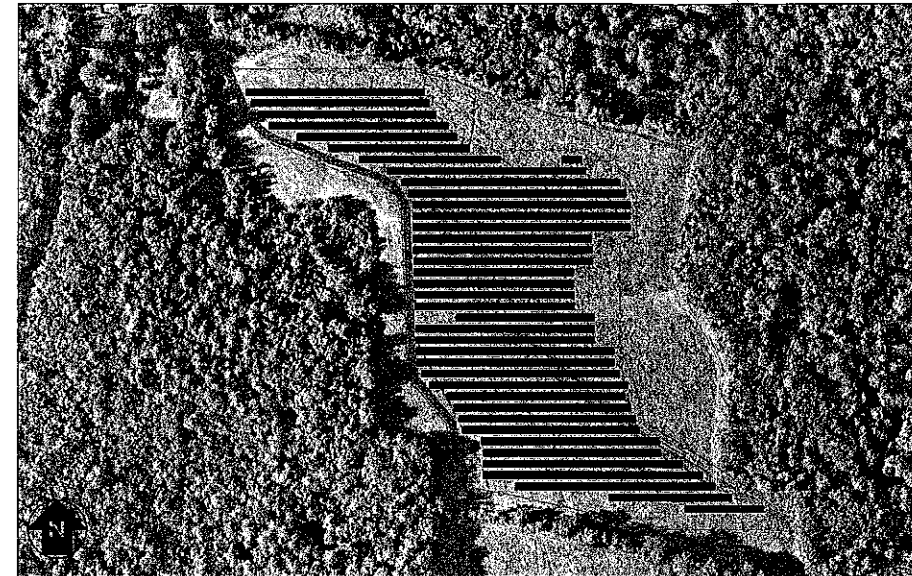


SOLAR GROUND MOUNT SYSTEM AT WINCHESTER

41.939445, -73.069261
SPENCER HILL ROAD, WINCHESTER, CT 06098



LOCATION MAP
SCALE: 1" = 1000'-0"



SYSTEM PLAN
SCALE: 1" = 200'

TOTAL SYSTEM SUMMARY:

TOTAL DC SYSTEM SIZE: 4,445.280 kWDC
 TOTAL AC SYSTEM SIZE: 3,740.000 kWAC

MODULE MANUFACTURER: LONGI SOLAR
 (QTY) MODULE TYPE 1: (8,232) LR5-72HBD-540M 540W

MODULE TILT: 20°
 MODULE AZIMUTH: 0°

INVERTER MANUFACTURER: YASKAWA SOLECTRIA
 (QTY) INVERTER TYPE 1: (29) XGI 1500-125/125-UL
 (QTY) INVERTER TYPE 2: (1) XGI 1500-125/125-UL (115KW DERATE)

SUBSYSTEM SUMMARIES:

SYSTEM A
 TOTAL DC SIZE: 2,371.660 kWDC
 AC SYSTEM SIZE: 1,990.000 kWAC
 MODULE QUANTITY: 4,392

SYSTEM B
 TOTAL DC SIZE: 2,073.600 kWDC
 AC SYSTEM SIZE: 1,750.000 kWAC
 MODULE QUANTITY: 3,840

SCOPE OF WORK SUMMARY

- GROUND MOUNT PV ARRAY:**
- INSTALL SOLAR MODULES AND RACKING SYSTEM ON GROUND LEVEL.
 - INSTALL INVERTERS AND ELECTRICAL DISTRIBUTION EQUIPMENT.
 - INTERCONNECT AT NEW UTILITY SERVICE

DEVELOPER:



127 WASHINGTON AVENUE
 WEST BUILDING, GARDEN LEVEL
 NORTH HAVEN, CT 06473

ENGINEERED BY:



111 RIVER STREET, SUITE 1110
 HOBOKEN, NEW JERSEY, 07030

DRAWING INDEX

GENERAL	CONCEPTUAL DESIGN (REV 1)	CONCEPTUAL DESIGN (REV 2)	CONCEPTUAL DESIGN (REV 3)
G001 TITLE SHEET	●	●	●
G200 ARRAY PLAN			
G300 FIRE ACCESS PLAN			
ELECTRICAL			
E001 ELECTRICAL NOTES & SYMBOLS LIST			
E100 ELECTRICAL PLAN	●	●	●
E110 ELECTRICAL AREA PLAN & INVERTER AREA			
E200 DC ELECTRICAL PLAN			
E300 ONE LINE DIAGRAM - SYSTEM A	●	●	○
E301 ONE LINE DIAGRAM - SYSTEM B	●	●	○
E302 RELAY AND INVERTER SETTINGS	●	○	○
E310 SCHEDULES & CALCULATIONS			
E410 GROUNDING DETAILS			
E420 ELECTRICAL DETAILS			
E500 LABELS & SIGNAGE			
E600 EQUIPMENT DATA SHEETS			
STRUCTURAL			
S100 ROOF STAGING PLAN			
S200 STRUCTURAL PLANS AND NOTES			
S400 STRUCTURAL DETAILS			

LEGEND:

UPDATED DRAWING ISSUED	●
UNCHANGED, PREVIOUSLY ISSUED DRAWING STILL CURRENT	○
DRAWING REMOVED FROM SET	×

CONCEPTUAL DESIGN (REV 1)	01/22/2023
CONCEPTUAL DESIGN (REV 2)	02/07/2023
CONCEPTUAL DESIGN (REV 3)	02/08/2023

<p>PUREPOWER ENGINEERING 111 RIVER STREET, HOBOKEN, NJ WWW.PUREPOWER.COM CT LICENSE NO. 0292882</p> <p>Greenskies a Clean Focus company 127 WASHINGTON AVENUE WEST BUILDING, GARDEN LEVEL NORTH HAVEN, CT 06473 WWW.GREENSKIES.COM</p> <p>DEVELOPER: Greenskies PROJECT # 05705</p> <p>DC SYSTEM SIZE: 4,445.280 kWDC AC SYSTEM SIZE: 3,740.000 kWAC MODULE TYPE: LR5-72HBD-540M 540W MODULE QUANTITY: 8,232 ORIENTATION: 20° TILT, 0° AZIMUTH</p> <p>PROJECT: SOLAR GROUND MOUNT SYSTEM AT WINCHESTER 41.939445, -73.069261 WINCHESTER, CT 06098</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>DATE</th> <th>REVISION DESCRIPTION</th> <th>PM</th> <th>ENG</th> <th>CHK</th> </tr> <tr> <td>02/07/2023</td> <td>CONCEPTUAL DESIGN (REV 1)</td> <td>SK</td> <td>AD</td> <td>RI</td> </tr> <tr> <td>02/07/2023</td> <td>CONCEPTUAL DESIGN (REV 2)</td> <td>SK</td> <td>AD</td> <td>RI</td> </tr> <tr> <td>02/27/2023</td> <td>CONCEPTUAL DESIGN (REV 3)</td> <td>SK</td> <td>AD</td> <td>RI</td> </tr> </table>	DATE	REVISION DESCRIPTION	PM	ENG	CHK	02/07/2023	CONCEPTUAL DESIGN (REV 1)	SK	AD	RI	02/07/2023	CONCEPTUAL DESIGN (REV 2)	SK	AD	RI	02/27/2023	CONCEPTUAL DESIGN (REV 3)	SK	AD	RI
DATE	REVISION DESCRIPTION	PM	ENG	CHK																	
02/07/2023	CONCEPTUAL DESIGN (REV 1)	SK	AD	RI																	
02/07/2023	CONCEPTUAL DESIGN (REV 2)	SK	AD	RI																	
02/27/2023	CONCEPTUAL DESIGN (REV 3)	SK	AD	RI																	

RULER IN INCHES

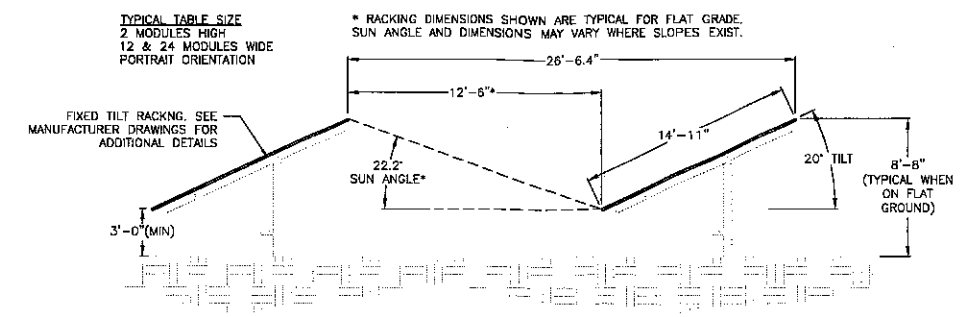
- POLE #A5: CUSTOMER METER
- POLE #A4: CUSTOMER RECLOSER
- POLE #A3: CUSTOMER SOLAR GENERATOR DISCONNECT POLE
- POLE #A2: UTILITY METER
- POLE #A1: UTILITY RECLOSER
- POINT OF INTERCONNECTION AT EXISTING UTILITY TAKE OFF POLE
- POINT OF INTERCONNECTION AT EXISTING UTILITY TAKE OFF POLE
- POLE #B1: UTILITY RECLOSER
- POLE #B2: UTILITY METER
- POLE #B3: CUSTOMER SOLAR GENERATOR DISCONNECT POLE
- POLE #B4: CUSTOMER RECLOSER

EQUIPMENT PAD WITH SOLAR TRANSFORMER, SOLAR AC SWITCHBOARD, INVERTERS, MONITORING CONTROL PANEL, AND GROUNDING TRANSFORMER.

GROUND MOUNT SOLAR ARRAY

NEW PERMANENT ACCESS ROAD

- WETLANDS (TYPICAL)
- 100FT WETLANDS SETBACK (TYPICAL)
- MV FEEDERS IN DUCTBANK
- 7FT HIGH CHAINLINK FENCE
- 50FT PROPERTY LINE SETBACK
- PROPERTY LINE
- TREE LINE
- 50FT TREE LINE OFFSET



2 RACKING DETAIL
E100 SCALE: NONE

SYSTEM A
DC SYSTEM SIZE: 2,371.680kWDC
AC SYSTEM SIZE: 1,990.000kWAC

SYSTEM B
DC SYSTEM SIZE: 2,073.600kWDC
AC SYSTEM SIZE: 1,760.000kWAC

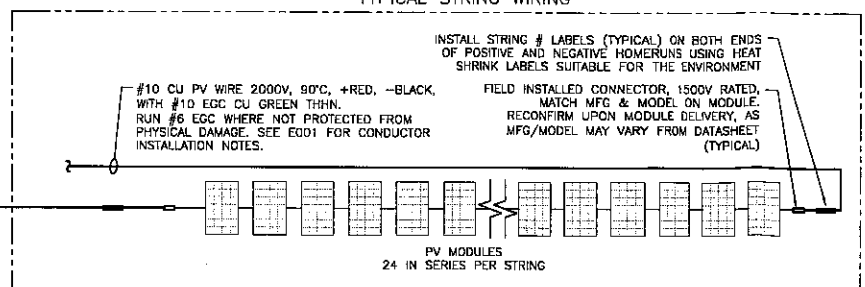
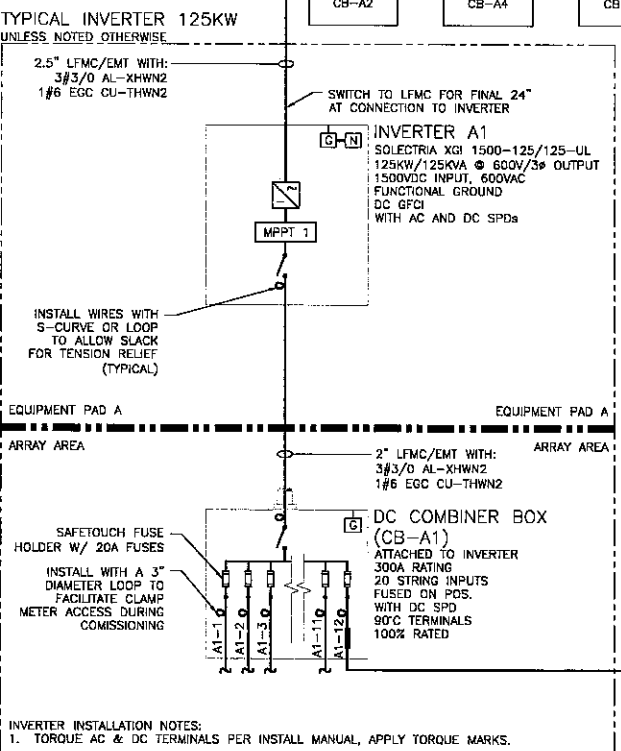
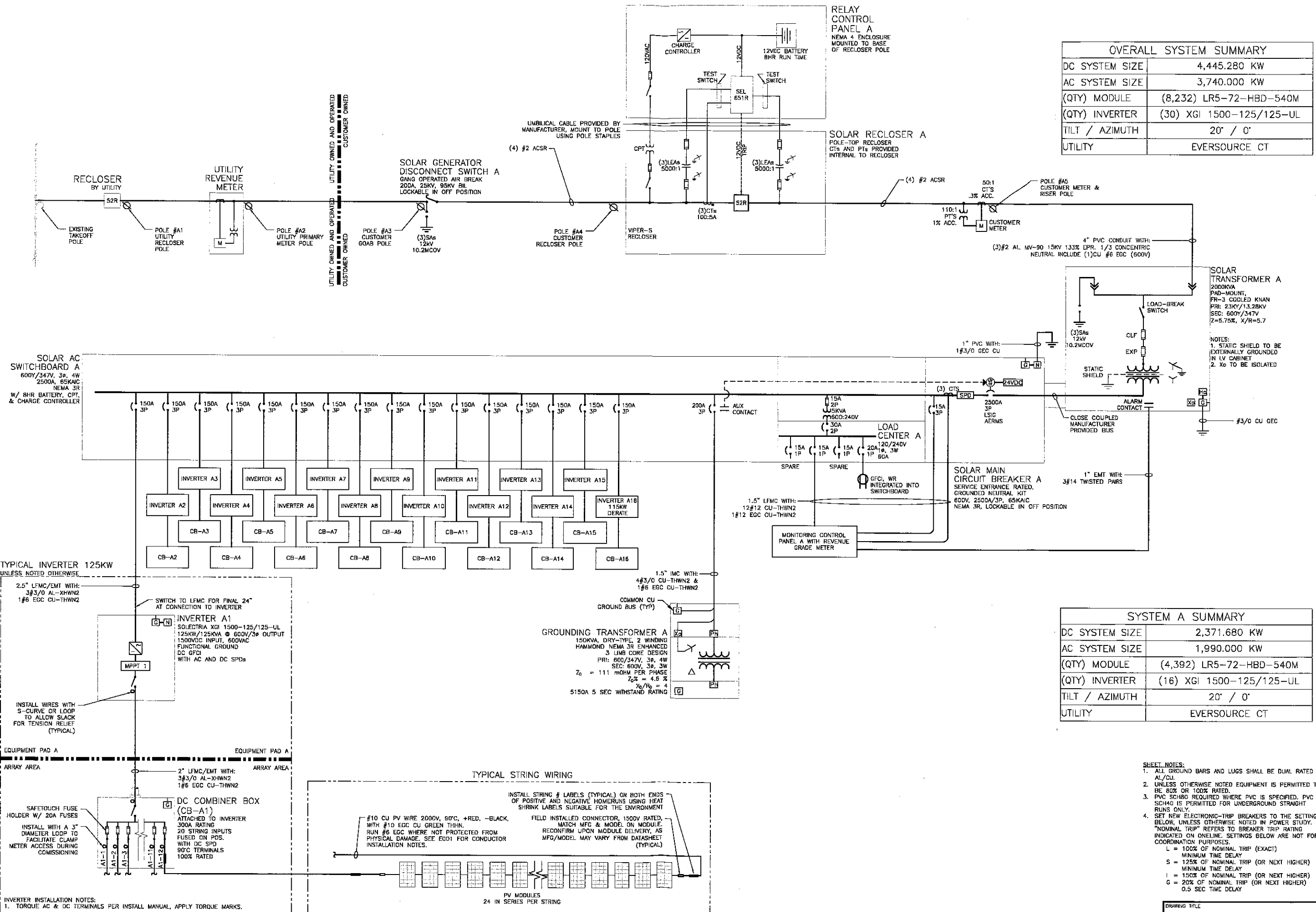
1 ELECTRICAL PLAN
E100 SCALE: 1" = 100'



DRAWING TITLE	ELECTRICAL PLAN
DRAWING #	E100

<p>PURE POWER 111 RIVER STREET, FERRIS, NJ WWW.PUREPOWER.COM REWARD A. VOZDAR CT LICENSE NO. 00000002</p>	<p>GREENSKIES 227 WASHINGTON AVENUE NORWICH, CT 06250 WWW.GREENSKIES.COM</p>	<p>DEVELOPER Greenskies a Clean Power company</p>	<p>DC SYSTEM SIZE: 4,445.280 kWDC AC SYSTEM SIZE: 3,740.000 kWAC MODULE TYPE: LRS-72HBD-540M 540W MODULE QUANTITY: 8232 ORIENTATION: 20° TILT, 0° AZIMUTH</p>	<p>PROJECT: SOLAR GROUND MOUNT SYSTEM AT WINCHESTER 41.939445, -73.069261 WINCHESTER, CT 06098</p>
<p>DATE: 02/08/2023 CONCEPTUAL DESIGN (REV 2)</p>	<p>DATE: 02/01/2023 CONCEPTUAL DESIGN (REV 1)</p>	<p>DATE: 01/27/2023 CONCEPTUAL DESIGN</p>	<p>REVISION DESCRIPTION</p>	<p>PM: ENG DMR SK: AD RI SK: AD RI SK: AD RI</p>
PAGE SIZE: 36" x 24"		PROJECT #: 05705		

PLT DATE: 2/27/2023 3:38 PM
RULER IN INCHES: 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1, 0, X



ONE LINE DIAGRAM - SYSTEM A
SCALE: NONE

OVERALL SYSTEM SUMMARY	
DC SYSTEM SIZE	4,445.280 KW
AC SYSTEM SIZE	3,740.000 KW
(QTY) MODULE	(8,232) LR5-72-HBD-540M
(QTY) INVERTER	(30) XGI 1500-125/125-UL
TILT / AZIMUTH	20° / 0°
UTILITY	EVERSOURCE CT

SYSTEM A SUMMARY	
DC SYSTEM SIZE	2,371.680 KW
AC SYSTEM SIZE	1,990.000 KW
(QTY) MODULE	(4,392) LR5-72-HBD-540M
(QTY) INVERTER	(16) XGI 1500-125/125-UL
TILT / AZIMUTH	20° / 0°
UTILITY	EVERSOURCE CT

- SHEET NOTES:**
- ALL GROUND BARS AND LUGS SHALL BE DUAL RATED AL/CU.
 - UNLESS OTHERWISE NOTED EQUIPMENT IS PERMITTED TO BE 80% OR 100% RATED.
 - PVC SCH80 REQUIRED WHERE PVC IS SPECIFIED. PVC SCH40 IS PERMITTED FOR UNDERGROUND STRAIGHT RUNS ONLY.
 - SET NEW ELECTRONIC-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) MINIMUM TIME DELAY
S = 125% OF NOMINAL TRIP (OR NEXT HIGHER) MINIMUM TIME DELAY
I = 150% OF NOMINAL TRIP (OR NEXT HIGHER)
G = 20% OF NOMINAL TRIP (OR NEXT HIGHER) 0.5 SEC TIME DELAY

DATE	02/27/2023	REVISION DESCRIPTION	CONCEPTUAL DESIGN (REV 1)
DATE	02/27/2023	REVISION DESCRIPTION	CONCEPTUAL DESIGN (REV 2)
DATE	02/27/2023	REVISION DESCRIPTION	CONCEPTUAL DESIGN (REV 3)

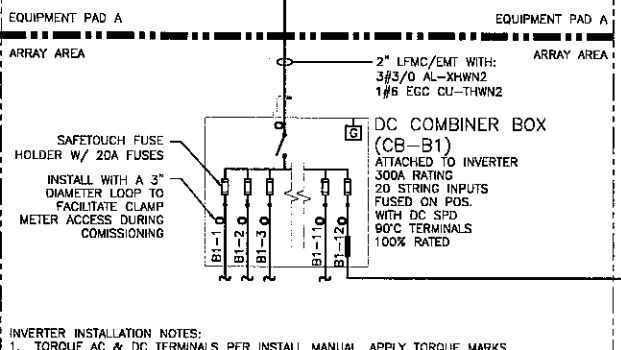
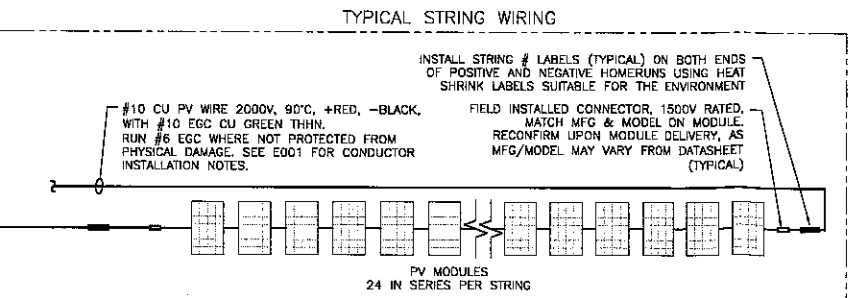
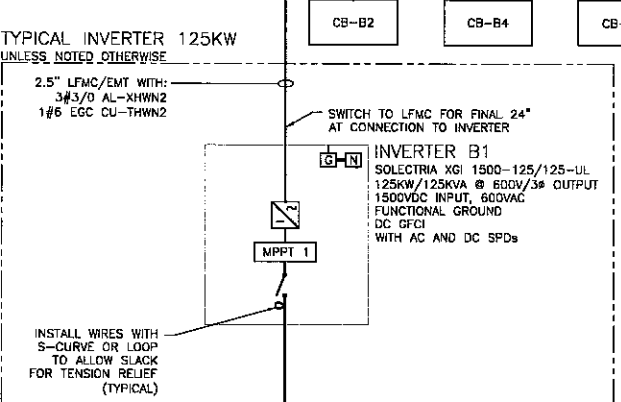
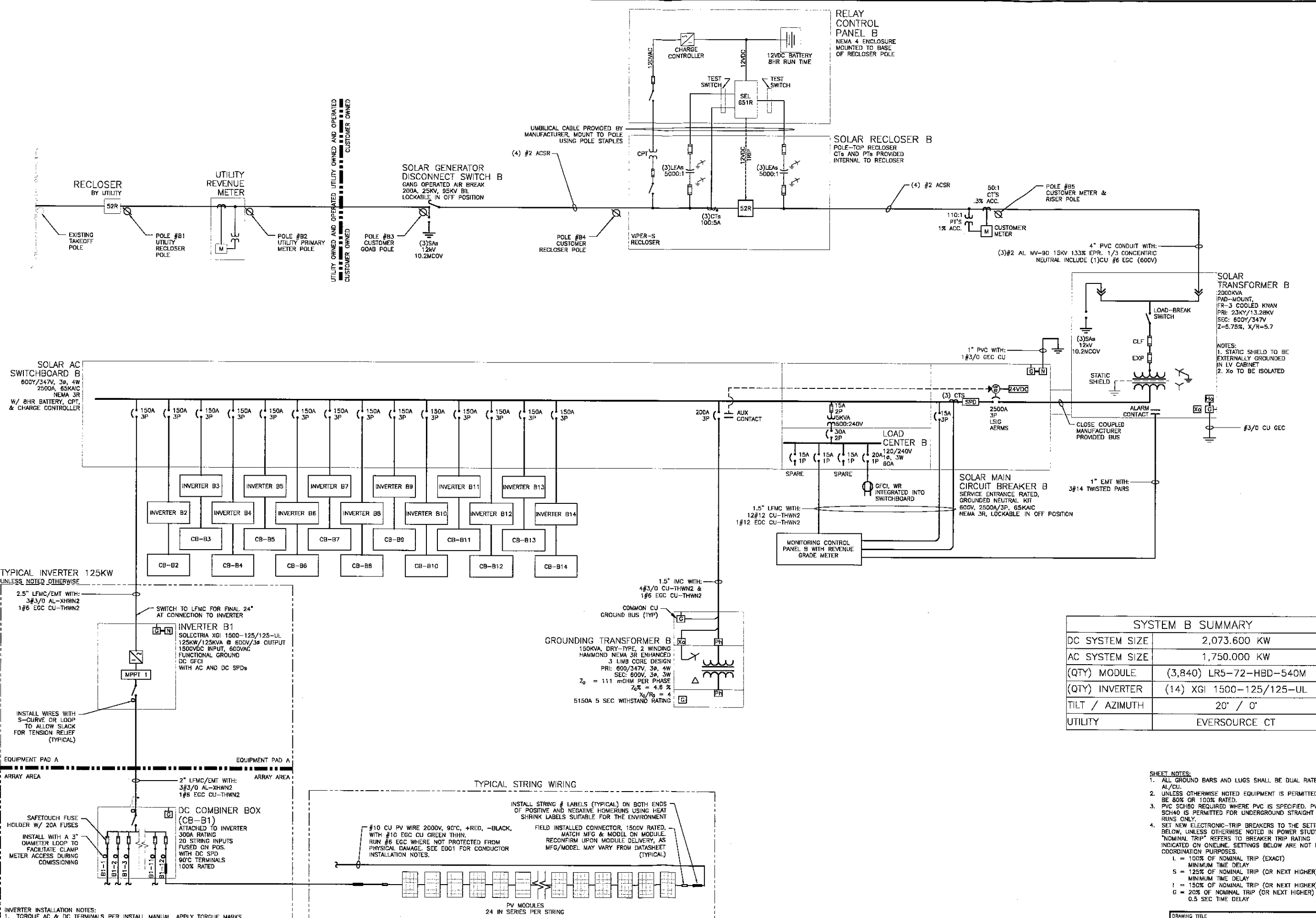
PURE POWER
111 WILSON STREET, HARTFORD, CT 06103
WWW.PUREPOWER.COM

GREENSKIES
127 WASHINGTON AVENUE, HARTFORD, CT 06103
WWW.GREENSKIES.COM

PROJECT: SOLAR GROUND MOUNT SYSTEM AT WINCHESTER, CT 06098
PROJECT # 05705

DRAWING TITLE: ONE LINE DIAGRAM SYSTEM A
DRAWING # E300

RULER IN INCHES: 18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
RUL DATE: 02/07/2023 02:14 PM



SYSTEM B SUMMARY

DC SYSTEM SIZE	2,073.600 KW
AC SYSTEM SIZE	1,750.000 KW
(QTY) MODULE	(3,840) LR5-72-HBD-540M
(QTY) INVERTER	(14) XGI 1500-125/125-UL
TILT / AZIMUTH	20° / 0°
UTILITY	EVERSOURCE CT

- #### SHEET NOTES:
- ALL GROUND BARS AND LUGS SHALL BE DUAL RATED AL/OU.
 - UNLESS OTHERWISE NOTED EQUIPMENT IS PERMITTED TO BE 80% OR 100% RATED.
 - PVC SCH80 REQUIRED WHERE PVC IS SPECIFIED. PVC SCH40 IS PERMITTED FOR UNDERGROUND STRAIGHT RUNS ONLY.
 - SET NEW ELECTRONIC-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 = 150% OF NOMINAL TRIP (OR NEXT HIGHER)
 - G = 20% OF NOMINAL TRIP (OR NEXT HIGHER)
 - 0.5 SEC TIME DELAY

ONE LINE DIAGRAM - SYSTEM B
SCALE: NONE

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CT LICENSE NO. 028282

GREENSKIES
127 WASHINGTON AVENUE
HARTFORD, CT 06103
WWW.GREENSKIES.COM
a Clark-Firec company

REVISION DESCRIPTION
02/08/2023 CONCEPTUAL DESIGN (REV 2)
02/07/2023 CONCEPTUAL DESIGN (REV 1)
01/27/2023 CONCEPTUAL DESIGN

DATE
02/08/2023
02/07/2023
01/27/2023

PN ENGR CHDK
02 SK AD RI
01 SK AD RI
01 SK AD RI

PROJECT: SOLAR GROUND MOUNT SYSTEM AT
WINCHESTER
41.939445, -73.069261
WINCHESTER, CT 06098

DC SYSTEM SIZE: 4,445,280 KWDC
AC SYSTEM SIZE: 3,740,000 KWAC
MODULE TYPE: LR5-72-HBD-540M
MODULE QUANTITY: 3,840
ORIENTATION: 20° TILT, 0° AZIMUTH

PAGE SIZE: 36" x 24"
PROJECT #: 05705

DRAWING TITLE: ONE LINE DIAGRAM SYSTEM B
DRAWING #: E301

RULER IN INCHES: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

SEL 651R RELAY
SETTINGS ARE PRELIMINARY PENDING UTILITY APPROVAL AND NOT INTENDED FOR CONSTRUCTION

Solar System Base AC Size = 4445KVA		111.58A BASE PRIMARY USED FOR 50/51 ELEMENTS			*Total Clear Time = 3 Cycle Breaker Plus Delay (Time Dial or DEF Time)					
5.58A BASE SECONDARY 50/51P,G,N,Q		5.58A BASE SECONDARY 50/51N			13279.06V BASE PRIMARY USED FOR 27/59 ELEMENTS					
P,G,N,Q CT RATIO FACTOR = 20		N CT RATIO FACTOR = 20			2.66V BASE SECONDARY USED FOR 27/59 ELEMENTS					
P CT = 100:5 180.5 CSD RF = 2 @ 30C		N CT = 100:5 180.5 C50 RF = 1 @ 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)*	Curve	Description
27-1	L-N Volt	2.34	11685.57	0.88	1.95	-	2.00	120.00	-	Slow UV
27-2	L-N Volt	1.33	6639.53	0.50	1.05	-	1.10	66.00	-	Fast UV
59-1	L-N Volt	2.92	14606.96	1.10	1.95	-	2.00	120.00	-	Slow OV
59-2	L-N Volt	3.19	15934.87	1.20	0.11	-	0.16	9.60	-	Fast OV
79-LUV	L-N Volt	2.52	12615.10	0.95	299.95	-	300.00	18000.00	-	Min Permissive Close Voltage
79-OV	L-N Volt	2.79	13943.01	1.05	299.95	-	300.00	18000.00	-	Max Permissive Close Voltage
81U-1	Hz	58.50	58.50	0.98	299.95	-	300.00	18000.00	-	Slow UF
81U-2	Hz	56.50	56.50	0.94	0.11	-	0.16	9.60	-	Fast UF
81O-1	Hz	61.20	61.20	1.02	299.95	-	300.00	18000.00	-	Slow OF
81O-2	Hz	62.00	62.00	1.03	0.11	-	0.16	9.60	-	Fast OF
79-UF	Hz	59.50	59.50	0.99	299.95	-	300.00	18000.00	-	Min Permissive Close Frequency
79-OF	Hz	60.50	60.50	1.01	299.95	-	300.00	18000.00	-	Max Permissive Close Frequency
51P	A	6.97	139.47	1.25	-	2	3.9 @2X	234.02 @2X	U4	Time Phase OC
50P	A	66.95	1338.95	12.00	0.00	-	0.05	3.00	-	Instantaneous P OC
51G	A	1.12	22.32	0.20	-	2	3.9 @2X	234.02 @2X	U4	Timed Ground OC
50G	A	5.58	111.58	1.00	0.00	-	0.05	3.00	-	Instantaneous G OC
51N	A	1.12	22.32	0.20	-	2	3.9 @2X	234.02 @2X	U4	Timed Neutral OC
50N	A	5.58	111.58	1.00	0.00	-	0.05	3.00	-	Instantaneous N OC
46	A	0.00	0.00	0.25	1.95	-	2.00	120.00	-	current unbalance >25% Power Level
32	3PH Watt	22.23	2222500.00	0.50	0.95	-	1.00	60.00	-	directional power
74	-	-	-	-	0.00	-	0.05	3.00	-	Relay Alarm

1 RELAY SETTINGS TABLE
E302 SCALE: NONE

INVERTER UL1741-SA Compliant

ANSI ELEMENT #	Pickup	Real	Level	Delay (sec)	Curve	Description
27-1	304.84	528V	88.0%	2.00		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				dV/dt
Freq Control		OFF				Speed Control

1 INVERTER SETTINGS TABLE
E302 SCALE: NONE

<p>PROJECT: SOLAR GROUND MOUNT SYSTEM AT WINCHESTER 41.939445, -75.069261 WINCHESTER, CT 06098</p>	<p>DC SYSTEM SIZE: 4,445,200 AHDC AC SYSTEM SIZE: 3,750,000 KWAC MODULE TYPE: LRS-72HBD-540M 540W MODULE QUANTITY: 8232 ORIENTATION: 20 TILT, 0 AZIMUTH</p>
<p>DEVELOPER: Greenskies a clean focus company 127 WASHINGTON AVENUE NORTH HAVEN, CT 06473 WWW.GREENSKIES.COM</p>	<p>REGISTERED PROFESSIONAL ENGINEER STATE OF CONNECTICUT RICHARD A. WINS CT LICENSE NO. 058382</p>
<p>DATE: 02/01/2023 REVISION DESCRIPTION: CONCEPTUAL DESIGN (REV 1)</p>	<p>DATE: 01/27/2023 REVISION DESCRIPTION: CONCEPTUAL DESIGN</p>
<p>PAGE SIZE: 36" x 24" PROJECT #: C5705</p>	<p>PM: LENC ORT SK: AD RI SK: AD RI SK: AD RI</p>