

INTERCONNECTION APPLICATION SET



PHOTOVOLTAIC SYSTEM DESCRIPTION:

INSTALLATION TYPE: GROUND
RACK SYSTEM: 25° TILT
INTERCONNECTION UTILITY: CENTRAL HUDSON
AC SYSTEM SIZE: 7.43 MW
DC SYSTEM SIZE: 9.02 MW
SITE ORIENTATION:
ARRAY AZIMUTH: 180°
PROPOSED EQUIPMENT:
MODULE: (18,600) 485 WATT MODULE
 MANUFACTURER: HANWHA
 MODEL: Q.PEAK DUO XL-G10.3/BFG 485 (485W)
INVERTERS: (33) 225 KW 3-PHASE STRING INVERTERS
 MANUFACTURER: YASKAWA SOLECTRIA
 MODEL: SGI 225-480

PRIMARY 15 KV CONDUCTOR :
OVERHEAD: 4/0 COPPER
UNDERGROUND : COPPER-3 # 350 TYPE MV-105 15KV EPR INSULATED SHIELDED, 1#3/0 G IN 4"RGS

DISTANCE:
 DISTANCE BETWEEN CUSTOMER OWNED STEP UP TRANSFORMER AND NEAREST INTERCONNECTION POINT IS APPROXIMATELY 1 MILE.

UTILITY INTERCONNECTION POINT LOCATION DETAILS:
 FEEDER NOMINAL VOLTAGE: 13.2 KV

APPLICABLE PROJECT CODES :

2017 NATIONAL ELECTRICAL CODE (NFPA-70)
 2020 BUILDING CODE OF NEW YORK STATE
 2020 MECHANICAL CODE OF NEW YORK STATE
 2020 FIRE CODE OF NEW YORK STATE
 ASHRAE / IESNA STANDARD90.1-2007
 UL 1741 - PHOTOVOLTAIC INVERTERS
 UL 1703 - PHOTOVOLTAIC MODULES

IN ADDITION TO CODES LISTED ABOVE, THE ENTIRE INSTALLATION SHALL MEET THE REQUIREMENT OF THE LOCAL LAW / CODES AND AUTHORITY HAVING JURISDICTION.

PROJECT DRAWING LIST :

| SHEET | TITLE |
|--------|------------------------------------|
| PV-0.1 | COVER SHEET |
| PV-1.0 | SITE PLAN |
| PV-2.0 | THREE LINE DIAGRAM |
| PV-3.0 | ELECTRICAL SPECIFICATION SHEET |
| PV-4.0 | PV CELL MOUNTING & SECTION DETAILS |

ELECTRICAL SYMBOL LIST

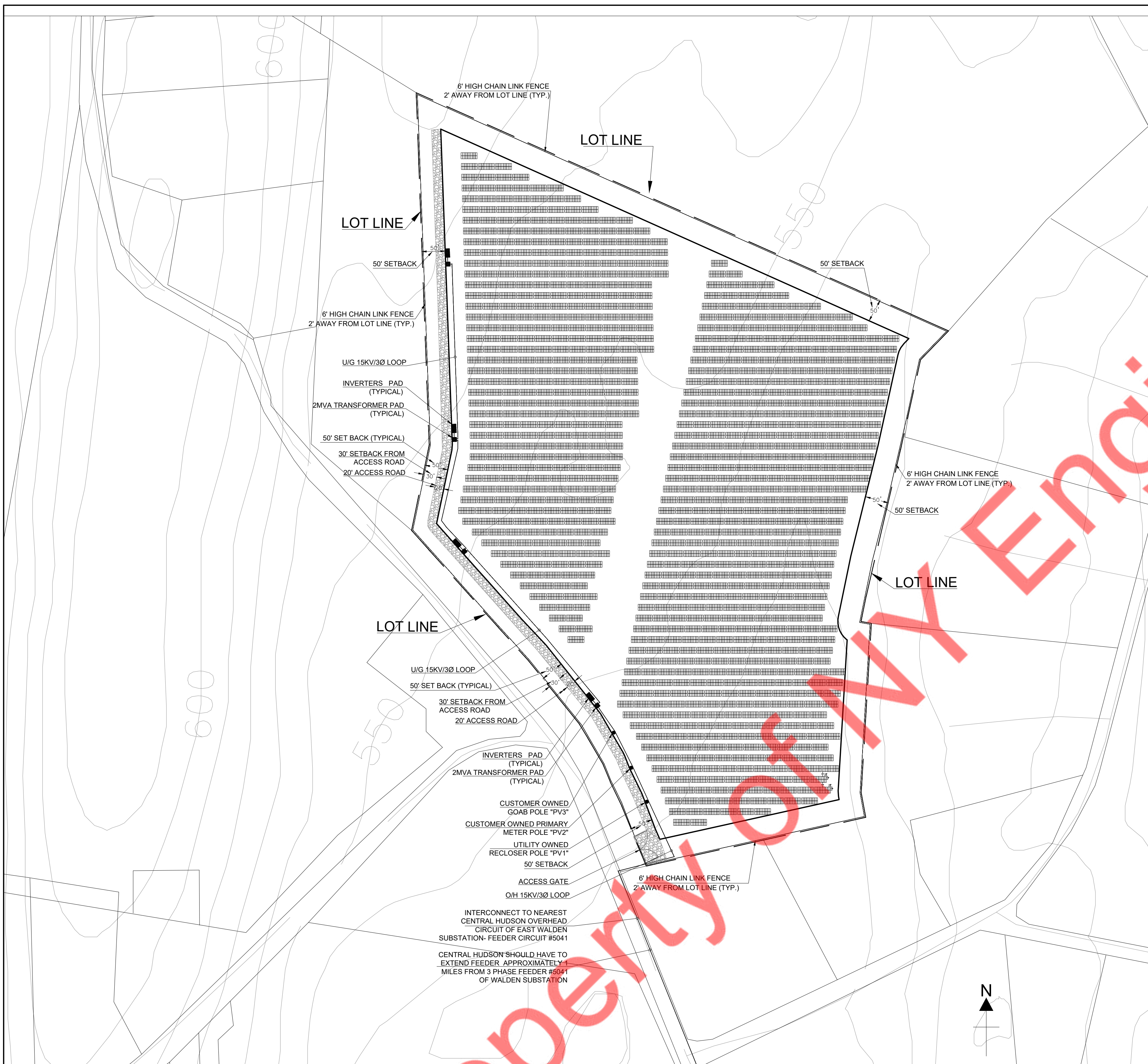
| | |
|--|---|
| | TRANSFORMER, RATING AS INDICATED |
| | CIRCUIT BREAKER, RATING AS INDICATED |
| | INVERTER, RATING AS INDICATED |
| | DISCONNECT SWITCH, RATING AS INDICATED |
| | ENERGY METER |
| | CURRENT TRANSFORMER |
| | MAJOR ELECTRICAL COMPONENT OR DEVICE. RATING AS INDICATED |
| | KEYED NOTE REFERENCE |
| | UNDERGROUND WIRING SYSTEM |
| | OVERHEAD WIRING SYSTEM |
| | FUSE, SIZE AS INDICATED |

ELECTRICAL ABBREVIATION:

| | | | | | | | |
|------|----------------------------|-------|----------------------------|-------|---|--------|--------------------------|
| A | AMPERES | °F | DEGREE FAHRENHEIT | PNL | PANEL | PVC | POLYVINYL CHLORIDE |
| AF | AMPERE FRAME/AMP FUSE | DISC | DISCONNECT | W | WATT | RGS | RIGID GALVANIZED STEEL |
| AS | AMP SWITCH | DP | DISTRIBUTION PANEL | W | WIRE | SPDT | SINGLE POLE DOUBLE THROW |
| AIC | AMPS INTERRUPTING CAPACITY | KCMIL | ONE THOUSAND CIRCULAR MILS | E | EXISTING | SPST | SINGLE POLE SINGLE THROW |
| AT | AMP TRIP | KV | KILOVOLT | EC | EMPTY CONDUIT/ ELECTRICAL CONTRACTOR | SPEC | SPECIFICATION |
| ATS | AUTOMATIC TRANSFER SWITCH | KVA | KILOVOLT-AMPERES | EMT | ELECTRICAL METALLIC TUBING | SW | SWITCH |
| AUTO | AUTOMATIC | KW | KILOWATTS | EQUIP | EQUIPMENT | TYP | TYPICAL |
| AWG | AMERICAN WIRE GAUGE | MCB | MAIN CIRCUIT BREAKER | FDR | FEEDER | U.O.N. | UNLESS OTHERWISE NOTED |
| C | CONDUIT | N | NEUTRAL | G | GROUND | V | VOLT/VOLTAGE |
| CB | CIRCUIT BREAKER | NIC | NOT IN CONTRACT | GF1 | GROUND FAULT INTERRUPTER | VA | VOLT AMPERE |
| CKT | CIRCUIT | NTS | NOT TO SCALE | HZ | HERTZ | WP | WEATHERPROOF |
| CT | CURRENT TRANSFORMER | P | POLES | IC | INTERRUPTING CAPACITY | XFMR | TRANSFORMER |
| °C | DEGREE CELSIUS | Ø | PHASE | PP | POWER PANEL | | |

ELECTRICAL NOTES

- CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS THAT MAY AFFECT THE WORK. NO ADDITIONAL COMPENSATION WILL BE CONSIDERED FOR FAILURE TO DO SO.
- CONTRACTOR SHALL PROVIDE A WARRANTY ON ALL MATERIALS, EQUIPMENT, AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.
- ALL ELECTRICAL ACCESSORIES AND EQUIPMENT INSTALLED OUTSIDE OR EXPOSED TO WEATHER SHALL HAVE NEMA 3R ENCLOSURES AND SHALL BE TIGHTLY GASKETED FOR A COMPLETE RAIN-TIGHT INSTALLATION.



2 SITE KYE PLAN
SCALE: NTS

1 ELECTRICAL SITE PLAN
SCALE: 1/128" = 1'-0"

PHOTOVOLTAIC SYSTEM DESCRIPTION:

| | |
|--------------------------|----------------|
| INSTALLATION TYPE: | GROUND |
| RACK SYSTEM: | 25° TILT |
| INTERCONNECTION UTILITY: | CENTRAL HUDSON |
| AC SYSTEM SIZE: | 7.43 MW |
| DC SYSTEM SIZE: | 9.02 MW |
| SITE ORIENTATION: | |
| ARRAY AZIMUTH: | 180° |

PROPOSED EQUIPMENT:

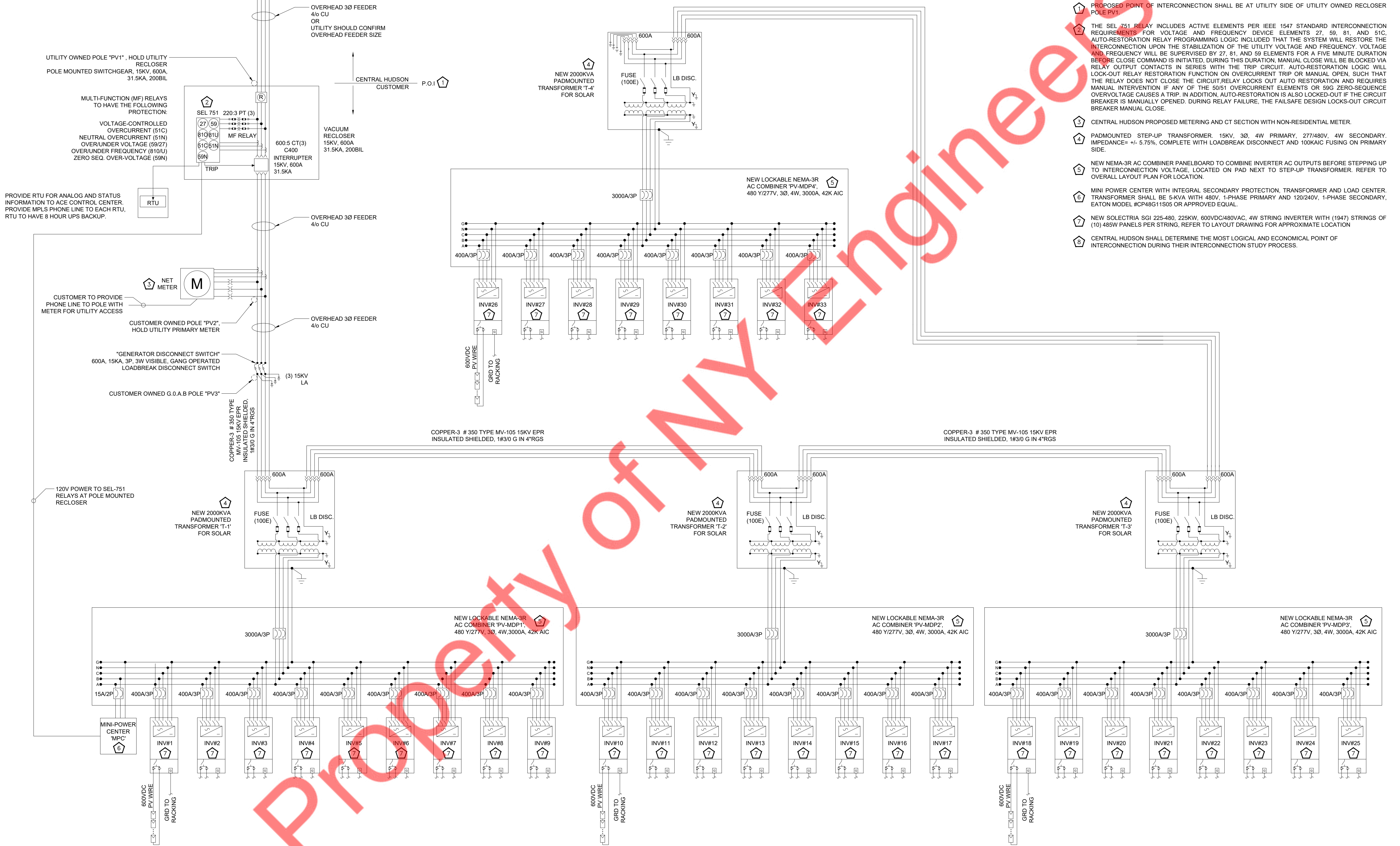
| | |
|------------|---|
| MODULE: | (18,600) 485 WATT MODULE MANUFACTURER: HANWHA MODEL: Q.PEAK DUO XL-G10.3/BFG 485 (485W) |
| INVERTERS: | (33) 225 KW 3-PHASE STRING INVERTERS MANUFACTURER: YASKAWA SOLECTRIA MODEL: SGI 225-480 |

PRIMARY 15 KV CONDUCTOR:
OVERHEAD: 4/c COPPER
UNDERGROUND: COPPER-3 # 350 TYPE MV-105 15KV EPR INSULATED SHIELDED, 1#3/0 G IN 4"RGS

DISTANCE:
DISTANCE BETWEEN CUSTOMER OWNED STEP UP TRANSFORMER AND NEAREST INTERCONNECTION POINT IS APPROXIMATELY 1 MILE.

UTILITY INTERCONNECTION POINT LOCATION DETAILS:
FEEDER NOMINAL VOLTAGE: 13.2 KV

INTERCONNECT TO NEAREST CENTRAL HUDSON
OVERHEAD CIRCUIT OF EAST WALDEN SUBSTATION-
FEEDER CIRCUIT #5041



- ELECTRICAL KEYED NOTES:**
- 1 PROPOSED POINT OF INTERCONNECTION SHALL BE AT UTILITY SIDE OF UTILITY OWNED RECLOSER POLE PV1.
 - 2 THE SEL 751 RELAY INCLUDES ACTIVE ELEMENTS PER IEEE 1547 STANDARD INTERCONNECTION REQUIREMENTS FOR VOLTAGE AND FREQUENCY DEVICE ELEMENTS 27, 59, 81, AND 51C. AUTO-RESTORATION RELAY PROGRAMMING LOGIC INCLUDED THAT THE SYSTEM WILL RESTORE THE INTERCONNECTION UPON THE STABILIZATION OF THE UTILITY VOLTAGE AND FREQUENCY. VOLTAGE AND FREQUENCY WILL BE SUPERVISED BY 27, 81, AND 59 ELEMENTS FOR A FIVE MINUTE DURATION BEFORE CLOSE COMMAND IS INITIATED. DURING THIS DURATION, MANUAL CLOSE WILL BE BLOCKED VIA RELAY OUTPUT CONTACTS IN SERIES WITH THE TRIP CIRCUIT. AUTO-RESTORATION LOGIC WILL LOCK-OUT RELAY RESTORATION FUNCTION ON OVERCURRENT TRIP OR MANUAL OPEN, SUCH THAT THE RELAY DOES NOT CLOSE THE CIRCUIT. RELAY LOCKS OUT AUTO RESTORATION AND REQUIRES MANUAL INTERVENTION IF ANY OF THE 50/51 OVERCURRENT ELEMENTS OR 59/5 ZERO-SEQUENCE OVERVOLTAGE CAUSES A TRIP. IN ADDITION, AUTO-RESTORATION IS ALSO LOCKED-OUT IF THE CIRCUIT BREAKER IS MANUALLY OPENED. DURING RELAY FAILURE, THE FAILSAFE DESIGN LOCKS-OUT CIRCUIT BREAKER MANUAL CLOSE.
 - 3 CENTRAL HUDSON PROPOSED METERING AND CT SECTION WITH NON-RESIDENTIAL METER.
 - 4 PADMOUNTED STEP-UP TRANSFORMER. 15KV, 3Ø, 4W PRIMARY, 277/480V, 4W SECONDARY. IMPEDANCE = +/- 5.75%. COMPLETE WITH LOADBREAK DISCONNECT AND 100KAIC FUSING ON PRIMARY SIDE.
 - 5 NEW NEMA-3R AC COMBINER PANELBOARD TO COMBINE INVERTER AC OUTPUTS BEFORE STEPPING UP TO INTERCONNECTION VOLTAGE. LOCATED ON PAD NEXT TO STEP-UP TRANSFORMER. REFER TO OVERALL LAYOUT PLAN FOR LOCATION.
 - 6 MINI POWER CENTER WITH INTEGRAL SECONDARY PROTECTION, TRANSFORMER AND LOAD CENTER. TRANSFORMER SHALL BE 5-KVA WITH 480V, 1-PHASE PRIMARY AND 120/240V, 1-PHASE SECONDARY, EATON MODEL #CP48G11S05 OR APPROVED EQUAL.
 - 7 NEW SOLECTRIA SGI 225-480, 225KW, 600VDC/480VAC, 4W STRING INVERTER WITH (1947) STRINGS OF (10) 485W PANELS PER STRING. REFER TO LAYOUT DRAWING FOR APPROXIMATE LOCATION
 - 8 CENTRAL HUDSON SHALL DETERMINE THE MOST LOGICAL AND ECONOMICAL POINT OF INTERCONNECTION DURING THEIR INTERCONNECTION STUDY PROCESS.

1 THREE LINE DIAGRAM
SCALE: NTS

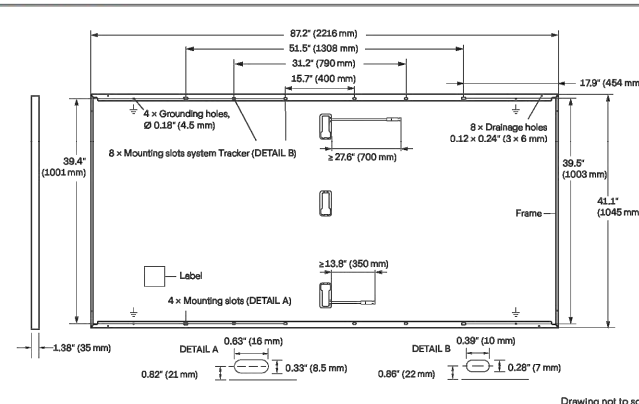
| SPECIFICATIONS | S6I 225 | S6I 250 | S6I 266 | S6I 300 | S6I 500 | S6I 500PE | |
|---|---|-----------------------|----------|---------|-------------------------|-----------------------|-----------------------|
| DC Input | | | | | | | |
| Absolute Maximum Input Voltage | 600 VDC | | | | | | |
| Max Power Input Voltage Range (MPPT)* | 300-500 VDC | | | | | | |
| Maximum Operating Input Current | 768 A | 853 A | 908 A | 1026 A | 1721 A | 1712 A | |
| Maximum PV Power | 331.5 kW | 325 kW | 345.8 kW | 390 kW | 650 kW | | |
| Strike Voltage | 390 V | | | | | | |
| AC Output | | | | | | | |
| Nominal Output Voltage | 480 VAC, 3ø/PE | | | | | | |
| AC Voltage Range | -12%/+10% | | | | | | |
| Continuous Output Power | 225 kW | 250 kW | 266 kW | 300 kW | 500 kW | | |
| Continuous Output Current | 480 VAC 271 A | 301 A | 320 A | 360 A | 602 A | | |
| Maximum Backfeed Current | 0 A | | | | | | |
| Nominal Output Frequency | 60 Hz | | | | | | |
| Output Frequency Range | 57-60.5 Hz | | | | | | |
| Power Factor | Adjustable 0.9 leading / 0.9 lagging, factory set at 1 | | | | | | |
| Fault Current Contribution (1 Cycle RMS) | 325.2 A | 361.2 A | 384 A | 432 A | 722 A | | |
| Total Harmonic Distortion (THD) @ Rated Load | ≤3% | | | | | | |
| Performance | | | | | | | |
| Peak Efficiency | 98.0% | | | | | | |
| CEC Efficiency (480 VAC) | 97.5% | | | | | | |
| Tare Loss | 28 W | | | | | | |
| Ambient Temperature Range (full power) | -40°F to +122°F (-40°C to +50°C) | | | | | | |
| Storage Temperature Range | -40°F to +158°F (-40°C to +70°C) | | | | | | |
| Relative Humidity (non-condensing) | 3-95% | | | | | | |
| Audible Noise | ≤60 dBA @ 5 m | | | | | | |
| Safety Listings & Certifications | UL 1741/IEEE 1547, CSA C22.2#107.1, FCC part 15 B | | | | | | |
| Maintenance Outage Factor | 0.1 | | | | | | |
| Testing Agency | ETL | | | | | | |
| Mechanical | | | | | | | |
| Transformer | Standard, fully-integrated | | | | | | |
| AC Breaker/DC Disconnect | Fully-integrated | | | | | | |
| Dimensions (H x W x D) | 79 in. x 109 in. x 41 in. (2007 mm x 2769 mm x 1042 mm) | | | | | | |
| Shading Set Back | 137 in. (3480 mm) at 30° solar elevation | | | | | | |
| Weight | 5170 lbs (2346 kg) | 5650 lbs (2563 kg) | | | | 6980 lbs (3167 kg) | 7107 lbs (3224 kg) |
| Enclosure Rating | Type 3R | | | | | | |
| Enclosure Finish | Polyester powder coated steel; optional 316 stainless steel | | | | | | |
| Subinverter Options | | | | | | | |
| Fuses or Breakers | 6 positions, 225-400 A | | | | 8 positions, 225-400 A | | |
| Fuses Only | 12 positions, 110-200 A | | | | 16 positions, 110-200 A | | |
| Fuses Only | 24 positions, 70-100 A | | | | 32 positions, 70-100 A | | |
| Communication | | | | | | | |
| Data Logger Hardware | Standard, integrated | | | | | | |
| SolnView™ Monitoring Service | Optional | | | | | | |
| Optional Revenue Grade Monitoring (Integrated) | Optional | | | | | | |
| Optional SolZone™ Sub-Array Monitoring (DC Current) | 400 A | | | | | | |
| Optional Cellular Communication | 6 zones | | | | | | |
| Communication Interface | SolnView AIR | | | | | | |
| | RS-485 SunSpec Modbus RTU | | | | | | |
| Warranty | | | | | | | |
| Standard | 5 year | | | | | | |
| Optional | 10, 15, 20 year; extended service agreement; uptime guarantee | | | | | | |

YASKAWA
SOLECTRIA SOLAR

www.solectria.com | inverters@solectria.com | 978.683.9700


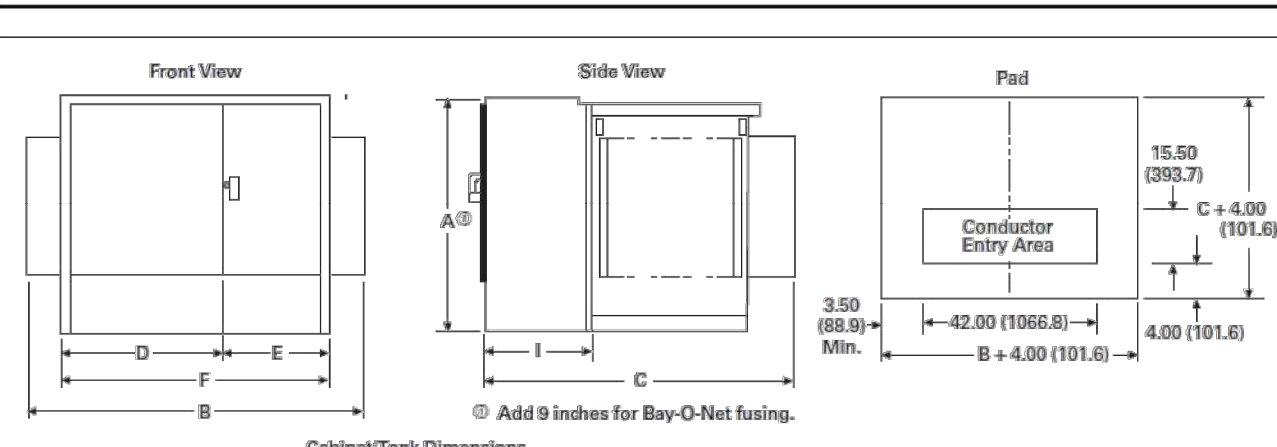


| MECHANICAL SPECIFICATION | |
|--------------------------|---|
| Format | 87.2 in x 41.1 in x 1.38 in (Including frame) (2216 mm x 1045 mm x 35 mm) |
| Weight | 64.2 lbs (29.1 kg) |
| Front Cover | 0.06 in (2.0 mm) thermally pre-stressed glass with anti-reflection technology |
| Back Cover | 0.06 in (2.0 mm) semi-tempered glass |
| Frame | Anodized aluminum |
| Cell | 6 x 26 monocrystalline Q.ANTUM solar half cells |
| Junction Box | 2.09-3.98 in x 1.26-2.36 in x 0.59-0.71 in (53-101 mm x 32-60 mm x 15-18 mm), IP67, with bypass diodes |
| Cable | 4mm² Solar cable, (H) ≥27.6 in (700 mm), (-) ±13.8 in (350 mm) |
| Connector | Stübel MC4-Evo2, Hanwha Q CELLS HGC4, IP68 |



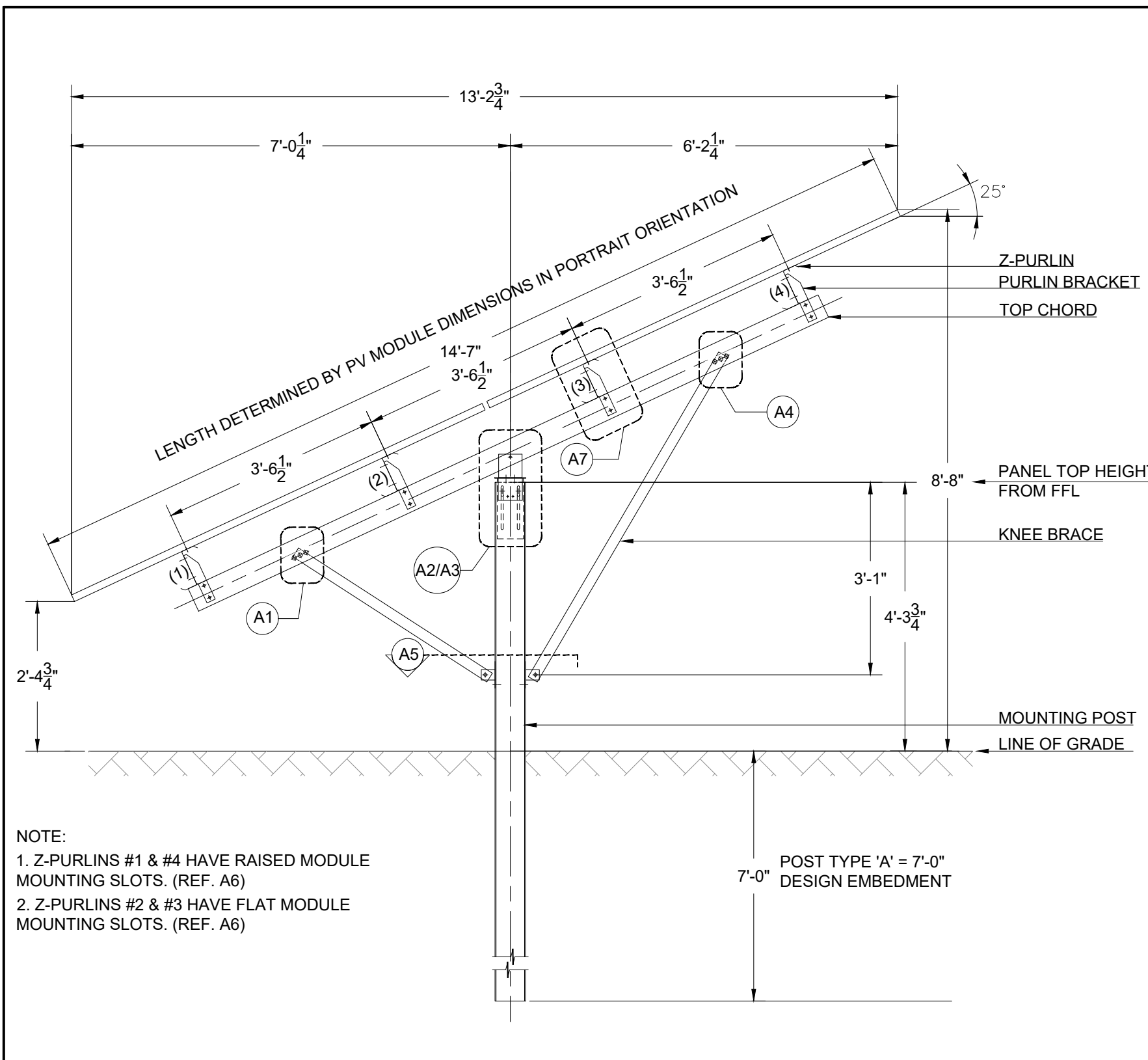
| ELECTRICAL CHARACTERISTICS | | | | | | | | | |
|---|------------------------------|--|--|-----------|----------------------|-------|-------|-------|-------|
| POWER CLASS | 470 | 475 | 480 | 485 | 530 | | | | |
| MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC* AND BSTC* (POWER TOLERANCE +5W / -0W) | | | | | | | | | |
| | BSTC* | | | | | | | | |
| Power at MPPT | P _{max} [W] | 470 | 514.1 | 475 | 519.6 | 480 | 525.0 | 485 | 530.5 |
| Short Circuit Current | I _{sc} [A] | 11.04 | 12.08 | 11.08 | 12.12 | 11.12 | 12.17 | 11.16 | 12.21 |
| Open Circuit Voltage | V _{oc} [V] | 52.91 | 53.10 | 53.15 | 53.34 | 53.39 | 53.58 | 53.63 | 53.82 |
| Current at MPPT | I _{mp} [A] | 10.51 | 11.50 | 10.55 | 11.54 | 10.59 | 11.58 | 10.63 | 11.63 |
| Voltage at MPPT | V _{mp} [V] | 44.73 | 44.72 | 45.03 | 45.02 | 45.33 | 45.32 | 45.63 | 45.62 |
| Efficiency [†] | η [%] | ≥20.3 | ≥22.2 | ≥20.5 | ≥22.4 | ≥20.7 | ≥22.7 | ≥20.9 | ≥22.9 |
| Efficiency of P _{max} and I _{sc} : 70% ±5% - Bifaciality given for rear side irradiation on top of STC (front side) - According to IEC 60904-1-2 | | | | | | | | | |
| *Measurement tolerances P _{max} ±3%, I _{sc} , V _{oc} ±5% at STC: 1000 W/m², φ = 135° W/m², φ = 70° ±5%, 25 ±2°C, AM 1.5 according to IEC 60904-3 | | | | | | | | | |
| MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT [‡] | | | | | | | | | |
| | NMOT | | | | | | | | |
| Power at MPPT | P _{max} [W] | 353.8 | 357.6 | 361.4 | 365.1 | | | | |
| Short Circuit Current | I _{sc} [A] | 8.89 | 8.92 | 8.98 | 8.99 | | | | |
| Open Circuit Voltage | V _{oc} [V] | 50.04 | 50.27 | 50.49 | 50.72 | | | | |
| Current at MPPT | I _{mp} [A] | 8.27 | 8.30 | 8.34 | 8.37 | | | | |
| Voltage at MPPT | V _{mp} [V] | 42.77 | 43.06 | 43.35 | 43.63 | | | | |
| †800 W/m², NMOT, spectrum AM 1.5 | | | | | | | | | |
| Q CELLS PERFORMANCE WARRANTY | | | | | | | | | |
| At least 98% of nominal power during first year. Thereafter max 0.45% degradation per year. At least 93.95% of nominal power up to 10 years. At least 84.95% of nominal power up to 30 years. | | | | | | | | | |
| All data with measurement tolerances. Full warranties in accordance with the warranty terms of the Q CELLS sales organization of your respective country. | | | | | | | | | |
| PERFORMANCE AT LOW IRRADIANCE | | | | | | | | | |
| Typical module performance under low irradiance conditions in comparison to STC conditions (25°C, 1000 W/m²) | | | | | | | | | |
| TEMPERATURE COEFFICIENTS | | | | | | | | | |
| Temperature Coefficient of I _{sc} | α [%/K] | +0.04 | Temperature Coefficient of V _{oc} | β [%/K] | -0.27 | | | | |
| Temperature Coefficient of P _{mp} | γ [%/K] | -0.34 | Nominal Module Operating Temperature | NMOT [°F] | 108 ± 5.4 (42 ± 3°C) | | | | |
| PROPERTIES FOR SYSTEM DESIGN | | | | | | | | | |
| Maximum System Voltage V _{max} [V] | 1500 | PV module classification | Class II | | | | | | |
| Maximum Series Fuse Rating [A DC] | 20 | Fuse Rating based on ANSI/UL 61730 | TYPE 29 [†] | | | | | | |
| Max. Design Load, Push/Pull [‡] [lbs/ft] | 75 (3600 Pa) / 33 (1600 Pa) | Permitted Module Temperature on Continuous Duty | -40°F up to +185°F (-40°C up to +85°C) | | | | | | |
| Max. Test Load, Push/Pull [‡] [lbs/ft] | 113 (5400 Pa) / 50 (2400 Pa) | *New Type is similar to Type 3 but with metallic frame | | | | | | | |
| QUALIFICATIONS AND CERTIFICATES | | | | | | | | | |
| UL 6170, CE-compliant, IEC 61215-2016, IEC 61730-2016, U.S. Patent No. 9,693,215 (solar cells), Certification in process. | | | | | | | | | |
| | | | | | | | | | |
| Hanwha Q CELLS America Inc. 400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA TEL +1 949 748 59 90 EMAIL inquiry.us@q-cells.com WEB www.q-cells.com | | | | | | | | | |

2 485W PV MODULE SPECIFICATION
SCALE: NTS

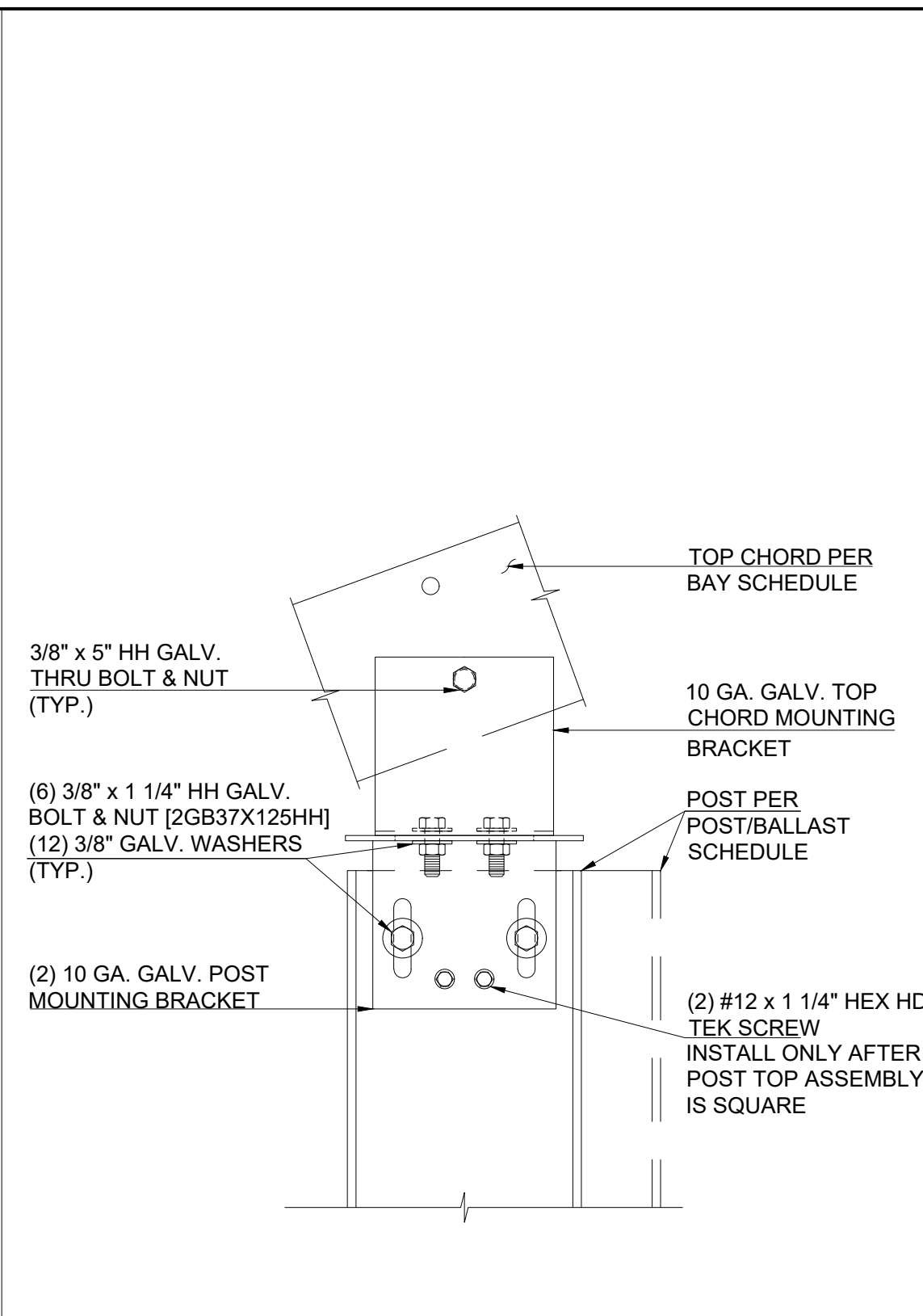
| Three-Phase Pad-Mounted Transformers | | | | | | | | | | |
|---|----|-----|----|----|----|----|----|---------|--------------------|---------------------|
|  | | | | | | | | | | |
| Layout Dimensions  | | | | | | | | | | |
| Figure 17.0-12. Pad-Mounted Transformer—Dimensions in Inches (mm) | | | | | | | | | | |
| Table 17.0-13. Dimensions with DOE Efficiency at 65 Degree AWR | | | | | | | | | | |
| kVA | A | B | C | D | E | F | I | Gallons | Approximate Weight | DOE 2016 Efficiency |
| 45 | 50 | 68 | 39 | 42 | 26 | 68 | 20 | 2150 | 2150 | 98.92% |
| 75 | 50 | 68 | 39 | 42 | 26 | 68 | 20 | 2300 | 2300 | 98.93% |
| 112.5 | 50 | 68 | 39 | 42 | 26 | 68 | 20 | 2600 | 2600 | 98.91% |
| 150 | 50 | 72 | 53 | 42 | 30 | 72 | 20 | 2900 | 2900 | 98.96% |
| 225 | 50 | 72 | 53 | 42 | 30 | 72 | 20 | 3400 | 3400 | 98.93% |
| 300 | 50 | 72 | 55 | 42 | 30 | 72 | 20 | 3900 | 3900 | 98.97% |
| 500 | 50 | 72 | 61 | 42 | 30 | 72 | 20 | 5300 | 5300 | 98.95% |
| 750 | 64 | 72 | 63 | 42 | 30 | 72 | 20 | 7150 | 7150 | 98.40% |
| 1000 | 64 | 72 | 64 | 42 | 30 | 72 | 20 | 8550 | 8550 | 98.42% |
| 1500 | 73 | 89 | 71 | 42 | 30 | 72 | 24 | 11,450 | 11,450 | 99.48% |
| 2000 | 73 | 101 | 75 | 42 | 30 | 72 | 24 | 13,800 | 13,800 | 99.51% |
| 2500 | 73 | 101 | 99 | 42 | 30 | 72 | 24 | 16,750 | 16,750 | 99.53% |

3 PAD MOUNTED TRANSFORMER SPECIFICATION
SCALE: NTS

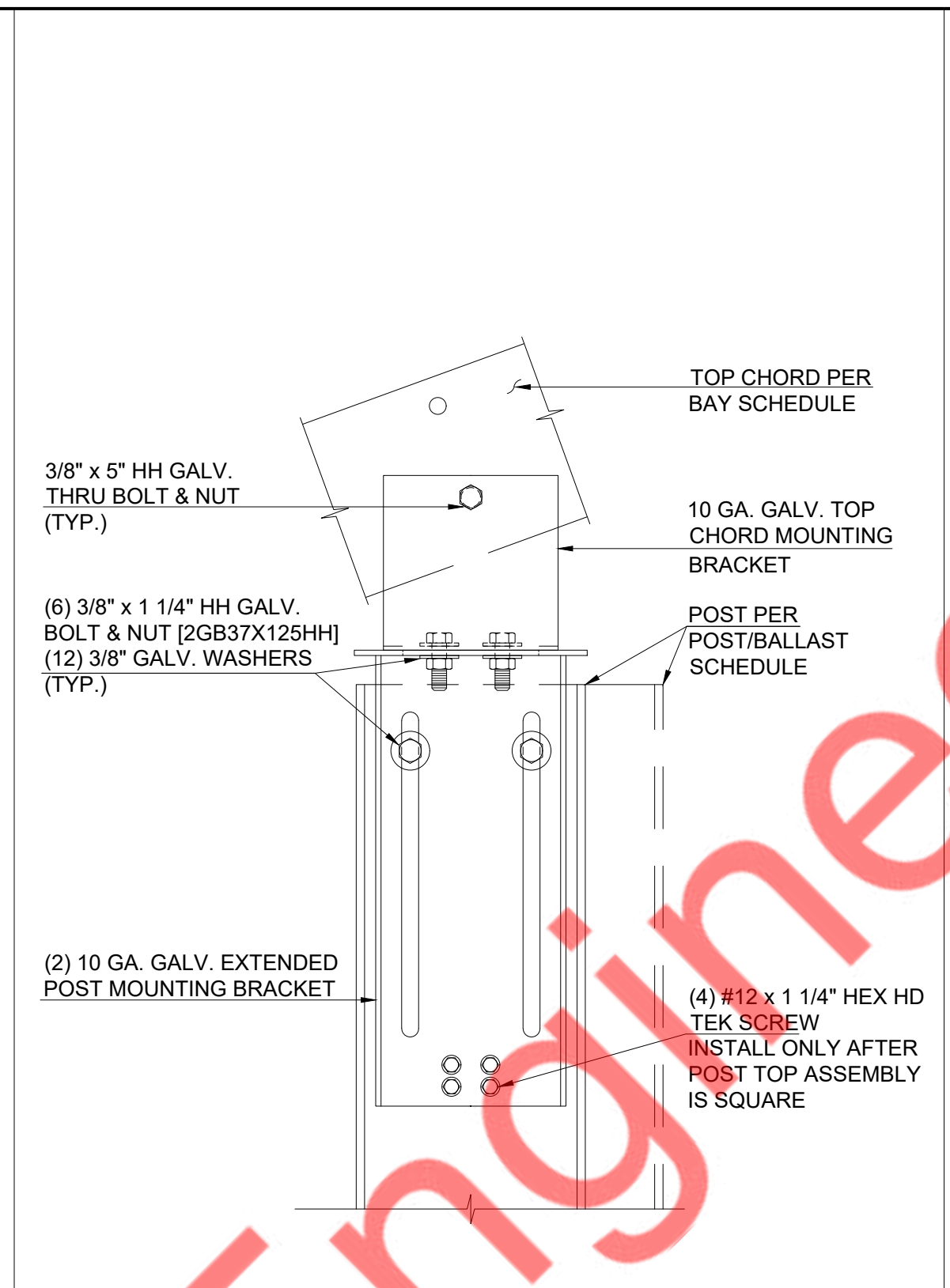
Property of **Engineers**



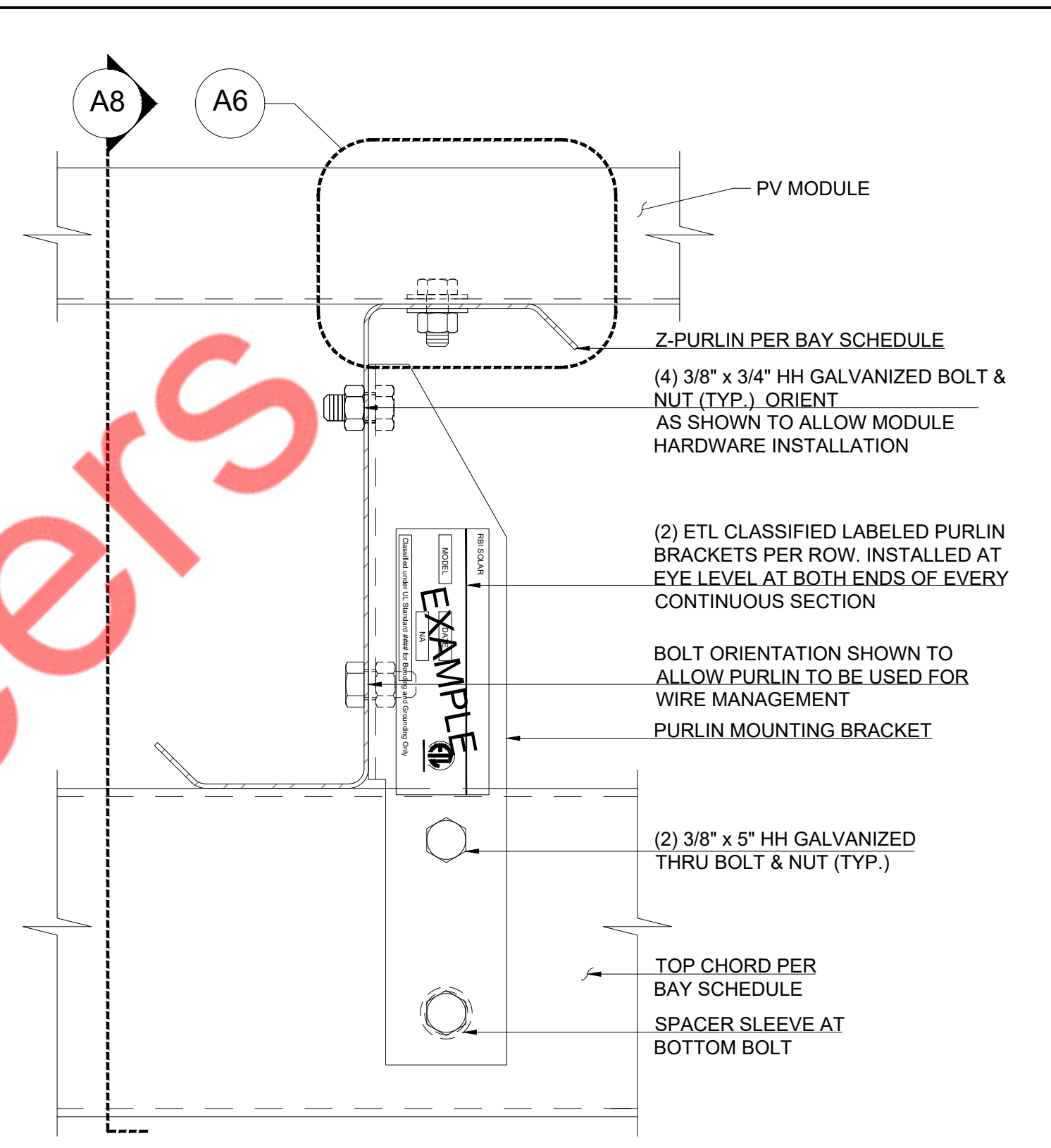
1 DESIGN RACK SECTION
SCALE: 1/2" = 1'-0"



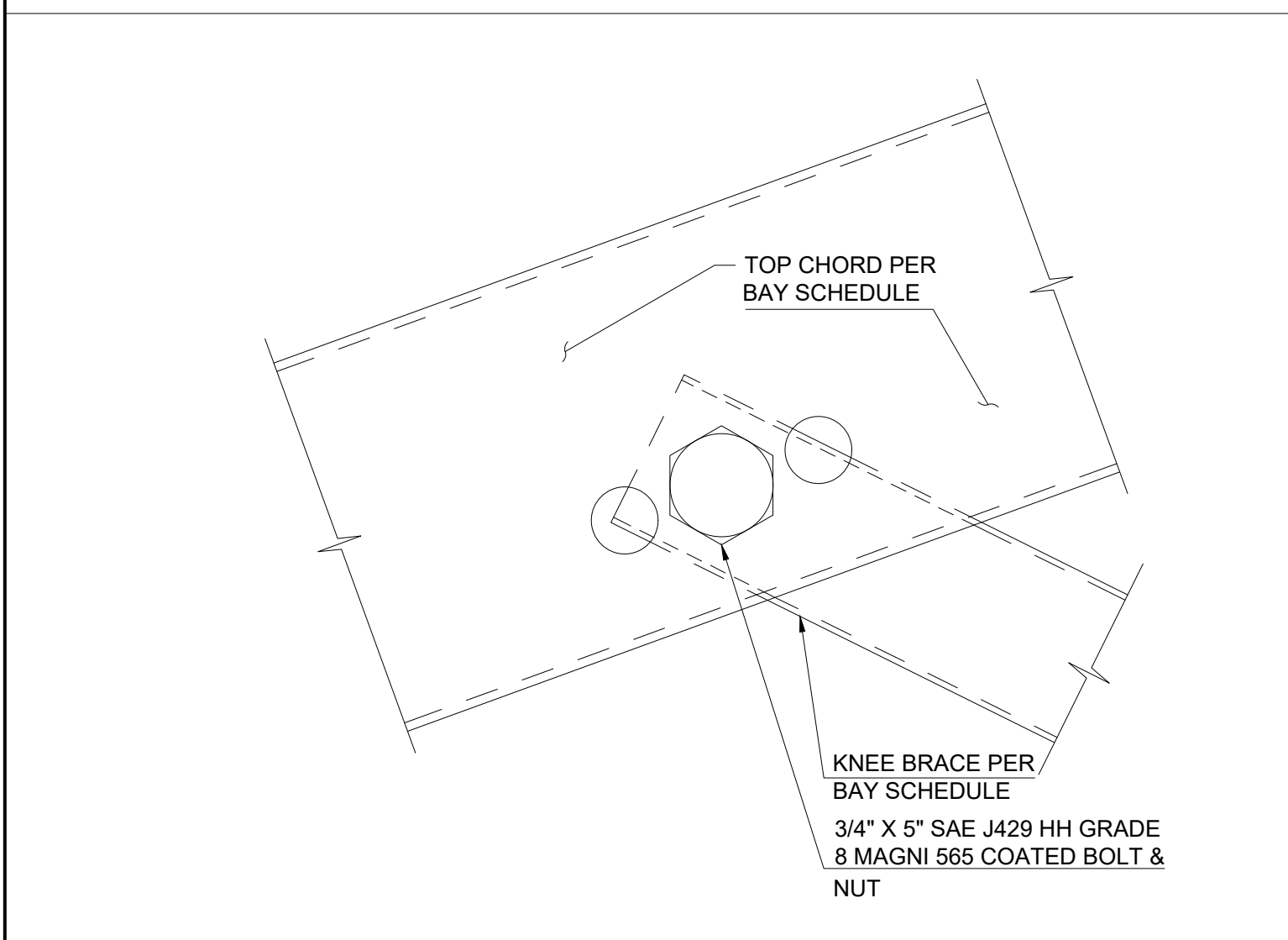
A2 TOP CHORD TO POST CONN. DETAIL
SCALE: NTS



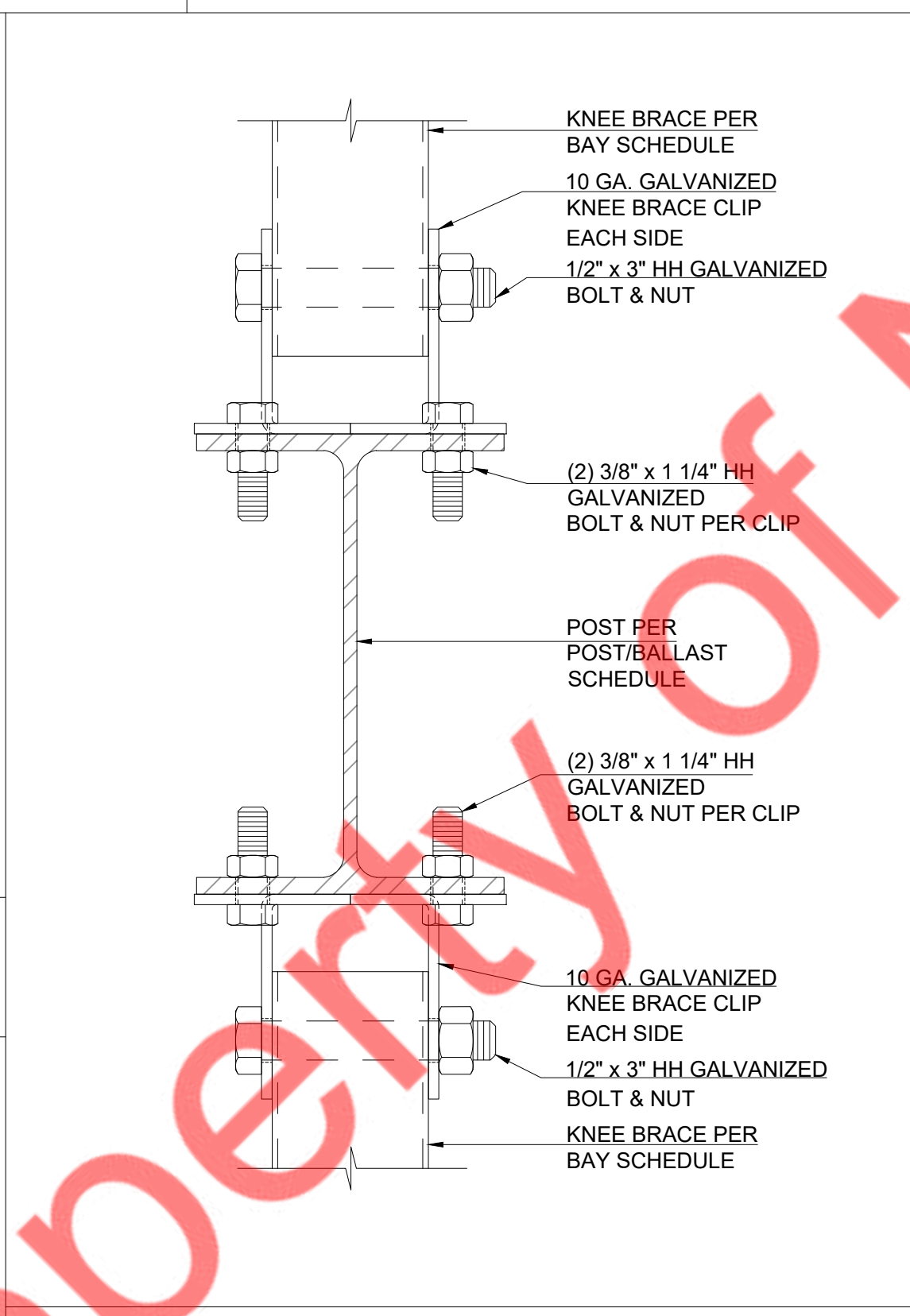
A3 TOP CHORD CONN. DETAIL (EXTENDED)
SCALE: NTS



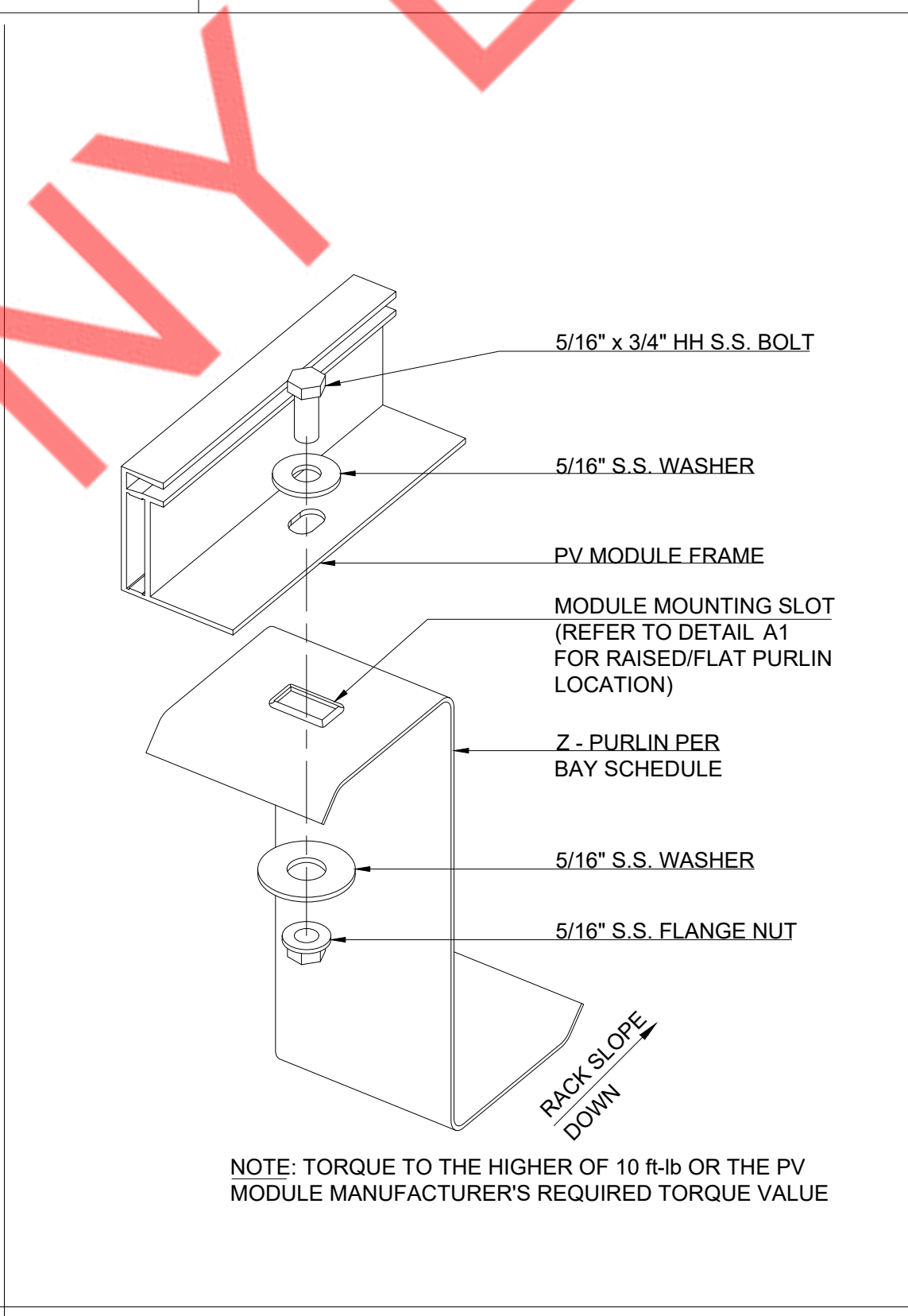
A7 TRANSVERSE PURLIN CONN. DETAIL
SCALE: NTS



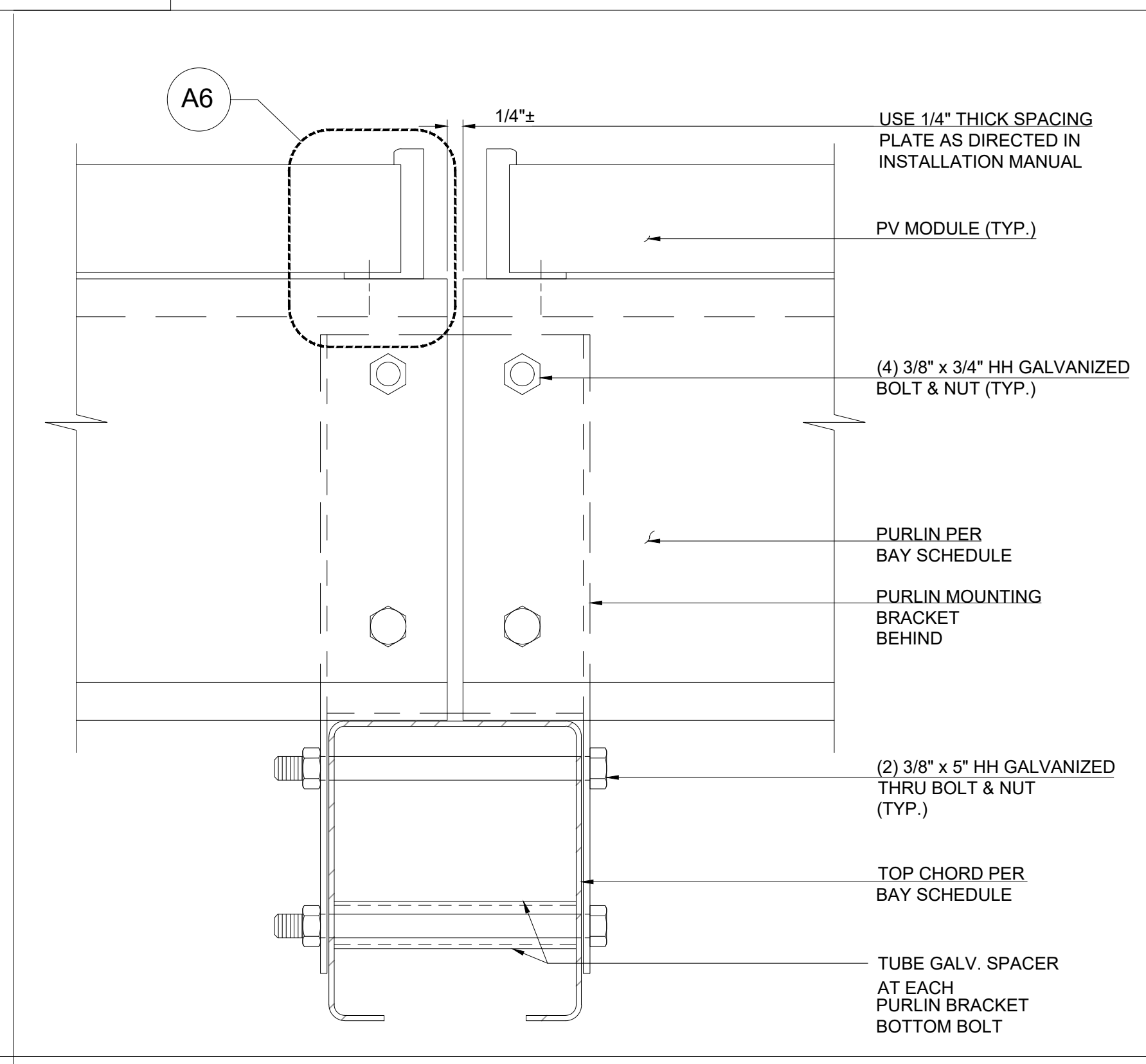
A1 LOWER KNEE BRACE TO TOP CHORD CONN. DETAIL
SCALE: NTS



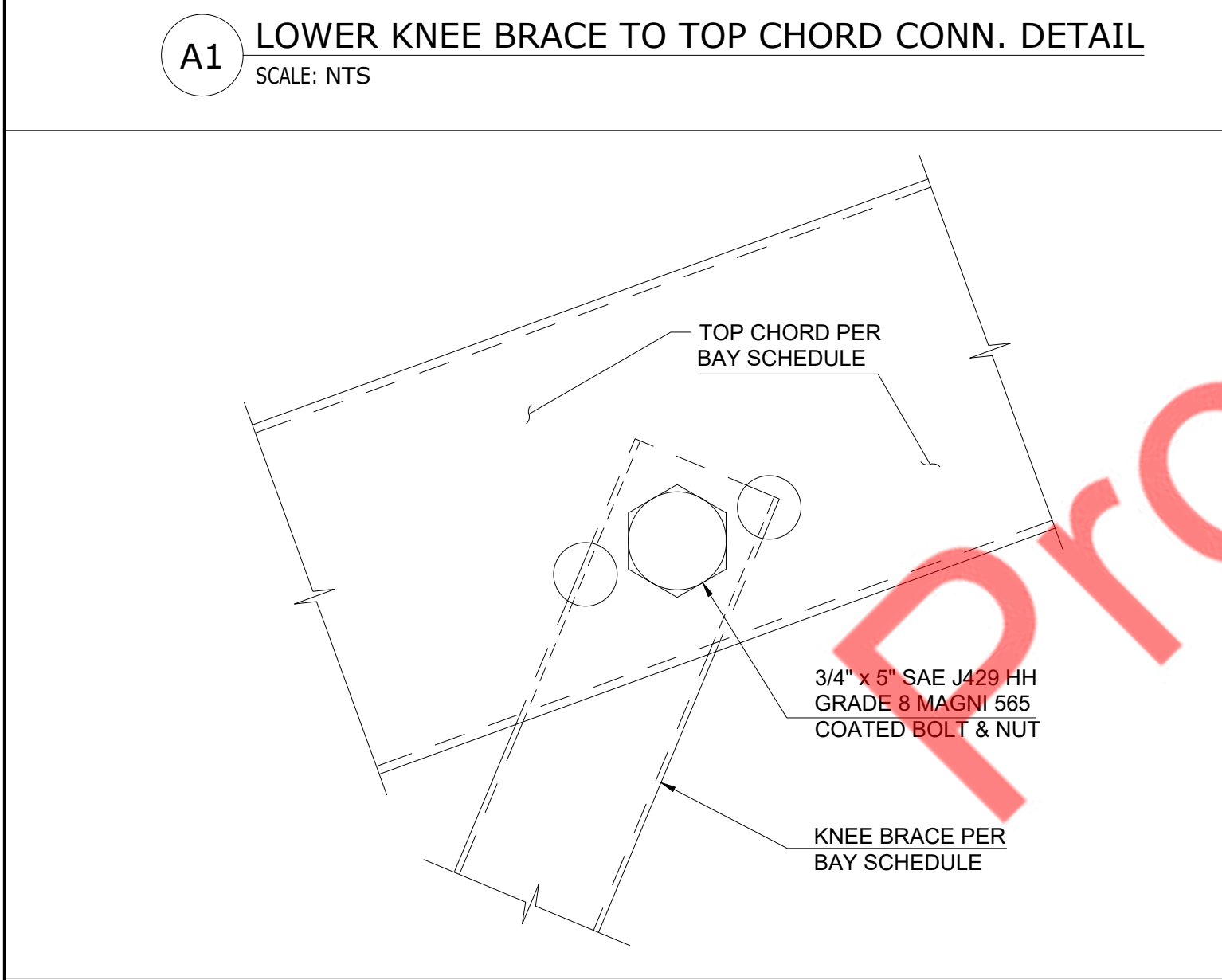
A5 KNEE BRACE TO POST CONN. DETAIL
SCALE: NTS



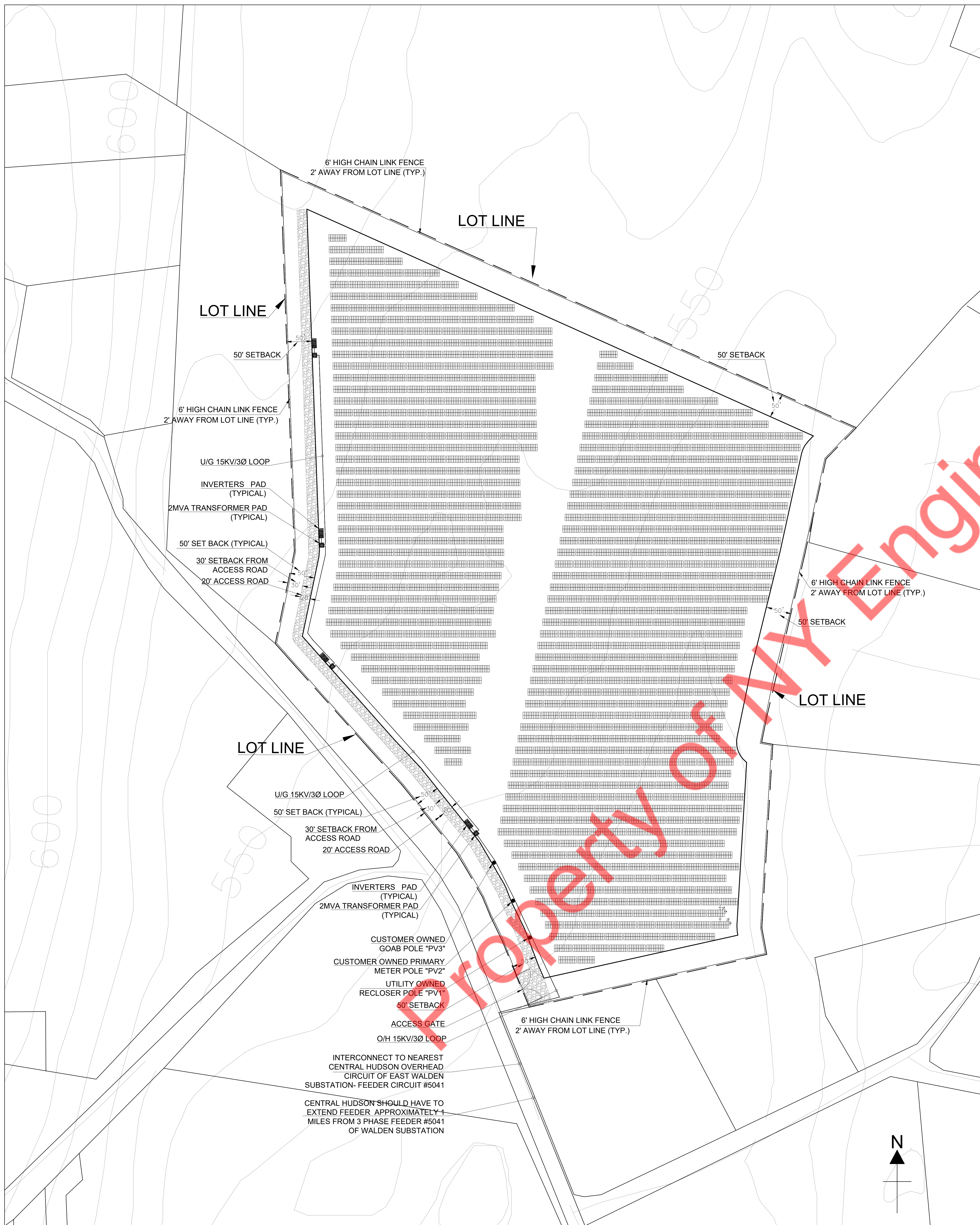
A6 PV MODULE TO PURLIN CONN. DETAIL
SCALE: NTS



A8 LONGITUDINAL PURLIN CONN. DETAIL
SCALE: NTS



A4 UPPER KNEE BRACE TO TOP CHORD CONN. DETAIL
SCALE: NTS



1 SITE PLAN
SCALE: 1" = 80'-0"

BULK REQUIREMENTS:

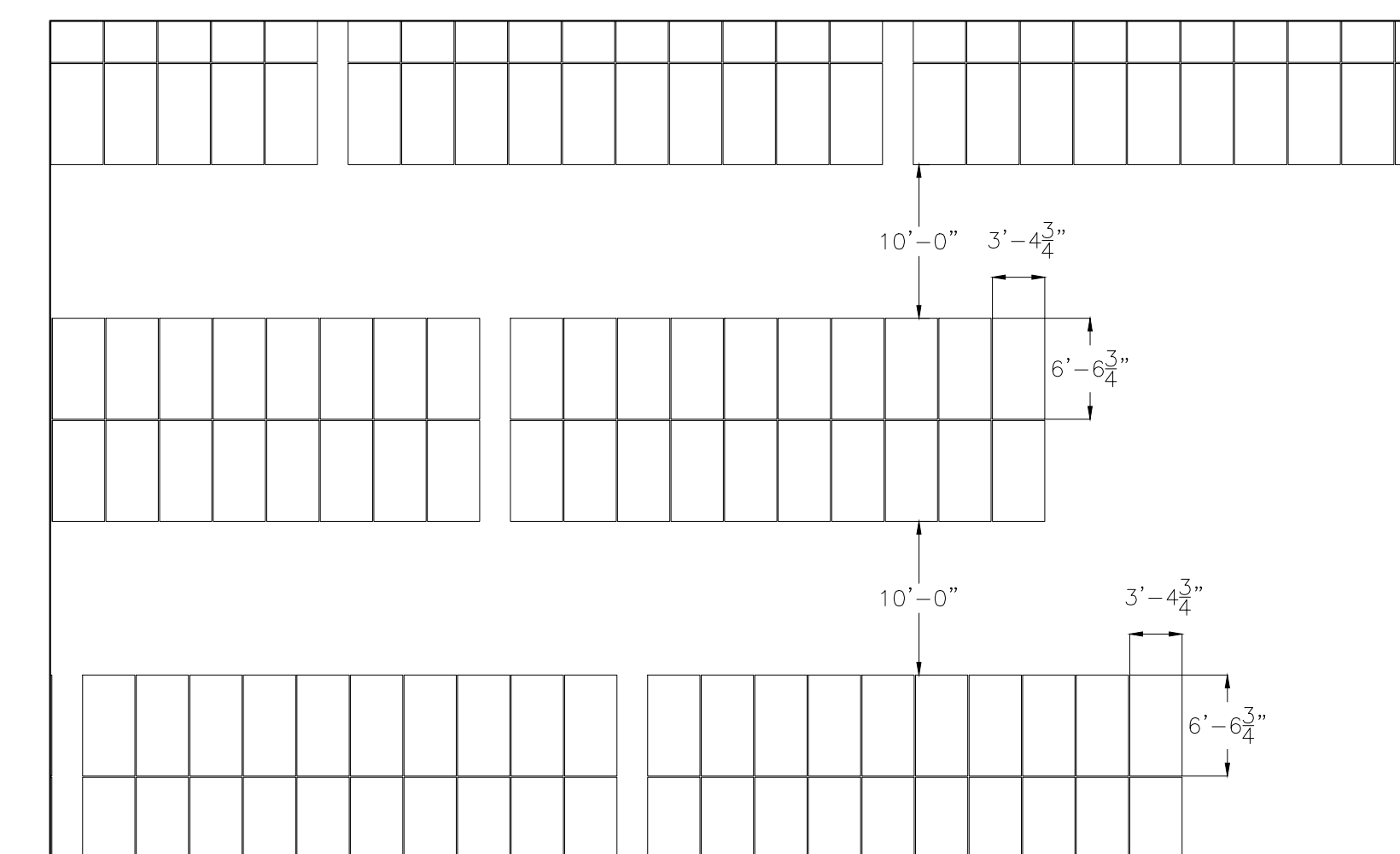
§110-80- SOLAR POWER GENERATION SYSTEM AND FACILITIES .

| MINIMUM BUILDING REQUIREMENTS | REQUIRED | PROPOSED |
|-------------------------------|------------|---------------------|
| SETBACK: | 50 FEET | 50 FEET |
| LOT SIZE: | 1 ACRES | 27.8 ACRES |
| MAXIMUM ALLOWABLE | | |
| LOT COVERAGE: | 13.9 ACRES | 9.53 ACRES (Note-1) |

NOTE-1

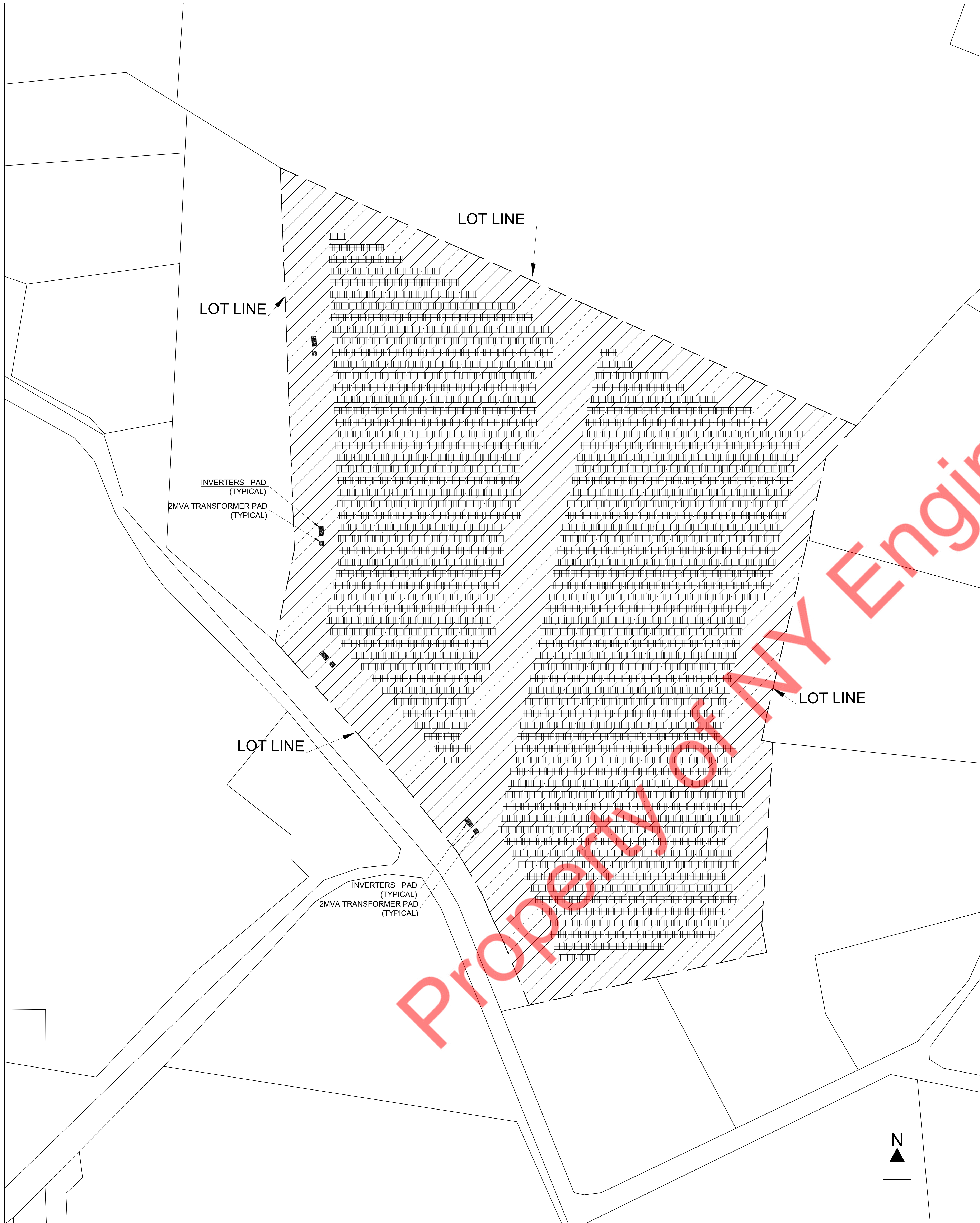
ONE SOLAR PANEL AREA = 22.33 SQ. FEET TOTAL #18,600 SOLAR PANEL COVERAGE AREA=415338 SQ.FEET = 9.53 ACRES

LOT TOTAL AREA= 27.80 ACRES
TOTAL SOLAR PANEL COVERAGE AREA= 9.53 ACRES = 34.28% LOT COVER BY SOLAR PANELS.



3 ENLARGE VIEW OF PV CELL INSTALLTION
SCALE: 3/32" = 1'-0"

Property of NY Engineers



BULK REQUIREMENTS:

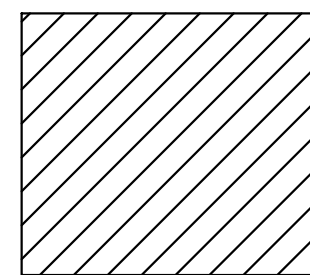
§110-80- SOLAR POWER GENERATION SYSTEM AND FACILITIES .

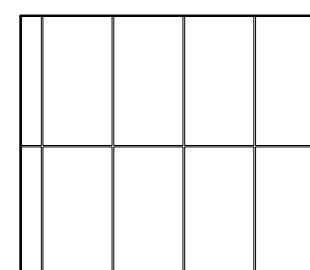
| MINIMUM BUILDING REQUIREMENTS | REQUIRED | PROPOSED |
|-------------------------------|------------|------------------------|
| SETBACK: | 50 FEET | 50 FEET |
| LOT SIZE: | 1 ACRES | 27.8 ACRES |
| MAXIMUM ALLOWABLE | | |
| LOT COVERAGE: | 13.9 ACRES | 9.53 ACRES (Note-1) |

NOTE-1

ONE SOLAR PANEL AREA = 22.33 SQ. FEET TOTAL #18,600 SOLAR PANEL COVERAGE AREA=415338 SQ.FEET = 9.53 ACRES

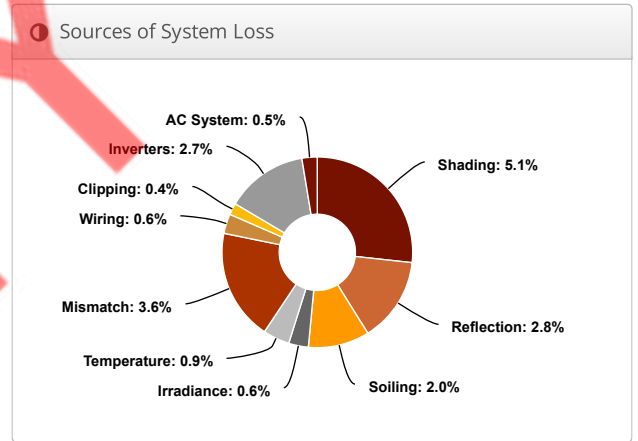
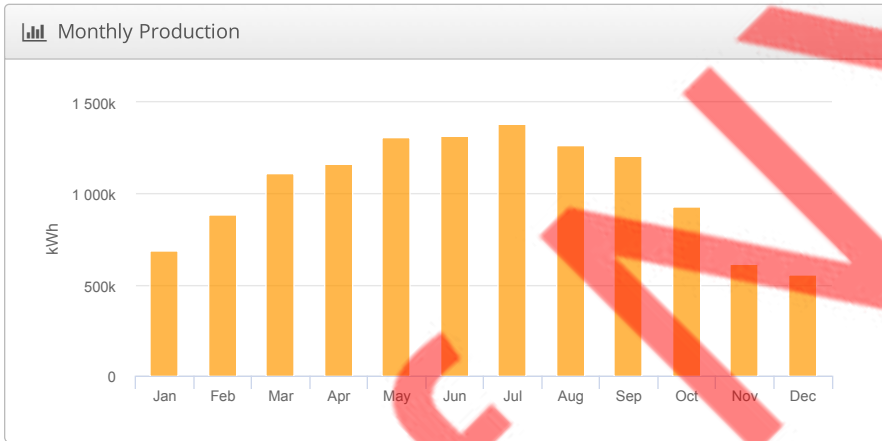
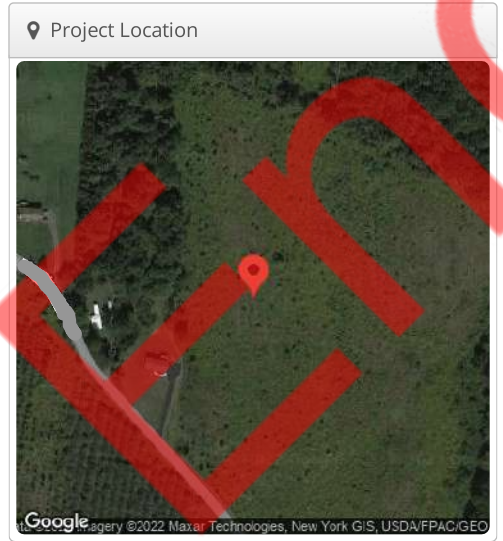
LOT TOTAL AREA= 27.80 ACRES
TOTAL SOLAR PANEL COVERAGE AREA= 9.53 ACRES = 34.28% LOT COVER BY SOLAR PANELS.

 TOTAL OPEN LOT AREA = 18.27 ACRES

 TOTAL SOLAR SYSTEM COVERAGE AREA = 9.53 ACRES

Helioscope Generation Report

| System Metrics | |
|-----------------------|--|
| Design | Design |
| Module DC Nameplate | 9.02 MW |
| Inverter AC Nameplate | 7.43 MW Load Ratio: 1.21 |
| Annual Production | 12.43 GWh |
| Performance Ratio | 82.2% |
| kWh/kWp | 1,377.6 |
| Weather Dataset | TMY, 10km Grid (41.65,-74.05), NREL (prospector) |
| Simulator Version | 6a065165f2-d649353e85-2fdbd86723-0d86bceb22 |



| ⚡ Annual Production | | | |
|----------------------------------|-------------------------------------|---------------------|--------------|
| | Description | Output | % Delta |
| Irradiance (kWh/m ²) | Annual Global Horizontal Irradiance | 1,439.9 | |
| | POA Irradiance | 1,674.9 | 16.3% |
| | Shaded Irradiance | 1,588.8 | -5.1% |
| | Irradiance after Reflection | 1,544.8 | -2.8% |
| | Irradiance after Soiling | 1,513.9 | -2.0% |
| | Total Collector Irradiance | 1,513.9 | 0.0% |
| Energy (kWh) | Nameplate | 13,657,897.5 | |
| | Output at Irradiance Levels | 13,569,941.5 | -0.6% |
| | Output at Cell Temperature Derate | 13,452,341.7 | -0.9% |
| | Output After Mismatch | 12,964,554.1 | -3.6% |
| | Optimal DC Output | 12,881,683.5 | -0.6% |
| | Constrained DC Output | 12,832,909.3 | -0.4% |
| | Inverter Output | 12,489,553.0 | -2.7% |
| | Energy to Grid | 12,427,105.0 | -0.5% |
| Temperature Metrics | | | |
| | Avg. Operating Ambient Temp | | 11.3 °C |
| | Avg. Operating Cell Temp | | 19.1 °C |
| Simulation Metrics | | | |
| | Operating Hours | 4686 | |
| | Solved Hours | 4686 | |

| ☁ Condition Set | | | | | | | | | | | | |
|------------------------------|--|-------|-------------|-------------------|---|---|---|------------------|----------------------------------|---|---|---|
| Description | Condition Set 1 | | | | | | | | | | | |
| Weather Dataset | TMY, 10km Grid (41.65,-74.05), NREL (prospector) | | | | | | | | | | | |
| Solar Angle Location | Meteo Lat/Lng | | | | | | | | | | | |
| Transposition Model | Perez Model | | | | | | | | | | | |
| Temperature Model | Sandia Model | | | | | | | | | | | |
| Temperature Model Parameters | Rack Type | a | b | Temperature Delta | | | | | | | | |
| | Fixed Tilt | -3.56 | -0.075 | 3°C | | | | | | | | |
| | Flush Mount | -2.81 | -0.0455 | 0°C | | | | | | | | |
| Soiling (%) | J | F | M | A | M | J | J | A | S | O | N | D |
| | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Irradiation Variance | 5% | | | | | | | | | | | |
| Cell Temperature Spread | 4° C | | | | | | | | | | | |
| Module Binning Range | -2.5% to 2.5% | | | | | | | | | | | |
| AC System Derate | 0.50% | | | | | | | | | | | |
| Module Characterizations | Module | | | | | | | Uploaded By | Characterization | | | |
| | Q.Peak DUO XL-G10.3/BFG 485 (Hanwha Q Cells) | | | | | | | HelioScope | Spec Sheet Characterization, PAN | | | |
| Component Characterizations | Device | | Uploaded By | | | | | Characterization | | | | |
| | | | | | | | | | | | | |

| 📦 Components | | |
|----------------|--|----------------------|
| Component Name | | Count |
| Inverters | SGI 225-480 (Solectria) | 33 (7.43 MW) |
| Strings | 10 AWG (Copper) | 1,947 (777,018.1 ft) |
| Module | Hanwha Q Cells, Q.Peak DUO XL-G10.3/BFG 485 (485W) | 18,600 (9.02 MW) |

| 🏠 Wiring Zones | | | |
|----------------|----------------|-------------|--------------------|
| Description | Combiner Poles | String Size | Stringing Strategy |
| Wiring Zone | - | 7-10 | Along Racking |

| 🏠 Field Segments | | | | | | | | | |
|------------------|------------|---------------------|------|---------|------------------|------------|--------|---------|---------|
| Description | Racking | Orientation | Tilt | Azimuth | Intrarow Spacing | Frame Size | Frames | Modules | Power |
| Field Segment 1 | Fixed Tilt | Portrait (Vertical) | 25° | 180° | 10.0 ft | 2x10 | 930 | 18,600 | 9.02 MW |

