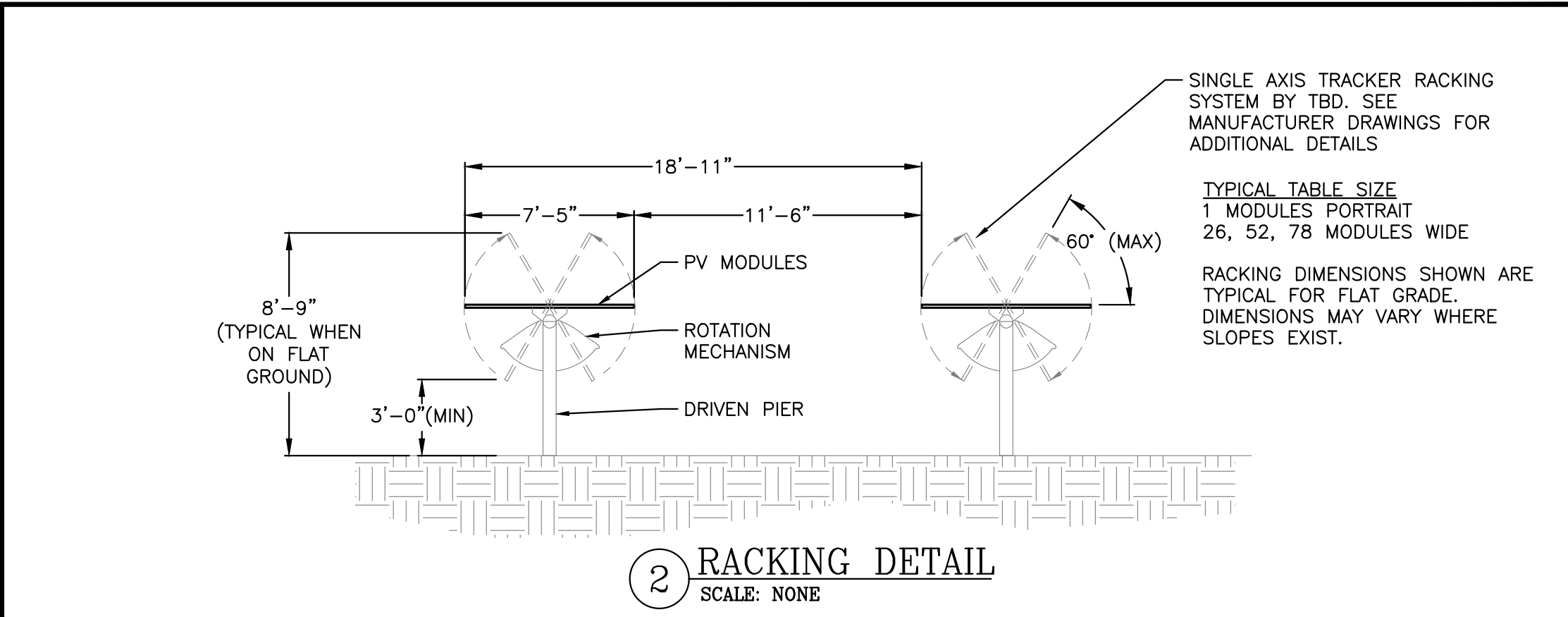
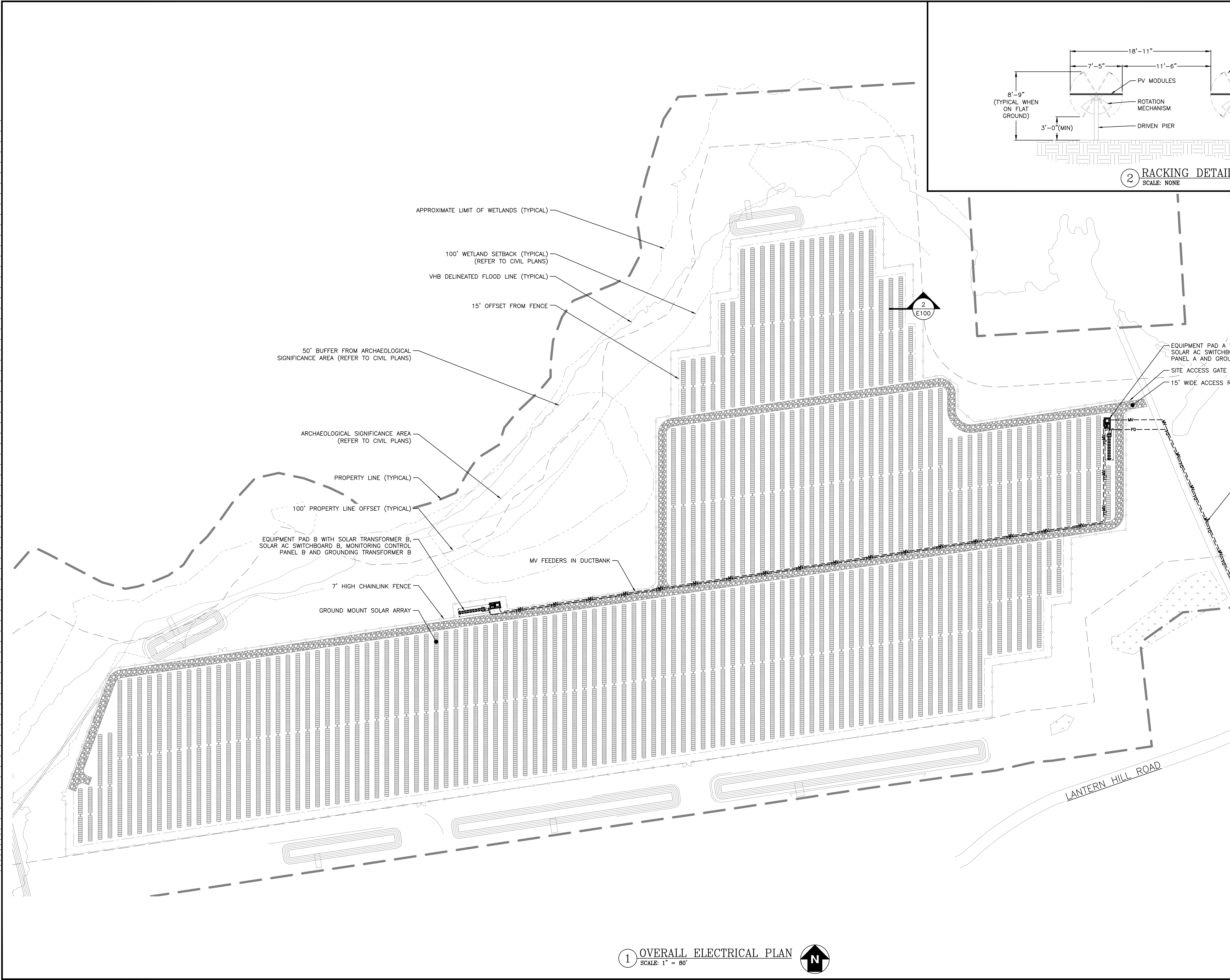


PLOT DATE: 8/26/2024 6:07 PM

RULER IN INCHES:

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18



1 OVERALL ELECTRICAL PLAN

SCALE: 1" = 80'



DRAWING TITLE

OVERALL ELECTRICAL PLAN

DRAWING #

E100

PROJECT: SOLAR GROUND MOUNT SYSTEM AT MYSTIC LANTERN HILL
229 LANTERN HILL ROAD, MYSTIC, CT 06355

DC SYSTEM SIZE: 6,430,320 kWDC
AC SYSTEM SIZE: 4,999,000 kWAC
MODULE TYPE: HSPE 540W
MODULE QUANTITY: 11908
ORIENTATION: SAT, 0° AZIMUTH

DEVELOPER: Greenskies
a Clean Focus company

127 WASHINGTON AVENUE
NORTH HAVEN, CT 06473
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111 WASHINGTON AVENUE
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RICHARD A. WINIS
CT LICENSE NO. 3029262

REVISION DESCRIPTION
DATE
08/23/2024 CONCEPTUAL DESIGN
12/29/2023 IC DOCS - REV. 2
10/20/2023 IC DOCS - REV. 1
08/22/2023 INTERCONNECTION DOCUMENT

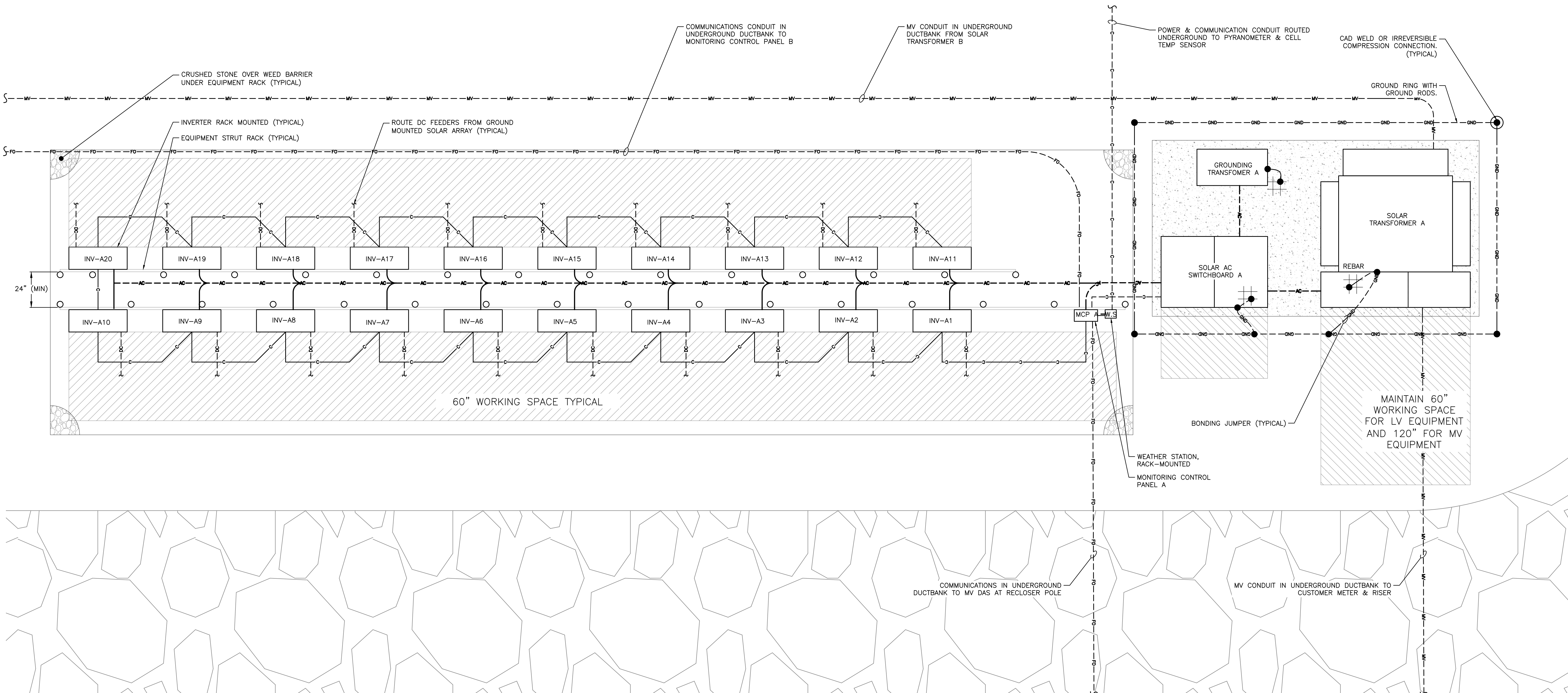
PM ENG CHK
SK SF RI
SK SF RI
SK CO RI
SK SF RI

PAGE SIZE: 36" x 24"
PROJECT #: 07101

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RULER IN INCHES:

PLOT DATE: 8/26/2024 6:08 PM



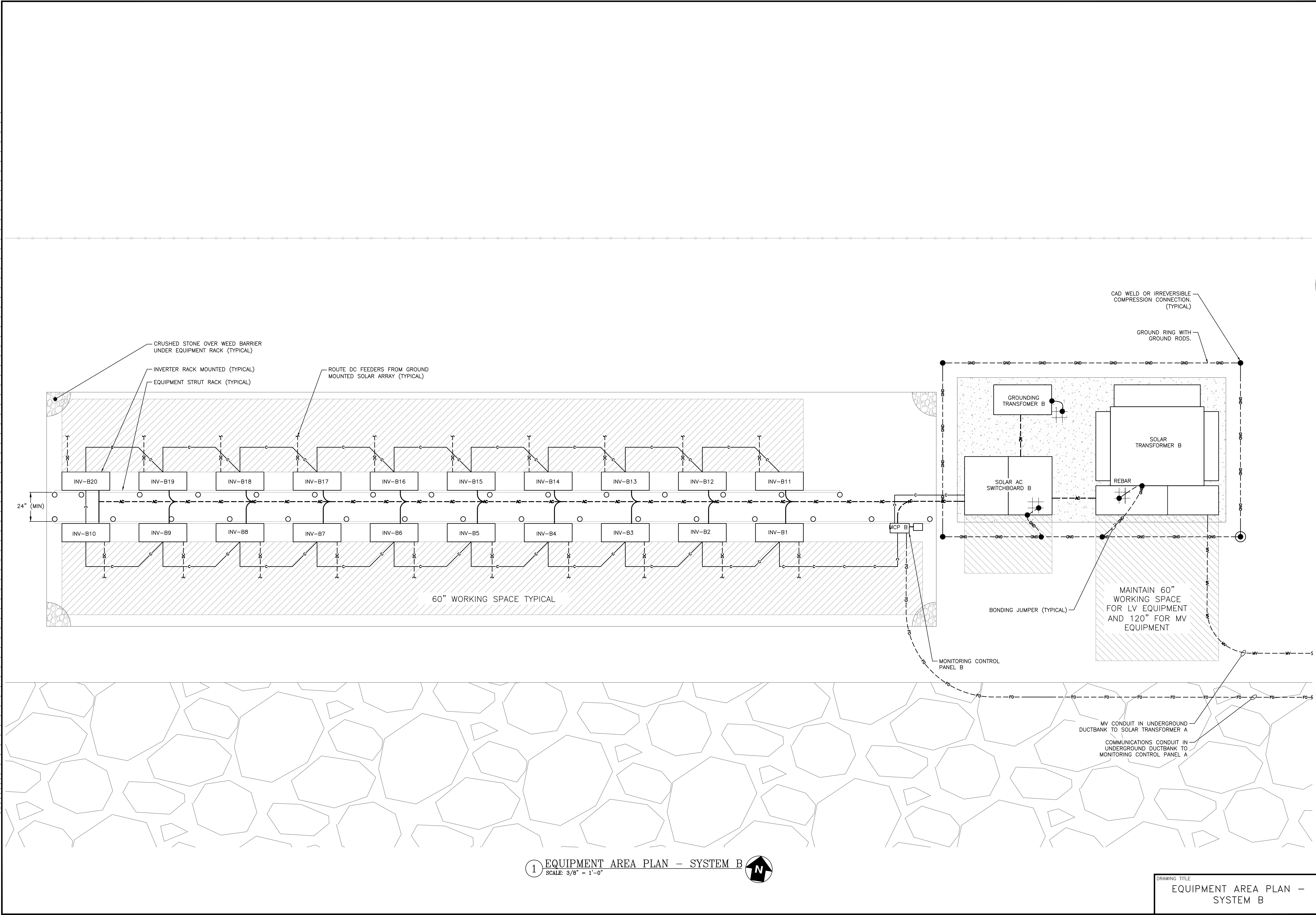
1 EQUIPMENT AREA PLAN - SYSTEM A
SCALE: 3/8" = 1'-0"



PLOT DATE: 8/26/2024 6:08 PM

RULER IN INCHES:

0 1/2 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18



1 EQUIPMENT AREA PLAN - SYSTEM B
SCALE: 3/8" = 1'-0"



DRAWING TITLE	DRAWING #
EQUIPMENT AREA PLAN - SYSTEM B	E102

PROJECT	SOLAR GROUND MOUNT SYSTEM AT MYSTIC LANTERN HILL 229 LANTERN HILL ROAD, MYSTIC, CT 06355	DC SYSTEM SIZE: 6,430,320 kWDC AC SYSTEM SIZE: 4,999,000 kWAC MODULE TYPE: HSP6 540W MODULE QUANTITY: 11908 ORIENTATION: SAT, 0° AZIMUTH	PAGE SIZE 36" x 24" PROJECT # 07101	DEVELOPER Greenskies a Clean Focus company 127 WASHINGTON AVENUE NORTH HAVEN, CT 06473 WWW.GREENSKIES.COM	 GREENSKIES 127 WASHINGTON AVENUE NORTH HAVEN, CT 06473 WWW.GREENSKIES.COM		REVISION	DESCRIPTION	DATE
							CONCEPTUAL DESIGN	08/23/2024	
							IC DOCS - REV 2	12/29/2023	
							IC DOCS - REV 1	10/20/2023	
							INTERCONNECTION DOCUMENT	05/22/2023	
PM	ENG	CHK	SK	SF	RI				
PM	ENG	CHK	SK	SF	RI				



SYSTEM A SUMMARY	
DC SYSTEM SIZE	3,341.520 KW
AC SYSTEM SIZE	2,500.000 KW
(QTY) MODULE	(6,188) HELIENE HSPE 144HC M10 SL 540W
(QTY) INVERTER	(20) XGI 1500-125/125-UL
TILT / AZIMUTH	SAT / 0°
UTILITY	EVERSOURCE CT

- DRAWING TITLE
- ONE LINE DIAGRAM
MV & SYSTEM A

18
17
16
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RULER IN INCHES:

PLOT DATE: 8/26/2024 6:08 PM

SEL 651R RELAY									
SETTINGS ARE PRELIMINARY PENDING UTILITY APPROVAL AND NOT INTENDED FOR CONSTRUCTION									
Solar System Base AC Size = 4999KVA			209.14A BASE PRIMARY USED FOR 50/51 ELEMENTS			*Total Clear Time = 3 Cycle Breaker Plus Delay (Time Dial or DEF Time)			
1.05A BASE SECONDARY 50/51P,G,N,Q						7967.43V BASE PRIMARY USED FOR 27/59 ELEMENTS			
P,G,N,Q CT RATIO FACTOR = 200						1.59V BASE SECONDARY USED FOR 27/59 ELEMENTS			
P CT Minimum Rating = 200:1 180.5 C50 RF = 1.5 @ 30C						LEA RATIO FACTOR = 5000			
ANSI ELEMENT #	Unit	Pickup (Secondary)	Real (Primary)	Level	Def. Time Delay (s)	Time Dial	Total Clear Time (s)*	Total Clear Time (cyc)*	Description
27-1	L-N Volt	1.40	7011.34	0.8800	2.95	-	3.00	180.00	- Slow UV
27-2	L-N Volt	0.80	3983.72	0.5000	1.05	-	1.10	66.00	- Fast UV
59-1	L-N Volt	1.75	8764.18	1.1000	1.95	-	2.00	120.00	- Slow OV
59-2	L-N Volt	1.91	9560.92	1.2000	0.11	-	0.16	9.60	- Fast OV
79-UV	L-N Volt	1.51	7569.06	0.9500	299.95	-	300.00	18000.00	- Min Permissive Close Voltage
79-OV	L-N Volt	1.67	8365.81	1.0500	299.95	-	300.00	18000.00	- Max Permissive Close Voltage
59N	3V0 L-N Volt	0.27	1354.46	0.1700	1.95	-	2.00	120.00	- Zero Sequence Overvolt
81U-1	Hz	58.50	58.50	0.9750	299.95	-	300.00	18000.00	- Slow UF
81U-2	Hz	56.50	56.50	0.9417	0.11	-	0.16	9.60	- Fast UF
81O-1	Hz	61.20	61.20	1.0200	299.95	-	300.00	18000.00	- Slow OF
81O-2	Hz	62.00	62.00	1.0333	0.11	-	0.16	9.60	- Fast OF
79-UF	Hz	59.50	59.50	0.9917	299.95	-	300.00	18000.00	- Min Permissive Close Frequency
79-OF	Hz	60.50	60.50	1.0083	299.95	-	300.00	18000.00	- Max Permissive Close Frequency
51P	A	1.31	261.43	1.2500	-	2	3.9 @2X	234.02 @2X	U4 Time Phase OC
50P	A	12.55	2509.72	12.0000	0.05	-	0.05	3.00	- Instantaneous P OC
51N	A	0.00	41.83	0.2000	-	2	3.9 @2X	234.02 @2X	U4 Timed Neutral OC
50N	A	0.00	209.14	1.0000	0.05	-	0.05	3.00	- Instantaneous N OC
74	-	-	-	-	0.05	-	0.05	3.00	- Relay Alarm

RELAY SETTINGS TABLE

SCALE: NONE

SOLAR AC SWITCHBOARD B
600Y/347V, 3Ø, 4W
3000A, 65KAIC
NEMA 3R
W/ 8HR BATTERY, CPT, & CHARGE CONTROLLER

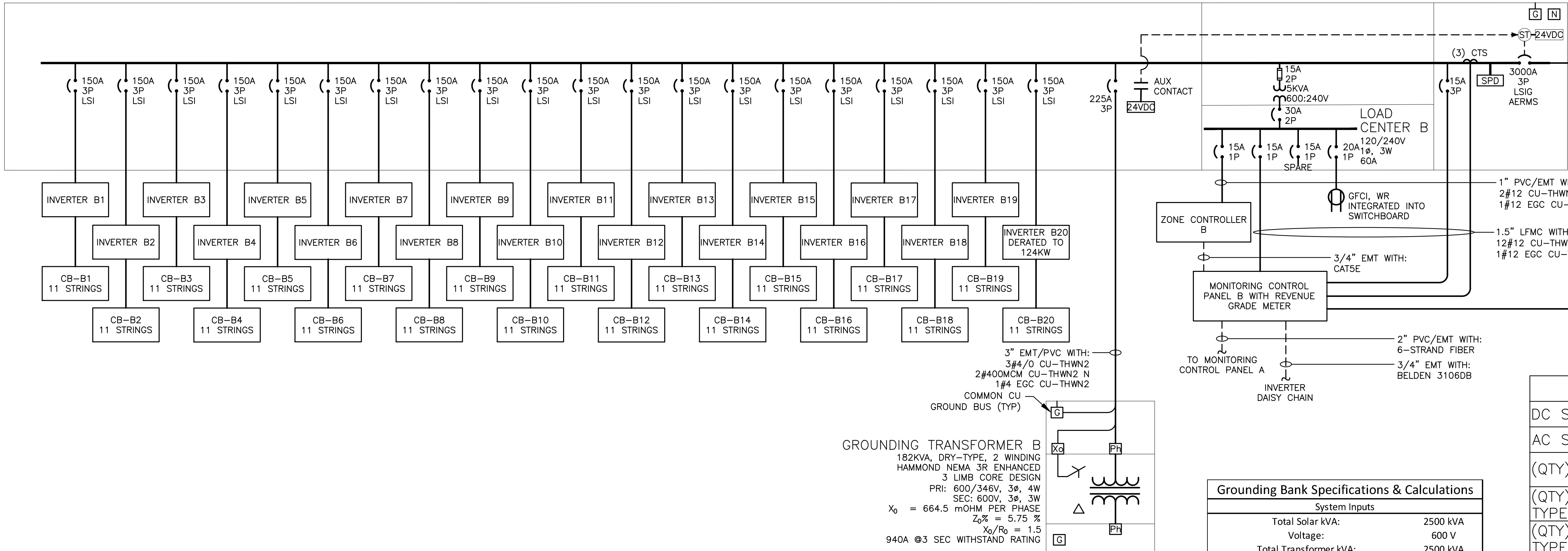


Table I: DER response (shall trip) to abnormal frequencies-Category I, Category II and Category III

Shall Trip Function	Required Settings		Comparison to default IEEE Std. 1547-2018 for Category I, II, III		
	Frequency (Hz)	Clearing Time(s)*	Frequency	Clearing Time (s)	Within Ranges of Allowable settings?
OF2	62.0	0.16	Identical	Identical	Yes
OF1	61.2	300.0	Identical	Identical	Yes
UF1	58.5	300.0	Identical	Identical	Yes
UF2	56.5	0.16	Identical	Identical	Yes

* ALL DER device trip times shall account for relay/inverter processing times as prescribed by IEEE 1547-2018. In no instance may relay and/or inverter settings trip faster than permitted by IEEE 1547-2018.

Table II: Frequency ride-through requirements for DER of abnormal operating performance-Category I, Category II, and Category III

Frequency Range (Hz)	Operating Mode	Comparison to IEEE Std. 1547-2018 for Category I, II, III
f > 62.0	No ride-through requirements apply to this range	Identical
61.2 < f ≤ 61.8	Mandatory Operation	Identical
58.8 ≤ f ≤ 61.2	Continuous Operation	Identical
57.0 ≤ f < 58.8	Mandatory Operation	Identical
f < 57.0	No ride-through requirements apply to this range	Identical

Table IV: Certified inverter response (shall trip) to abnormal voltages -Category III

Shall Trip Function	Required Settings		Comparison to default IEEE Std. 1547-2018 (as amended by IEEE 1547-2020) for Category III		
	Voltage (p.u. of nominal voltage)	Clearing Time(s)*	Voltage	Clearing Time (s)	Within ranges of allowable settings?
OV2	1.20	0.16	Identical	Identical	Yes
OV1	1.10	2.0	Identical	Much shorter (default is 13 s)	Yes
UV1	0.88	3.0	Identical	Much shorter (default is 21 s)	Yes
UV2	0.50	1.1	Identical	Shorter (default is 2 s)	Yes

* ALL DER device trip times shall account for relay/inverter processing times as prescribed by IEEE 1547-2018. In no instance may relay and/or inverter settings trip faster than permitted by IEEE 1547-2018.

Table V: Voltage ride-through requirements for certified inverter abnormal operating performance-Category III

Voltage Range (p.u.)	Operating Mode/ Response	Comparison to IEEE Std. 1547-2018 for Category III
V > 1.20	Cease to Energize	Identical
1.10 < V ≤ 1.20	Momentary Cessation	Identical
0.88 ≤ V ≤ 1.10	Continuous Operation	Identical
0.5 ≤ V < 0.88	Mandatory Operation	Identical
V < 0.50	Momentary Cessation	Identical

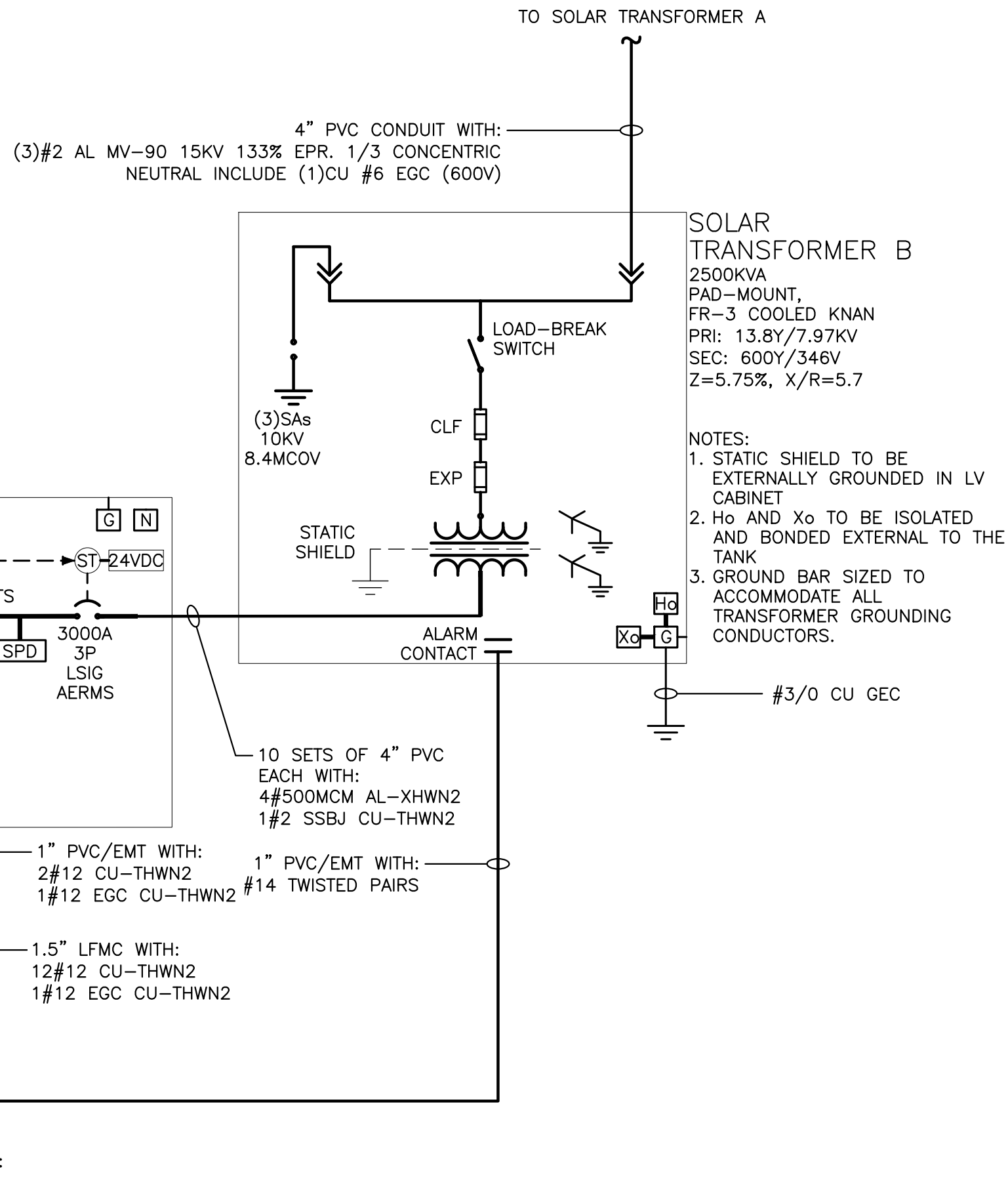
ONE LINE DIAGRAM - SYSTEM B

SCALE: NONE

INVERTER UL1741-SB Compliant						
ANSI ELEMENT #	Pickup	Real	Level	Delay (sec)	Curve	Description
27-1	304.84	528V	88.0%	3.00		Slow UV
27-2	173.21	300V	50.0%	1.10		Fast UV
59-1	381.05	660V	110.0%	2.00		Slow OV
59-2	415.69	720V	120.0%	0.16		Fast OV
81U-1	58.50	58.5Hz	97.5%	300.00		Slow UF
81U-2	56.50	56.5Hz	94.2%	0.16		Fast UF
81O-1	61.20	61.2Hz	102.0%	300.00		Slow OF
81O-2	62.00	62Hz	103.3%	0.16		Fast OF
PF Set Point		1.00				Power Factor Control
Var Control		OFF				Reactive Power Control
Ramp Rate		10%/1 sec				dkw / dt
Freq Control		OFF				Speed Control

INVERTER SETTINGS TABLE

SCALE: NONE



SYSTEM B SUMMARY	
DC SYSTEM SIZE	3,088.800 KW
AC SYSTEM SIZE	2,499.000 KW
(QTY) MODULE	(5,720) HELIENE HSPE 144HC M10 SL 540W
(QTY) INVERTER TYPE 1	(19) XGI 1500-125/125-UL
(QTY) INVERTER TYPE 2	(1) XGI 1500-125/125-UL DERATED TO 124KW
TILT / AZIMUTH	SAT / 0°
UTILITY	EVERSOURCE CT

SHEET NOTES:
1. CONTRACTOR SHALL FIELD-VERIFY INTERCONNECTION MEANS/METHODS PRIOR TO INSTALLATION. COORDINATED SHUTDOWN MAY BE REQUIRED.
2. ALL GROUND BARS AND LUGS SHALL BE DUAL RATED AL/CU.
3. UNLESS OTHERWISE NOTED EQUIPMENT IS PERMITTED TO BE 80% OR 100% RATED. EQUIPMENT SHOWN AS "100% RATED" SHALL INCLUDE AN ASSEMBLY, INCLUDING OVERCURRENT PROTECTION DEVICES, WHICH IS LISTED FOR CONTINUOUS OPERATION AT 100% OF ITS RATED CURRENT.
4. PVC SCH80 REQUIRED WHERE PVC IS SPECIFIED. PVC SCH40 IS PERMITTED FOR UNDERGROUND STRAIGHT RUNS ONLY.
5. SET NEW ADJUSTABLE-TRIP BREAKERS TO THE SETTINGS BELOW, UNLESS OTHERWISE NOTED IN POWER STUDY. "NOMINAL TRIP" REFERS TO BREAKER TRIP RATING INDICATED ON ONLINE. SETTINGS BELOW ARE NOT FOR COORDINATION PURPOSES.
L = 100% OF NOMINAL TRIP (EXACT)
S = 125% OF NOMINAL TRIP (OR NEXT HIGHER)
I = MINIMUM VALUE GREATER THAN NOMINAL TRIP
G = 20% OF NOMINAL TRIP (OR NEXT HIGHER)
0.5 SEC TIME DELAY

DRAWING TITLE
ONE LINE DIAGRAM - SYSTEM B

REVISION DESCRIPTION
CONCEPTUAL DESIGN
IC DOCS - REV 2
IC DOCS - REV 1
INTERCONNECTION DOCUMENT

DATE
08/23/2024
12/29/2023
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08/22/2023

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10/20/2023
08/22/2023

PURE POWER
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CT LICENSE No. 0029262

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a CleanFocus company

DEVELOPER
PAGE SIZE
3.6" x 24"
PROJECT #
07101

DC SYSTEM SIZE: 6,430,320 KWDC
AC SYSTEM SIZE: 4,999,000 KWAC
MODULE TYPE: HSPE 540W
MODULE QUANTITY: 11908
ORIENTATION: SAT, 0° AZIMUTH

SOLAR GROUND MOUNT SYSTEM AT
MYSTIC LANTERN HILL
229 LANTERN HILL ROAD, MYSTIC, CT 06355

DRAWING #
E301