURCE CIRCUIT TO ANY EQUIPMENT BOXES, WEATHER HEADS, AND WHERE CONDUIT STUBS UP.
- 58. ALL CONDUIT SHALL BE INSTALLED TO ACCOMMODATE EXPANSION AND CONTRACTION DUE TO AMBIENT TEMPERATURE CHANGES.
- 59. ALL POWER AND DATA WIRING SHALL BE LISTED FOR WET CONDITIONS.
- 60. COMPLY WITH OWNER CLOSE-OUT, TESTING, INSPECTION, AND COMMISSIONING REQUIREMENTS. 61. THIS PHOTOVOLTAIC SYSTEM'S UTILITY INTERCONNECTION POINT SHALL MEET THE SPECIFIC REQUIREMENTS OF ARTICLE 690 AND ARTICLE 705 OF THE NATIONAL ELECTRICAL CODE. FOLLOW THE SPECIFIC INSTRUCTIONS IN THIS DRAWING SET TO MEET THIS CODE REQUIREMENT.
- **MODULE INSTALLATION NOTES:**
- 1. REFER TO THE MODULE MANUAL FOR MORE DETAILS ON RIGGING, UNPACKING, HANDLING, PLANNING, AND INSTALLATION
- 2. THE MODULES MAY BE SHIPPED WITH SEVERAL MODULES PER BOX. TAKE CARE WHEN OPENING THE BOX TO ENSURE THAT ALL MODULES ARE SECURELY HANDLED.
- 3. NEVER LEAVE A MODULE UNSUPPORTED OR UNSECURED. CONTRACTOR IS RESPONSIBLE FOR ALL MATERIAL HANDLING ON THE JOB SITE.
- COMMISSIONING NOTES:
- 1. PRIOR TO FINAL REQUEST FOR PAYMENT, CONTRACTOR SHALL PROVIDE THE SERVICES OF A THIRD PARTY ELECTRICAL INSPECTOR TO OBTAIN A CERTIFICATE OF INSPECTION.
- 2. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING, SCHEDULING, PAYING FOR, AND DOCUMENTING ALL INSPECTIONS OR TESTING REQUIRED BY THE AHJ AND UTILITY, INCLUDING BUT NOT LIMITED TO PROGRESS INSPECTIONS, TRANSFORMER TEST RESULTS, RELAY FUNCTIONAL TESTING, CT RATIO AND SATURATION TESTING, PT TESTING, GROUND GRID RESISTANCE TESTING, CIRCUIT BREAKER ACCEPTANCE TESTING, VERIFICATION OF ADEQUACY OF DC BATTERY SUPPLY, OR ANTI-ISLANDING UTILITY WITNESS TESTING.
- SOLAR ARRAY COMMISSIONING:
- BEFORE CLOSING DISCONNECTS, CONNECTING STRINGS, OR ATTEMPTING TO ENERGIZE THE INVERTERS, THE FOLLOWING COMMISSIONING PROCEDURE SHALL BE COMPLETED (IN THIS ORDER TESTS SHALL BE PERFORMED UNDER THE DIRECTION OF A NABCEP CERTIFIED INSTALLER USING TEST PROCEDURES DEFINED BY THE MOST RECENT VERSION OF IEC 62446. ALL TEST RESULTS ARE SUBJECT TO THE REVIEW OF THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING AND INSTALLING ANY CORRECTIVE ACTION REQUIRED BY THE ENGINEER IN ORDER TO SATISFY TEST CRITERIA.
- 1.1. TEST THE CONTINUITY OF ALL CONNECTIONS BETWEEN ALL BONDING JUMPERS AND THE GROUNDING ELECTRODE SYSTEM (RACKING, MODULES, EQUIPMENT BOXES, GROUND RINGS OR RODS, AND ANY OTHER METALLIC COMPONENTS REQUIRED TO BE BONDED TO THE GES PER THE DESIGN DRAWINGS). PRIOR TO SITE INSPECTION BY THE ENGINEER, CONTRACTOR SHALL PHYSICALLY MARK ALL CONNECTIONS THAT WERE TESTED FOR CONTINUITY, AND SHALL PREPARE DOCUMENTATION OF CONTINUITY TEST RESULTS.
- 1.2. TEST POLARITY OF ALL DC CABLES. FOR SYSTEMS WITH INVERTERS AND/OR DC COMBINER BOXES THAT AUTOMATICALLY DETECT POLARITY ERRORS, ADDITIONAL TESTING AND DOCUMENTATION IS NOT REQUIRED. ON OTHER INVERTERS, CONTRACTOR SHALL PROVIDE A CHECKLIST DOCUMENTING THAT ALL DC CIRCUITS WERE CHECKED FOR POLARITY PRIOR TO ENERGIZING
- 1.3. WHERE DC COMBINER BOXES (DCCB) ARE INSTALLED, PERFORM PV COMBINER BOX TESTING TO FURTHER CONFIRM THE ABSENSE OF REVERSE POLARITY CONDITIONS. CONTRACTOR SHALL PROVIDE A CHECKLIST DOCUMENTING THAT ALL DC CIRCUITS WERE CHECKED FOR POLARITY PRIOR TO ENERGIZING.
- 1.4. TEST THE OPEN CIRCUIT VOLTAGE (VOC) ON ALL SOURCE CIRCUITS AND CONFIRM MAXIMUM VOLTAGE LIMITS ARE NOT EXPECTED TO BE EXCEEDED AFTER ENERGIZING. IV CURVE TESTING MAY BE USED TO VERIFY VOC IF COMPLETED AT THIS STAGE IN COMMISSIONING.
- 1.5. TEST THE SHORT CIRCUIT CURRENT (ISC) FOR EACH SOURCE CIRCUIT TO CONFIRM MAXIMUM CURRENT LIMITS ARE NOT EXPECTED TO BÉ EXCEEDED AFTER ENERGIZING. IV CURVE TESTING MAY BE USED TO VERIFY ISC IF COMPLETED AT THIS STAGE IN COMMISSIONING

- RATED FOR THEIR INTENDED USE.

- MINIMUM VOLTAGE.
- COMPROMISED CABLE IS IDENTIFIED.
- THE ENGINEER.

INVERTER COMMISSIONING:

- - RANGE AS DEFINED BY THE INVERTER RATING LABEL AND ACCOMPANIED MANUAL.
- PERFORMANCE TESTING: BQ ENERGY.
- O&M NOTES:

1.6. CHECK THAT ALL FUSES, DISCONNECTS AND OTHER BALANCE OF SYSTEM COMPONENTS ARE

1.7. COMPLETE A VISUAL INSPECTION OF ALL THE MODULES TO CHECK FOR BROKEN GLASS, FRAYED WIRES, EXPOSED CONDUCTORS AND ANY OTHER PROBLEMS THAT MAY CAUSE A FAULT.

1.8. TEST FUNCTIONALITY OF ALL SWITCHES, DISCONNECTS, CIRCUIT BREAKERS, AND ANY OTHER CONTROL APPARATUS, CONTRACTOR TO PROVIDE A LIST OF ALL EQUIPMENT THAT WAS TESTED WITH NOTES ON WHAT WAS CHECKED, AND ANY OBSERVED ABNORMALITIES. THE ENGINEER OR BQ ENERGY MAY REQUEST ADDITIONAL FUNCTIONAL TESTING AS NEEDED TO CONFIRM ALL EQUIPMENT IS FUNCTIONING AS NEW AT THE COMPLETION OF COMMISSIONING. FUNCTIONAL TESTS THAT REQUIRE THE AC SUPPLY TO BE PRESENT, SUCH AS INVERTER ANTI-ISLANDING TESTING, SHALL BE PERFORMED AFTER ENERGIZING THE INVERTERS.

1.9. TEST INSULATION RESISTANCE OF ALL AC AND DC CIRCUITS.

1.9.1. BEFORE IRT TESTING THE SOLAR MODULES, CONTRACTOR SHALL CONFIRM WITH THE MODULE MANUFACTURER THAT TESTING WILL NOT DAMAGE THE INTERNAL DIODES OR VOID THE WARRANTY. CONTRACTOR TO FOLLOW ALL MANUFACTURER REQUIREMENTS. 1.9.2. REFER TO BQ ENERGY PROVIDED TESTING SPREADSHEET FOR SPECIFIC VOLTAGE AND

1.9.3. WHERE PERMISSIBLE BY THE MODULE MANUFACTURER, IRT TESTING MAY BE PERFORMED ON MULTIPLE DC CIRCUITS AT ONCE USING "TEST METHOD B" IN IEC 62446. IF RESULTS ARE NOT ACCEPTABLE, CONTRACTOR TO TEST SUBSETS OF THE FULL ARRAY UNTIL THE

1.9.4. WHERE MINIMUM INSULATION RESISTANCE IS NOT ACHIEVABLE ON AN INDIVIDUAL CIRCUIT, CONTRACTOR MAY SUBMIT DATA TO ENGINEER FOR REVIEW. THE ENGINEER MAY REQUIRE CONTRACTOR PERFORM WET INSULATION TESTING ON QUESTIONABLE CIRCUITS. CONTRACTOR SHALL REPLACE ANY CONDUCTORS THAT ARE NOT DEEMED ACCEPTABLE BY

1. BEFORE TURNING THE INVERTER ON, OR CLOSING ANY OF THE INVERTER DISCONNECTS, THE FOLLOWING COMMISSIONING PROCEDURE SHALL BE COMPLETED: 2.1. CHECK AC INPUT VOLTAGE IS IN THE PROPER PHASE SEQUENCE (CLOCKWISE) IF APPLICABLE.

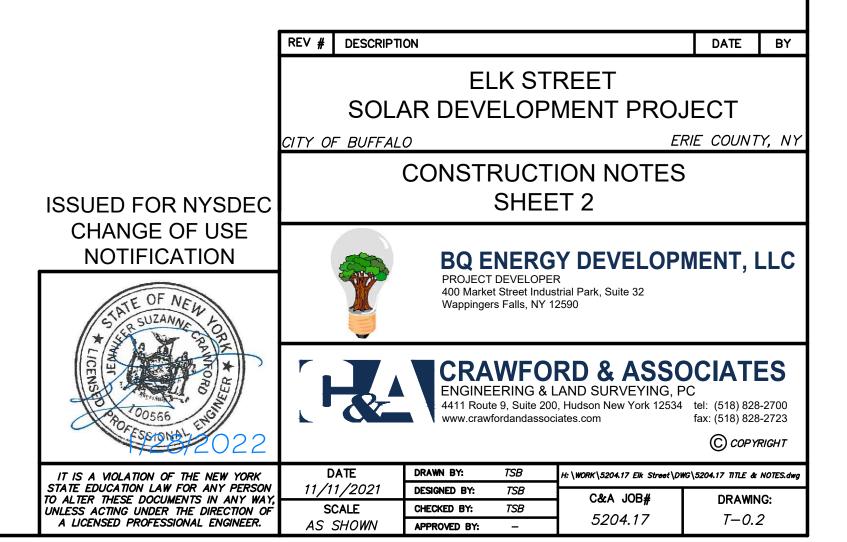
2.2. CHECK THAT THE AC GRID VOLTAGE AT THE INVERTER AC TERMINALS IS WITHIN THE PROPER

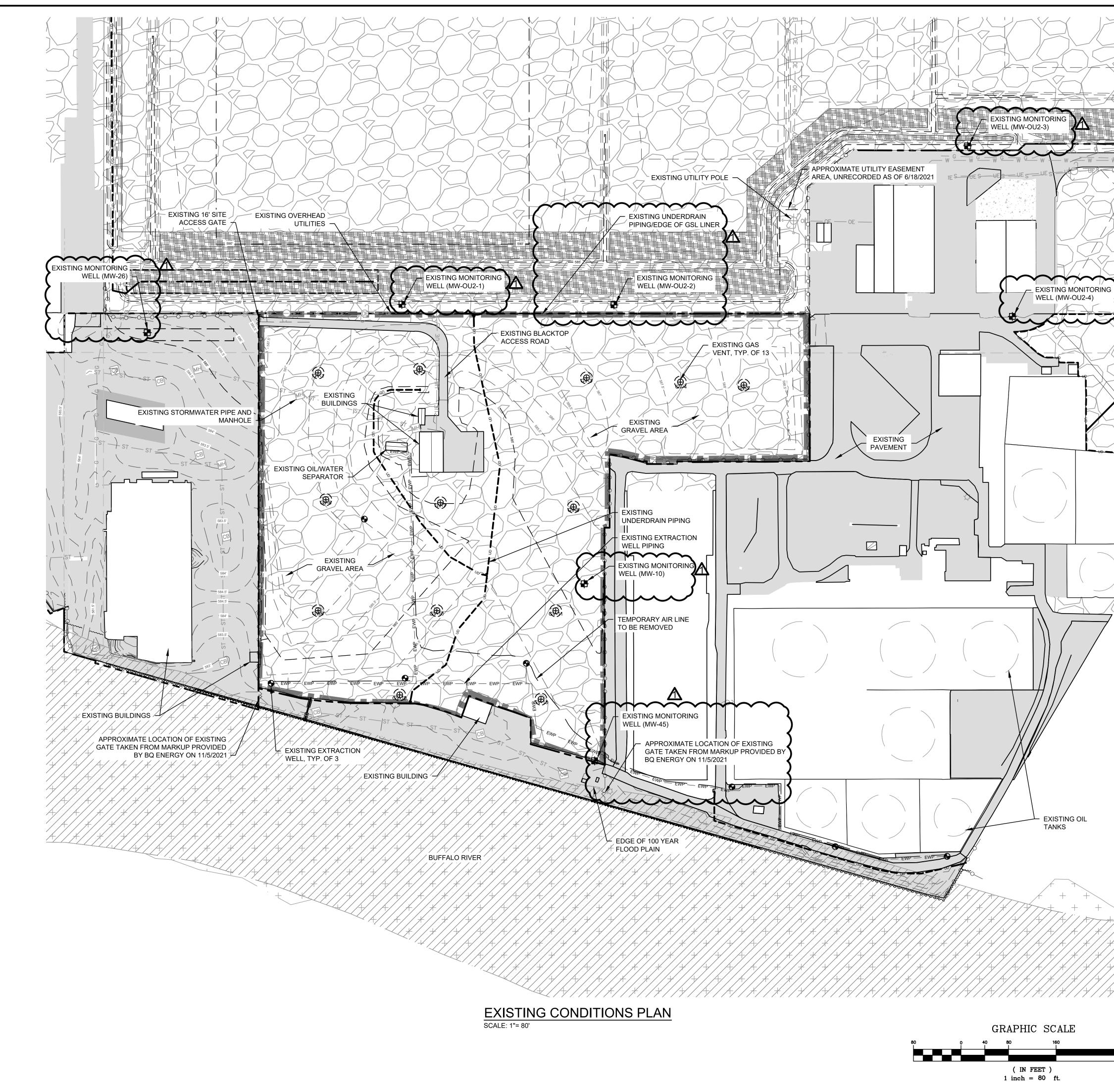
2.3. FOLLOW START-UP SEQUENCE IN MANUFACTURER'S OPERATION AND MAINTENANCE MANUAL.

1. IF NOT COMPLETED AS A PART OF VOC/ISC TESTING DURING COMMISSIONING, ALL STRINGS SHALL BE IV CURVE TESTED IN ACCORDANCE WITH THE PROCEDURES SPECIFIED IN THE MOST RECENT VERSION OF IEC 62446. RESULTS SHALL BE DOCUMENTED USING THE SPREADSHEET TEMPLATE PROVIDED BY

1. THE FACILITY SHALL BE OPERATED AND MAINTAINED IN ACCORDANCE WITH SOLAR INDUSTRY BEST PRACTICES, NFPA 70E, AND ALL APPLICABLE OSHA REQUIREMENTS.

2. THE FACILITY SHALL COMPLY WITH THE FOLLOWING FIRE MITIGATION PLAN PER NEC 691.10: 2.1. PERFORM INSPECTION OF THE PV ARRAY USING IR IMAGING, DURING COMMISSIONING AND ANNUALLY THEREAFTER TO IDENTIFY POTENTIAL ARC FAULTS VIA THERMAL MEANS, WITH PARTICULAR ATTENTION TO ALL MC4 CONNECTIONS BETWEEN PV MODULES.





DRAWING NOTES:

- 1. BACKGROUND DRAWING INCLUDING PROPERTY BOUNDARIES, EXISTING SITE FEATURES, TOPOGRAPHY AND FEMA 1% ANNUAL CHANCE FLOOD ZONE FROM REMEDIATION DESIGN CAD FILES BY AMEC E&E P.C., DATED DECEMBER 2019, PROVIDED BY BQ ENERGY ON FEBRUARY 8, 2021.
- 2. EXISTING MONITORING WELL LOCATIONS TAKEN FROM GPS COORDINATES PROVIDED BY LABELLA ASSOCIATES, P.C. THROUGH BQ ENERGY ON JANUARY 12, 2022, AND APPROXIMATED FROM PDF TITLED "GROUNDWATER CONTOURS FIGURE 4" BY LABELLA ASSOCIATES, P.C. DATED MAY 2021.

LEG	GEND)	
	586.5 585 		EXISTING CONTOUR .5' INTERVAL EXISTING CONTOUR 5' INTERVAL EXISTING LEASE LINE EXISTING/PROPOSED ROAD EDGE
		ST	EXISTING/PROPOSED FENCE EXISTING STORMWATER LINE
		G	EXISTING GAS LINE
		— W —	EXISTING WATER LINE EXISTING FIRE WATER LINE
s	s — s ·	s	EXISTING SEWER LINE
		OE UE	EXISTING OVERHEAD ELECTRIC EXISTING UNDERGROUND ELECTRIC
		EWP	EXISTING EXTRACTION WELL PIPE
			EXISTING TEMPORARY AIR LINE
	\sim		EXISTING UNDERDRAIN EXTENT OF GSL LINER/EXISTING UNDERDRAIN
	MH		EXISTING/PROPOSED STORMWATER MANHOLE
	СВ	СВ	EXISTING/PROPOSED STORMWATER CATCH BASIN
E			EXISTING BUILDING
			EXISTING/PROPOSED PAVEMENT HATCH
			REGULATORY FLOODWAY
	B.	X	EXISTING CRUSHED STONE CAP MATERIAL
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			ELK STREET
		SOLAR	DEVELOPMENT PROJECT
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NYSDEC		E	SITE PLAN XISTING CONDITIONS
OF USE	(N	BQ ENERGY DEVELOPMENT, LLC PROJECT DEVELOPER 400 Market Street Industrial Park, Suite 32 Wappingers Falls, NY 12590
TT			CRAWFORD & ASSOCIATES ENGINEERING & LAND SURVEYING, PC 4411 Route 9, Suite 200, Hudson New York 12534 www.crawfordandassociates.com fax: (518) 828-2723

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DRAWING:

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DRAWN BY: TSB, CJS, TD H: \WORK\5204.17 Elk Street\DWG\5204.17 SITE.dwg

C&A JOB#

5204.17

DESIGNED BY: TSB

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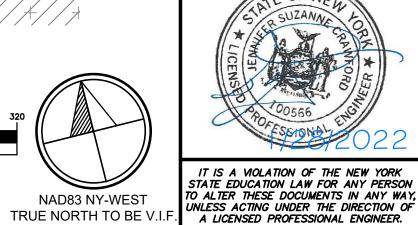
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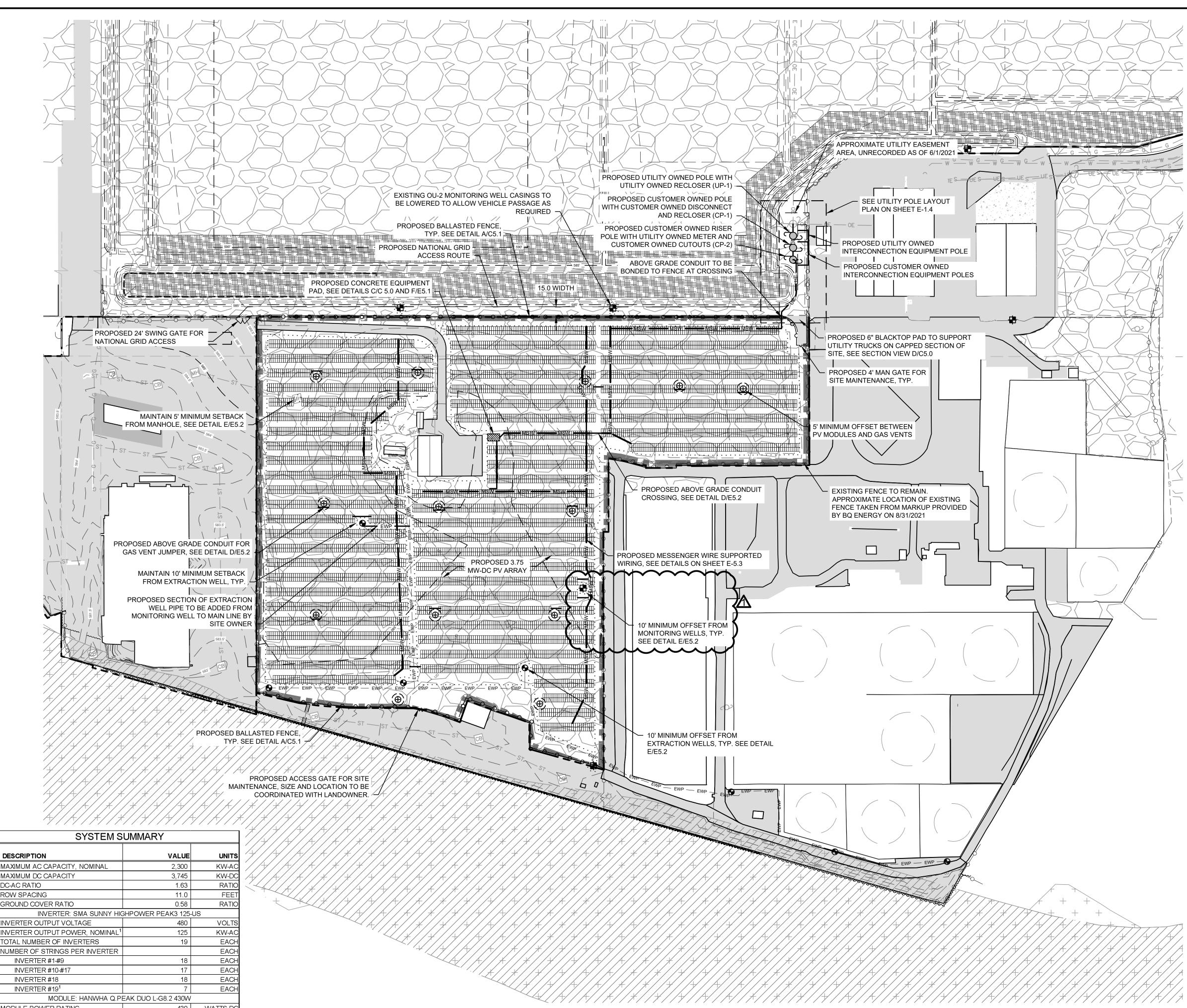
UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER.

DATE 11/11/2021

SCALE

AS SHOWN

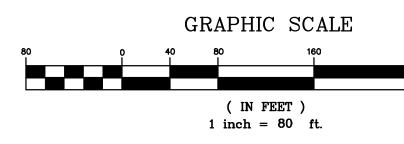




SYSTEM SUMMARY					
DESCRIPTION	VALUE	UNITS			
MAXIMUM AC CAPACITY, NOMINAL	2,300	KW-AC			
MAXIMUM DC CAPACITY	3,745	KW-DC			
DC-AC RATIO	1.63	RATIO			
ROW SPACING	11.0	FEET			
GROUND COVER RATIO	0.58	RATIO			
INVERTER: SMA SUNNY HIG	SHPOWER PEAK3 125	-US			
INVERTER OUTPUT VOLTAGE	480	VOLTS			
INVERTER OUTPUT POWER, NOMINAL ¹	125	KW-AC			
TOTAL NUMBER OF INVERTERS	19	EACH			
NUMBER OF STRINGS PER INVERTER		EACH			
INVERTER #1-#9	18	EACH			
INVERTER #10-#17	17	EACH			
INVERTER #18	18	EACH			
INVERTER #19 ¹	7	EACH			
MODULE: HANWHA Q.PE	EAK DUO L-G8.2 430W	r			
MODULE POWER RATING	430	WATTS-DC			
TOTAL NUMBER OF MODULES	8,710	EACH			
MODULES PER RACK, VERTICALLY	2	PORTRAIT			
MODULES PER STRING	26-27	EACH			
MAX DC SYSTEM VOLTAGE	1,500	VOLTS			
NUMBER OF STRINGS	323	EACH			
TILT ANGLE	20	DEGREES			
AZIMUTH ANGLE	15	DEGREES			
¹ INVERTER #19 TO BE DERATED BY MA OUTPUT POWER OF 50KW-AC	ANUFACTURER TO A N	IOMINAL			

SCALE: 1"= 80'

PROPOSED OVERALL LAYOUT PLAN



DRAWING NOTES:

- 1. BACKGROUND DRAWING INCLUDING PROPERTY BOUNDARIES, EXISTING SITE FEATURES, TOPOGRAPHY AND FEMA 1% ANNUAL CHANCE FLOOD ZONE FROM REMEDIATION DESIGN CAD FILES BY AMEC E&E P.C., DATED DECEMBER 2019, PROVIDED BY BQ ENERGY ON FEBRUARY 8, 2021.
- 2. EXISTING MONITORING WELL LOCATIONS TAKEN FROM GPS COORDINATES PROVIDED BY LABELLA ASSOCIATES, P.C. THROUGH BQ ENERGY ON JANUARY 12, 2022, AND APPROXIMATED FROM PDF TITLED "GROUNDWATER CONTOURS FIGURE 4" BY LABELLA ASSOCIATES, P.C. DATED MAY 2021.
- 3. PV MODULE LOCATIONS ARE APPROXIMATE. REFER TO RACKING MANUFACTURER DRAWINGS FOR EXACT DIMENSIONS.

LEGEND

NAD83 NY-WEST

TRUE NORTH TO BE V.I.F

IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON TO ALTER THESE DOCUMENTS IN ANY WAY,

UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER.

DATE 11/11/2021

SCALE

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	- 586.5	EXISTING CONTOUR .5' INTERVAL				
	- 585	EXISTING CONTOUR 5' INTERVAL				
		EXISTING LEASE LINE				
		EXISTING/PROPOSED ROAD EDGE				
-00		EXISTING/PROPOSED FENCE				
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G	— G — G —	EXISTING GAS LINE				
—— w —	— w — w —	EXISTING WATER LINE				
	— FW —	EXISTING FIRE WATER LINE				
S	— s — s —	EXISTING SEWER LINE				
OE	OE	EXISTING/PROPOSED OVERHEAD ELECTRIC				
UE	— UE —— UE ——	EXISTING UNDERGROUND ELECTRIC				
UE		PROPOSED UNDERGROUND ELECTRIC				
EWP -	EWP	EXISTING/PROPOSED EXTRACTION WELL PIPE				
$\overline{\sim}$		EXISTING UNDERDRAIN				
		EXTENT OF GSL LINER/EXISTING UNDERDRAIN				
MF	Н	EXISTING/PROPOSED STORMWATER MANHOLE				
CE	СВ	EXISTING/PROPOSED STORMWATER CATCH BAS	SIN			
		EXISTING BUILDING				
		EXISTING/PROPOSED PAVEMENT HATCH				
		FEMA REGULATORY FLOODWAY				
		EXISTING CRUSHED STONE CAP MATERIAL				
1						
		EXISTING STORMWATER BASIN				
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	CITY OF BUFFALC	D ERIE COU	NTY. NY			
		SITE PLAN - PROPOSED				
ISSUED FOR NYSDEC		OVERALL LAYOUT				
CHANGE OF USE						
	8533	BQ ENERGY DEVELOPMENT	, LLC			
NOTIFICATION		PROJECT DEVELOPER				
		400 Market Street Industrial Park, Suite 32				
		400 Market Street Industrial Park, Suite 32 Wappingers Falls, NY 12590				
NOTIFICATION		Wappingers Falls, NY 12590	TFS			
		Wappingers Falls, NY 12590				
NOTIFICATION		Wappingers Falls, NY 12590 CRAWFORD & ASSOCIA ENGINEERING & LAND SURVEYING, PC 4411 Route 9, Suite 200, Hudson New York 12534 tel: (518)	828-2700			
NOTIFICATION		Wappingers Falls, NY 12590 CRAWFORD & ASSOCIA ENGINEERING & LAND SURVEYING, PC 4411 Route 9, Suite 200, Hudson New York 12534 tel: (518) www.crawfordandassociates.com fax: (518)				

DRAWN BY: TSB, CJS, TD H: \WORK\5204.17 Elk Street \DWG\5204.17 SITE.dwg

C&A JOB#

5204.17

DRAWING:

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DESIGNED BY: TSB

CHECKED BY: TSB

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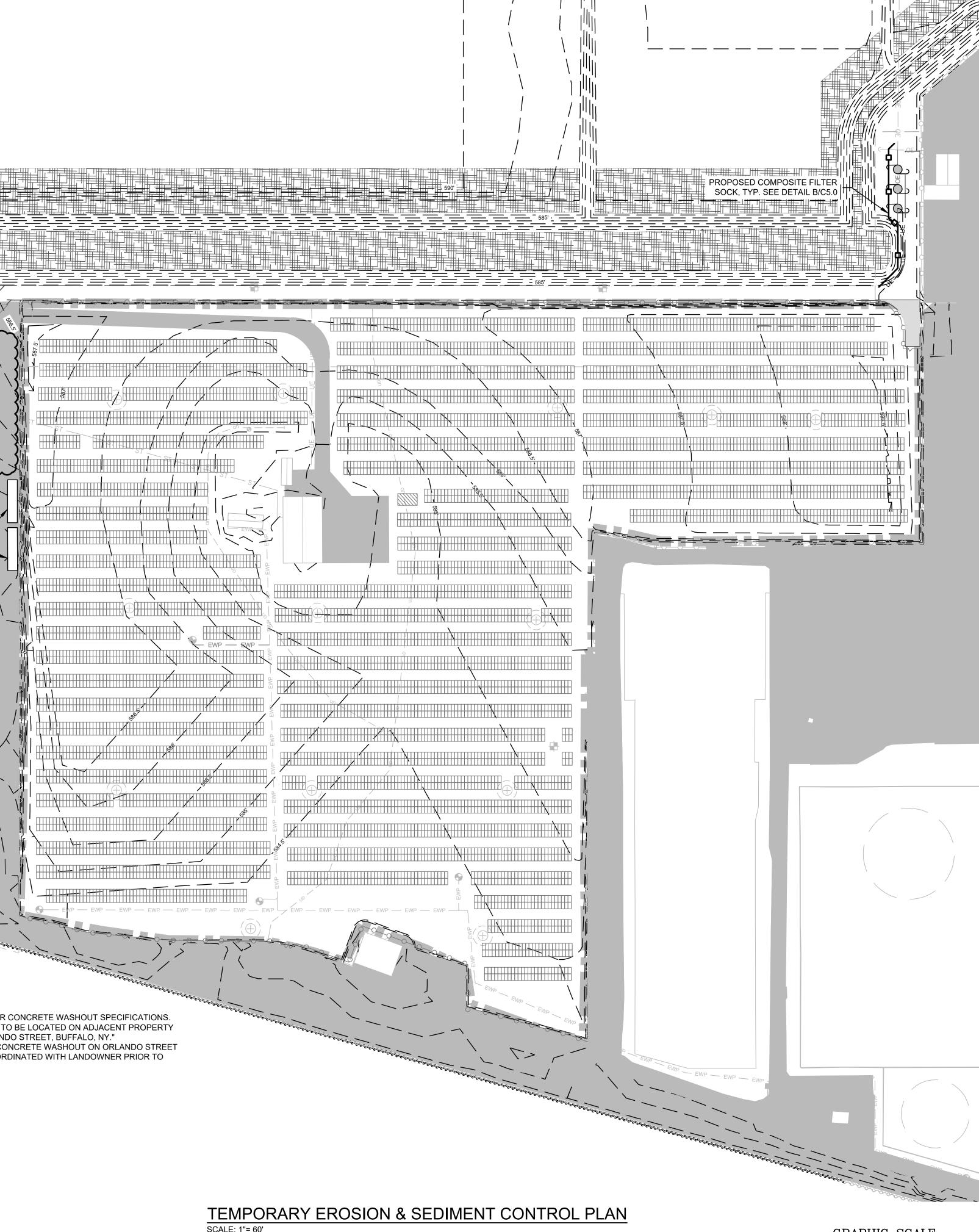
PROPOSED TEMPORARY LAYDOWN AREA, EXACT LOCATION TO BE COORDINATED WITH LANDOWNER

> ___ PROPOSED TEMPORARY JOBSITE TRAILERS

> > 583.5'

FWP -- EWP

- NOTES:
 SEE DETAIL A/C-5.0 FOR CONCRETE WASHOUT SPECIFICATIONS.
 CONCRETE WASHOUT TO BE LOCATED ON ADJACENT PROPERTY LOCATED AT "45 ORLANDO STREET, BUFFALO, NY."
 EXACT LOCATION OF CONCRETE WASHOUT ON ORLANDO STREET PROPERTY TO BE COORDINATED WITH LANDOWNER PRIOR TO
- CONSTRUCTION.

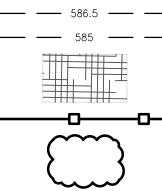


GRAPHIC SCALE (IN FEET) 1 inch = 60 ft.

DRAWING NOTES:

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LEGEND

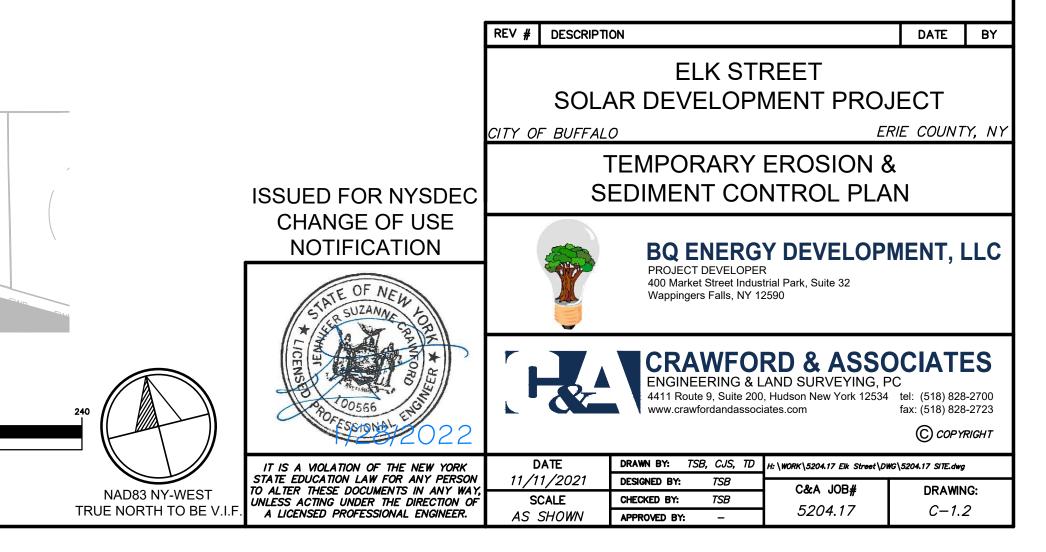


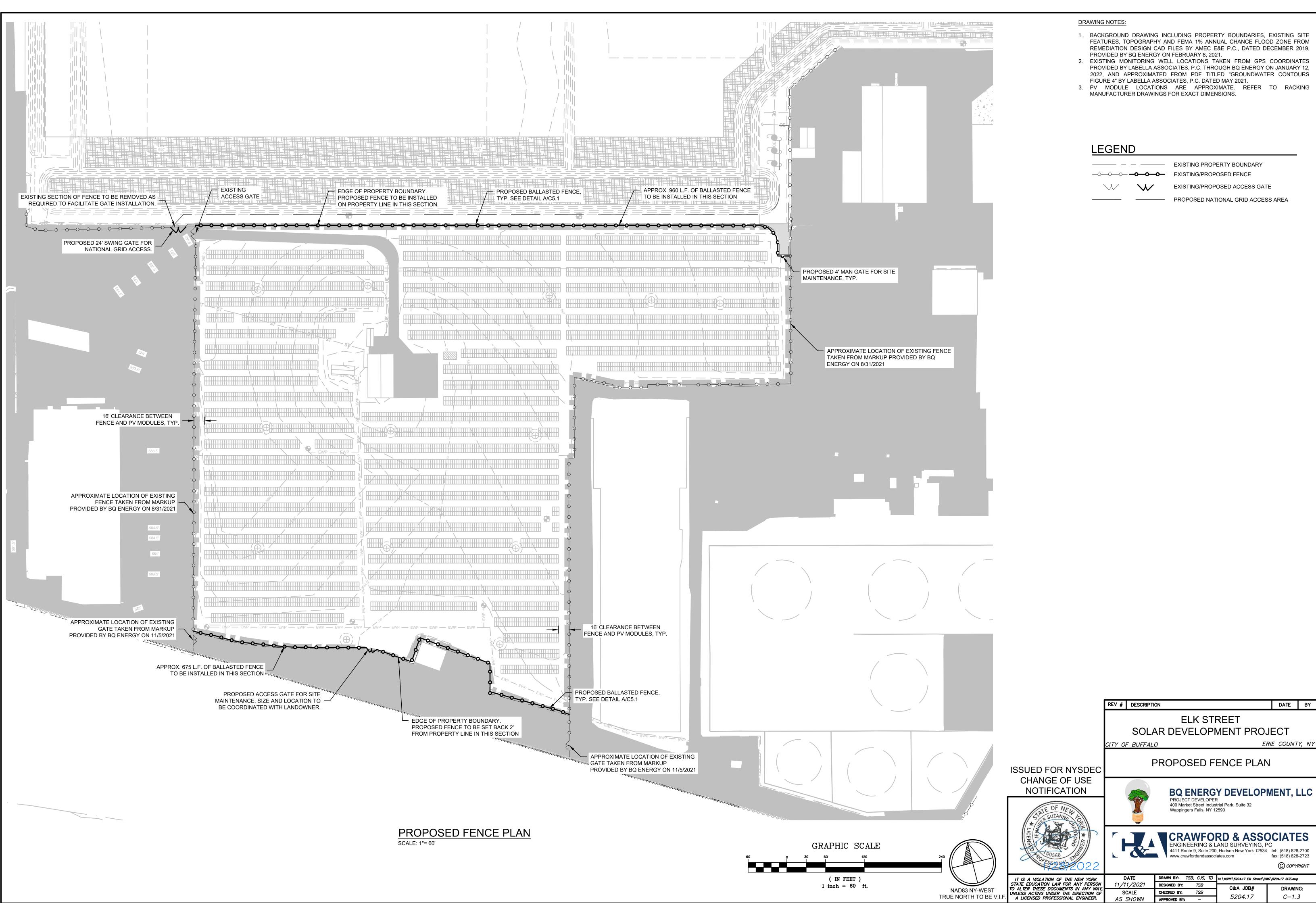
----- 586.5 ---- EXISTING CONTOUR .5' INTERVAL ------ 585 ----- EXISTING CONTOUR 5' INTERVAL

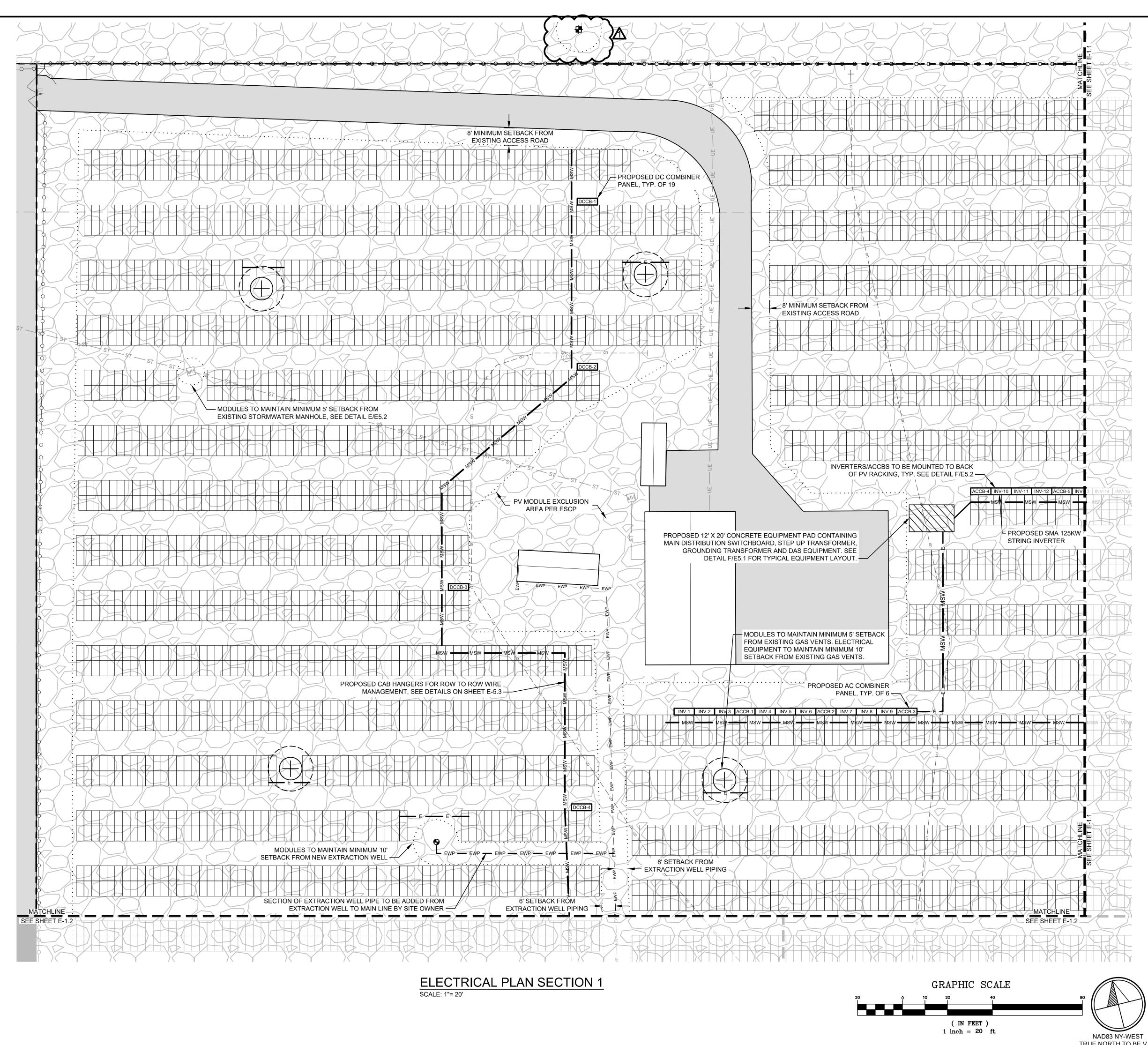
EXISTING STORMWATER BASIN

-D--- PROPOSED COMPOSITE FILTER SOCK

PROPOSED TEMPORARY LAYDOWN AREA







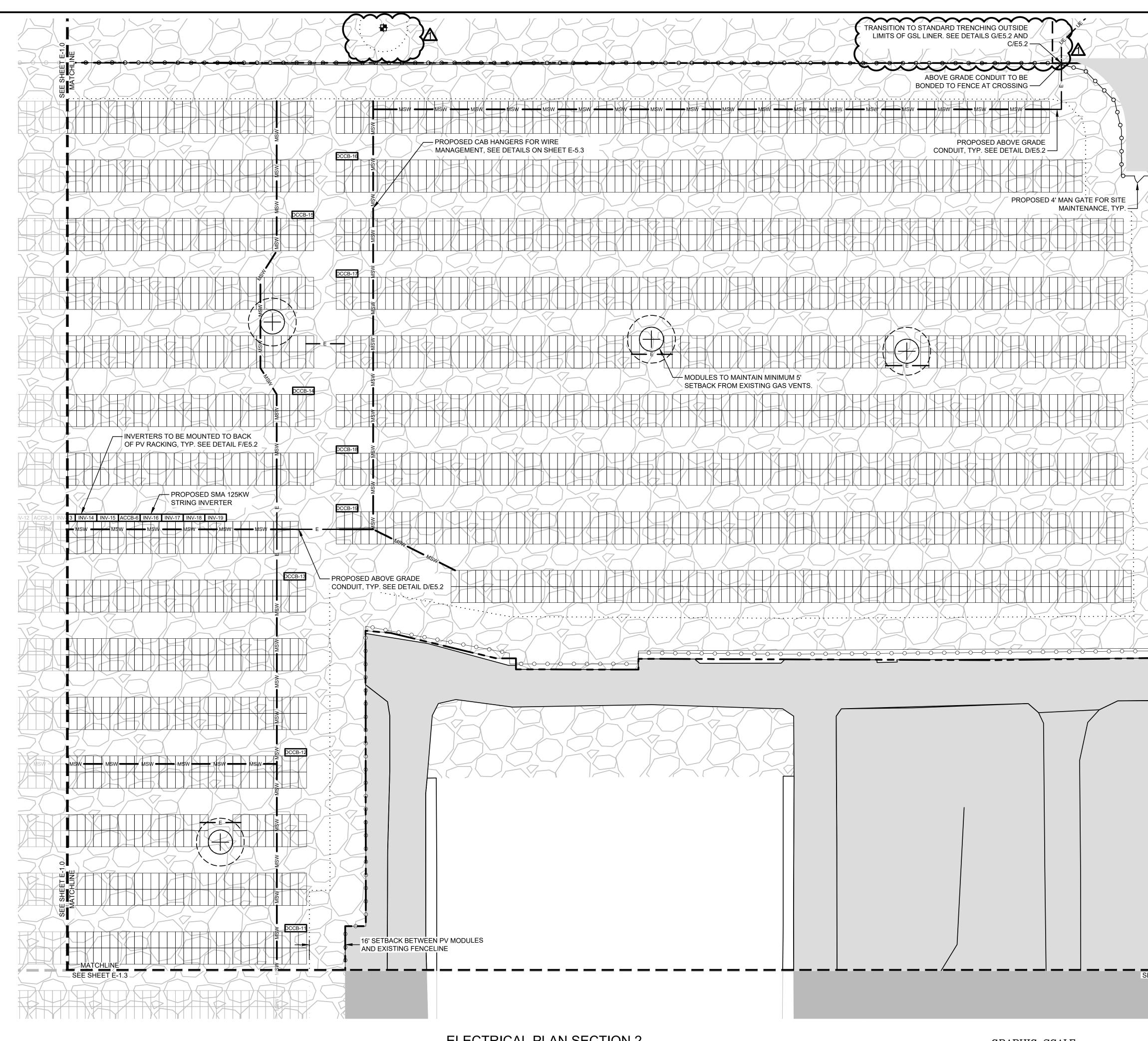
	(IN	FEET)
1	inch	= 20	ft

DRAWING NOTES:

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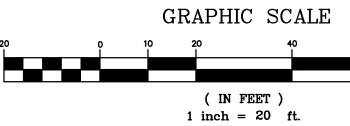
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NAD83 NY-WEST	STATE EDUCATION LAW FOR ANY PERSON TO ALTER THESE DOCUMENTS IN ANY WAY, UNLESS ACTING UNDER THE DIRECTION OF	11/11/2021DESIGNED BY:TSBSCALECHECKED BY:TSB	C&A JOB#	DRAWIN	IG:
TRUE NORTH TO BE V.I.F.	A LICENSED PROFESSIONAL ENGINEER.	AS SHOWN APPROVED BY: -	5204.17	E-1.0	0



ELECTRICAL PLAN SECTION 2

SCALE: 1"= 20'



DRAWING NOTES:

- 1. BACKGROUND DRAWING INCLUDING PROPERTY BOUNDARIES, EXISTING SITE FEATURES, TOPOGRAPHY AND FEMA 1% ANNUAL CHANCE FLOOD ZONE FROM REMEDIATION DESIGN CAD FILES BY AMEC E&E P.C., DATED DECEMBER 2019, PROVIDED BY BQ ENERGY ON FEBRUARY 8, 2021.
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- 3. PV MODULE LOCATIONS ARE APPROXIMATE. REFER TO RACKING MANUFACTURER DRAWINGS FOR EXACT DIMENSIONS.

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	CHANGE OF USE NOTIFICATION		ELECTRIC SECTION BQ ENERGO PROJECT DEVELOPER 400 Market Street Indust Wappingers Falls, NY 12	AL PLAN ON 2 Y DEVELOP trial Park, Suite 32 2590 RD & ASSC AND SURVEYING, F , Hudson New York 12534	MENT, L	LC S 2700 2723
SEE SHEET E-1.3	CHANGE OF USE NOTIFICATION		ELECTRIC SECTION BQ ENERG PROJECT DEVELOPER 400 Market Street Indust Wappingers Falls, NY 12 CRAWFOU ENGINEERING & L 4411 Route 9, Suite 200	AL PLAN ON 2 Y DEVELOP trial Park, Suite 32 2590 RD & ASSC AND SURVEYING, F , Hudson New York 12534	RIE COUNT MENT, L DCIATE PC tel: (518) 828- fax: fax: (518) 828- fax: C cop yre	LC ES 2700 2723 2700

SCALE

AS SHOWN

CHECKED BY: TSB

APPROVED BY:

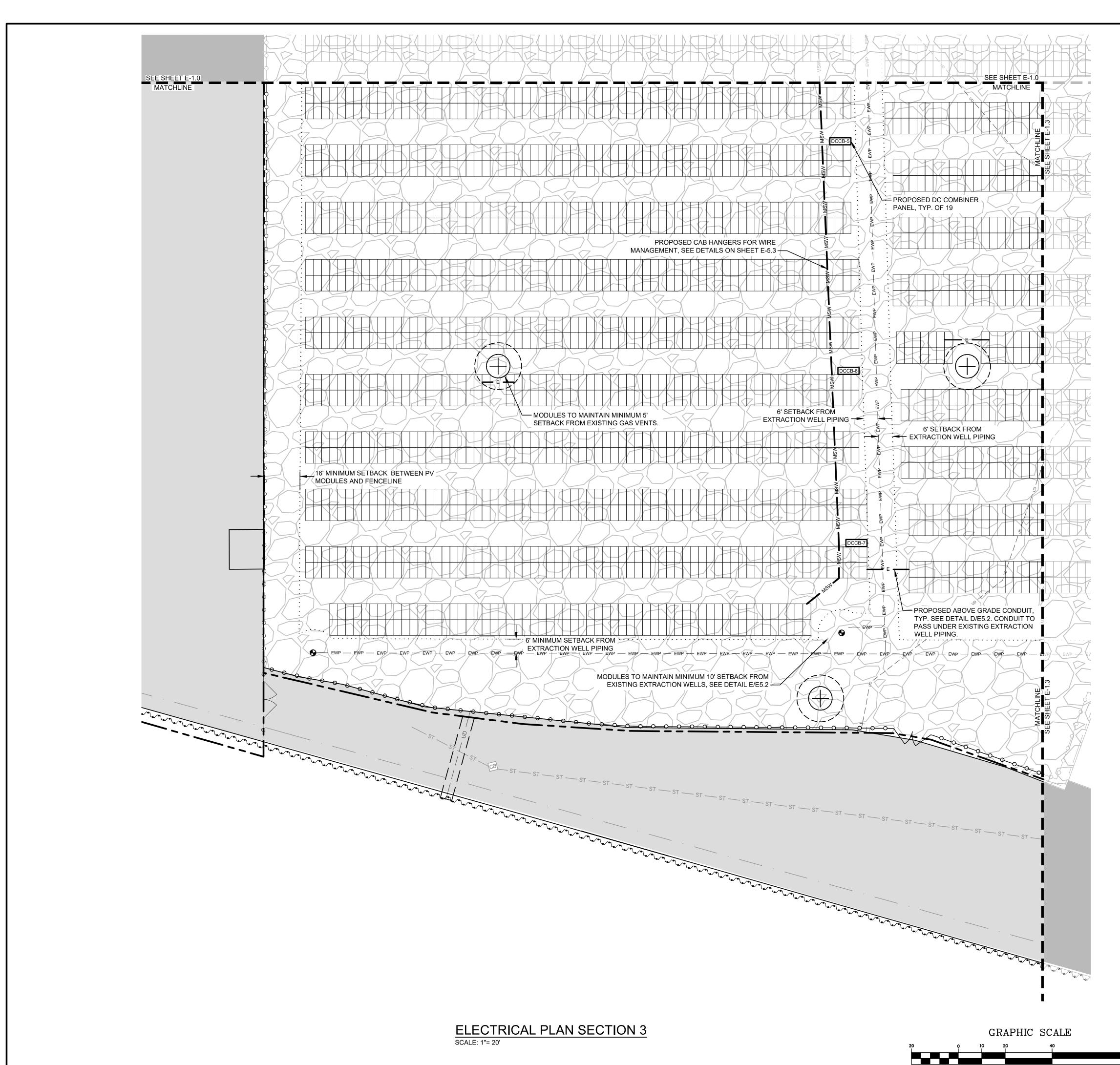
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UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER.

NAD83 NY-WEST

TRUE NORTH TO BE V.I.F.



(IN FEET) 1 inch = 20 ft.

NAD83 NY-WEST TRUE NORTH TO BE V.I.F.

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LEGEND

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		ROPOSED FENCE		
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		GEOMEMBRANE/EXISTI	NG UNDERDRAIN	
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		MODULE SETBACK		
		MESSENGER WIRE SUF		
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CHANGE OF USE				
NOTIFICATION		BQ ENERG PROJECT DEVELOPER 400 Market Street Indust Wappingers Falls, NY 12	trial Park, Suite 32	MENT, LLC
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IT IS A VIOLATION OF THE NEW YORK	DATE	DRAWN BY: TSB, CJS, TD	H:\WORK\5204.17 Elk Street\D	WG\5204.17 SITE.dwg
STATE EDUCATION LAW FOR ANY PERSON	11/11/2021	DESIGNED BY: TSB	C&A JOB#	DRAWING:

SCALE

AS SHOWN

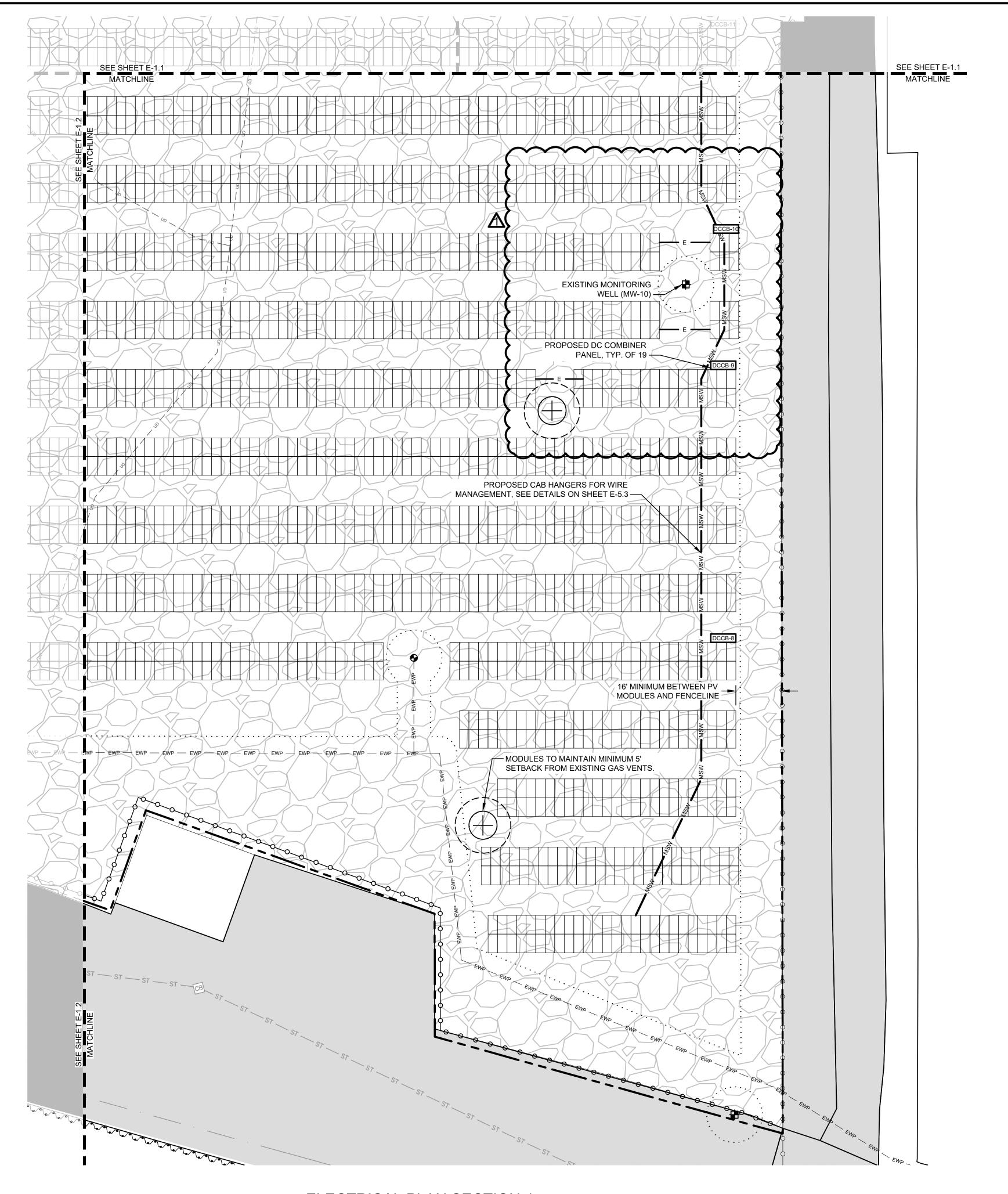
UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER.

CHECKED BY: TSB

APPROVED BY:

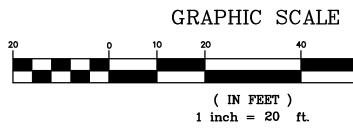
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SCALE: 1"= 20'





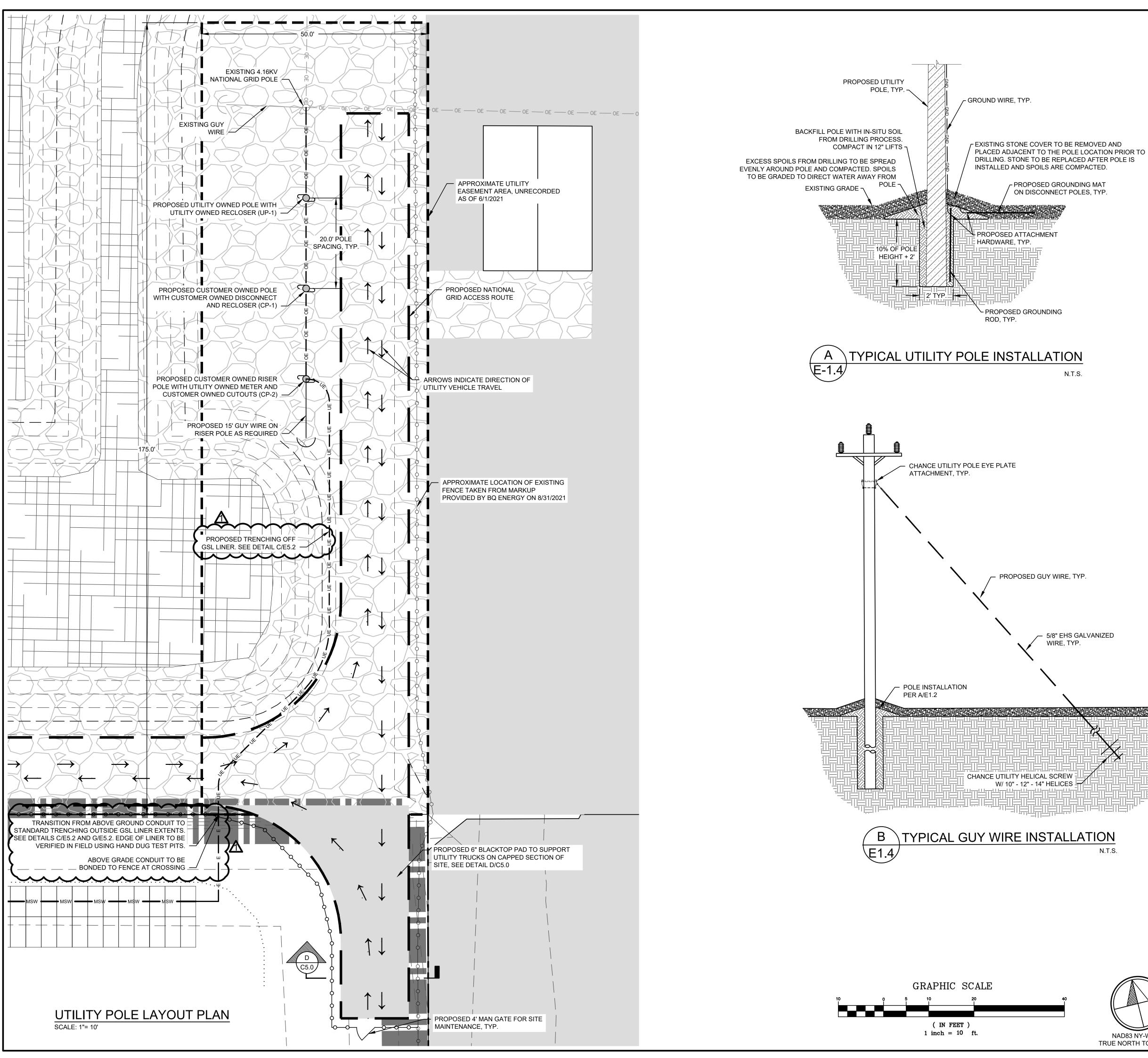
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LEGEND

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SSUED FOR NYSDEC CHANGE OF USE NOTIFICATION	REV # DESCRIPT	ELK STE AR DEVELOPN 20 ELECTRICA SECTION BQ ENERG PROJECT DEVELOPER 400 Market Street Indust Wappingers Falls, NY 12	REET MENT PRO E AL PLAN ON 4 Y DEVELOP Trial Park, Suite 32 2590 RD & ASSC AND SURVEYING, F	JECT RIE COUNT MENT, I	BY LLC ES			
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SSUED FOR NYSDEC CHANGE OF USE NOTIFICATION	REV # DESCRIPT	ELK STE AR DEVELOPE 20 ELECTRICA SECTION BQ ENERGO PROJECT DEVELOPE 400 Market Street Indust Wappingers Falls, NY 12 CRAWFOUL ENGINEERING & L 4411 Route 9, Suite 200 www.crawfordandassoci	REET MENT PRO E AL PLAN ON 4 Y DEVELOP Trial Park, Suite 32 2590 RD & ASS AND SURVEYING, F Hudson New York 12534 ates.com	DATE JECT RIE COUNT MENT, I MENT, I OCIATI C tel: (518) 828 fax: (518) 828 fax: (518) 828 fax: (518) 828	BY FY, NY LLC ES 3-2700 3-2723 RiGHT			

NAD83 NY-WEST TRUE NORTH TO BE V.I.F.



DRAWING NOTES:

- 1. BACKGROUND DRAWING INCLUDING PROPERTY BOUNDARIES, EXISTING SITE FEATURES, TOPOGRAPHY AND FEMA 1% ANNUAL CHANCE FLOOD ZONE FROM REMEDIATION DESIGN CAD FILES BY AMEC E&E P.C., DATED DECEMBER 2019, PROVIDED BY BQ ENERGY ON FEBRUARY 8, 2021.
- 2. EXISTING MONITORING WELL LOCATIONS TAKEN FROM GPS COORDINATES PROVIDED BY LABELLA ASSOCIATES, P.C. THROUGH BQ ENERGY ON JANUARY 12, 2022, AND APPROXIMATED FROM PDF TITLED "GROUNDWATER CONTOURS FIGURE 4" BY LABELLA ASSOCIATES, P.C. DATED MAY 2021.
- 3. PV MODULE LOCATIONS ARE APPROXIMATE. REFER TO RACKING MANUFACTURER DRAWINGS FOR EXACT DIMENSIONS.

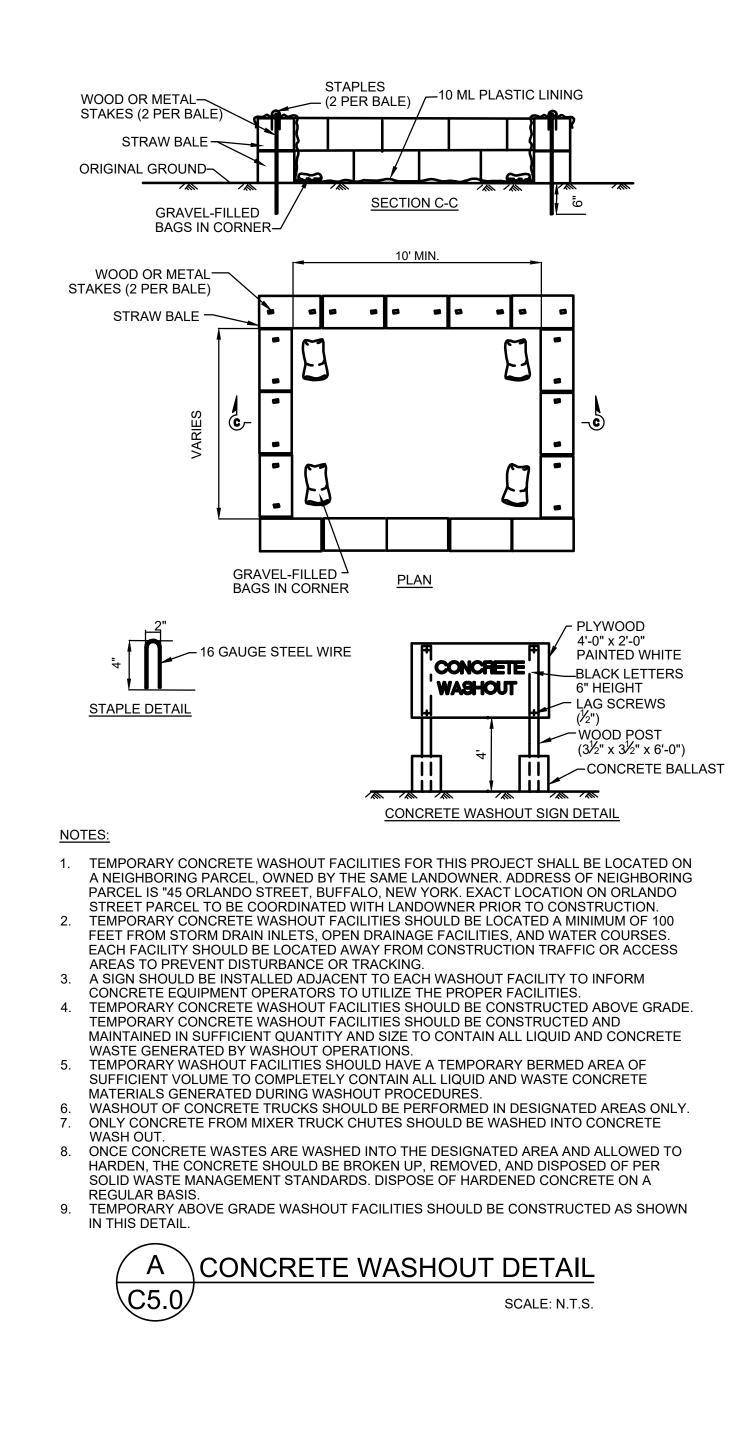
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N.T.S.	LEGEND					
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				NG UNDERDRAIN		
		EXISTI	NG BUILDING			
E, TYP.		EXIST	NG/PROPOSED PAVEMI	ENT HATCH		
		EXIST	NG CRUSHED STONE C	AP MATERIAL		
IS GALVANIZED TYP.		EXIST	NG STORMWATER BASI	N		
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ES	ISSUED FOR NYSDEC CHANGE OF USE	REV # DESCRIPTI	ELK STR AR DEVELOPN 2 TILITY POLE L BQ ENERG PROJECT DEVELOPER 400 Market Street Indus: Wappingers Falls, NY 12	MENT PRO En AYOUT PLA AYOUT PLA Y DEVELOP Trial Park, Suite 32 2590 RD & ASSC AND SURVEYING, F Hudson New York 12534	JECT RIE COUNT AN MENT, I COUNT	вү <i>Y, NY</i> LC ES -2700 -2723
A N.T.S.	ISSUED FOR NYSDEC CHANGE OF USE NOTIFICATION	REV # DESCRIPTI	ELK STR AR DEVELOPN 2 TILITY POLE L BQ ENERG PROJECT DEVELOPER 400 Market Street Indus Wappingers Falls, NY 12	MENT PRO En AYOUT PLA AYOUT PLA Y DEVELOP Trial Park, Suite 32 2590 RD & ASSC AND SURVEYING, F Hudson New York 12534	DATE JECT RIE COUNT AN MENT, I DC DCIATE C tel: (518) 828 fax: (518) 828 fax: (518) 828 fax: (518) 828	вү <i>Y, NY</i> LC ES -2700 -2723 <i>RIGHT</i>

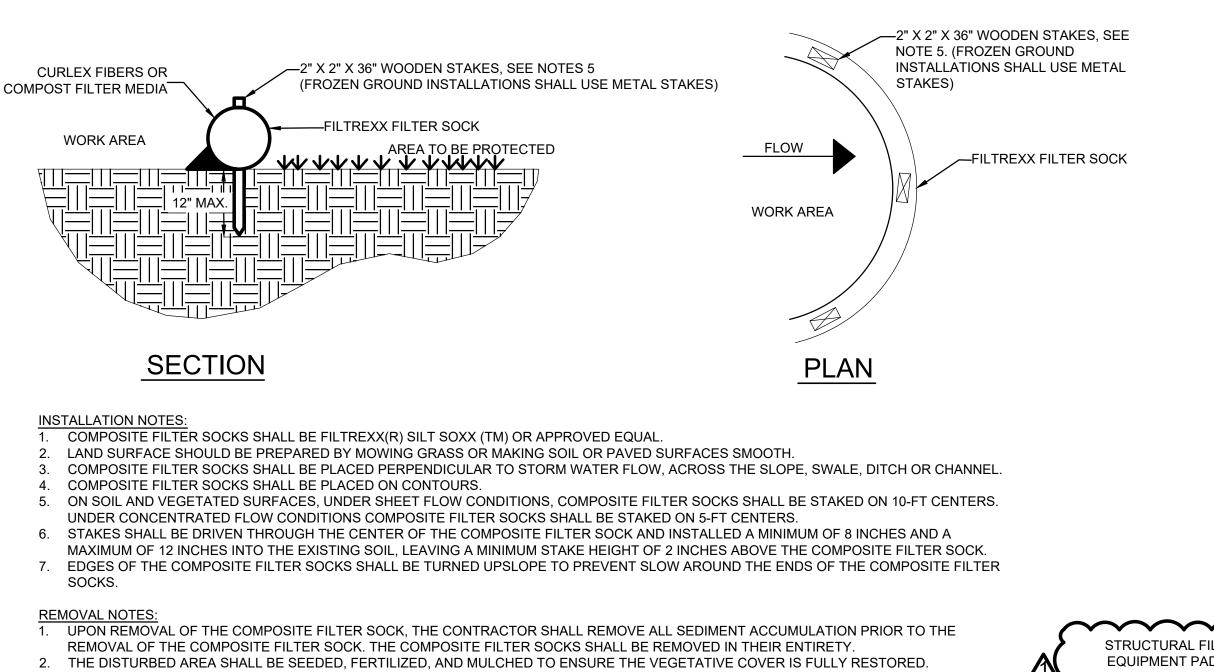
EROSION & SEDIMENT CONTROL GENERAL NOTES

- ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST VERSION OF THE NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND
- SEDIMENT CONTROL. (REFERRED TO IN REMAINING TEXT AS "THE NEW YORK GUIDELINES".) THE SEDIMENT MEASURES DETAILED ON THE EROSION AND SEDIMENT CONTROL PLAN SHALL BE IN PLACE PRIOR TO CONSTRUCTION STARTUP. ONCE MEASURES ARE IN PLACE, ALL MEASURES SHALL BE PROPERLY MAINTAINED AND/OR REPLACED AS NECESSARY, AND THEN REMOVED FROM THE SITE BY THE CONTRACTOR ONCE SITE IS STABILIZED.
- THE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED BY THE CONTRACTOR UNTIL THE FINAL SURFACE TREATMENTS ARE INSTALLED AND THE VEGETATED AREAS HAVE BEEN STABILIZED WITH AT LEAST 80% VEGETATIVE COVER. THE PROPERTY OWNER WILL ASSUME RESPONSIBILITY FOR MAINTAINING THE EROSION AND SEDIMENT SYSTEM(S) THEREAFTER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL TEMPORARY EROSION AND SEDIMENT CONTROL PRACTICES ONCE THE CONSTRUCTION PHASE HAS BEEN STABILIZED AND FUNCTIONING PROPERLY AS ACCEPTED BY THE ENGINEER.
- THE CITY OF BUFFALO, NYSDEC, NYSDEP, OR THE SITE ENGINEER MAY REQUEST ADDITIONAL MEASURES TO MINIMIZE THE POTENTIAL FOR ONSITE OR OFFSITE EROSION PROBLEMS THAT MAY OCCUR DURING CONSTRUCTION.
- COPIES OF THE SOIL EROSION AND SEDIMENT CONTROL PLANS MUST BE MAINTAINED ON SITE UNTIL NOTICE OF TERMINATION HAS BEEN FILED.

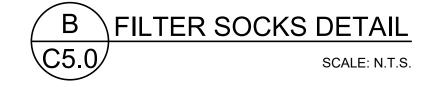
MAINTENANCE PLAN

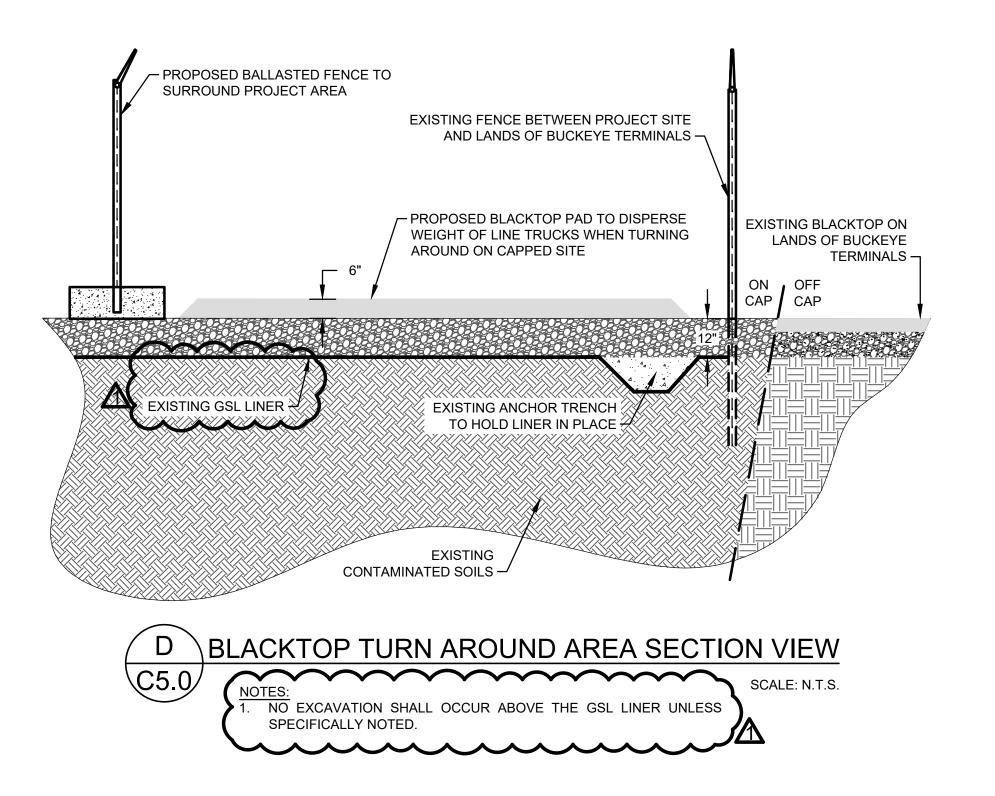
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OPERATION AND MAINTENANCE OF THE NEW DEVELOPMENT PROJECT AND PROJECT ACCESS DURING CONSTRUCTION. 2. NO EARTHWORK ACTIVITIES SHALL COMMENCE UNTIL SILT SOCKS HAVE BEEN INSTALLED AS SHOWN ON
- DRAWINGS. AREAS TO BE LEFT EXPOSED TO EROSION FOR MORE THAN 14 DAYS SHALL BE TEMPORARILY STABILIZED
- PER THE NEW YORK GUIDELINES. 4. PAVED AREAS SHALL BE KEPT FREE OF SEDIMENT, AND SHALL BE CLEANED PERIODICALLY AS REQUIRED
- BY CONSTRUCTION ACTIVITIES. 5. THE CONTRACTOR IS RESPONSIBLE TO INSPECT AND REPAIR EROSION AND SEDIMENT CONTROL
- MEASURES AS REQUIRED TO PREVENT DAMAGE OR SEDIMENTATION. 6. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, REMOVE AND DISPOSE OF TEMPORARY EROSION CONTROL MEASURES. CLEAN SEDIMENT AND DEBRIS FROM TEMPORARY MEASURES AND FROM PERMANENT STORM DRAIN AND SANITARY SEWER SYSTEMS.

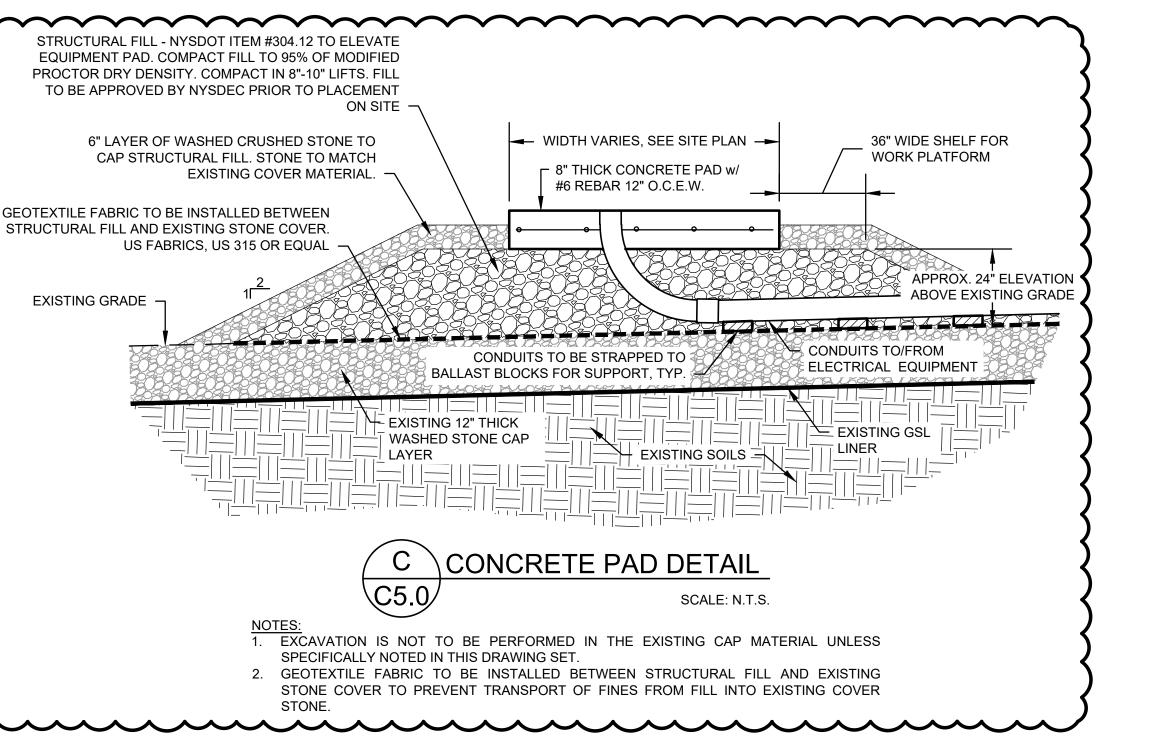


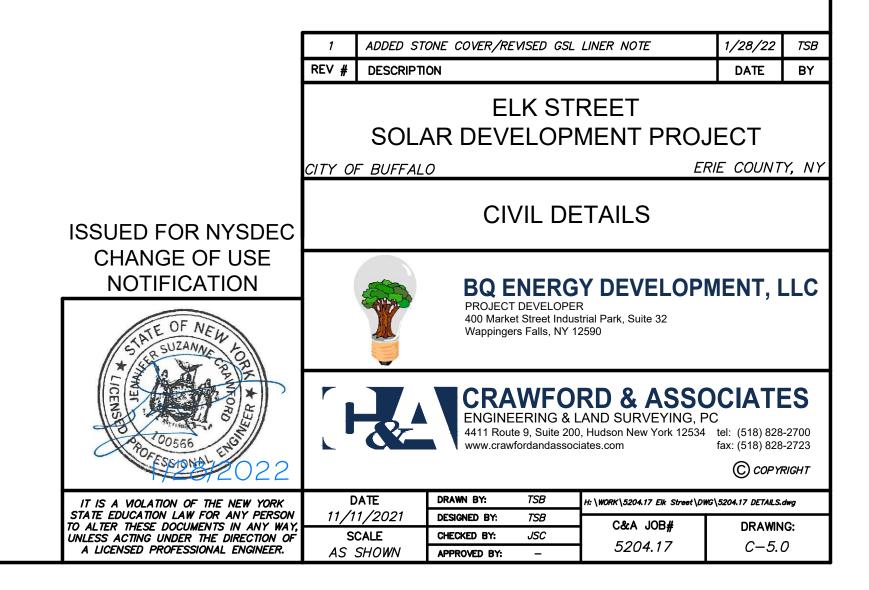


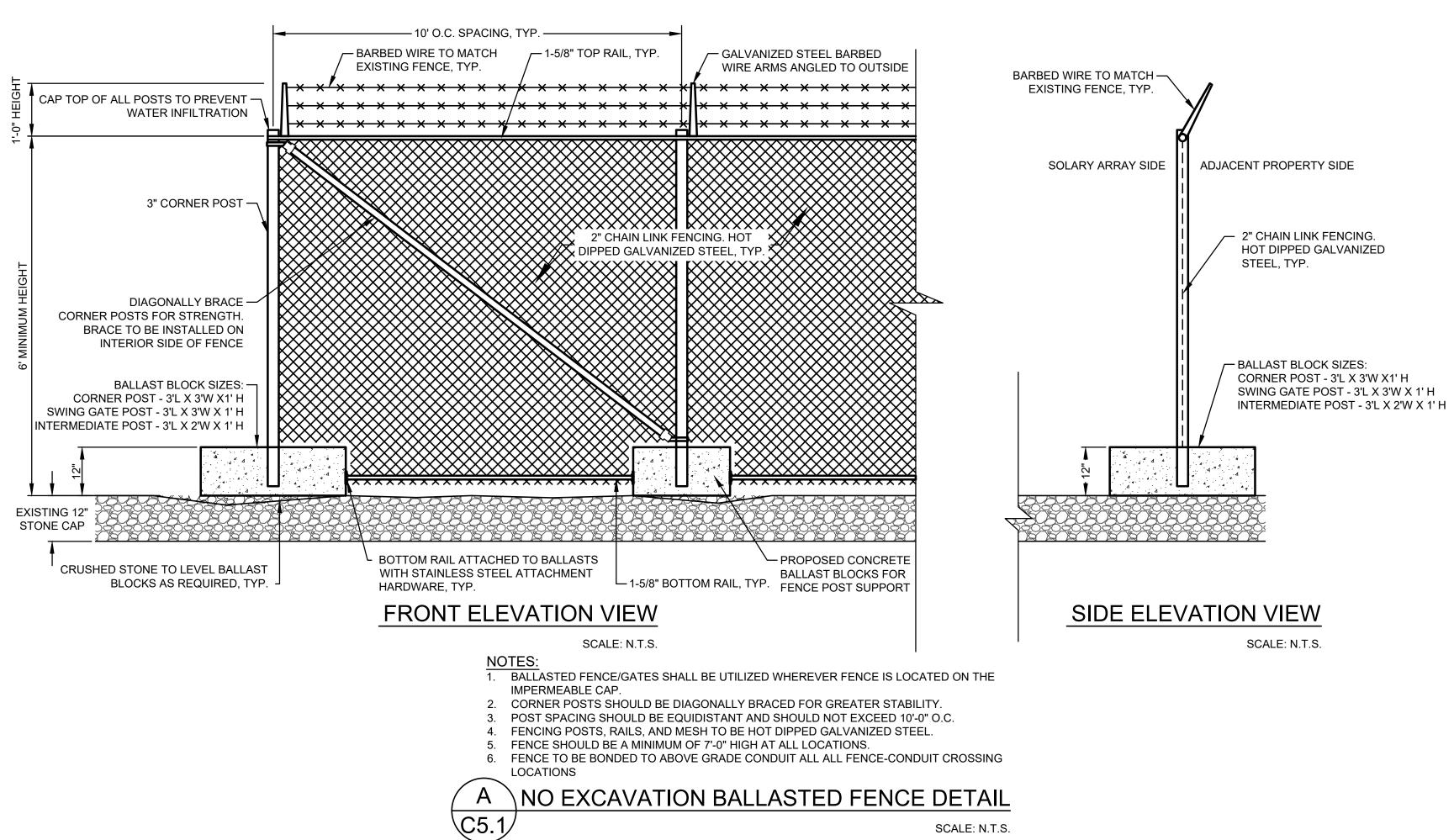
- MONITOR THE VEGETATIVE RESTORATION AREA UNTIL EXPOSED AREAS ARE FULLY STABILIZED WITH VEGETATIVE COVER. THE COMPOSITE MATERIAL MAY BE SPREAD OVER THE LANDSCAPE OR INCORPORATED INTO THE SOIL AT THE END OF THE PROJECT,
- 4. THEREBY INCREASING SOIL QUALITY AND REDUCING WASTE.
- THE SOCK MESH SHALL BE PROPERLY DISPOSED.

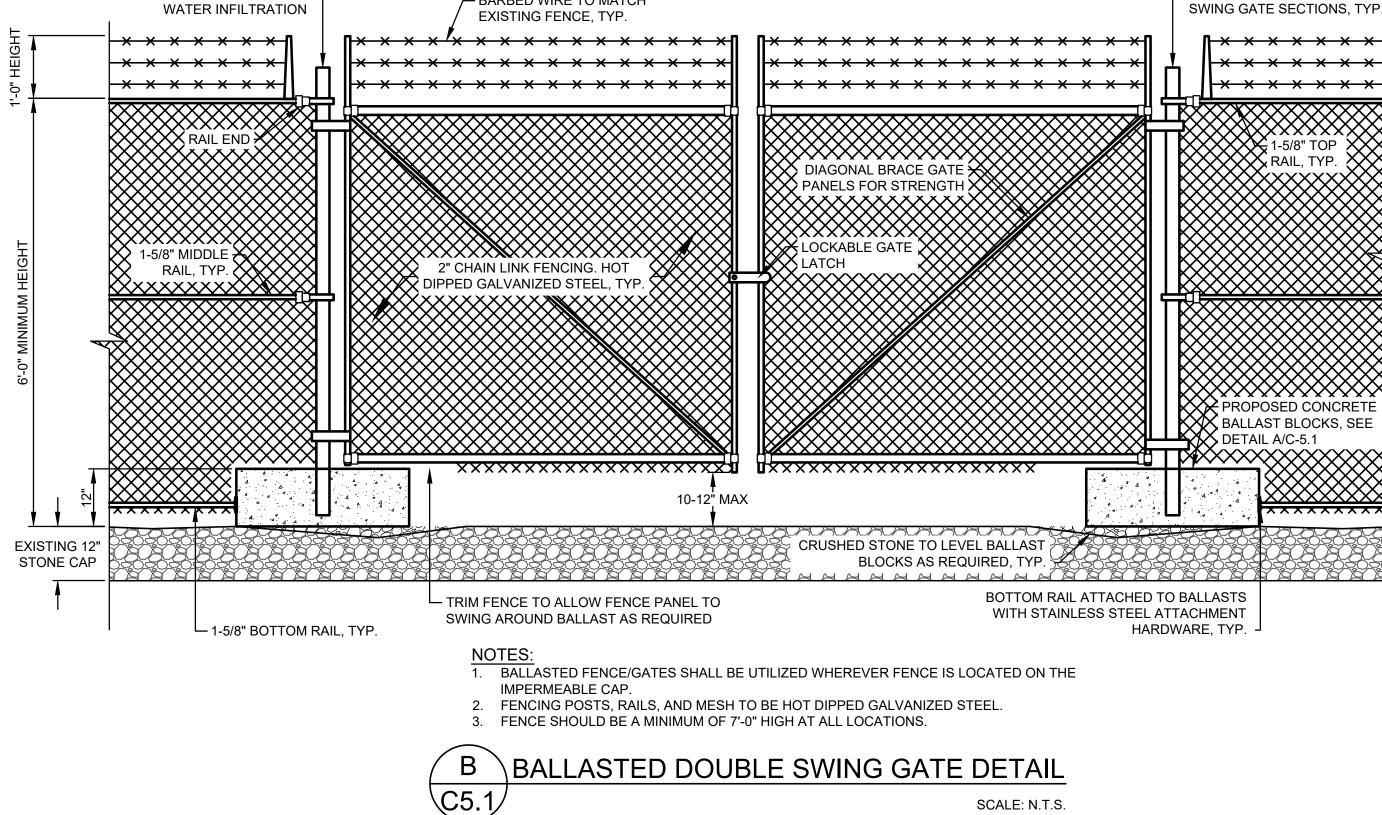












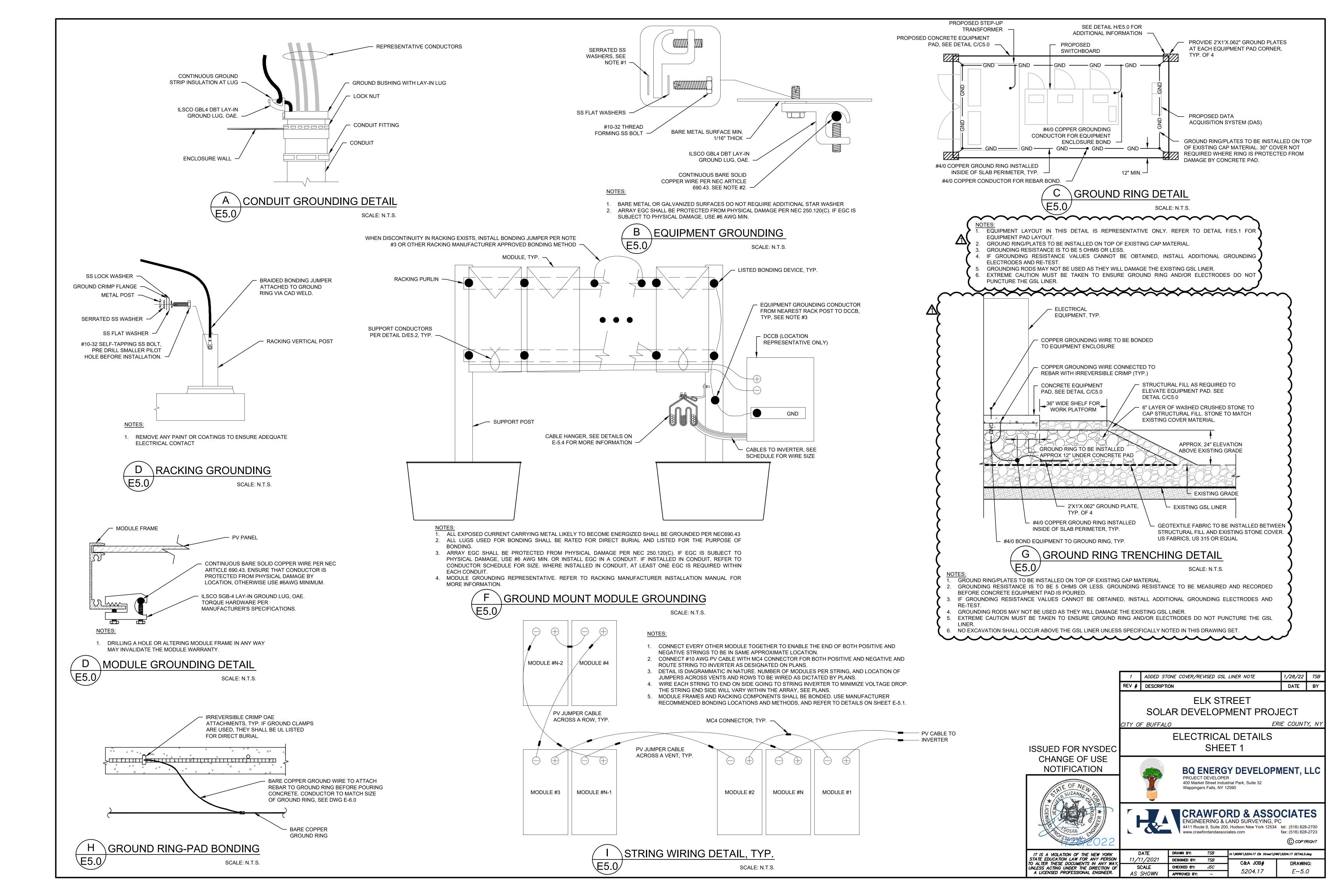
- BARBED WIRE TO MATCH

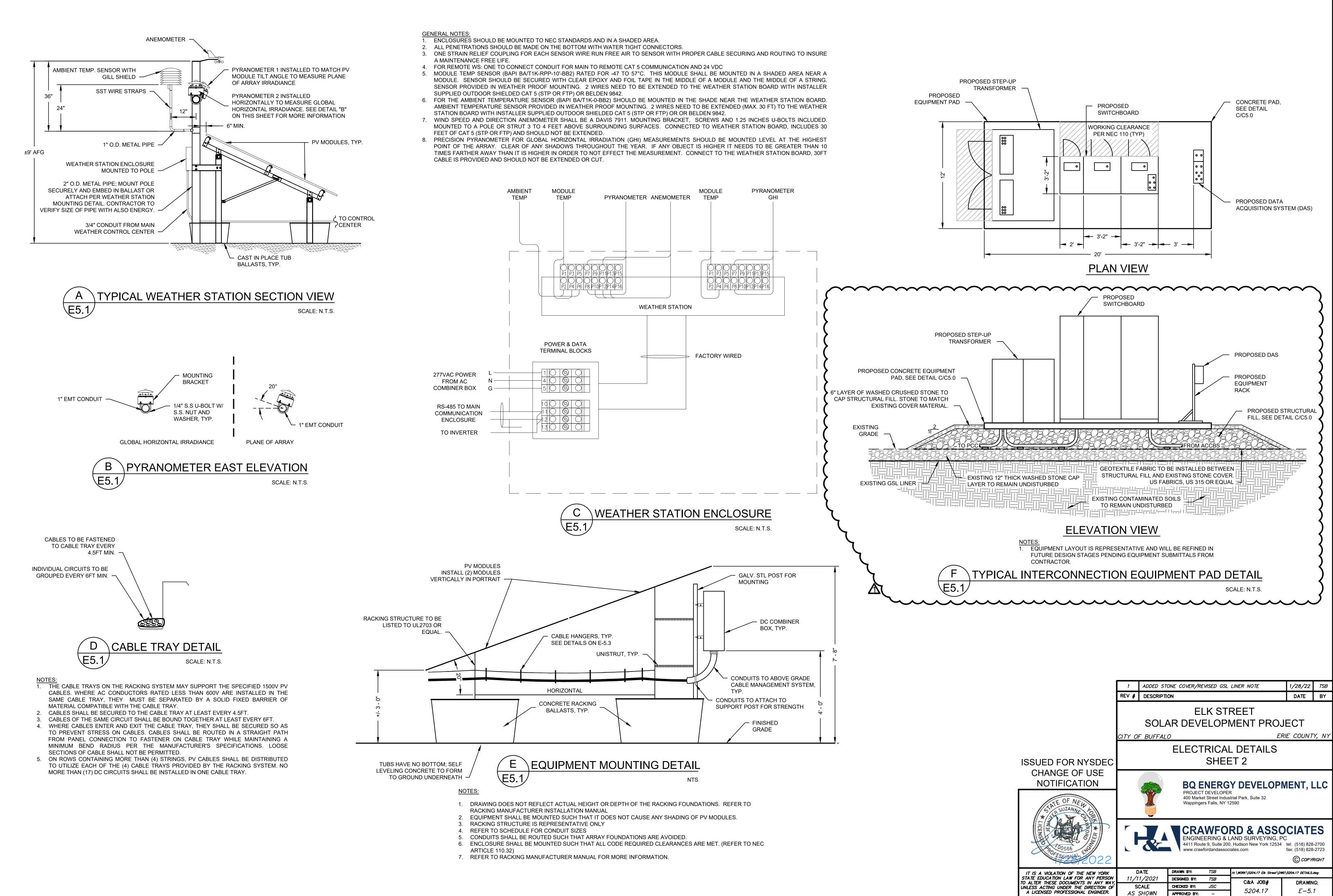
CAP TOP OF ALL POSTS TO PREVENT

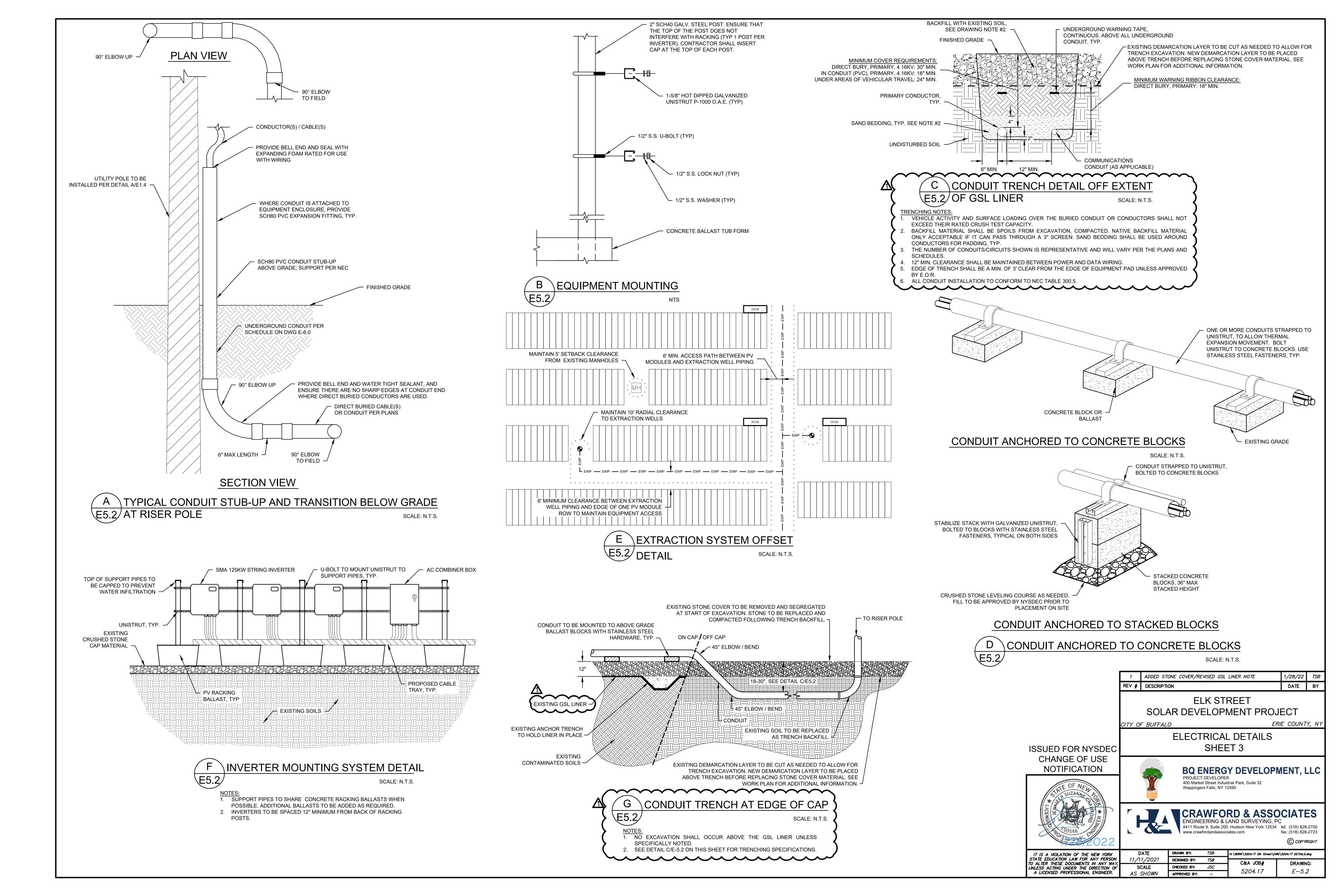
SCALE: N.T.S.

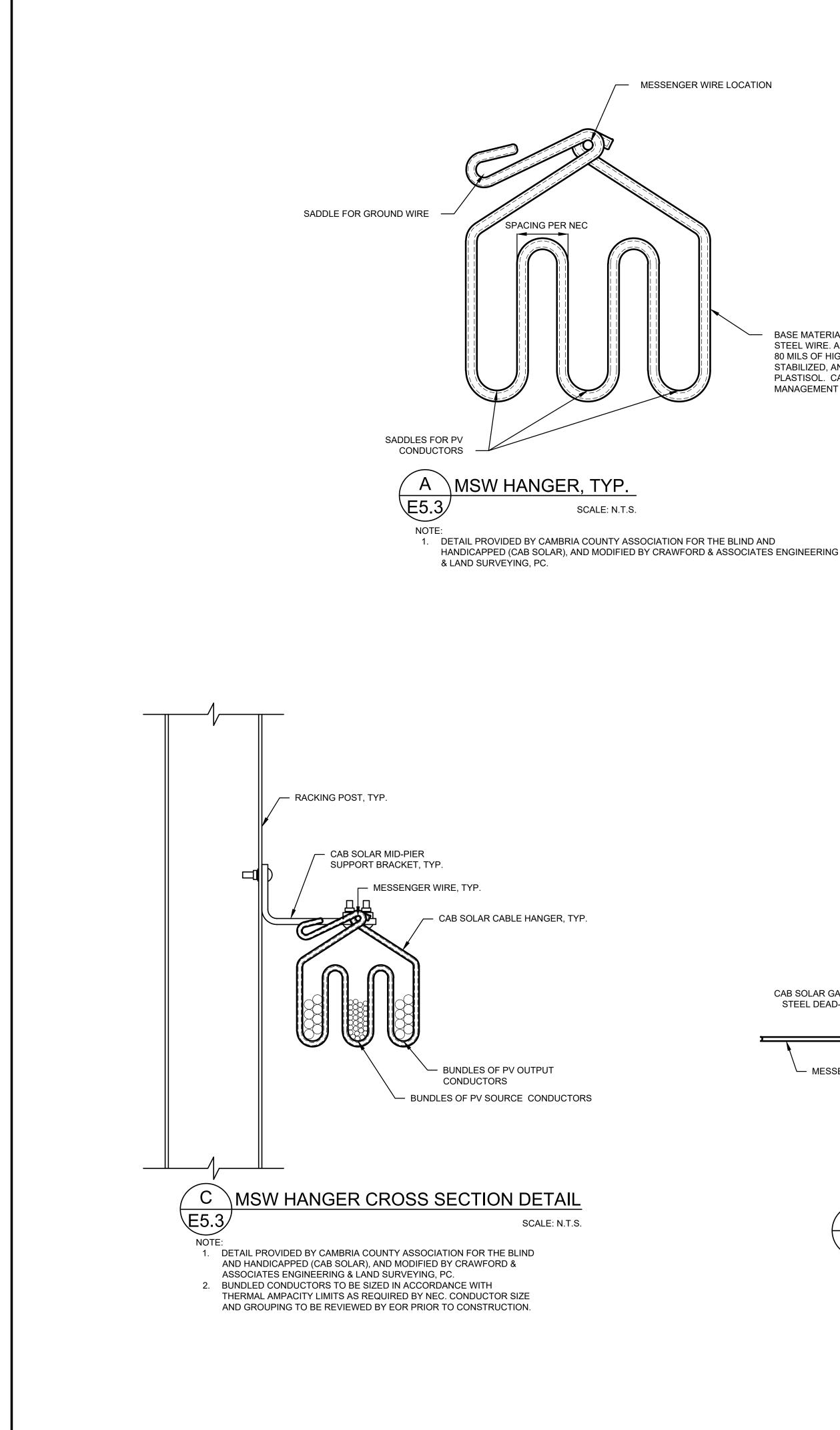
- 6" SCH 40 POST WHEN USED TO SUPPORT SWING GATE SECTIONS, TYP.

	REV # DESCRIF	NOIT			DATE	BY
	ELK STREET SOLAR DEVELOPMENT PROJECT					
	CITY OF BUFFA	CITY OF BUFFALO ERIE COUNT				
ISSUED FOR NYSDEC			ALLAS ICE D	STED ETAILS		
CHANGE OF USE NOTIFICATION		PROJECT 400 Marke	DEVELOPE	trial Park, Suite 32	MENT, I	LLC
* LICENSTON TO STONE LE LICENSTON ALLE DE LICENS		ENGINE 4411 Rout	ERING & L	RD & ASSC AND SURVEYING, P , Hudson New York 12534 iates.com	С	3-2700 3-2723
IT IS A VIOLATION OF THE NEW YORK	DATE	DRAWN BY:	TSB	H:\WORK\5204.17 Elk Street\DW	G\5204.17 DETAILS.	.dwg
STATE EDUCATION LAW FOR ANY PERSON TO ALTER THESE DOCUMENTS IN ANY WAY.	11/11/2021	DESIGNED BY:	TSB	C&A JOB#	DRAWIN	1G:
UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER.	SCALE	CHECKED BY:	JSC	5204.17	C-5.	
A LIGENSED I NOI ESSIONAL ENGINEER.	AS SHOWN	APPROVED BY:	-			·









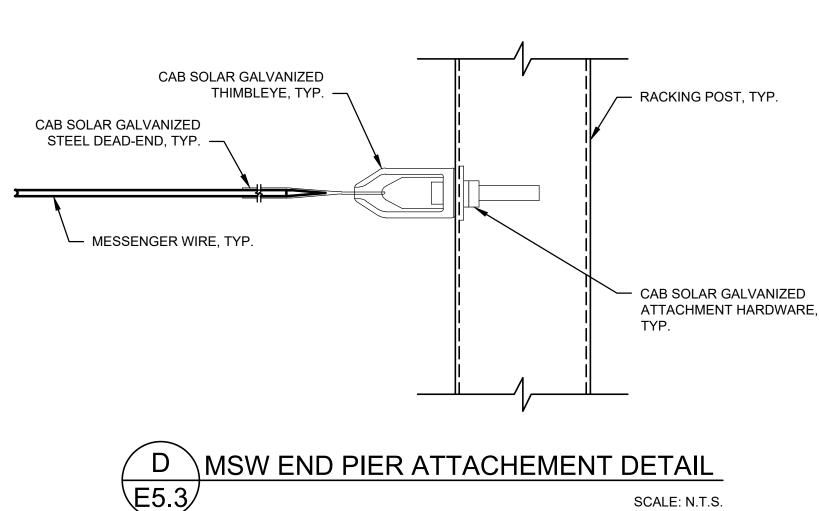
3'-0" - 4'-0" HANGER SPACING, TYP. MESSENGER WIRE SUPPORT, TYP. В E5.3 NOTE:

BASE MATERIAL, HIGH TENSILE SPRING

PLASTISOL. CAB SOLAR CABLE MANAGEMENT SYSTEM O.A.E.

STEEL WIRE. ALL SURFACES COATED WITH 80 MILS OF HIGH DI-ELECTRIC GRADE, UV STABILIZED, AND FLAME RETARDANTPVC

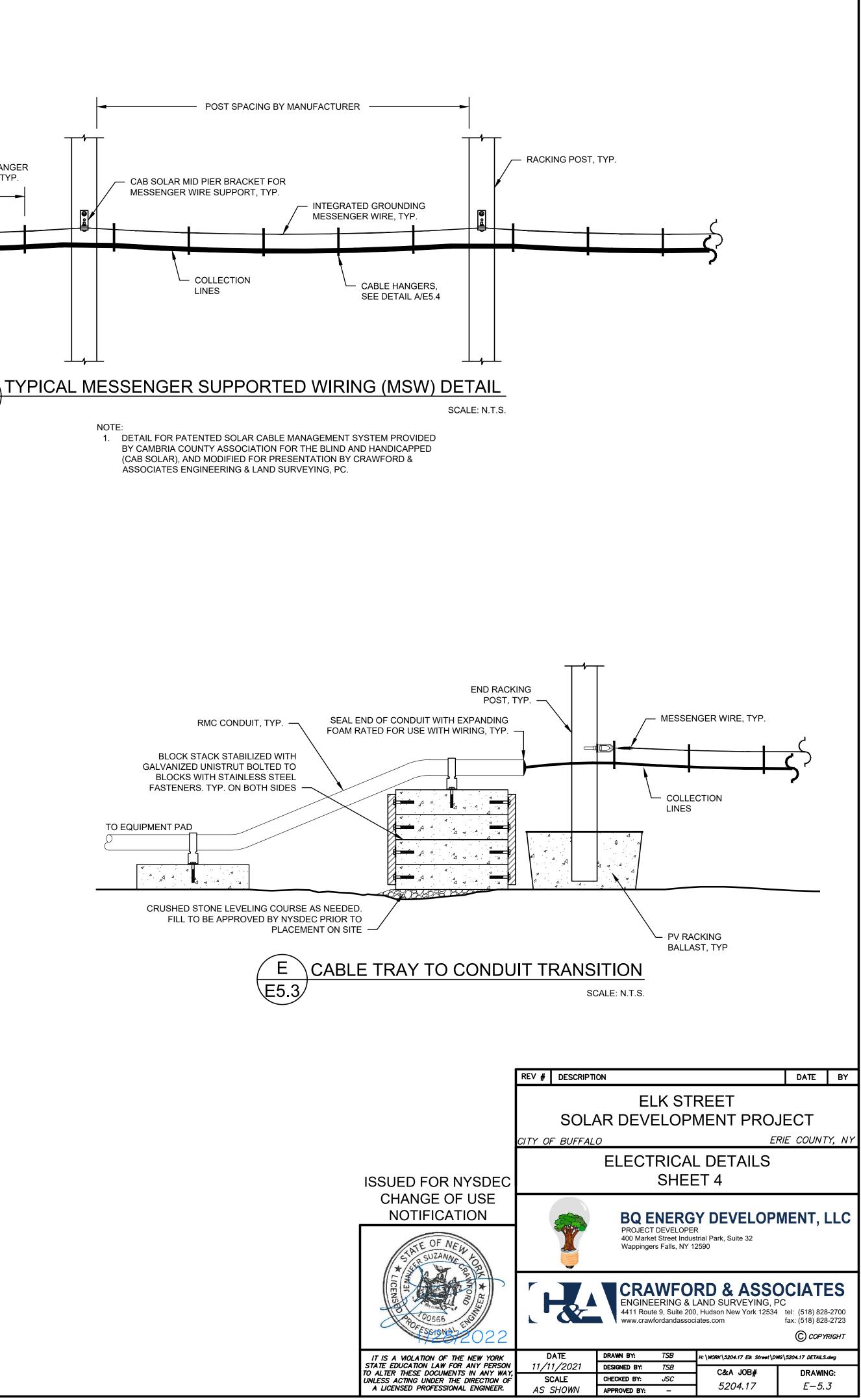
NOTE

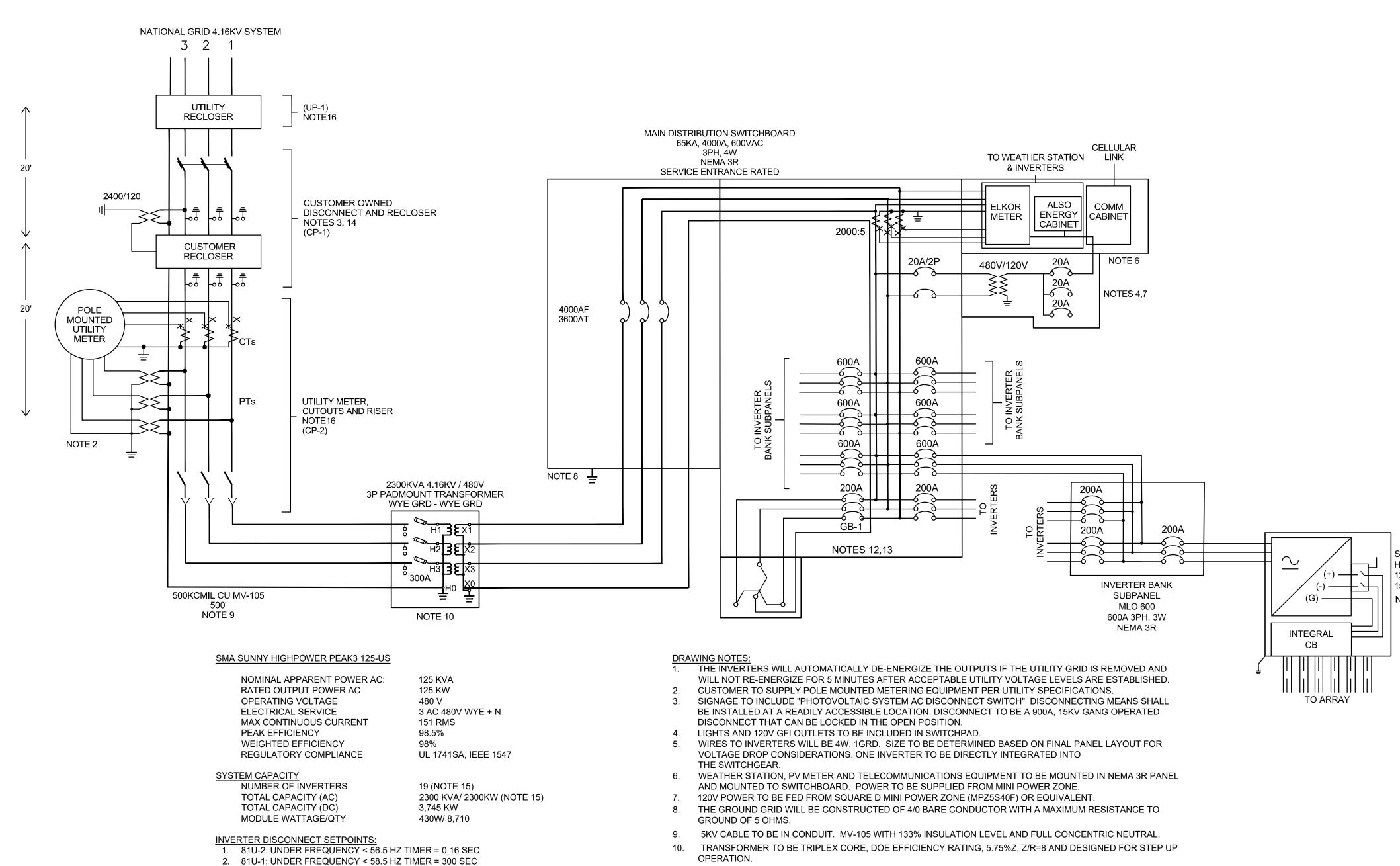


SCALE: N.T.S. 1. DETAIL PROVIDED BY CAMBRIA COUNTY ASSOCIATION FOR THE BLIND AND

HANDICAPPED (CAB SOLAR), AND MODIFIED BY CRAWFORD & ASSOCIATES ENGINEERING & LAND SURVEYING, PC.

TO EQUIPMENT PAD <u>а.</u> д. д.

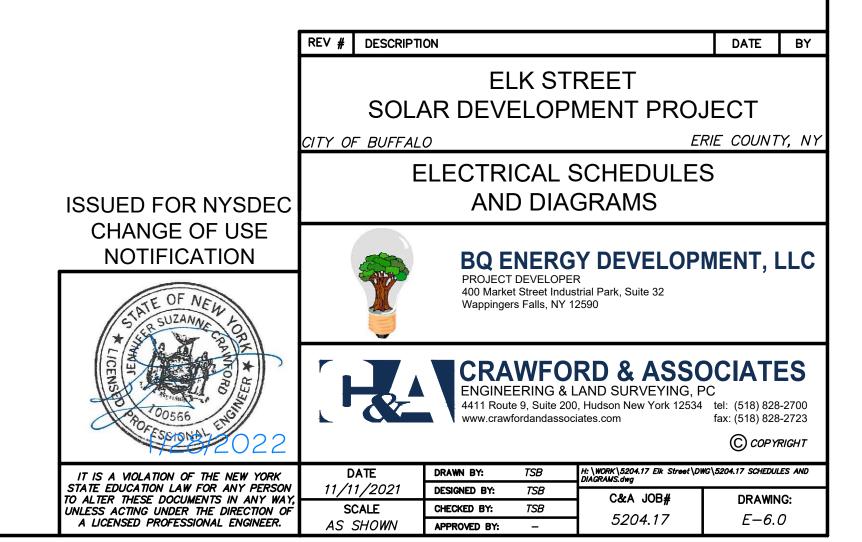




- 810-1: OVER FREQUENCY > 61.2 HZ TIMER = 180 SEC 3
- 4. 810-2: OVER FREQUENCY > 62.0 HZ TIMER = 0.16 SEC
- 27P1: UNDER VOLTAGE < 50% TIMER = 1.1 SEC
- 6. 27P2: UNDER VOLTAGE < 88% TIMER = 2 SEC
- 59P1: OVER VOLTAGE > 110% TIMER = 2 SEC 7.
- 8. 59P2: OVER VOLTAGE > 120% TIMER = 0.16 SEC

- 11. MAIN BREAKER TO BE 100% RATED.
- 12. GB-1 BREAKER WILL BE A SQUARE D J FRAME TYPE BREAKER WITH AUXILIARY CONTACTS. PV-1 BREAKER WILL BE INTERLOCKED TO TRIP WHEN THE GB-1 BREAKER IS OPEN.
- 13. GROUNDING TRANSFORMER TO BE A 3 PHASE ZIG-ZAG 119.3KVA GROUNDING TRANSFORMER RATED FOR 430A NEUTRAL CURRENT, 144A PHASE CURRENT, X/R OF 4, ZERO SEQ IMPEDANCE (ZG) OF 0.10 OHMS AND SHORT CIRCUIT RATING OF 85A.
- 14. RECLOSER FOR OVERCURRENT PROTECTION ONLY, 51P = 600A, U2 CURVE, 1.5 TD
- 15. PROJECT TO BE SOFTWARE LIMITED TO 2300KW AT THE POI BY LIMITING INVERTER #19 TO 50KW. 16. CP-1 TO INCLUDE THE CUSTOMER OWNED GOAB AND THE CUSTOMER OWNED RECLOSER, CP-2 TO INCLUDE THE UTILITY OWNED METER, CUTOUTS AND RISER. UP-1 TO BE UTILITY OWNED AND TO INCLUDE UTILITY OWNED RECLOSER. POLES TO BE LOCATED 20 FT APART.
- 17. THREE LINE DIAGRAM BASED ON UTILITY COORDINATION DRAWING TITLED "THREE LINE UTILITY INTERCONNECTION", REVISION NUMBER 6, DATED JANUARY 13, 2022 BY JEM ENGINEERING SERVICES, LLC.
- 18. CONDUCTOR SIZES AND EQUIPMENT RATINGS TO BE REVIEWED BY EOR PRIOR TO CONSTRUCTION, PENDING FINAL EQUIPMENT SUBMITTALS BY BQ ENERGY DEVELOPMENT, LLC.

INTERCONNECTION THREE LINE DIAGRAM



SMA SUNNY HIGHPOWER PEAK3 125 KW 1500V INVERTER NOTE 1,5