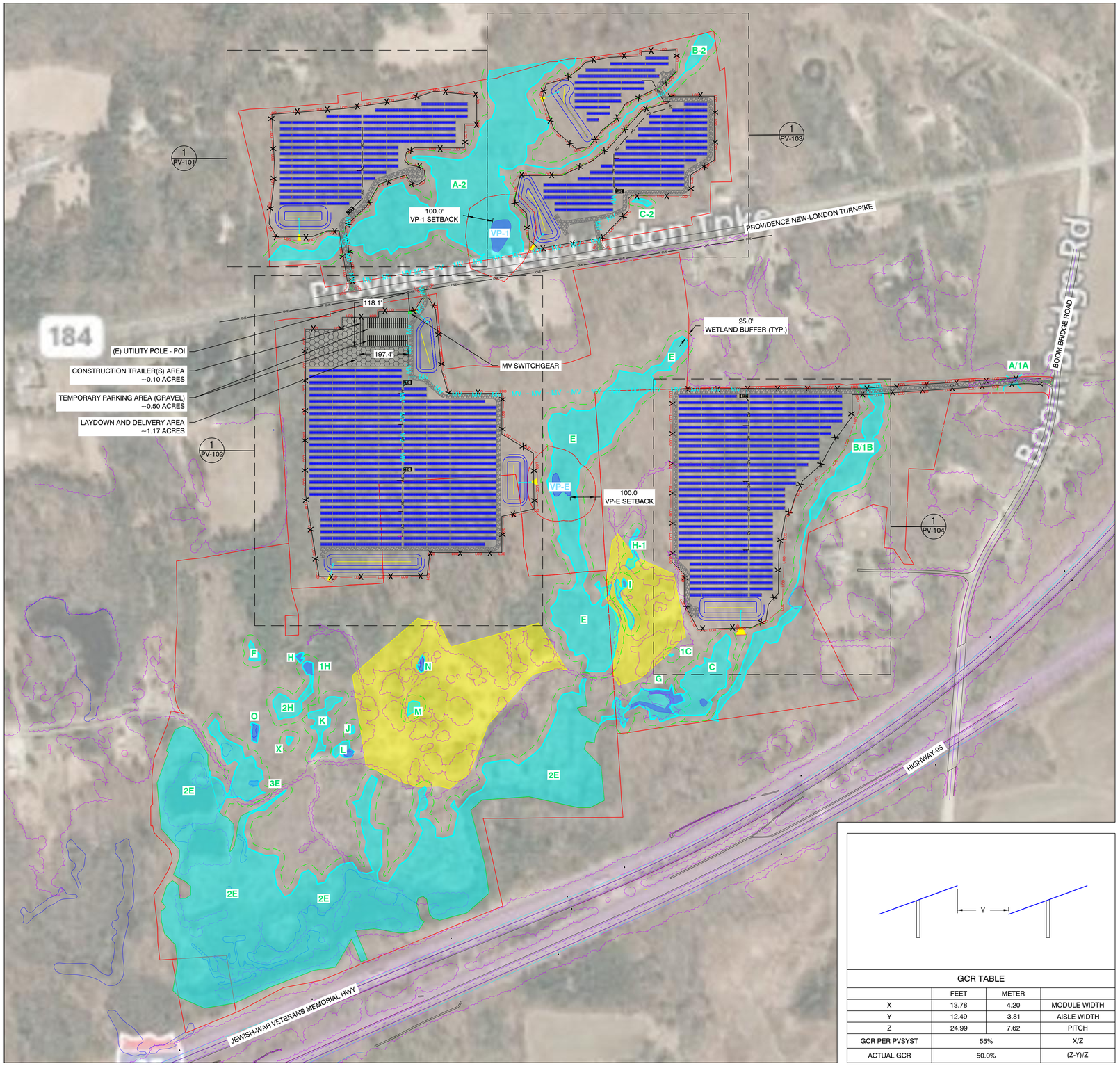


LEGEND

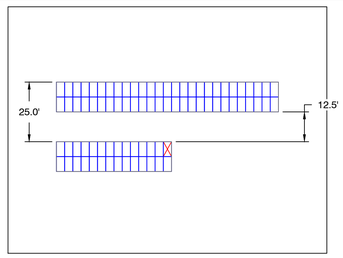
	2P X 27 LONGI SOLAR 455W @25° TILT
	2P X 14 LONGI SOLAR 455W @25° TILT
	EQUIPMENT RACK (TYP. OF 5) (1) LV SWITCHGEAR (1) MV TRANSFORMER
	SUNGROW 250kW INVERTER (TYP. OF 45)
	EQUIPMENT RACK WITH 1 STRING INVERTER (TYP. OF 1 LOCATION)
	EQUIPMENT RACK WITH 2 STRING INVERTERS (TYP. OF 1 LOCATION)
	EQUIPMENT RACK WITH 3 STRING INVERTERS (TYP. OF 6 LOCATIONS)
	EQUIPMENT RACK WITH 4 STRING INVERTERS (TYP. OF 6 LOCATIONS)
OHE	OVERHEAD ELECTRICAL
MV MV MV	UNDERGROUND MEDIUM VOLTAGE CABLE
AC AC	UNDERGROUND AC CABLE
X X	FENCE LINE
	16' ACCESS ROADS
	QUARRY
	WETLANDS
	25' WETLAND BUFFER
	VERNAL POOL
B/1B	WETLAND ID
VP-1	VERNAL POOL ID
LOD LOD	LINE OF DISTURBANCE
	TREE LINES
	STORMWATER BASIN
	PARCEL BOUNDARY
	LAYDOWN AREA

PROJECT DETAILS

SYSTEM SIZE AC	9,900.00 kW
SYSTEM SIZE DC	13,144.95 kW
DC/AC RATIO	1.33
MODULE MODEL	LONGI SOLAR, LR4-72HBD-455M
MODULE RATING	455 W
TOTAL MODULE QTY	28,890
# OF MODULES PER STRINGS	27
TOTAL # OF STRINGS	1,070
INVERTER MODEL	SUNGROW SG250HX
INVERTER RATING	250 kW
TOTAL INVERTER QTY	45
RACKING	GROUND MOUNT FIXED TILT
TILT ANGLE	25°
AZIMUTH	180°
PITCH	25.0'
INTER ROW SPACING	12.5'
GCR	50%
FENCED AREA	44.00 ACRES
PROPERTY AREA	157.36 ACRES
LINE OF DISTURBANCE AREA	46.58 ACRES

GCR TABLE

	FEET	METER	
X	13.78	4.20	MODULE WIDTH
Y	12.49	3.81	AISLE WIDTH
Z	24.99	7.62	PITCH
GCR PER PVSYST	55%		X/Z
ACTUAL GCR	50.0%		(Z-Y)/Z



1 PV-100 ARRAY PLAN Scale: 1"=200'

N

2 PV-100 GCR DETAILS Scale: NTS

3 PV-100 TYP. MODULE RACKS Scale: 1"=30'

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DESIGN + ENGINEERING
1400 Shattuck Avenue, Suite 3
Berkeley, California 94709

SILICON RANCH

STONINGTON SOLAR

428, PROVIDENCE-NEW LONDON TURNPIKE
NORTH STONINGTON, CT 06359, USA

LAT: 41.431830°N
LON: 71.821514°W

REV. NO	DESCRIPTION	DATE
0	PRELIMINARY	02/19/21

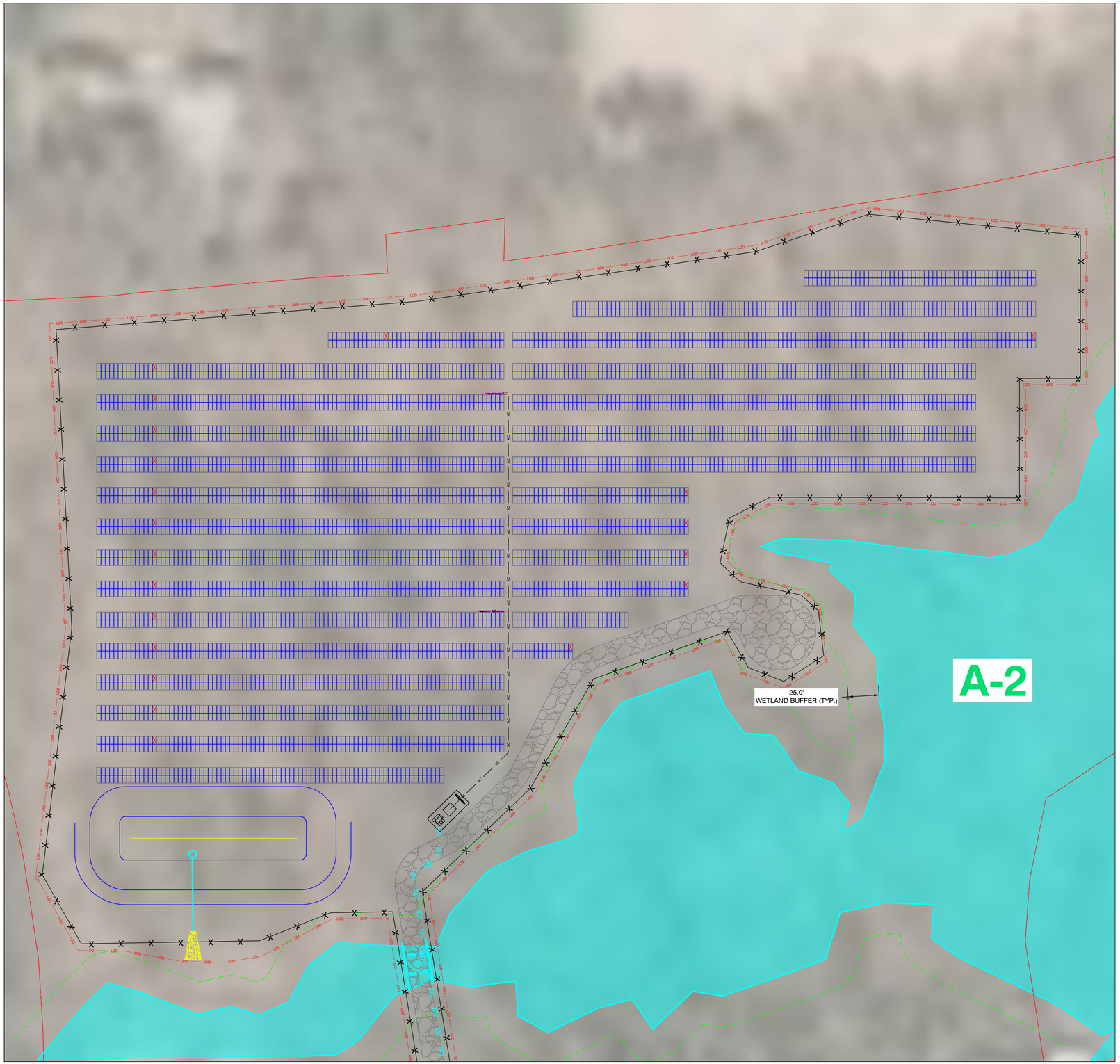
SHEET TITLE:

PRELIMINARY LAYOUT

PROJ. MGR.	PROJ. ENGR.	DATE:
	SDE	02/19/21
DRAWN BY: LR	CHECKED BY:	SCALE: AS SHOWN

DRAWING NO.

PV-100



1 PV-101 ARRAY PLAN
Scale: 1"=40'

N

LEGEND

	2P X 27 LONGI SOLAR 455W @25° TILT
	2P X 14 LONGI SOLAR 455W @25° TILT
	EQUIPMENT RACK (1) LV SWITCHGEAR (1) MV TRANSFORMER
	SUNGROW 250kW INVERTER
	EQUIPMENT RACK WITH 1 STRING INVERTER
	EQUIPMENT RACK WITH 2 STRING INVERTERS
	EQUIPMENT RACK WITH 3 STRING INVERTERS
	EQUIPMENT RACK WITH 4 STRING INVERTERS
OVE	OVERHEAD ELECTRICAL
MV MV MV	UNDERGROUND MEDIUM VOLTAGE CABLE
AC AC	UNDERGROUND AC CABLE
	FENCE LINE
	16' ACCESS ROADS
	QUARRY
	WETLANDS
	25' WETLAND BUFFER
	VERNAL POOL
B/1B	WETLAND ID
VP-1	VERNAL POOL ID
LOD LOD	LINE OF DISTURBANCE
	TREE LINES
	STORMWATER BASIN
	PARCEL BOUNDARY

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LON: 71.821514°W

REV. NO	DESCRIPTION	DATE
0	PRELIMINARY	02/19/21

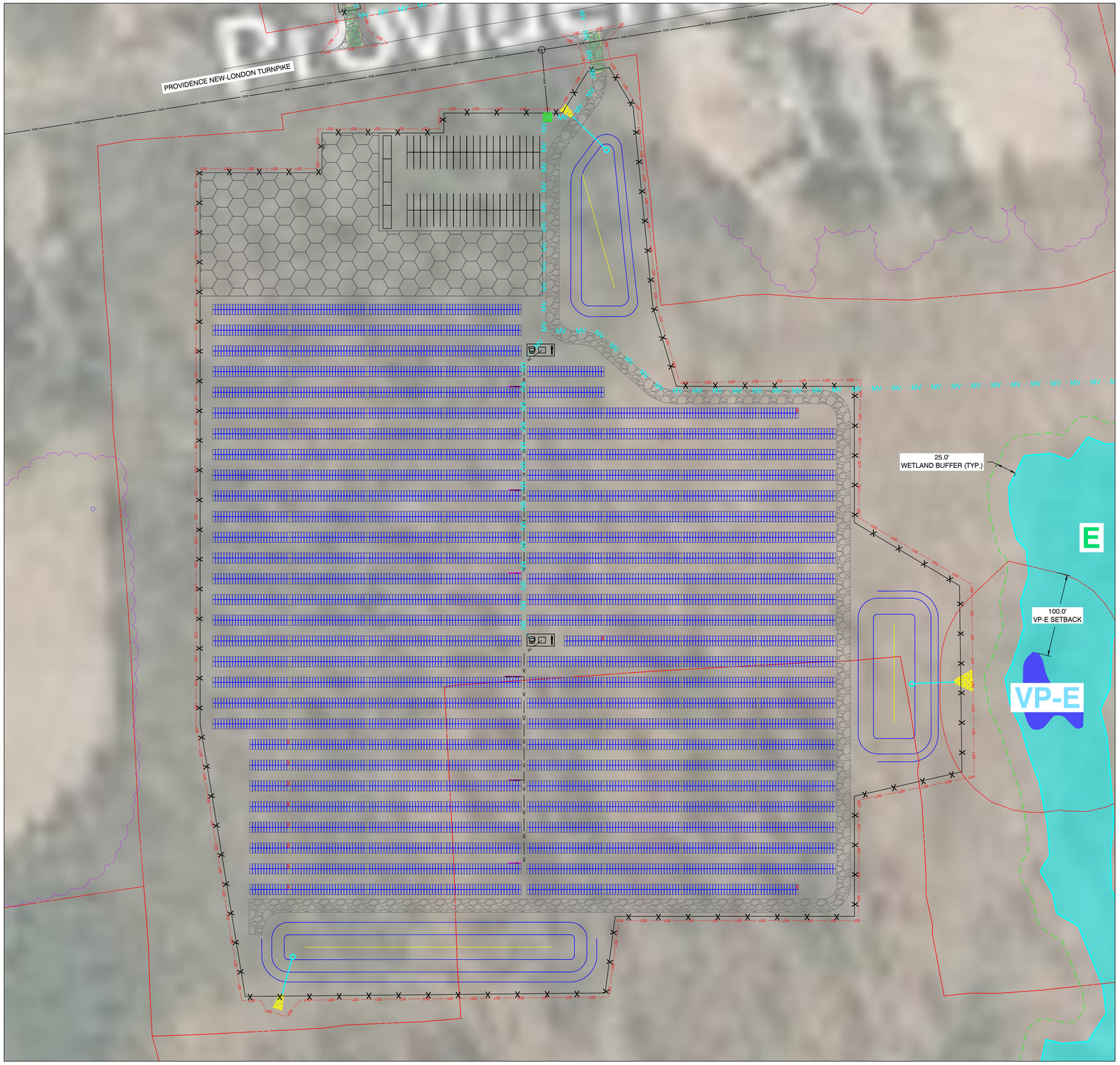
SHEET TITLE:

ARRAY DETAILS

PROJ. MGR.	PROJ. ENGR. SDE	DATE: 02/19/21
DRAWN BY: LR	CHECKED BY:	SCALE: AS SHOWN

DRAWING NO.

PV-101



1 PV-102 ARRAY PLAN
Scale: 1"=50'

N

LEGEND

	2P X 27 LONGI SOLAR 455W @25° TILT
	2P X 14 LONGI SOLAR 455W @25° TILT
	EQUIPMENT RACK (1) LV SWITCHGEAR (1) MV TRANSFORMER
	SUNGROW 250kW INVERTER
	EQUIPMENT RACK WITH 1 STRING INVERTER
	EQUIPMENT RACK WITH 2 STRING INVERTERS
	EQUIPMENT RACK WITH 3 STRING INVERTERS
	EQUIPMENT RACK WITH 4 STRING INVERTERS
OVE	OVERHEAD ELECTRICAL
MV MV MV	UNDERGROUND MEDIUM VOLTAGE CABLE
AC AC	UNDERGROUND AC CABLE
	FENCE LINE
	16' ACCESS ROADS
	QUARRY
	WETLANDS
	25' WETLAND BUFFER
	VERNAL POOL
B/1B	WETLAND ID
VP-1	VERNAL POOL ID
LOD LOD	LINE OF DISTURBANCE
	TREE LINES
	STORMWATER BASIN
	PARCEL BOUNDARY
	LAYDOWN AREA

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LAT: 41.431830°N
LON: 71.821514°W

REV. NO	DESCRIPTION	DATE
0	PRELIMINARY	02/19/21

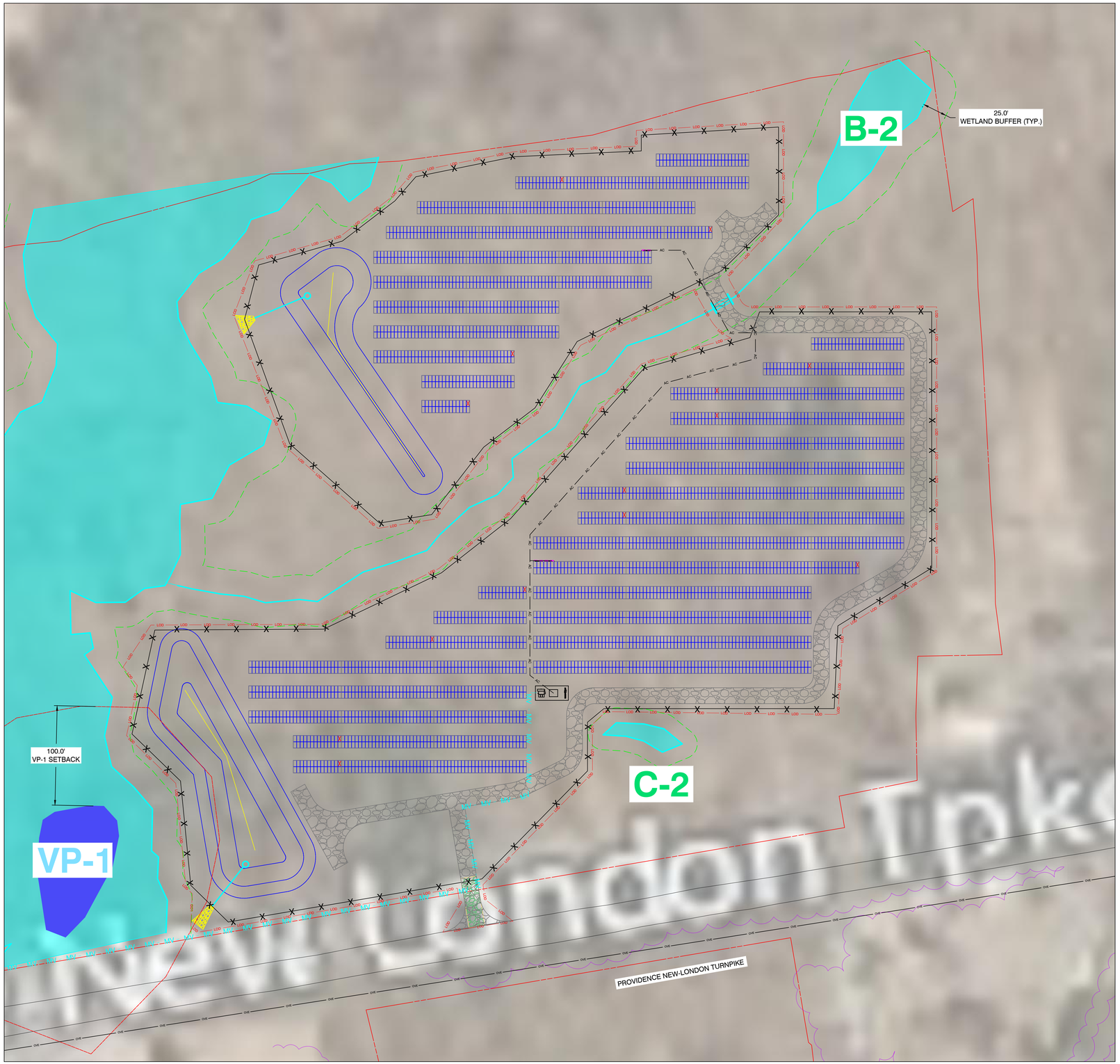
SHEET TITLE:

ARRAY DETAILS

PROJ. MGR.	PROJ. ENGR. SDE	DATE: 02/19/21
DRAWN BY: LR	CHECKED BY:	SCALE: AS SHOWN

DRAWING NO.

PV-102



1 PV-103 ARRAY PLAN
Scale: 1"=40'

N

LEGEND

	2P X 27 LONGI SOLAR 455W @25° TILT
	2P X 14 LONGI SOLAR 455W @25° TILT
	EQUIPMENT RACK (1) LV SWITCHGEAR (1) MV TRANSFORMER
	SUNGROW 250kW INVERTER
	EQUIPMENT RACK WITH 1 STRING INVERTER
	EQUIPMENT RACK WITH 2 STRING INVERTERS
	EQUIPMENT RACK WITH 3 STRING INVERTERS
	EQUIPMENT RACK WITH 4 STRING INVERTERS
OVE	OVERHEAD ELECTRICAL
MV MV MV	UNDERGROUND MEDIUM VOLTAGE CABLE
AC AC	UNDERGROUND AC CABLE
	FENCE LINE
	16' ACCESS ROADS
	QUARRY
	WETLANDS
	25' WETLAND BUFFER
	VERNAL POOL
B/1B	WETLAND ID
VP-1	VERNAL POOL ID
LOD LOD	LINE OF DISTURBANCE
	TREE LINES
	STORMWATER BASIN
	PARCEL BOUNDARY

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REV. NO	DESCRIPTION	DATE
0	PRELIMINARY	02/19/21

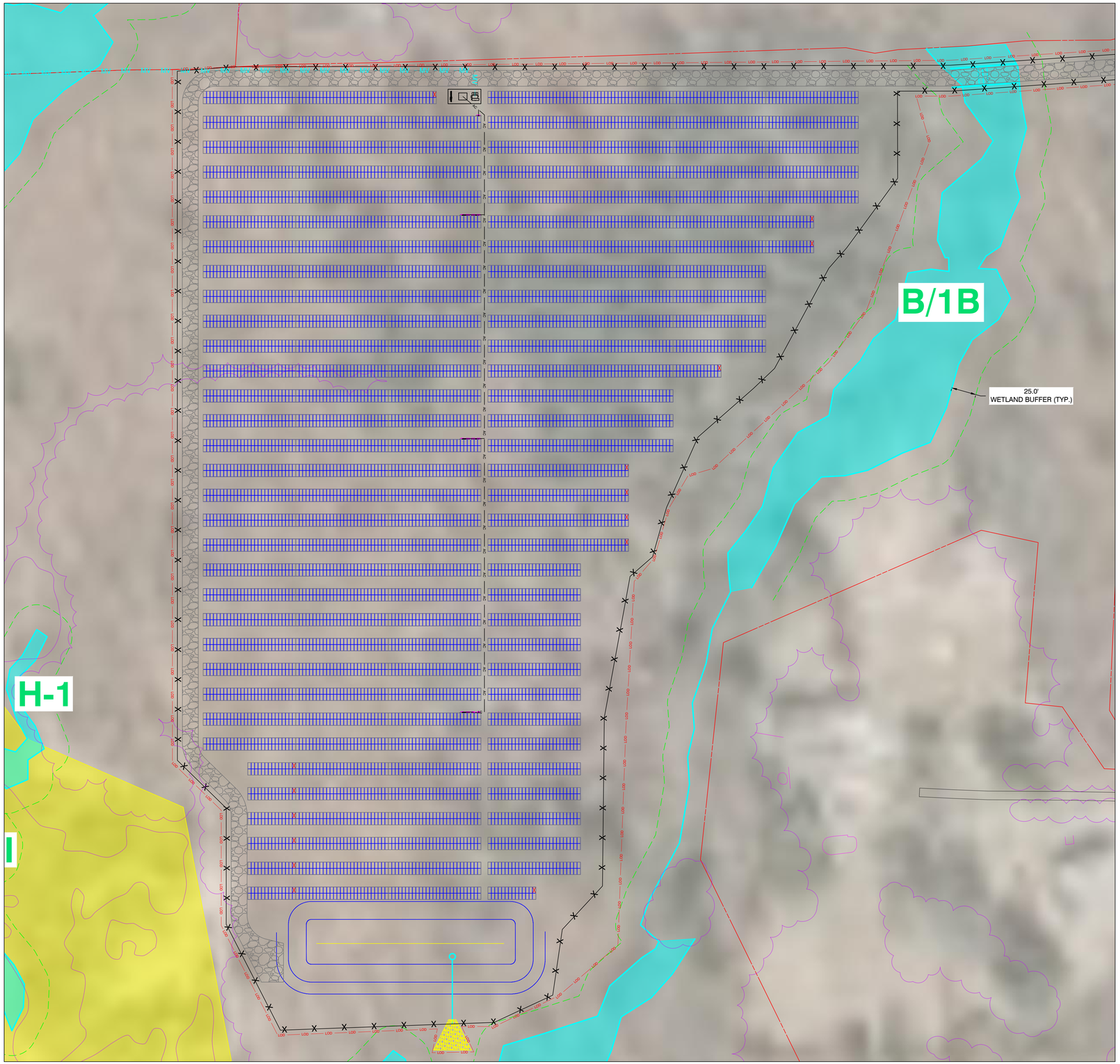
SHEET TITLE:

ARRAY DETAILS

PROJ. MGR.	PROJ. ENGR. SDE	DATE: 02/19/21
DRAWN BY: LR	CHECKED BY:	SCALE: AS SHOWN

DRAWING NO.

PV-103



1 PV-104 ARRAY PLAN
Scale: 1"=50'

N

LEGEND

	2P X 27 LONGI SOLAR 455W @25° TILT
	2P X 14 LONGI SOLAR 455W @25° TILT
	EQUIPMENT RACK (1) LV SWITCHGEAR (1) MV TRANSFORMER
	SUNGROW 250kW INVERTER
	EQUIPMENT RACK WITH 1 STRING INVERTER
	EQUIPMENT RACK WITH 2 STRING INVERTERS
	EQUIPMENT RACK WITH 3 STRING INVERTERS
	EQUIPMENT RACK WITH 4 STRING INVERTERS
OVE	OVERHEAD ELECTRICAL
MV MV MV	UNDERGROUND MEDIUM VOLTAGE CABLE
AC AC	UNDERGROUND AC CABLE
	FENCE LINE
	16' ACCESS ROADS
	QUARRY
	WETLANDS
	25' WETLAND BUFFER
	VERNAL POOL
B/1B	WETLAND ID
VP-1	VERNAL POOL ID
LOD LOD	LINE OF DISTURBANCE
	TREE LINES
	STORMWATER BASIN
	PARCEL BOUNDARY

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LAT: 41.431830°N
LON: 71.821514°W

REV. NO	DESCRIPTION	DATE
0	PRELIMINARY	02/19/21

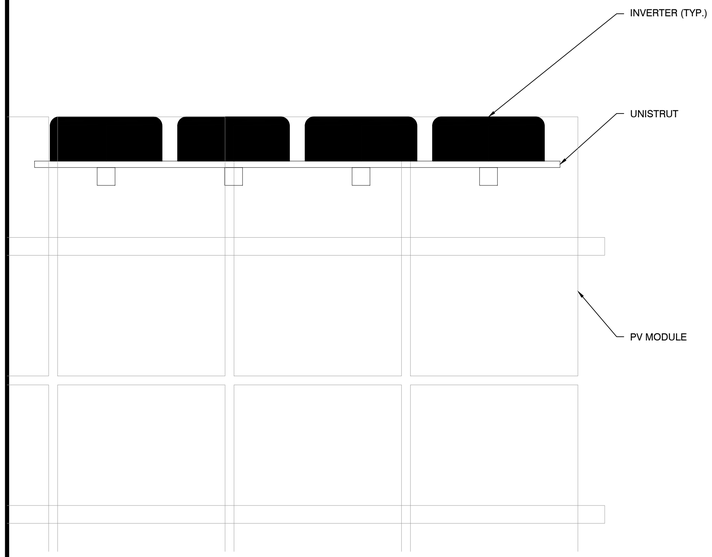
SHEET TITLE:

ARRAY DETAILS

PROJ. MGR.	PROJ. ENGR. SDE	DATE: 02/19/21
DRAWN BY: LR	CHECKED BY:	SCALE: AS SHOWN

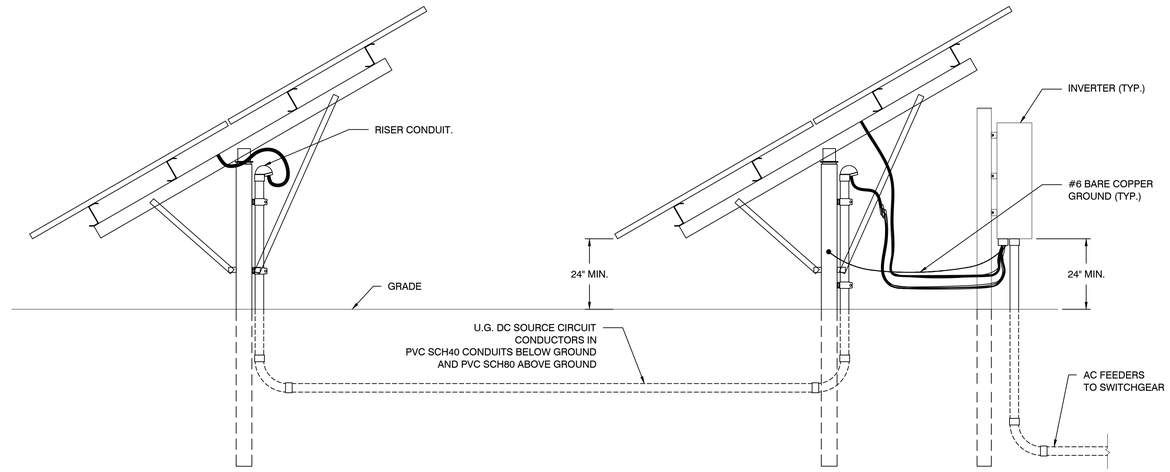
DRAWING NO.

PV-104



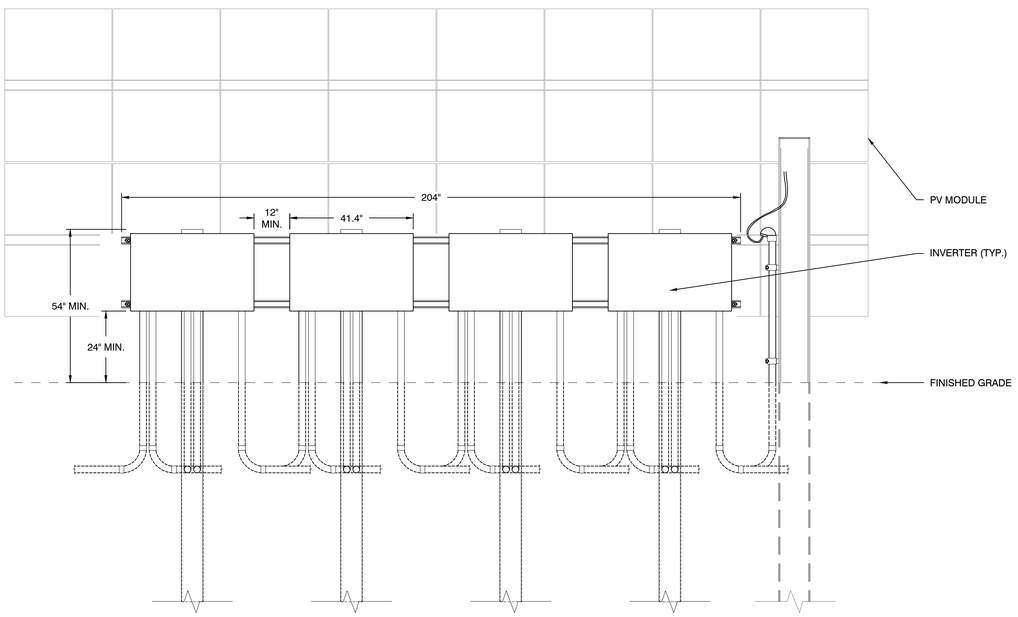
1 PV-105 INVERTER MOUNTING (PLAN VIEW)

Scale: NTS



2 PV-105 INVERTER ELEVATION (SIDE VIEW) AND DC SOURCE CIRCUIT (JUMPER) TRENCH DETAIL

Scale: NTS



3 PV-105 INVERTER ELEVATION (FRONT VIEW)

Scale: NTS

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SOLAR

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NORTH STONINGTON, CT 06359, USA

LAT: 41.431830°N
LON: 71.821514°W

REV. NO	DESCRIPTION	DATE
0	PRELIMINARY	02/19/21

SHEET TITLE:

INVERTER MOUNTING
DETAILS

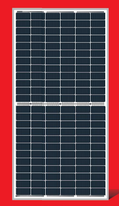
PROJ. MGR.	PROJ. ENGR. SDE	DATE: 02/19/21
DRAWN BY: LR	CHECKED BY:	SCALE: AS SHOWN

DRAWING NO.

PV-105

LR4-72HBD 425~455M

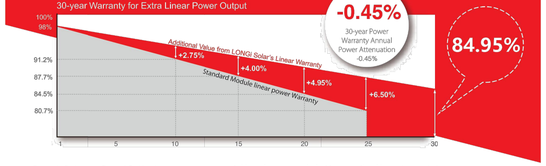
Hi-MO 4
NEW



*Both 6BB & 9BB are available

High Efficiency
Low LID Bifacial PERC with
Half-cut Technology

12-year Warranty for Materials and Processing;
30-year Warranty for Extra Linear Power Output



-0.45%
30-year Power Warranty Annual Power Attenuation -0.45%

84.95%

Complete System and Product Certifications

IEC 61215, IEC 61730, UL 61730

ISO 9001:2008: ISO Quality Management System

ISO 14001: 2004: ISO Environment Management System

TS62941: Guideline for module design qualification and type approval

OHSAS 18001: 2007 Occupational Health and Safety

* Specifications subject to technical changes and tests. LONGi Solar reserves the right of interpretation.

Front side performance equivalent to conventional low LID mono PERC:
- High module conversion efficiency (up to 20.9%)
- Better energy yield with excellent low irradiance performance and temperature coefficient
- First year power degradation <2%

Bifacial technology enables additional energy harvesting from rear side (up to 25%)

Glass/glass lamination ensures 30 year product lifetime, with annual power degradation < 0.45%, 1500V compatible to reduce BOS cost

Solid PID resistance ensured by solar cell process optimization and careful module BOM selection

Reduced resistive loss with lower operating current

Higher energy yield with lower operating temperature

Reduced hot spot risk with optimized electrical design and lower operating current

LONGi

Room 801, Tower 3, Lujiazui Financial Plaza, No.826 Century Avenue, Pudong Shanghai, 200120, China
Tel: +86-21-80162606 E-mail: module@longi-silicon.com Facebook: www.facebook.com/LONGi Solar

Note: Due to continuous technical innovation, R&D and improvement, technical data above mentioned may be of modification accordingly. LONGi have the sole right to make such modification at anytime without further notice; Demanding party shall request for the latest datasheet for such as contract need, and make it a consisting and binding part of lawful documentation duly signed by both parties.
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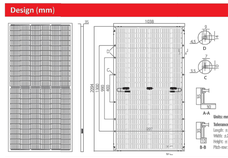
20200401V11

LR4-72HBD 425~455M

Design (mm)



Mechanical Parameters

Cell Orientation: 144 (6×24)
Junction Box: IP68, three diodes
Output Cable: 4mm², 300mm in length, length can be customized
Glass: Dual glass
2.0mm coated tempered glass
Frame: Anodized aluminum alloy frame
Weight: 27.5kg
Dimension: 2094×1038×35mm
Packaging: 30pcs per pallet
150pcs per 20'GP
660pcs per 40'HC

Operating Parameters

Operational Temperature: -40℃ ~+85℃
Power Output Tolerance: 0~+5 W
Voc and Isc Tolerance: ±3%
Maximum System Voltage: DC1500V (IEC/UL)
Maximum Series Fuse Rating: 25A
Nominal Operating Cell Temperature: 45±2℃
Safety Class: Class II
Fire Rating: UL type 3
Bifaciality: Glazing: 70±5%

Electrical Characteristics — Test uncertainty for Pmax: ±3%(*)

Model Number	LR4-72HBD-425M		LR4-72HBD-430M		LR4-72HBD-435M		LR4-72HBD-440M		LR4-72HBD-445M		LR4-72HBD-450M		LR4-72HBD-455M	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax/W)	425	317.4	430	321.1	435	324.9	440	328.6	445	332.3	450	336.1	455	339.8
Open Circuit Voltage (Voc/V)	48.7	45.6	48.9	45.8	49.1	45.9	49.2	46.0	49.4	46.2	49.6	46.4	49.8	46.6
Short Circuit Current (Isc/A)	11.22	9.06	11.30	9.13	11.36	9.18	11.45	9.25	11.52	9.30	11.58	9.36	11.65	9.41
Voltage at Maximum Power (Vmp/V)	40.4	37.7	40.6	37.9	40.8	38.0	41.0	38.2	41.2	38.4	41.4	38.6	41.6	38.8
Current at Maximum Power (Imp/A)	10.52	8.42	10.60	8.49	10.66	8.54	10.73	8.60	10.80	8.65	10.87	8.70	10.93	8.76
Module Efficiency(%)	19.6		19.8		20.0		20.2		20.5		20.7		20.9	

STC (Standard Testing Conditions): Irradiance 1000W/m², Cell Temperature 25℃, Spectra at AM1.5

NOCT (Nominal Operating Cell Temperature): Irradiance 800W/m², Ambient Temperature 20℃, Spectra at AM1.5, Wind at 1m/S

Electrical characteristics with different rear side power gain (reference to 445W front)

Pmax /W	Voc/V	Isc /A	Vmp/V	Imp /A	Pmax gain
467	49.4	12.09	41.2	11.34	5%
490	49.4	12.67	41.2	11.88	10%
512	49.5	13.24	41.3	12.42	15%
534	49.5	13.82	41.3	12.96	20%
556	49.5	14.40	41.3	13.50	25%

Temperature Ratings (STC)

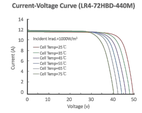
Temperature Coefficient of Isc	+0.050%/℃
Temperature Coefficient of Voc	-0.284%/℃
Temperature Coefficient of Pmax	-0.350%/℃

Mechanical Loading

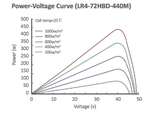
Front Side Maximum Static Loading	5400Pa
Rear Side Maximum Static Loading	2400Pa
Hailstone Test	25mm Hailstone at the speed of 23m/s

I-V Curve

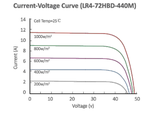
Current-Voltage Curve (LR4-72HBD-440M)



Power-Voltage Curve (LR4-72HBD-440M)



Current-Voltage Curve (LR4-72HBD-440M)



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20200401V11

SG250HX-US New

SUNGROW
Clean power for all

Multi-MPPT String Inverter for 1500 Vdc System

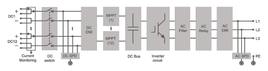
HIGH YIELD
- 12 MPPTs with max. efficiency 99%
- Compatible with bifacial module
- Built-in Anti-PID and PID recovery function

SMART O&M
- Touch free commissioning and remote firmware upgrade
- Online IV curve scan and diagnosis*
- Fuse free design with smart string current monitoring

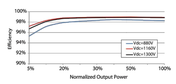
LOW COST
- Compatible with Al and Cu AC cables
- DC 2 in 1 connection enabled
- Power line communication (PLC)
- Reactive power at night function

PROVEN SAFETY
- Integrated Arc fault circuit protection
- NEMA 4X protection and C5 anti-corrosion grade
- Type II SPD for both DC and AC

CIRCUIT DIAGRAM



EFFICIENCY CURVE



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SG250HX-US

Type designation	SG250HX-US
Input (DC)	
Max. PV input voltage	1500 V
Min. PV input voltage / Startup input voltage	600 V / 600 V
Nominal PV input voltage	1080 V
MPP voltage range	600 V – 1500 V
MPP voltage range for nominal power	860 V – 1300 V
No. of independent MPP inputs	12
Max. PV input current	26 A * 12
Max. current for input connector	30 A
Max. DC short-circuit current	50 A * 12
Output (AC)	
AC output power	250 kVA @ 30 ℃ / 225 kVA @ 40 ℃ / 200 kVA @ 50 ℃
Max. AC output current	180.5 A
Nominal AC voltage	3 / PE, 800 V
AC voltage range	680 – 880V
Nominal grid frequency / Grid frequency range	50 Hz / 45 – 55 Hz, 60 Hz / 57 – 63 Hz
THD	< 3 % (at nominal power)
DC current injection	< 0.5 % In
Power factor at nominal power / Adjustable power factor	> 0.99 / 0.8 leading – 0.8 lagging
Feed-in phases / connection phases	3 / 3
Efficiency	
Max. efficiency	99.0 %
CEC efficiency	98.5 %
Protection	
DC reverse connection protection	Yes
AC short circuit protection	Yes
Leakage current protection	Yes
Grid monitoring	Yes
Ground fault monitoring	Yes
DC switch	Yes
AC switch	No
Arc fault circuit interrupter (AFCI)	Yes
PV String current monitoring	Yes
Reactive powe at night function	Yes
PID protection	An-ti PID or PID recovery
Overvoltage protection	DC Type II and AC Type II
General Data	
Dimensions (W*H*D)	1051 * 660 * 363 mm (41.4" * 26" * 14.3")
Weight	99 kg (218.25 lbs)
Isolation method	Transformerless
Ingress protection rating	NEMA 4X
Night power consumption	< 2 W
Operating ambient temperature range	-30 to 60 ℃ (-22 to 140 °F)
Allowable relative humidity range (non-condensing)	0 – 100 %
Cooling method	Smart forced air cooling
Max. operating altitude	4000 m (> 3000 m der ating) 13123 ft (> 9843 ft derating)
Display	LED, Bluetooth+APP
Communication	RS485 / PLC
DC connection type	Amphenol UTX (Max. 6 mm² 10AWG)
AC connection type	OT / DT terminal (Max. 300 mm² 600 Kcmil)
Compliance	UL1741, UL1741SA, IEEE1547, IEEE1547.1, CSA C22.2 107.1-01-2001, FCC Part15 Sub-part B Class A Limits, California Rule 21,UL 1699B
Grid Support	Reactive power at night function, LVRT, HVRT,active & reactive power control and power ramp rate control, Volt/Watt, Frequency/Watt

*: Only compatible with Sungrow logger and iSolarCloud

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SILICON RANCH

STONINGTON SOLAR

428, PROVIDENCE-NEW LONDON TURNPIKE
NORTH STONINGTON, CT 06359, USA

LAT: 41.431830°N
LON: 71.821514°W

REV. NO	DESCRIPTION	DATE
0	PRELIMINARY	02/19/21

SHEET TITLE:

INTERCONNECTION PLAN

PROJ. MGR.	PROJ. ENGR. SDE	DATE: 02/19/21
DRAWN BY: LR	CHECKED BY:	SCALE: AS SHOWN
DRAWING NO.		

PV-101