



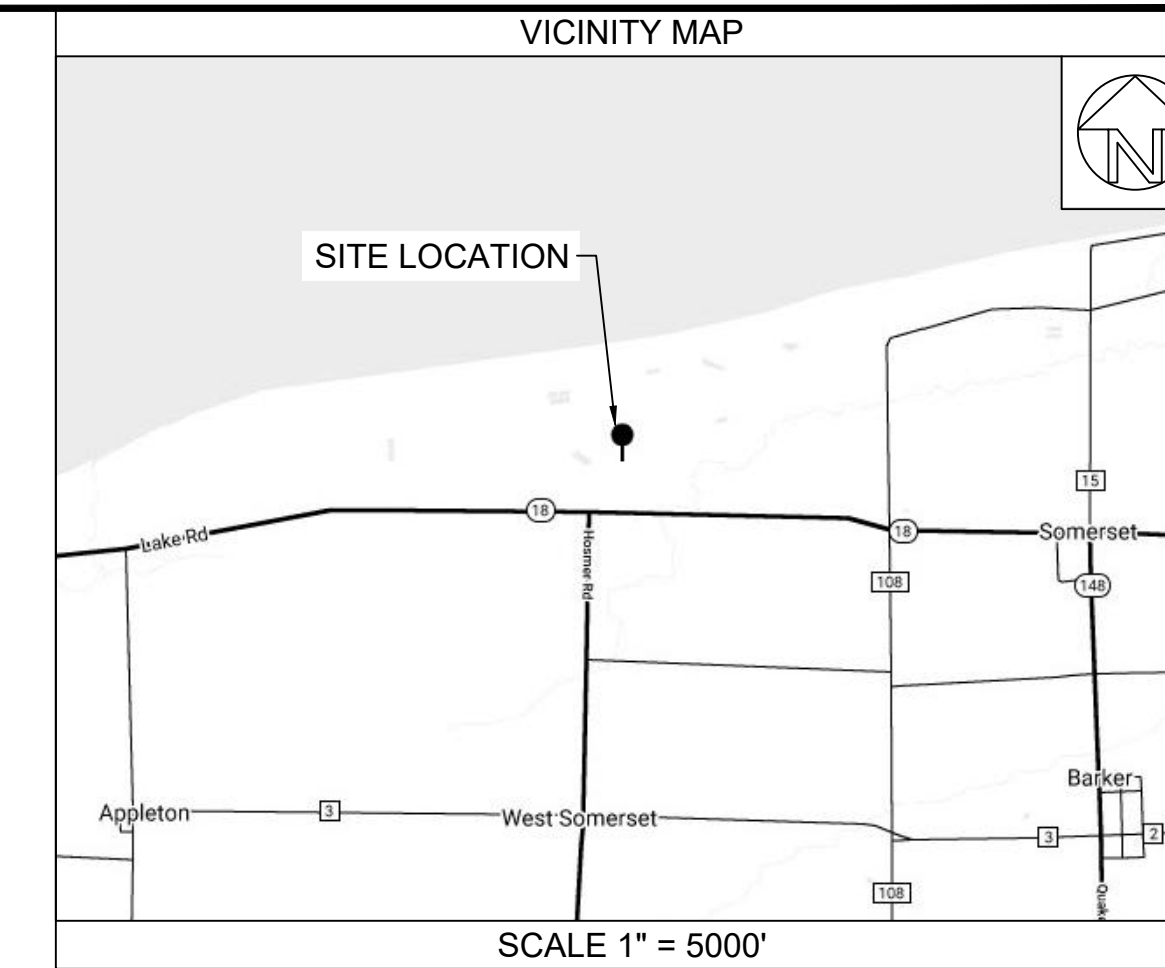
## **APPENDIX 5-B REVISED**

# **Electrical Design Drawings - Medium Voltage Design**



# SOLAR PV ELECTRICAL PLAN

# SOMERSET SOLAR PROJECT SOLAR POWER GENERATION FACILITY



## LAKE ROAD SOMERSET, NEW YORK

**PROJECT OWNER**  
AES CLEAN ENERGY DEVELOPMENT, LLC  
292 MADISON AVENUE, 15TH FLOOR  
NEW YORK, NY 10017

**SOLAR PV ELECTRICAL ENGINEER**  
AVOCA ENGINEERING & ARCHITECTURE, PLLC  
CERT# 0018186  
242 OLD NEW BRUNSWICK ROAD  
PISCATAWAY, NJ 08854  
(732) 465-1002  
KEVIN LEARY, P.E.  
PE No. 091857 EXP. 04/30/2024

**HIGH VOLTAGE ELECTRICAL AND CIVIL ENGINEER**  
TETRA TECH  
ENGINEERING CORPORATION, P.C.  
CERT# 0018815  
3136 SOUTH WINTON RD, SUITE 303  
ROCHESTER, NEW YORK 14624  
(585) 417-4009

**AUTHORITY HAVING JURISDICTION (AHJ)**  
OFFICE OF RENEWABLE ENERGY SITING (ORES)  
C/O: OGS MAILROOM  
EMPIRE STATE PLAZA  
240 STATE STREET  
P-1 SOUTH, J DOCK  
ALBANY, N.Y. 12242

**DESIGN CRITERIA**  
1. 2020 BUILDING CODE OF NY STATE (BASED ON 2018 INTERNATIONAL BUILDING CODE)  
2. NATIONAL ELECTRICAL CODE (NFPA 70), 2017 EDITION  
3. 105 MPH WIND - EXPOSURE C  
4. 50 PSF GROUND SNOW LOAD

**PROJECT DESCRIPTION**  
THE PROJECT CONSISTS OF THE FOLLOWING:

- INSTALLATION OF THE SOLAR PV MODULES AND RACKING SYSTEM.
- INSTALLATION OF DC CABLES, CONDUITS AND DISCONNECTS.
- INSTALLATION OF THE DC TO AC INVERTERS, AC COLLECTION SYSTEM AND STEP-UP TRANSFORMERS.
- INSTALLATION OF A PROJECT SUBSTATION AND THE INTERCONNECTION WITH NYSEG (ELECTRIC UTILITY), INCLUDING CONDUIT AND WIRE.
- INSTALLATION OF A PERIMETER FENCE.

**GENERAL NOTES**

- THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, CONDITIONS AND BRING TO THE ENGINEER'S ATTENTION ANY DISCREPANCY OBSERVED IMMEDIATELY.
- THE CONTRACTOR SHALL COORDINATE OBTAINING ALL REQUIRED PERMITS.
- ALL DRAWINGS NOTES, & SPECIFICATIONS ARE COMPLIMENTARY, ANY WORK SHOWN OR REFERRED TO ON ANY ONE DRAWINGS SHALL BE PROVIDED AS THOUGH SHOWN ON ALL RELATED DRAWINGS. IN THE EVENT OF A CONFLICT, THE CONTRACTOR SHALL VERIFY WITH THE ENGINEER.
- THE CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR ANY CHANGES AND DEVIATION OF APPROVED PLANS NOT AUTHORIZED BY THE ENGINEER AND/OR OWNER.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY BRACING, SHORING AND PROTECTING ALL WORK DURING CONSTRUCTION AGAINST DAMAGE, BREAKAGE, COLLAPSE, DISTORTIONS AND MISALIGNMENT. SUCH TEMPORARY BRACING AND SHORING SHALL REMAIN IN-PLACE UNTIL PERMANENT CONSTRUCTION HAS BEEN COMPLETED.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL MEANS AND METHODS INCLUDING SAFETY.
- FOR DETAILED NOTES SEE PV-E.00.01.

| DRAWING SCHEDULE |   |      |
|------------------|---|------|
| DWG.NO.          | DRAWING TITLE                             | REV. |
| PV-G.00.01       | TITLE SHEET                               | 1    |
| PV-E.00.01       | ELECTRICAL NOTES 1 OF 3                   | 1    |
| PV-E.00.02       | ELECTRICAL NOTES 2 OF 3                   | 1    |
| PV-E.00.03       | ELECTRICAL NOTES 3 OF 3                   | 1    |
| PV-E.01.01       | OVERALL ELECTRICAL PLAN                   | 1    |
| PV-E.01.02       | ENLARGED ELECTRICAL PLAN - AREA 1         | 1    |
| PV-E.01.03       | ENLARGED ELECTRICAL PLAN - AREA 2         | 1    |
| PV-E.01.04       | ENLARGED ELECTRICAL PLAN - AREAS 3 AND 4  | 1    |
| PV-E.01.05       | ENLARGED ELECTRICAL PLAN - AREAS 5 AND 6  | 1    |
| PV-E.01.06       | ENLARGED ELECTRICAL PLAN - AREA 7         | 1    |
| PV-E.01.07       | ENLARGED ELECTRICAL PLAN - AREA 8         | 1    |
| PV-E.01.08       | ENLARGED ELECTRICAL PLAN - AREAS 9 AND 10 | 1    |
| PV-E.01.09       | 34.5KV AC ONE LINE SITE PLAN              | 1    |
| PV-E.02.01       | 34.5KV AC ONE LINE DIAGRAM                | 1    |
| PV-E.02.02       | AC CABLE SCHEDULE INVERTERS TO SUBSTATION | 1    |
| PV-E.03.01       | DC ONE LINE DIAGRAM                       | 1    |
| PV-E.04.01       | DC COMBINER LAYOUT - REPRESENTATIVE       | 1    |
| PV-E.04.02       | DC CONDUCTOR SCHEDULE - REPRESENTATIVE    | 1    |
| PV-E.05.01       | INVERTER PLAN VIEW - SG3150U-MV           | 1    |
| PV-E.05.02       | FOUNDATION DETAILS - SG3150U-MV - 1 OF 2  | 1    |
| PV-E.05.03       | FOUNDATION DETAILS - SG3150U-MV - 2 OF 2  | 1    |
| PV-E.05.04       | INVERTER PLAN VIEW - SG3600UD-MV          | 1    |
| PV-E.05.05       | FOUNDATION DETAILS -SG3600UD-MV - 1 OF 2  | 1    |
| PV-E.05.06       | FOUNDATION DETAILS -SG3600UD-MV - 1 OF 2  | 1    |
| PV-E.05.11       | CONDUIT MANAGEMENT - STANDARD 1 OF 3      | 1    |
| PV-E.05.12       | CONDUIT MANAGEMENT - STANDARD 2 OF 3      | 1    |
| PV-E.05.13       | CONDUIT MANAGEMENT - STANDARD 3 OF 3      | 1    |
| PV-E.05.21       | CONDUIT MANAGEMENT - BALLASTED 1 OF 2     | 1    |
| PV-E.05.22       | CONDUIT MANAGEMENT - BALLASTED 2 OF 2     | 1    |
| PV-E.06.01       | MV EQUIPMENT DETAILS - STANDARD           | 1    |
| PV-E.06.11       | LV EQUIPMENT DETAILS - BALLASTED          | 1    |
| PV-E.07.01       | INVERTER CONTAINER GROUNDING DETAILS      | 1    |
| PV-E.07.02       | GENERAL GROUNDING DETAILS                 | 1    |
| PV-E.07.03       | STRUCTURE GROUNDING - TRACKER             | 1    |
| PV-E.07.04       | STRUCTURE GROUNDING - FIXED TILT          | 1    |
| PV-E.07.05       | MV EQUIPMENT GROUNDING                    | 1    |
| PV-E.07.06       | CHAIN LINK FENCE GROUNDING DETAILS        | 1    |
| PV-E.07.07       | AGRICULTURAL FENCE GROUNDING DETAILS      | 1    |
| PV-E.08.01       | MV TRENCH DETAILS                         | 1    |
| PV-E.08.02       | CABLING TYPICAL INSTALLATION DETAILS      | 1    |
| PV-E.08.03       | TYPICAL DIRECTIONAL BORE (HDD) DETAILS    | 1    |
| PV-E.08.04       | LV TRENCH DETAILS                         | 1    |
| PV-E.09.01       | WIRING DETAILS - TRACKERS                 | 1    |
| PV-E.09.02       | WIRING DETAILS - FIXED TILT               | 1    |
| PV-E.10.01       | COMMUNICATIONS SITE PLAN                  | 1    |
| PV-E.12.01       | EQUIPMENT SPECIFICATIONS                  | 1    |

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IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, ARTICLE 145, FOR ANY PERSON, UNLESS UNDER THE DIRECTION OF A NEW YORK STATE LICENSED PROFESSIONAL ENGINEER, TO ALTER AN ITEM ON THIS DOCUMENT IN ANY WAY.

**KEY PLAN:**

**REVISIONS:**

| NO. | DATE       | DESCRIPTION               |
|-----|------------|---------------------------|
| 0   | 03/08/2023 | ISSUED FOR 94-C PERMIT    |
| 1   | 08/11/2023 | RE-ISSUED FOR 94-C PERMIT |

**PROJECT TITLE:**  
SOMERSET SOLAR PROJECT

**PROJECT LOCATION:**  
LAKE ROAD  
SOMERSET, NY

**SHEET TITLE & DESCRIPTION:**  
TITLE SHEET

**ISSUED FOR 94-C PERMIT ONLY**  
NOT FOR CONSTRUCTION

PROJ NUM: SU20.0012  
DES: CB  
DWN: CB  
CHK: KL  
APV: KL  
DATE: 08/05/2022  
SCALE AT 22" x 34":  
AS SHOWN

SHEET NO: PV-G.00.01 REV: 1

| PROJECT SPECIFICATIONS DESIGN SUMMARY                         |   |
|---|---|
| AC SYSTEM SIZE AT POI (MW)                                    | 125.000   |
| AC INVERTER NAMEPLATE (MW)                                    | 136.800   |
| POWER FACTOR  | 0.95 LEADING TO 0.95 LAGGING  |
| DC SYSTEM SIZE (MW)   | 153.057   |
| DC/AC RATIO AT POI  | 1.224   |
| MV TRANSFORMER & INVERTER                                     | (16) SUNGROW SG3150U-MV<br>(24) SUNGROW SG3600UD-MV                               |
| RACKING SYSTEM  | NEXTRACKER SINGLE-AXIS TRACKER (SAT)<br>TERRASMART FIXED TILT (FT) RACKING        |
| STRING SIZE AND VOLTAGE                                       | SAT: 27 MODS PER STRING, 1500 VDC<br>FT: 26 MODS PER STRING, 1500 VDC             |
| PV MODULE   | BYD MLTK-36 540   |
| PV MODULE RATING  | 540 W   |
| QUANTITY OF PV MODULES BY RACKING SYSTEM AND FOUNDATION TYPES | BALLASTED FT: 35,698<br>DRIVEN FT: 4,524<br>DRIVEN SAT: 243,216<br>TOTAL: 283,438 |
| TOTAL STRING COUNT  | 10,555  |
| RACK CONFIGURATION  | SAT, 1 IN PORTRAIT<br>FIXED TILT, 2 IN PORTRAIT                                   |
| TILT (°)  | ± 60° (SAT)<br>20° (FIXED TILT)   |
| AZIMUTH (°)   | 180°  |
| GCR (%)   | 41.52% (SAT)<br>44.70% (FIXED TILT)   |
| PITCH   | 18.00 FT (SAT)<br>31.62 FT (FIXED TILT)   |
| CLEAR ROW SPACING   | 10.53 FT (SAT)<br>17.49 FT (FIXED TILT)   |
| LATITUDE (°)  | 43.3525880  |
| LONGITUDE (°)   | -78.6014000   |
| UTILITY   | NYSEG   |
| CODE CYCLE  | NEC 2017  |

PLOTTED: 8/5/2023 1:01 PM  
FILE: PV-G.00.01 TITLE SHEET.DWG



- 5.6.6. OXIDE INHIBITOR SHALL BE REQUIRED BETWEEN COMPRESSION LUGS AND BUS BARS WHEN ONE OR BOTH ARE UNCOATED AND ALUMINUM.
- 5.6.7. ALL MECHANICAL CONNECTIONS OTHER THAN ELBOW CONNECTORS SHALL BE MADE USING UL-LISTED CIRCUMFERENTIAL COMPRESSION LUGS. LUGS TO MATCH CONDUCTOR SIZE AND TYPE.
- 5.6.8. MODULE LEAD CONNECTORS SHALL BE INSTALLED SUCH THAT THEY ARE EASILY ACCESSIBLE AND PROTECTED FROM EXPOSURE TO DIRECT SUNLIGHT OR RAIN. THEY SHALL NOT BE INSTALLED WITHIN TUBING, CONDUIT OR MODULE GAPS.
- 5.6.9. PV SOURCE CIRCUIT CONNECTORS MUST BE IDENTICAL TO MAKE AND MODEL AS THE MODULE CONNECTORS. THE CONNECTION TO SOURCE CIRCUITS MUST BE PER THE MODULE AND CONNECTOR MANUFACTURER INSTRUCTIONS. CONNECTORS LISTED AS "COMPATIBLE" BUT NOT IDENTICAL SHALL NOT BE ACCEPTED. CONTRACTOR TO VERIFY THAT THE SOURCE CIRCUIT CONDUCTOR DIAMETER IS COMPATIBLE WITH THE CONNECTOR USED.
- 5.6.10. ALL LUG HOLE AND SPACING SIZE SHALL MATCH EQUIPMENT STUD SIZE AND/OR BUSBAR HOLE SIZE AND SPACING.
- 5.6.11. VERIFY UTILITY PHASE SEQUENCE AND COORDINATE INSTALLATION OF FEEDER CONDUCTORS TO PROVIDE CORRECT PHASE SEQUENCE AT ALL AC TERMINALS.
- 5.6.12. STRANDED COMMUNICATION CABLE TERMINATIONS SHALL BE CRIMPED WITH FERRULES OR SPADES LISTED FOR THE WIRE SIZE BEING USED.

**5.7. GROUNDING & BONDING**

- 5.7.1. GROUNDING SYSTEM COMPONENTS SHALL BE LISTED FOR THEIR PURPOSE, INCLUDING BUT NOT LIMITED TO GROUND RODS, GROUNDING LUGS, GROUNDING CLAMPS, ETC.
- 5.7.2. GROUNDING LUGS AND CONNECTIONS USED OUTDOORS AND EXPOSED TO THE ENVIRONMENT SHALL BE LISTED FOR DIRECT BURIAL (DB). THIS INFORMATION WILL BE CLEARLY NOTED ON PRODUCT SUBMITTALS TO BE APPROVED BY OWNER. NO EXOTHERMIC WELDS SHALL BE ALLOWED ON THE BALLASTED PORTION OF THE PROJECT; ONLY IRREVERSIBLE CRIMPS SHALL BE USED IN THESE LOCATIONS.
- 5.7.3. ALL GROUND SPLICES ABOVE GRADE MUST BE DONE WITH IRREVERSIBLE CRIMP.
- 5.7.4. ALL EGC'S SHALL BE BARE COPPER, UON.
- 5.7.5. AFTER INSTALLATION, ALL BARE CU WIRES SHALL NOT BE IN CONTACT WITH GALVANICALLY REACTIVE METALS, SUCH AS ALUMINUM MODULE FRAMES AND RACKING.
- 5.7.6. GEC'S WILL HAVE AS SHORT A DISTANCE TO THE GROUNDING ELECTRODE AS POSSIBLE AND A MINIMUM NUMBER OF TURNS.
- 5.7.7. ALL BELOW GRADE GEC SPLICES AND CONNECTIONS SHALL BE IRREVERSIBLE, UL LISTED CONNECTION, UON.
- 5.7.8. ALL NON-CURRENT CARRYING METAL PARTS THAT COME IN CONTACT WITH CURRENT-CARRYING CONDUCTORS SHALL BE GROUNDED. IF THE EQUIPMENT GROUNDING POINT OF CONTACT IS PAINTED, THE PAINT/FINISH AT THAT LOCATION SHALL BE PROPERLY REMOVED.
- 5.7.9. RACKING COMPONENTS AND STRUCTURAL SUPPORTS MUST BE ELECTRICALLY BONDED TOGETHER BY A LISTED MEANS.
- 5.7.10. INTER-RACK BONDING JUMPERS SHALL BE FLEXIBLE TIN COATED COPPER BRAIDING (IE: WILEY WEEBS) OR SOLID COPPER WIRE OF SIZE, TYPE, AND TERMINATION METHOD SPECIFIED.
- 5.7.11. MODULES SHALL BE GROUNDED TO RACKING SUPPORTS WITH A METHOD APPROVED AND LISTED BY THE RACKING MANUFACTURER. GROUNDING CLIPS OR WASHERS SHALL BE ARRANGED PER THE MANUFACTURER INSTRUCTIONS SO THAT THE REMOVAL OF A MODULE DOES NOT INTERRUPT THE RACKING GROUNDING CONNECTION OF ANY OTHER MODULE.

**5.8. EQUIPMENT**

- 5.8.1. ALL ELECTRICAL EQUIPMENT LOCATED OUTDOORS (JUNCTION BOXES, COMBINER BOXES, OTHER ENCLOSURES, ETC.) SHALL BE ENVIRONMENTALLY RATED TO AT LEAST NEMA 4 IF MOUNTED VERTICALLY, AND NEMA 4X IF MOUNTED WITH ACCESS DOOR/PANEL MOUNTED OUT OF VERTICAL. PROVIDE NEMA 3R ENCLOSURES WHERE NEMA 4 IS NOT AVAILABLE.
- 5.8.2. ANY METAL SHAVINGS RESULTING FROM SITE WORK SHALL BE CLEANED FROM ENCLOSURE INTERIORS, TOP SURFACES OF ENCLOSURE, ROOF SURFACE, AND ANY ADDITIONAL AREAS WHERE OXIDATION OR CONDUCTIVE METAL SHAVINGS MAY CAUSE RUST, ELECTRICAL SHORT CIRCUIT OR OTHER DAMAGE.
- 5.8.3. ALL NEMA-3R OUTDOOR ENCLOSURES SHALL BE INSTALLED WITH A MANUFACTURER APPROVED MEANS OF DRAINAGE AND VENTILATION.

- 5.8.4. ALL CIRCUIT BREAKERS THAT ARE SUBJECT TO REVERSE POWER FLOW SHALL BE LISTED AS BACKFEED COMPATIBLE.
- 5.8.5. UNDERGROUND PULL BOXES OR HANDHOLES SHALL BE OPEN BOTTOM TYPE WITH 12 INCHES MINIMUM OF CLASS 5 STONE AT THE BASE TO ALLOW FOR DRAINAGE, UON PER THE DRAWINGS. PULL BOXES SHALL BE RATED FOR THE MECHANICAL LOAD APPROPRIATE FOR THE INSTALLED LOCATION.
- 5.8.6. DOORS OR REMOVABLE PANELS PROVIDING ACCESS TO PARTS NORMALLY ENERGIZED SHALL BE PADLOCKABLE CLOSED OR SHALL REQUIRE TOOLS FOR REMOVAL.
- 5.8.7. MV EQUIPMENT INSTALLED OUTSIDE OF FENCES WHERE ACCESSIBLE TO THE PUBLIC SHALL COMPLY WITH NEC REQUIREMENTS FOR TAMPER-PROOF CONSTRUCTION.
- 5.8.8. EQUIPMENT SHALL BE SECURELY ANCHORED TO CONCRETE PADS OR FOUNDATIONS PER MANUFACTURER'S INSTRUCTIONS USING 1/2" STAINLESS STEEL THREADED RODS EMBEDDED IN PAD 5" MINIMUM AND SECURED WITH ADHESIVE ANCHOR HILTI HIT-HY-200-A OR APPROVED EQUAL. ANCHOR BOLTS MAY BE USED ONLY AFTER OWNER ENGINEERING REVIEW AND APPROVAL.
- 5.8.9. ALL OPENINGS INTO EQUIPMENT SHALL BE SEALED WITH GALVANIZED STEEL PLATE OR SCREEN TO PREVENT ENTRY OF INSECTS AND RODENTS.
- 5.8.10. WHEN REQUIRED BY EQUIPMENT MANUFACTURER, CAULK ALONG BOTTOM PERIMETER OF EQUIPMENT MOUNTED ON CONCRETE PADS TO PREVENT WATER ENTRY BETWEEN BOTTOM OF ENCLOSURE AND TOP OF CONCRETE SLAB. USE ONLY EXTERIOR 100% ACRYLIC SILICONE ELASTOMERIC CAULK.
- 5.8.11. PROVIDE 12 INCHES OF CLASS 5 GRAVEL DRAINAGE BEDDING IN THE BOTTOM OF ALL BOTTOM CONDUIT ENTRIES TO OPEN CABLE COMPARTMENTS.
- 5.8.12. ALL CONDUCTORS SHALL BE ROUTED TO MAINTAIN ACCESS TO INDICATORS, VALVES, SAMPLE PORTS, SWITCHES, TAP CHANGES, FUSE WELLS, AND OTHER COMPONENTS AND ACCESSORIES REQUIRING OPERATOR ACCESS.
- 5.8.13. EQUIPMENT SHALL BE INSTALLED SO AS NOT TO SHADE THE PV ARRAY. ANY POTENTIAL SHADING ISSUES SHALL BE REVIEWED BY OWNER ENGINEERING PRIOR TO INSTALLATION.
- 5.8.14. FUSES SHALL NOT BE INSTALLED UNTIL JUST PRIOR TO COMMISSIONING.
- 5.8.15. CABLE TRAY SHALL BE CONSTRUCTED OF ALUMINUM WITH 9" RUNG SPACING. 6" CHANNEL WITH A MINIMUM INSIDE DEPTH OF 5". SOLID COVER AND EXPANSION FITTINGS AS REQUIRED.

**5.9. TRANSFORMERS**

- 5.9.1. ALL CONDUCTORS SHALL BE ROUTED TO MAINTAIN ACCESS TO INDICATORS, VALVES, SAMPLE PORTS, SWITCHES, TAP CHANGES, FUSE WELLS, AND OTHER COMPONENTS AND ACCESSORIES REQUIRING OPERATOR ACCESS.
- 5.9.2. VERIFY THE FOLLOWING:
  - 5.9.2.1. FACTORY WIRING DIAGRAM IS ACCURATE
  - 5.9.2.2. TRANSFORMER IS LEVEL
  - 5.9.2.3. MEDIUM & LOW VOLTAGE CONDUITS ARE SEPARATED AND IN THEIR OWN COMPARTMENT
  - 5.9.2.4. LOCK OR CONICAL NUTS USED FOR ALL CONNECTIONS
  - 5.9.2.5. HARDWARE IS THE PROPER LENGTH

**5.10. HARDWARE**

- 5.10.1. ALL HARDWARE IN EXPOSED LOCATIONS SHALL BE STAINLESS STEEL OR HOT-DIPPED GALVANIZED STEEL. ZINC-COATED FASTENERS ARE PREFERRED INSIDE NEMA 3R OR HIGHER ENCLOSURES.
- 5.10.2. ALL HARDWARE USED FOR GROUNDING & BONDING ABOVE GRADE SHALL BE STAINLESS STEEL.
- 5.10.3. ANTI-SEIZE LUBRICANT MUST BE USED ON STAINLESS HARDWARE.
- 5.10.4. ALL ELECTRICAL AND MECHANICAL HARDWARE TO BE TORQUED PER DEVICE LISTING, OR MANUFACTURERS RECOMMENDATIONS USING A CALIBRATED TORQUE WRENCH. CONNECTORS ARE TO BE MARKED WITH PERMANENT MARKING PAINT, AFTER TORQUING.

**5.11. WIRE MANAGEMENT**

- 5.11.1. ALL WIRE MANAGEMENT METHODS AND MATERIALS SHALL BE APPROVED BY OWNER PRIOR TO INSTALLATION.
- 5.11.2. ALL EXPOSED CABLES, SUCH AS MODULE LEADS AND PV CIRCUIT WIRING SHALL BE SECURED WITH MECHANICAL OR OTHER APPROVED SUNLIGHT RESISTANT MEANS. THE USE OF PLASTIC CABLE TIES IS NOT AN APPROVED METHOD TO SUPPORT OR ATTACH WIRE TO A STRUCTURE.

- 5.11.3. PV SOURCE AND OUTPUT CONDUCTOR CABLE CLIPS SHALL BE STAINLESS STEEL (E.G. ACC CLIPS BY WILEY OR EQUIVALENT.)
- 5.11.4. PLASTIC CABLE TIES MAY ONLY BE USED TO BUNDLE PV SOURCE CIRCUIT WIRING AND SHALL BE MADE OF WEATHER-RESISTANT NYLON-12. FOR WIRE SUPPORT, ONLY STAINLESS STEEL CLIPS OR PVC-COATED STAINLESS STEEL CABLE TIES MAY BE USED (HEYCO OR APPROVED EQUAL).
- 5.11.5. PV SOURCE OUTPUT CIRCUIT WIRING SHALL BE SUPPORTED ADEQUATELY IN LENGTHS NOT TO EXCEED 24". MODULE TO MODULE INTERCONNECTIONS SHALL BE SUPPORTED AT A MAXIMUM OF 12" FROM THE J-BOX AND THE MODULE TO MODULE CONNECTION POINT.
- 5.11.6. PROTECT WIRE FROM SHARP EDGES WITH UV RATED SPIRAL WRAP, EDGE-GUARD, OR SPLIT LOOM SUPPORTED BY CABLE TIES.

**5.12. CONCRETE PADS AND UNDERGROUND**

- 5.12.1. CONCRETE SPECIFICATIONS: SEE CIVIL PLANS.
- 5.12.2. NOT USED.
- 5.12.3. CONDUITS STUBBED UP FROM BELOW GROUND SHALL BE IN THE APPROPRIATE LOCATIONS AND PLUMB.
- 5.12.4. CONDUITS STUBBED UP SHALL IMMEDIATELY BE CAPPED TO PREVENT WATER ENTRY DURING CONSTRUCTION.
- 5.12.5. TOPS OF CONDUIT SHALL BE A MINIMUM OF 4 INCHES ABOVE THE CONCRETE PAD OR GRAVEL BEDDING TO PREVENT INGRESS OF WATER.
- 5.12.6. CONDUITS IN CONCRETE PADS SHALL BE PROPERLY SECURED TO AVOID CONDUIT DISPLACEMENT DURING POUR.
- 5.12.7. DIRECT BURIAL CONDUCTORS SHALL ENTER CONCRETE PADS THROUGH UNDERGROUND CONDUIT SLEEVE EXTENDING AT LEAST 36" OUT FROM EQUIPMENT PAD.
- 5.12.8. BARE CU EQUIPMENT GROUND JUMPER SHALL BE IN CONDUIT AND SHALL EXTEND AT LEAST 6" OUT FROM EQUIPMENT PAD.
- 5.12.9. CONCRETE REBAR: SEE CIVIL PLANS.
- 5.12.10. EXCAVATION & TRENCHING INSPECTIONS SHALL BE DOCUMENTED AND INSPECTED DAILY AND RIGHT AFTER A RAIN EVENT.
- 5.12.11. IN ANY EXCAVATION/TRENCH GREATER THAN 4' IN DEPTH, OSHA-COMPLIANT ACCESS/EGRESS LADDERS SHALL BE PLACED NO MORE THAN EVERY 50'.
- 5.12.12. CONDUITS WITH NEGATIVE SLOPE TOWARD ELECTRICAL EQUIPMENT SHALL HAVE A PULL BOX OR VAULT ADJACENT TO THE ENTRY POINT INTO THE ELECTRICAL EQUIPMENT WITH CRUSHED STONE IN THE BOTTOM FOR DRAINAGE.
- 5.12.13. CABLES OR CONDUIT BURIED BELOW STREAMS OR DRAINAGE TRENCHES SHALL MAINTAIN THEIR NEC REQUIRED DEPTH BELOW THE BOTTOM OF THE STREAM OR TRENCH.
- 5.12.14. PROVIDE 12" OF CLASS 5 GRAVEL DRAINAGE BEDDING UNDER THE TRANSFORMER OPEN CONDUIT AREA.

**5.13. RACKING AND MODULES**

- 5.13.1. RACKING IS TO BE INSTALLED PER THE STAMPED AND SIGNED RACKING MANUFACTURER'S STRUCTURAL SHEETS AND STRUCTURAL CALCULATIONS.
- 5.13.2. ALL RACKING COMPONENTS ARE TO BE INSPECTED AND ACCEPTED AT TIME OF DELIVERY. ANY DEFECTS SHOULD BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER PRIOR TO INSTALLATION.
- 5.13.3. MODULES SHALL NOT BE STACKED DURING INSTALLATION WITHOUT APPROPRIATE DIVIDERS. EXTRA CARE MUST BE TAKEN TO NOT SCRATCH OR DAMAGE THE MODULE GLASS OR BACKSHEETS. ANY SCRATCHED OR DAMAGED MODULES SHALL BE REPLACED SOLELY AT THE CONTRACTOR'S EXPENSE.
- 5.13.4. NO PERSONNEL SHALL STEP OR STAND ON MODULES AT ANY TIME, NOR SHALL INSTALLERS LEAN ON MODULE GLASS. RACK STRUCTURE AND MODULES ARE NOT DESIGNED FOR LIVE LOADS AND MAY VOID WARRANTY.

**5.14. SAFETY SIGNS AND LABELING**

- 5.14.1. CONTRACTOR SHALL PROVIDE ALL SIGNS AND LABELS PER THESE DRAWINGS, LOCAL UTILITY REQUIREMENTS, OSHA AND THE NEC INCLUDING BUT NOT LIMITED TO SECTIONS 110, 690, AND 705.
- 5.14.2. ALL SIGNS SHALL BE HDPE PLASTIC, TWO-COLOR ENGRAVED, AND UV STABILIZED.
- 5.14.3. ALL EQUIPMENT SHALL BE LABELED ON THE FRONT EXTERIOR TO CORRESPOND TO THE IDENTIFICATION SHOWN ON THE DRAWINGS.
- 5.14.4. SIGNS SHALL BE FIXED TO EQUIPMENT WITH OUTDOOR RATED TWO-PART EPOXY. DOUBLE-SIDED TAPE SHALL NOT BE USED UNDER ANY CONDITIONS.
- 5.14.5. ALL CABLES SHALL BE LABELED AT EACH END AND AT SPLICE LOCATIONS, AT AN ACCESSIBLE POINT INSIDE EQUIPMENT ENCLOSURE, IF POSSIBLE, WITH CIRCUIT AND PHASE IDENTIFICATION CORRESPONDING TO THE DRAWINGS.
- 5.14.6. CABLE AND CONDUCTOR LABELS SHALL BE HEAT SHRINK AND APPROVED FOR THEIR ENVIRONMENT. LABELS SHALL NOT COVER COMPRESSION LUGS.
- 5.14.7. MV CABLE LABELS SHALL BE ENGRAVED, TWO-COLOR ENGRAVED PLASTIC, SECURED WITH UV-RESISTANT WIRE TIES. THESE LABELS SHALL BE VISIBLE FROM OUTSIDE THE ENCLOSURE WITHOUT REACHING INSIDE OR MOVING CABLES.
- 5.14.8. PROVIDE ARC FLASH HAZARD WARNING LABELS COMPLYING WITH ANSI Z535.4 AND NFPA 70E ON ALL EQUIPMENT PER DRAWINGS. LABELS SHALL BE APPLIED ON ACCESSIBLE DOORS OR BARRIERS OF OUTDOOR EQUIPMENT.
- 5.14.9. PROVIDE LABELING FOR THE TRANSFORMER ID, CABLES, HIGH VOLTAGE COMPARTMENT (WARNING AND RATING), AND LOW VOLTAGE COMPARTMENT (RATING).
- 5.14.10. ALL ELECTRICAL PANELS SHALL BE PROVIDED WITH A CLEARLY LEGIBLE AND ACCURATE PANEL SCHEDULE OR CIRCUIT DIRECTORY.

**5.15. FIELD ACCEPTANCE TESTING**

- 5.15.1. CONTRACTOR SHALL PROVIDE FIELD ACCEPTANCE TESTING IN ACCORDANCE WITH ANSI/NETA ATS-2013. THE FOLLOWING EQUIPMENT SHALL BE FIELD TESTED:
  - 5.15.1.1. MV STEP-UP TRANSFORMER
  - 5.15.1.2. MV CABLES
  - 5.15.1.3. LV CABLES
  - 5.15.1.4. GROUND GRID
- 5.15.2. CONTRACTOR SHALL PROVIDE I-V CURVE TRACE TESTING IN ACCORDANCE WITH IEC 61829.
- 5.15.3. WRITTEN FIELD ACCEPTANCE TEST REPORTS SHALL BE FURNISHED TO THE ENGINEER.

PLOTTED: 08/05/2023 1:41 PM FILE: PV-E-000 ELECTRICAL NOTES.DWG



AES CLEAN ENERGY DEVELOPMENT, LLC  
292 MADISON AVENUE, 15TH FLOOR  
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**KEY PLAN:**

**REVISIONS:**

| NO. | DATE       | DESCRIPTION               |
|-----|------------|---------------------------|
| 0   | 03/08/2023 | ISSUED FOR 94-C PERMIT    |
| 1   | 08/11/2023 | RE-ISSUED FOR 94-C PERMIT |
|     |            |                           |
|     |            |                           |
|     |            |                           |
|     |            |                           |
|     |            |                           |
|     |            |                           |
|     |            |                           |

**PROJECT TITLE:**

**SOMERSET SOLAR PROJECT**

**PROJECT LOCATION:**

LAKE ROAD  
SOMERSET, NY

**SHEET TITLE & DESCRIPTION:**

ELECTRICAL NOTES  
2 OF 3

**ISSUED FOR 94-C PERMIT ONLY**  
NOT FOR CONSTRUCTION

|                     |            |
|---------------------|------------|
| PROJ NUM:           | SU20.0012  |
| DES:                | CB         |
| DWN:                | CB         |
| CHK:                | KL         |
| APV:                | KL         |
| DATE:               | 08/05/2022 |
| SCALE AT 22" x 34": |            |
| <b>AS SHOWN</b>     |            |

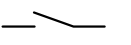
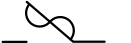


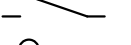
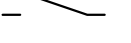





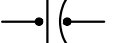
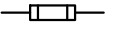
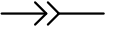
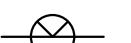
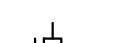
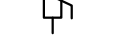
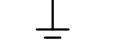
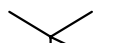
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| SHEET NO: | PV-E.00.02 | REV: | 1 |
|-----------|------------|------|---|

**ACRONYMS AND ABBREVIATIONS**

|        |  |
|--------|--|
| AAC    | ALL ALUMINUM CONDUCTOR                     |
| AAAC   | ALL ALUMINUM ALLOY CONDUCTOR               |
| AC     | ALTERNATING CURRENT                        |
| ACSR   | ALUMINUM CONDUCTOR STEEL REINFORCED        |
| AHJ    | AUTHORITY HAVING JURISDICTION              |
| AL     | ALUMINUM                                   |
| ANSI   | AMERICAN NATIONAL STANDARDS INSTITUTE      |
| APPROX | APPROXIMATE                                |
| ASTM   | AMERICAN SOCIETY FOR TESTING AND MATERIALS |
| AWG    | AMERICAN WIRE GAUGE                        |
| AZ     | AZIMUTH                                    |
| C      | CELSIUS                                    |
| CB     | CIRCUIT BREAKER                            |
| CBX    | COMBINER BOX                               |
| C/L    | CENTER LINE                                |
| CIC    | CABLE IN CONDUIT                           |
| COMM   | COMMUNICATIONS                             |
| CONT'D | CONTINUED                                  |
| CPT    | CONTROL POWER TRANSFORMER                  |
| CT     | CURRENT TRANSFORMER                        |
| CU     | COPPER                                     |
| DAS    | DATA ACQUISITION SYSTEM                    |
| DC     | DIRECT CURRENT                             |
| DCD    | DC DISCONNECT                              |
| DG     | DISTRIBUTED GENERATION                     |
| DISC   | DISCONNECT                                 |
| (E)    | EXISTING                                   |
| EC     | ELECTRICAL CONTRACTOR                      |
| EGC    | EQUIPMENT GROUNDING CONDUCTOR              |
| EMT    | ELECTRICAL METALLIC TUBING                 |
| F      | FAHRENHEIT                                 |
| FT     | FIXED TILT                                 |
| GCR    | GROUND COVERAGE RATIO                      |
| GEC    | GROUNDING ELECTRODE CONDUCTOR              |
| GET    | GROUNDING ELECTRODE TERMINAL               |
| GND    | GROUND                                     |
| GOAB   | GANG OPERATED AIR BREAK                    |
| GR     | GROUND RING                                |
| HDPE   | HIGH DENSITY POLYETHYLENE                  |
| ID     | INSIDE DIAMETER                            |
| IMC    | INTERMEDIATE METAL CONDUIT                 |
| JB     | JUNCTION BOX                               |
| KV     | KILOVOLT                                   |
| KW     | KILOWATT                                   |
| LEA    | LOW-ENERGY ANALOG                          |
| LFMC   | LIQUID-TIGHT FLEXIBLE METAL CONDUIT        |
| LFNC   | LIQUID-TIGHT FLEXIBLE NON-METALLIC CONDUIT |
| LV     | LOW VOLTAGE, <2000V                        |
| MET    | METEOROLOGICAL                             |
| MIN    | MINIMUM                                    |
| MISC   | MISCELLANEOUS                              |
| MOV    | METAL OXIDE VARISTOR                       |
| MCOV   | MAXIMUM CONTINUOUS OPERATING VOLTAGE       |
| MV     | MEDIUM VOLTAGE                             |
| MVA    | MEGA VOLT-AMPS                             |
| MW     | MEGAWATT                                   |
| (N)    | NEW  |
| NEC    | NATIONAL ELECTRICAL CODE                   |
| NEG    | NEGATIVE                                   |
| NESC   | NATIONAL ELECTRIC SAFETY CODE              |
| NRTL   | NATIONALLY RECOGNIZED TESTING LAB          |
| OC     | ON CENTER                                  |
| OCPD   | OVER CURRENT PROTECTION DEVICE             |
| OD     | OUTSIDE DIAMETER                           |
| OH     | OVERHEAD                                   |
| P      | POLE                                       |
| PDI    | POLYMER DEADEND INSULATOR                  |
| PH/Ø   | PHASE                                      |
| PNL    | PANEL                                      |
| POCC   | POINT OF COMMON COUPLING                   |
| POI    | POINT OF INTERCONNECTION                   |
| POS    | POSITIVE                                   |
| PT     | POTENTIAL TRANSFORMER                      |
| PV     | PHOTOVOLTAIC                               |
| PVC    | POLYVINYL CHLORIDE                         |
| RFI    | REQUEST FOR INFORMATION                    |
| RMC    | RIGID METAL CONDUIT                        |
| SAT    | SINGLE-AXIS TRACKER                        |
| SCADA  | SUPERVISORY CONTROL AND DATA ACQUISITION   |
| SCB    | SOLAR COMBINER BOX                         |
| SCH    | SCHEDULE                                   |
| SW     | SWITCH                                     |

|      |                           |
|------|---------------------------|
| TBD  | TO BE DETERMINED          |
| TYP  | TYPICAL                   |
| UL   | UNDERWRITERS LABORATORIES |
| UON  | UNLESS OTHERWISE NOTED    |
| UV   | ULTRAVIOLET               |
| V    | VOLT                      |
| VA   | VOLT AMPS                 |
| VAC  | VOLTS ALTERNATING CURRENT |
| VDC  | VOLTS DIRECT CURRENT      |
| VT   | VOLTAGE TRANSFORMER       |
| WS   | WEATHER STATION           |
| XFMR | TRANSFORMER               |

**LEGEND**

|   |                               |
|---|-------------------------------|
|  | SWITCH                        |
|  | SWITCH WITH FUSED CUTOUT      |
|  | SWITCH WITH EXTERNAL OPERATOR |
|  | GANG OPERATED AIR-BREAK       |
|  | HOOK STICK SWITCH             |
|  | FUSED CUT-OUT                 |
|  | CONTACTOR                     |
|  | POLE                          |
|  | TRANSFORMER                   |
|  | LEA                           |
|  | FUSE                          |
|  | TERMINATION                   |
|  | FAULT CIRCUIT INDICATOR       |
|  | LIGHTNING ARRESTER            |
|  | GROUND                        |
|  | GROUND WYE                    |
|  | WYE                           |
|  | DELTA                         |
|  | INVERTER                      |

KEY PLAN:

REVISIONS:

| NO. | DATE       | DESCRIPTION               |
|-----|------------|---------------------------|
| 0   | 03/08/2023 | ISSUED FOR 94-C PERMIT    |
| 1   | 08/11/2023 | RE-ISSUED FOR 94-C PERMIT |
|     |            |                           |
|     |            |                           |
|     |            |                           |
|     |            |                           |
|     |            |                           |

PROJECT TITLE:

**SOMERSET SOLAR PROJECT**

PROJECT LOCATION:

LAKE ROAD  
SOMERSET, NY

SHEET TITLE & DESCRIPTION:

ELECTRICAL NOTES  
3 OF 3

**ISSUED FOR 94-C PERMIT ONLY**  
NOT FOR CONSTRUCTION

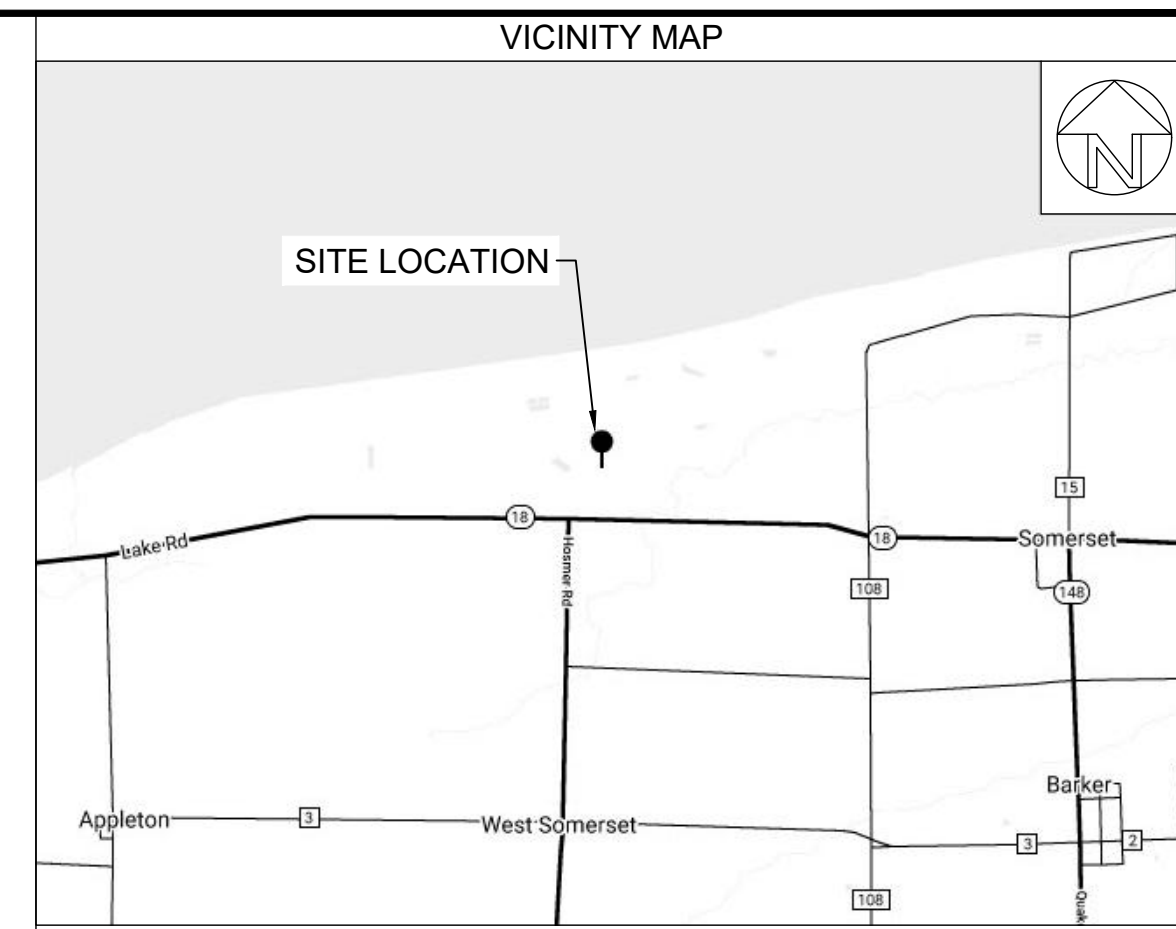
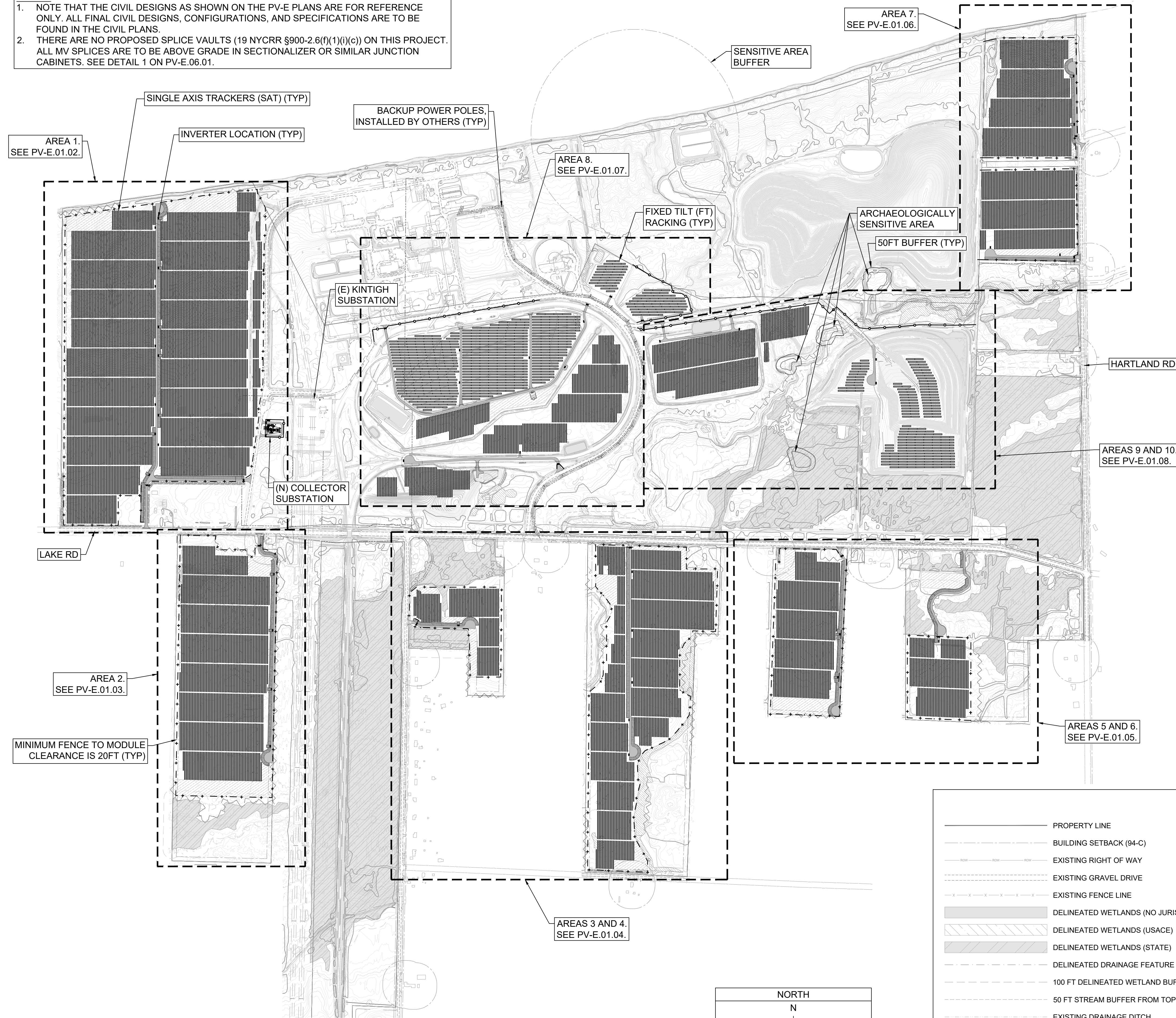
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|---------------------|------------|
| PROJ NUM:           | SU20.0012  |
| DES:                | CB         |
| DWN:                | CB         |
| CHK:                | KL         |
| APV:                | KL         |
| DATE:               | 08/05/2022 |
| SCALE AT 22" x 34": |            |

**AS SHOWN**

|           |            |      |   |
|-----------|------------|------|---|
| SHEET NO: | PV-E.00.03 | REV: | 1 |
|-----------|------------|------|---|

**NOTES:**

- NOTE THAT THE CIVIL DESIGNS AS SHOWN ON THE PV-E PLANS ARE FOR REFERENCE ONLY. ALL FINAL CIVIL DESIGNS, CONFIGURATIONS, AND SPECIFICATIONS ARE TO BE FOUND IN THE CIVIL PLANS.
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SCALE 1" = 5000'

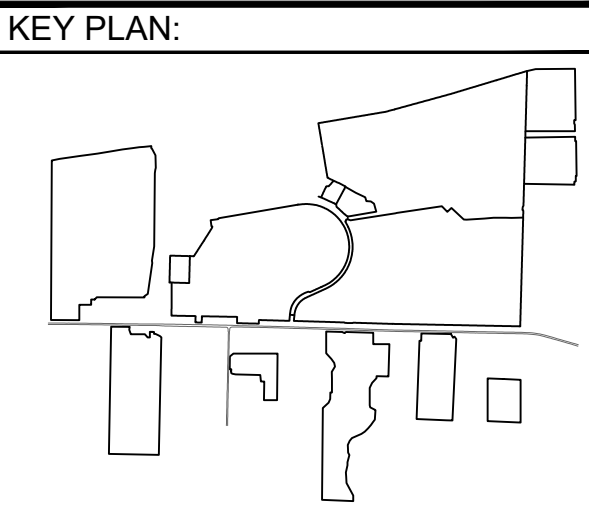
| PROJECT SPECIFICATIONS DESIGN SUMMARY                         |   |
|---|---|
| AC SYSTEM SIZE AT POI (MW)                                    | 125.000   |
| AC INVERTER NAMEPLATE (MW)                                    | 136.800   |
| POWER FACTOR  | 0.95 LEADING TO 0.95 LAGGING  |
| DC SYSTEM SIZE (MW)   | 153.057   |
| DC/AC RATIO AT POI  | 1.224   |
| MV TRANSFORMER & INVERTER                                     | (16) SUNGROW SG3150U-MV<br>(24) SUNGROW SG3600UD-MV                               |
| RACKING SYSTEM  | NEXTRACKER SINGLE-AXIS TRACKER (SAT)<br>TERRASMART FIXED TILT (FT) RACKING        |
| STRING SIZE AND VOLTAGE                                       | SAT: 27 MODS PER STRING, 1500 VDC<br>FT: 26 MODS PER STRING, 1500 VDC             |
| PV MODULE   | BYD MLTK-36 540   |
| PV MODULE RATING  | 540 W   |
| QUANTITY OF PV MODULES BY RACKING SYSTEM AND FOUNDATION TYPES | BALLASTED FT: 35,698<br>DRIVEN FT: 4,524<br>DRIVEN SAT: 243,216<br>TOTAL: 283,438 |
| TOTAL STRING COUNT  | 10,555  |
| RACK CONFIGURATION  | SAT, 1 IN PORTRAIT<br>FIXED TILT, 2 IN PORTRAIT                                   |
| TILT (°)  | ± 60° (SAT)<br>20° (FIXED TILT)   |
| AZIMUTH (°)   | 180°  |
| GCR (%)   | 41.52% (SAT)<br>44.70% (FIXED TILT)   |
| PITCH   | 18.00 FT (SAT)<br>31.82 FT (FIXED TILT)   |
| CLEAR ROW SPACING   | 10.53 FT (SAT)<br>17.49 FT (FIXED TILT)   |
| LATITUDE (°)  | 43.3525680  |
| LONGITUDE (°)   | -78.6014000   |
| UTILITY   | NYSEG   |
| CODE CYCLE  | NEC 2017  |

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**TETRA TECH**

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| 0   | 03/08/2023 | ISSUED FOR 94-C PERMIT    |
| 1   | 08/11/2023 | RE-ISSUED FOR 94-C PERMIT |

PROJECT TITLE:  
**SOMERSET SOLAR PROJECT**

PROJECT LOCATION:  
**LAKE ROAD  
SOMERSET, NY**

SHEET TITLE & DESCRIPTION:  
**OVERALL ELECTRICAL PLAN**

**ISSUED FOR 94-C PERMIT ONLY**  
NOT FOR CONSTRUCTION

PROJ NUM: SU20.0012  
DES: CB  
DWN: CB  
CHK: KL  
APV: KL  
DATE: 08/05/2022  
SCALE AT 22" x 34":

**AS SHOWN**

SHEET NO: PV-E.01.01 REV: 1

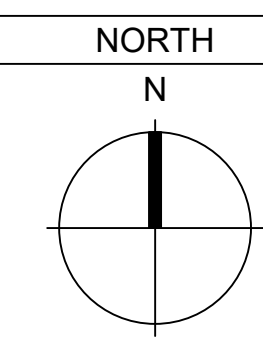
**LEGEND**

|       |                                       |         |                                 |
|-------|---------------------------------------|---------|---------------------------------|
| —     | PROPERTY LINE                         | ~~~~~   | EXISTING TREE LINE              |
| - - - | BUILDING SETBACK (94-C)               | ~~~~~   | EXISTING BRUSH LINE             |
| - - - | EXISTING RIGHT OF WAY                 | - - -   | EXISTING EASEMENTS              |
| - - - | EXISTING GRAVEL DRIVE                 | ~~~~~   | PROPOSED TREE LINE              |
| - - - | EXISTING FENCE LINE                   | ~~~~~   | PROPOSED BRUSH LINE             |
| ▨     | DELINEATED WETLANDS (NO JURISDICTION) | —○—     | PROPOSED CHAIN LINK FENCE       |
| ▨     | DELINEATED WETLANDS (USACE)           | - + - + | PROPOSED AGRICULTURAL FENCE     |
| ▨     | DELINEATED WETLANDS (STATE)           | —       | PROPOSED ACCESS ROAD            |
| - - - | DELINEATED DRAINAGE FEATURE           | .....   | PROPOSED GRASSED FILTER STRIP   |
| - - - | 100 FT DELINEATED WETLAND BUFFER      | .....   | PROPOSED VEGETATIVE SCREENING   |
| - - - | 50 FT STREAM BUFFER FROM TOP OF BANK  | ▨       | TEMPORARY LAYDOWN/ PARKING AREA |
| - - - | EXISTING DRAINAGE DITCH               |         |                                 |
| - - - | EXISTING WATER EDGE                   |         |                                 |
| - - - | APPROXIMATE TOP OF STREAM BANK        |         |                                 |
| - - - | EXISTING RAILROAD                     |         |                                 |

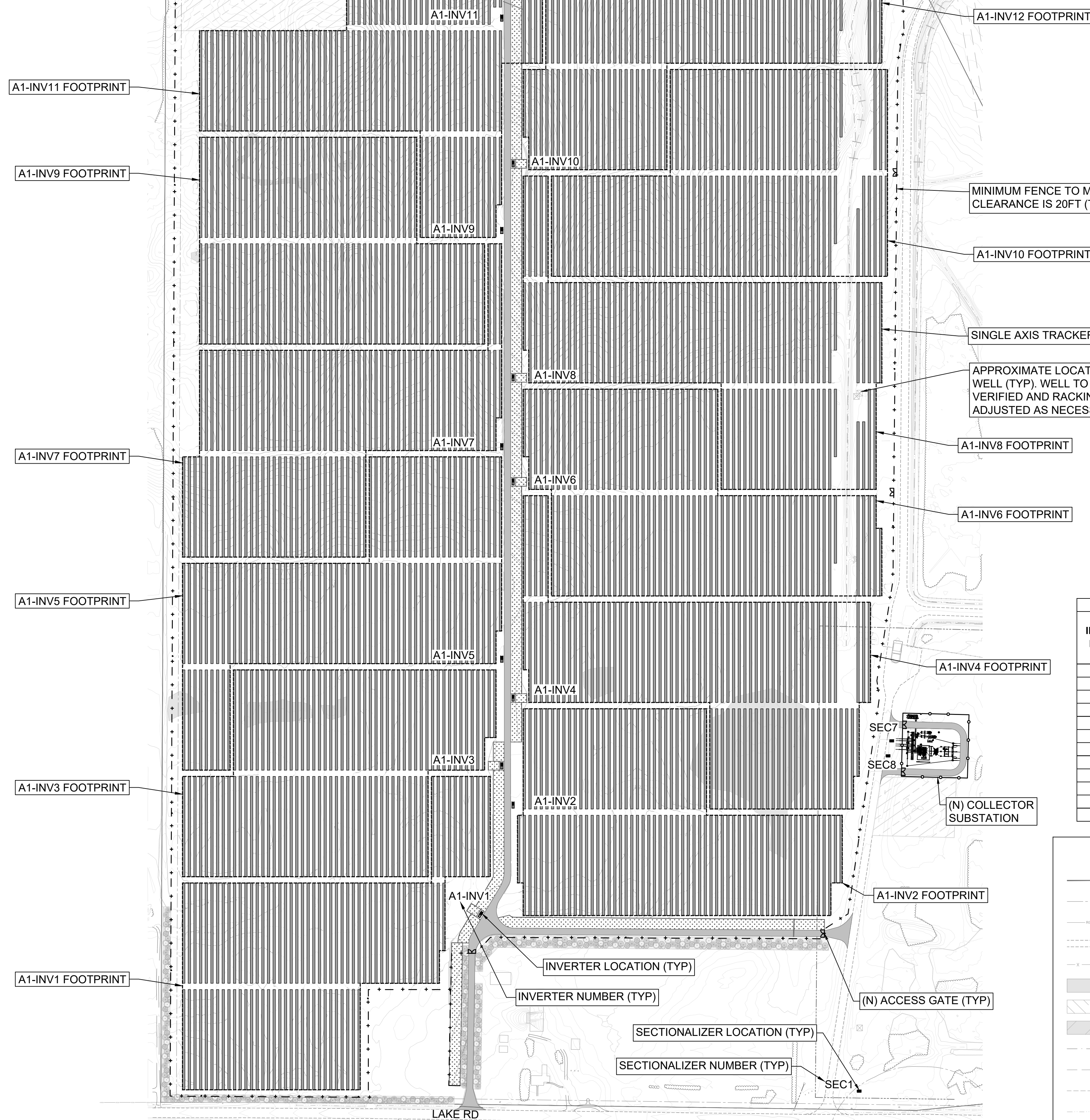
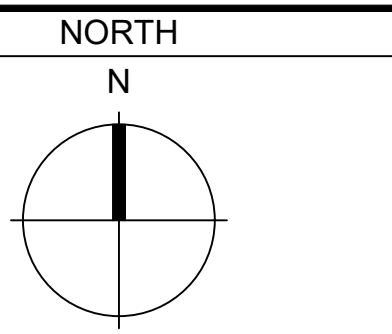
**1 OVERALL ELECTRICAL PLAN**

0 600' 1200'

SCALE: 1" = 600'



PLOTTED IN PLOTTER: 24x36 INCH  
FILE: PV-E.01.01 OVERALL ELECTRICAL PLAN.dwg



| PROJECT SPECIFICATIONS DESIGN SUMMARY                         |   |
|---|---|
| AC SYSTEM SIZE AT POI (MW)                                    | 125.000   |
| AC INVERTER NAMEPLATE (MW)                                    | 136.800   |
| POWER FACTOR  | 0.95 LEADING TO 0.95 LAGGING  |
| DC SYSTEM SIZE (MW)   | 153.057   |
| DC/AC RATIO AT POI  | 1.224   |
| MV TRANSFORMER & INVERTER                                     | (16) SUNGROW SG3150U-MV<br>(24) SUNGROW SG3600UD-MV                               |
| RACKING SYSTEM  | NEXTRACKER SINGLE-AXIS TRACKER (SAT)<br>TERRASMART FIXED TILT (FT) RACKING        |
| STRING SIZE AND VOLTAGE                                       | SAT: 27 MODS PER STRING, 1500 VDC<br>FT: 26 MODS PER STRING, 1500 VDC             |
| PV MODULE   | BYD MLTK-36 540   |
| PV MODULE RATING  | 540 W   |
| QUANTITY OF PV MODULES BY RACKING SYSTEM AND FOUNDATION TYPES | BALLASTED FT: 35,698<br>DRIVEN FT: 4,524<br>DRIVEN SAT: 243,216<br>TOTAL: 283,438 |
| TOTAL STRING COUNT  | 10,555  |
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| TILT (°)  | ± 60° (SAT)<br>20° (FIXED TILT)   |
| AZIMUTH (°)   | 180°  |
| GCR (%)   | 41.52% (SAT)<br>44.70% (FIXED TILT)   |
| PITCH   | 18.00 FT (SAT)<br>31.62 FT (FIXED TILT)   |
| CLEAR ROW SPACING   | 10.53 FT (SAT)<br>17.49 FT (FIXED TILT)   |
| LATITUDE (°)  | 43.3525680  |
| LONGITUDE (°)   | -78.6014000   |
| UTILITY   | NYSEG   |
| CODE CYCLE  | NEC 2017  |

**NOTES:**

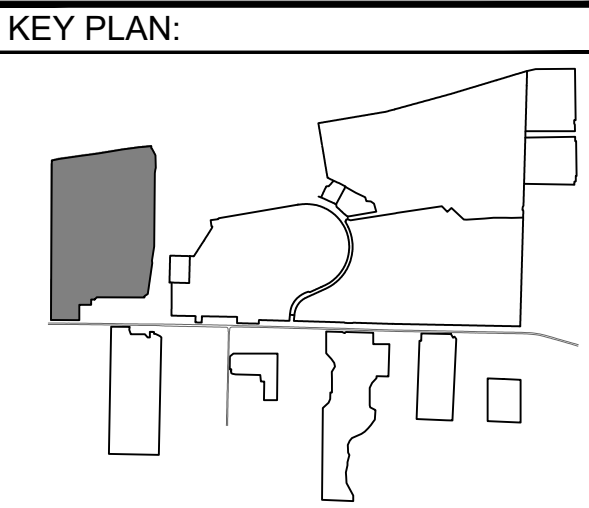
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| 1   | 08/11/2023 | RE-ISSUED FOR 94-C PERMIT |

PROJECT TITLE:  
**SOMERSET SOLAR PROJECT**

PROJECT LOCATION:  
**LAKE ROAD  
SOMERSET, NY**

SHEET TITLE & DESCRIPTION:  
**ENLARGED ELECTRICAL PLAN - AREA 1**

**ISSUED FOR 94-C PERMIT ONLY  
NOT FOR CONSTRUCTION**

|                     |            |
|---------------------|------------|
| PROJ. NUM:          | SU20.0012  |
| DES:                | CB         |
| DWN:                | CB         |
| CHK:                | KL         |
| APV:                | KL         |
| DATE:               | 08/05/2022 |
| SCALE AT 22" x 34": |            |

**AS SHOWN**

SHEET NO: **PV-E.01.02** REV: **1**

| INVERTER INFORMATION |               |                       |                 |                         |             |          |                               |           |            |
|----------------------|---------------|-----------------------|-----------------|-------------------------|-------------|----------|-------------------------------|-----------|------------|
| INVERTER NUMBER      | INVERTER TYPE | INVERTER DETAIL SHEET | FOUNDATION TYPE | FOUNDATION DETAIL SHEET | DC/AC RATIO | DC [kW]  | MODULE QUANTITY PER RACK TYPE |           |            |
|                      |               |                       |                 |                         |             |          | BALLASTED FT                  | DRIVEN FT | DRIVEN SAT |
| A1-INV1              | SG3600UD-MV   | PV-E.05.04            | POSTS/PIERS     | PV-E.05.05              | 1.089       | 3,922.02 | 0                             | 0         | 7,263      |
| A1-INV2              | SG3600UD-MV   | PV-E.05.04            | POSTS/PIERS     | PV-E.05.05              | 1.094       | 3,936.60 | 0                             | 0         | 7,290      |
| A1-INV3              | SG3600UD-MV   | PV-E.05.04            | POSTS/PIERS     | PV-E.05.05              | 1.098       | 3,951.18 | 0                             | 0         | 7,317      |
| A1-INV4              | SG3600UD-MV   | PV-E.05.04            | POSTS/PIERS     | PV-E.05.05              | 1.098       | 3,951.18 | 0                             | 0         | 7,317      |
| A1-INV5              | SG3600UD-MV   | PV-E.05.04            | POSTS/PIERS     | PV-E.05.05              | 1.089       | 3,922.02 | 0                             | 0         | 7,263      |
| A1-INV6              | SG3600UD-MV   | PV-E.05.04            | POSTS/PIERS     | PV-E.05.05              | 1.094       | 3,936.60 | 0                             | 0         | 7,290      |
| A1-INV7              | SG3600UD-MV   | PV-E.05.04            | POSTS/PIERS     | PV-E.05.05              | 1.089       | 3,922.02 | 0                             | 0         | 7,263      |
| A1-INV8              | SG3600UD-MV   | PV-E.05.04            | POSTS/PIERS     | PV-E.05.05              | 1.085       | 3,907.44 | 0                             | 0         | 7,236      |
| A1-INV9              | SG3600UD-MV   | PV-E.05.04            | POSTS/PIERS     | PV-E.05.05              | 1.094       | 3,936.60 | 0                             | 0         | 7,290      |
| A1-INV10             | SG3600UD-MV   | PV-E.05.04            | POSTS/PIERS     | PV-E.05.05              | 1.094       | 3,936.60 | 0                             | 0         | 7,290      |
| A1-INV11             | SG3600UD-MV   | PV-E.05.04            | POSTS/PIERS     | PV-E.05.05              | 1.094       | 3,936.60 | 0                             | 0         | 7,290      |
| A1-INV12             | SG3600UD-MV   | PV-E.05.04            | POSTS/PIERS     | PV-E.05.05              | 1.077       | 3,878.28 | 0                             | 0         | 7,182      |

**LEGEND**

|       |                                       |           |                                 |
|-------|---------------------------------------|-----------|---------------------------------|
| —     | PROPERTY LINE                         | ~~~~~     | EXISTING TREE LINE              |
| - - - | BUILDING SETBACK (94-C)               | ~~~~~     | EXISTING BRUSH LINE             |
| - - - | EXISTING RIGHT OF WAY                 | - - -     | EXISTING EASEMENTS              |
| - - - | EXISTING GRAVEL DRIVE                 | ~~~~~     | PROPOSED TREE LINE              |
| - - - | EXISTING FENCE LINE                   | ~~~~~     | PROPOSED BRUSH LINE             |
| ▨     | DELINEATED WETLANDS (NO JURISDICTION) | ○-○-○     | PROPOSED CHAIN LINK FENCE       |
| ▨     | DELINEATED WETLANDS (USACE)           | - + - + - | PROPOSED AGRICULTURAL FENCE     |
| ▨     | DELINEATED WETLANDS (STATE)           | —         | PROPOSED ACCESS ROAD            |
| - - - | DELINEATED DRAINAGE FEATURE           | .....     | PROPOSED GRASSED FILTER STRIP   |
| - - - | 100 FT DELINEATED WETLAND BUFFER      | .....     | PROPOSED VEGETATIVE SCREENING   |
| - - - | 50 FT STREAM BUFFER FROM TOP OF BANK  | ▨         | TEMPORARY LAYDOWN/ PARKING AREA |
| - - - | EXISTING DRAINAGE DITCH               |           |                                 |
| - - - | EXISTING WATER EDGE                   |           |                                 |
| - - - | APPROXIMATE TOP OF STREAM BANK        |           |                                 |
| - - - | EXISTING RAILROAD                     |           |                                 |

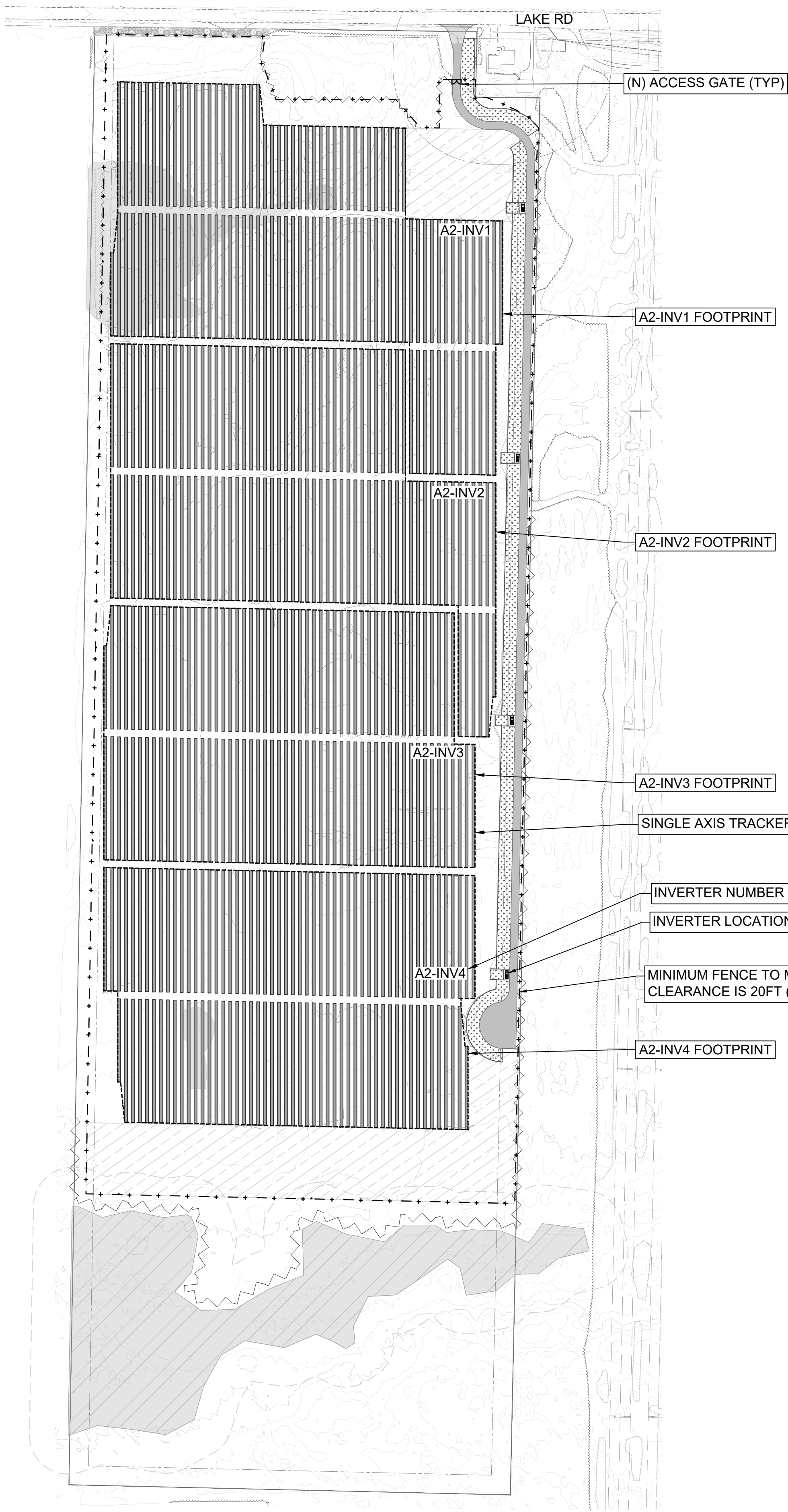
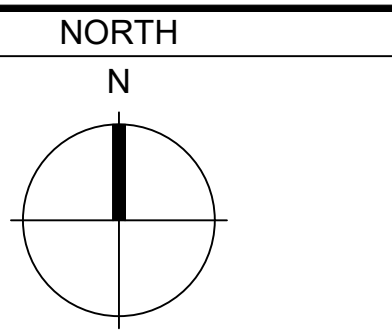
**1 ENLARGED ELECTRICAL PLAN - AREA 1**

0 200' 400'

SCALE: 1" = 200'

PLOTTED IN PLOTTER BY: [unreadable] FILE: PV-E.01.02 GENERAL SITE COVERED.DWG





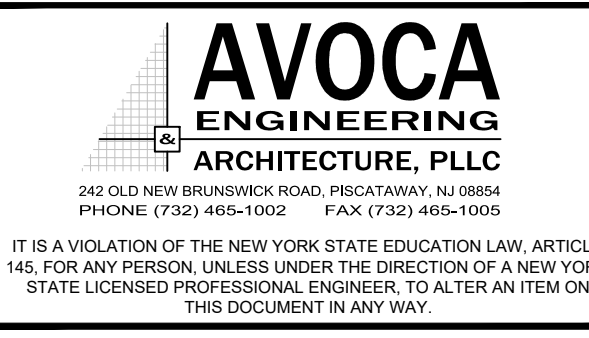
| PROJECT SPECIFICATIONS DESIGN SUMMARY                         |   |
|---|---|
| AC SYSTEM SIZE AT POI (MW)                                    | 125.000   |
| AC INVERTER NAMEPLATE (MW)                                    | 136.800   |
| POWER FACTOR  | 0.95 LEADING TO 0.95 LAGGING  |
| DC SYSTEM SIZE (MW)   | 153.057   |
| DC/AC RATIO AT POI  | 1.224   |
| MV TRANSFORMER & INVERTER                                     | (16) SUNGROW SG3150U-MV<br>(24) SUNGROW SG3600UD-MV                               |
| RACKING SYSTEM  | NEXTRACKER SINGLE-AXIS TRACKER (SAT)<br>TERRASMART FIXED TILT (FT) RACKING        |
| STRING SIZE AND VOLTAGE                                       | SAT: 27 MODS PER STRING, 1500 VDC<br>FT: 26 MODS PER STRING, 1500 VDC             |
| PV MODULE   | BYD MLTK-36 540   |
| PV MODULE RATING  | 540 W   |
| QUANTITY OF PV MODULES BY RACKING SYSTEM AND FOUNDATION TYPES | BALLASTED FT: 35,698<br>DRIVEN FT: 4,524<br>DRIVEN SAT: 243,216<br>TOTAL: 283,438 |
| TOTAL STRING COUNT  | 10,555  |
| RACK CONFIGURATION  | SAT, 1 IN PORTRAIT<br>FIXED TILT, 2 IN PORTRAIT                                   |
| TILT (°)  | ± 60° (SAT)<br>20° (FIXED TILT)   |
| AZIMUTH (°)   | 180°  |
| GCR (%)   | 41.52% (SAT)<br>44.70% (FIXED TILT)   |
| PITCH   | 18.00 FT (SAT)<br>31.62 FT (FIXED TILT)   |
| CLEAR ROW SPACING   | 10.53 FT (SAT)<br>17.49 FT (FIXED TILT)   |
| LATITUDE (°)  | 43.3525680  |
| LONGITUDE (°)   | -78.6014000   |
| UTILITY   | NYSEG   |
| CODE CYCLE  | NEC 2017  |

**NOTES:**

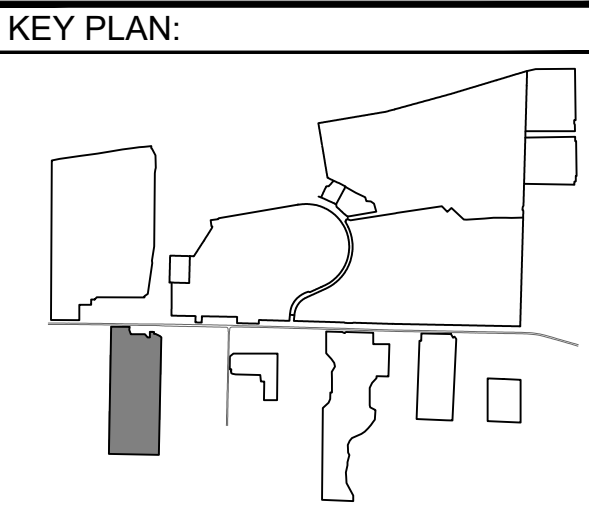
- NOTE THAT THE CIVIL DESIGNS AS SHOWN ON THE PV-E PLANS ARE FOR REFERENCE ONLY. ALL FINAL CIVIL DESIGNS, CONFIGURATIONS, AND SPECIFICATIONS ARE TO BE FOUND IN THE CIVIL PLANS.
- THERE ARE NO PROPOSED SPLICE VAULTS (19 NYCRR §900-2.6(f)(1)(i)(c)) ON THIS PROJECT. ALL MV SPLICES ARE TO BE ABOVE GRADE IN SECTIONALIZER OR SIMILAR JUNCTION CABINETS. SEE DETAIL 1 ON PV-E.06.01.

| INVERTER INFORMATION |               |                       |                 |                         |             |          |                               |           |            |
|----------------------|---------------|-----------------------|-----------------|-------------------------|-------------|----------|-------------------------------|-----------|------------|
| INVERTER NUMBER      | INVERTER TYPE | INVERTER DETAIL SHEET | FOUNDATION TYPE | FOUNDATION DETAIL SHEET | DC/AC RATIO | DC [KW]  | MODULE QUANTITY PER RACK TYPE |           |            |
|                      |               |                       |                 |                         |             |          | BALLASTED FT                  | DRIVEN FT | DRIVEN SAT |
| A2-INV1              | SG3600UD-MV   | PV-E.05.04            | POSTS/PIERS     | PV-E.05.05              | 1.272       | 4,578.12 | 0                             | 0         | 8,478      |
| A2-INV2              | SG3600UD-MV   | PV-E.05.04            | POSTS/PIERS     | PV-E.05.05              | 1.272       | 4,578.12 | 0                             | 0         | 8,478      |
| A2-INV3              | SG3600UD-MV   | PV-E.05.04            | POSTS/PIERS     | PV-E.05.05              | 1.272       | 4,578.12 | 0                             | 0         | 8,478      |
| A2-INV4              | SG3600UD-MV   | PV-E.05.04            | POSTS/PIERS     | PV-E.05.05              | 1.268       | 4,563.54 | 0                             | 0         | 8,451      |

| LEGEND    |                                       |           |                                 |
|-----------|---------------------------------------|-----------|---------------------------------|
| —         | PROPERTY LINE                         | ~~~~~     | EXISTING TREE LINE              |
| - - - - - | BUILDING SETBACK (94-C)               | ~~~~~     | EXISTING BRUSH LINE             |
| - - - - - | EXISTING RIGHT OF WAY                 | - - - - - | EXISTING EASEMENTS              |
| - - - - - | EXISTING GRAVEL DRIVE                 | ~~~~~     | PROPOSED TREE LINE              |
| - - - - - | EXISTING FENCE LINE                   | ~~~~~     | PROPOSED BRUSH LINE             |
| ▨         | DELINEATED WETLANDS (NO JURISDICTION) | ○—○       | PROPOSED CHAIN LINK FENCE       |
| ▨         | DELINEATED WETLANDS (USACE)           | - + - + - | PROPOSED AGRICULTURAL FENCE     |
| ▨         | DELINEATED WETLANDS (STATE)           | — + — + — | PROPOSED ACCESS ROAD            |
| - - - - - | DELINEATED DRAINAGE FEATURE           | ▨         | PROPOSED GRASSED FILTER STRIP   |
| - - - - - | 100 FT DELINEATED WETLAND BUFFER      | ▨         | PROPOSED VEGETATIVE SCREENING   |
| - - - - - | 50 FT STREAM BUFFER FROM TOP OF BANK  | ▨         | TEMPORARY LAYDOWN/ PARKING AREA |
| - - - - - | EXISTING DRAINAGE DITCH               |           |                                 |
| —         | EXISTING WATER EDGE                   |           |                                 |
| —         | APPROXIMATE TOP OF STREAM BANK        |           |                                 |
| - - - - - | EXISTING RAILROAD                     |           |                                 |



IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, ARTICLE 145, FOR ANY PERSON, UNLESS UNDER THE DIRECTION OF A NEW YORK STATE LICENSED PROFESSIONAL ENGINEER, TO ALTER AN ITEM ON THIS DOCUMENT IN ANY WAY.



| REVISIONS: |            |                           |
|------------|------------|---------------------------|
| NO.        | DATE       | DESCRIPTION               |
| 0          | 03/08/2023 | ISSUED FOR 94-C PERMIT    |
| 1          | 08/11/2023 | RE-ISSUED FOR 94-C PERMIT |

PROJECT TITLE:  
**SOMERSET SOLAR PROJECT**

PROJECT LOCATION:  
**LAKE ROAD  
SOMERSET, NY**

SHEET TITLE & DESCRIPTION:  
**ENLARGED ELECTRICAL  
PLAN - AREA 2**

**ISSUED FOR 94-C PERMIT ONLY  
NOT FOR CONSTRUCTION**

|                     |            |
|---------------------|------------|
| PROJ NUM:           | SU20.0012  |
| DES:                | CB         |
| DWN:                | CB         |
| CHK:                | KL         |
| APV:                | KL         |
| DATE:               | 08/05/2022 |
| SCALE AT 22" x 34": |            |

**AS SHOWN**

|           |            |      |   |
|-----------|------------|------|---|
| SHEET NO: | PV-E.01.03 | REV: | 1 |
|-----------|------------|------|---|

PLOTTED: 8/10/2023 1:45 PM FILE: PV-E.01.GENERAL SITE COVERED.DWG

**1**  
**ENLARGED ELECTRICAL PLAN - AREA 2**  
0 200' 400'  
SCALE: 1" = 200'