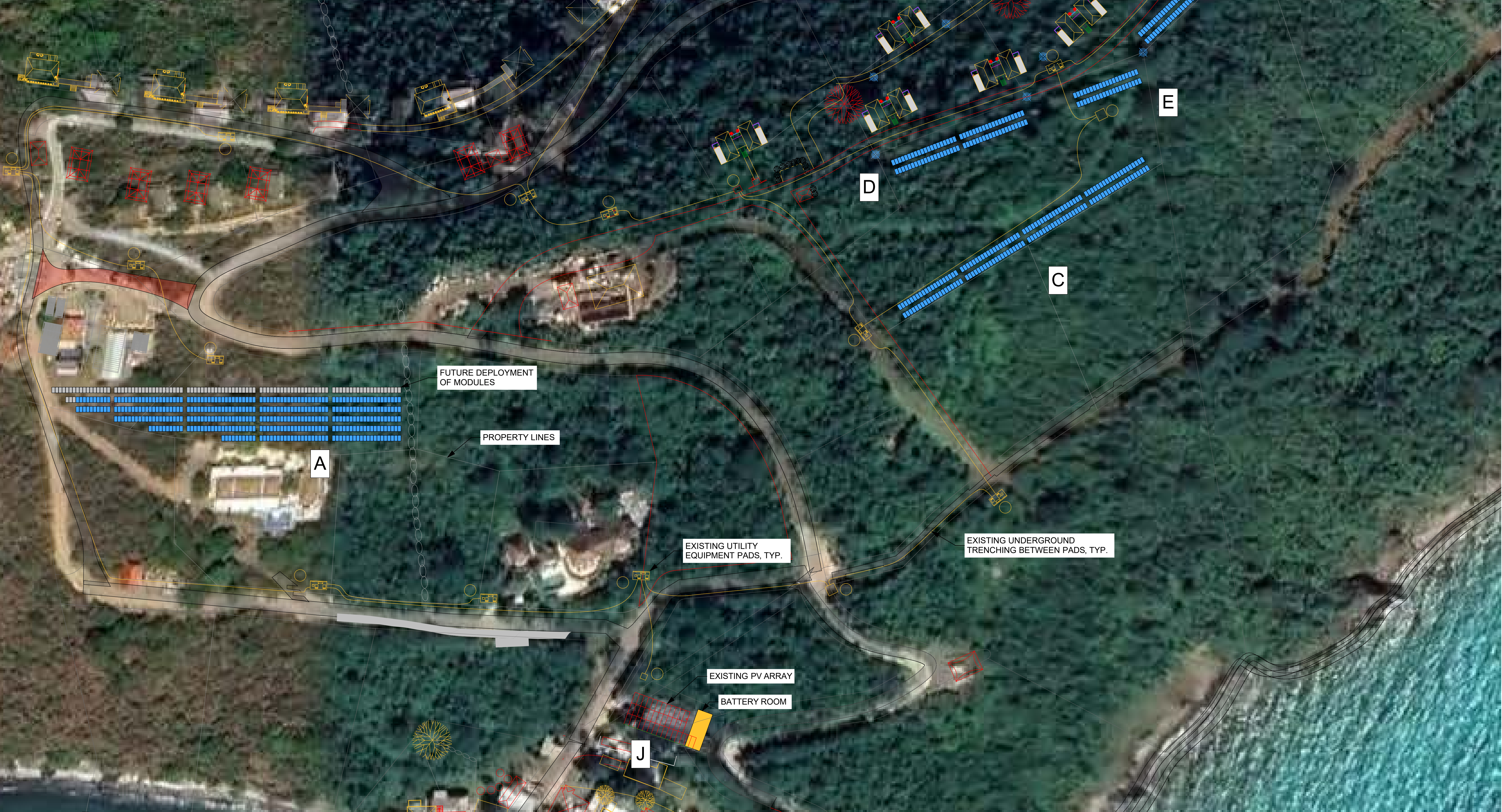
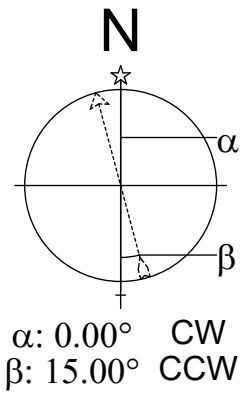


PHOTOVOLTAIC SYSTEM FOR LOVANGO CAY
LOVANGO CAY, 1, ST. JOHN U.S. VIRGIN ISLANDS 00830

solar design associates inc
HARVARD, MA 01461-0242
www.solar-design.com
tel: 978-456-6855
fax: 978-772-8715

Table with 11 columns: PV System, Total Modules, Module Wattage, kWdc, kWac, DC/AC Ratio, Tilt, Azimuth, kWh/year, kWh/kWdc. Rows include System A, System A (Expansion), System C, System D, System E, System F, System G, System J, SITE TOTAL (No Expansion), and SITE TOTAL (Incl. Expansion).



NOT FOR CONSTRUCTION

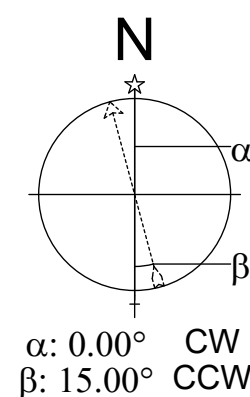
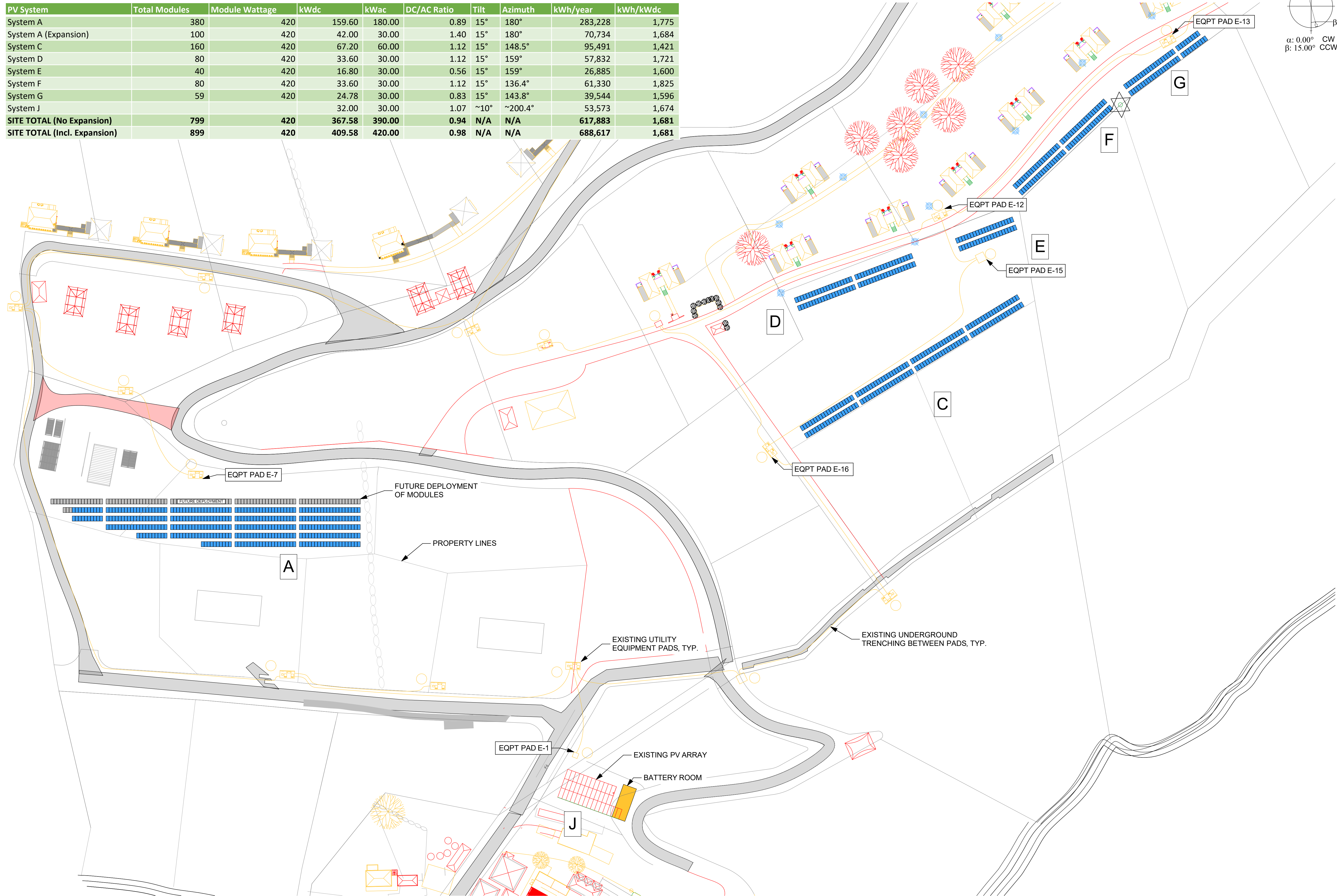
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LOVANGO CAY

Professional stamp area including 'SUBMISSION' (Friday, November 22, 2024), 'PROFESSIONAL STAMP' (REGISTERED ENGINEER EDWARD PORTNEY 1755-E, U.S. VIRGIN ISLANDS), and 'REVISION NOTES' table.

Contractor and Site information section including fields for NAME, STREET, CITY/ST/ZIP, NOTES, and FILE NAME.

PV System	Total Modules	Module Wattage	kWdc	kWac	DC/AC Ratio	Tilt	Azimuth	kWh/year	kWh/kWdc
System A	380	420	159.60	180.00	0.89	15°	180°	283,228	1,775
System A (Expansion)	100	420	42.00	30.00	1.40	15°	180°	70,734	1,684
System C	160	420	67.20	60.00	1.12	15°	148.5°	95,491	1,421
System D	80	420	33.60	30.00	1.12	15°	159°	57,832	1,721
System E	40	420	16.80	30.00	0.56	15°	159°	26,885	1,600
System F	80	420	33.60	30.00	1.12	15°	136.4°	61,330	1,825
System G	59	420	24.78	30.00	0.83	15°	143.8°	39,544	1,596
System J			32.00	30.00	1.07	~10°	~200.4°	53,573	1,674
SITE TOTAL (No Expansion)	799	420	367.58	390.00	0.94	N/A	N/A	617,883	1,681
SITE TOTAL (Incl. Expansion)	899	420	409.58	420.00	0.98	N/A	N/A	688,617	1,681



**solar
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www.solardesign.com fax: 978-772-9715

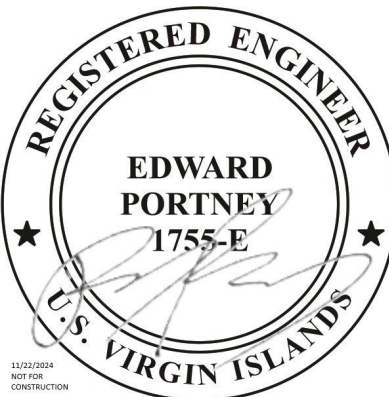
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LOVANGO CAY

CZM SET

Friday, November 22, 2024

[illegible]

NAME	
STREET	
CITY/ST/ZIP	
NOTES	

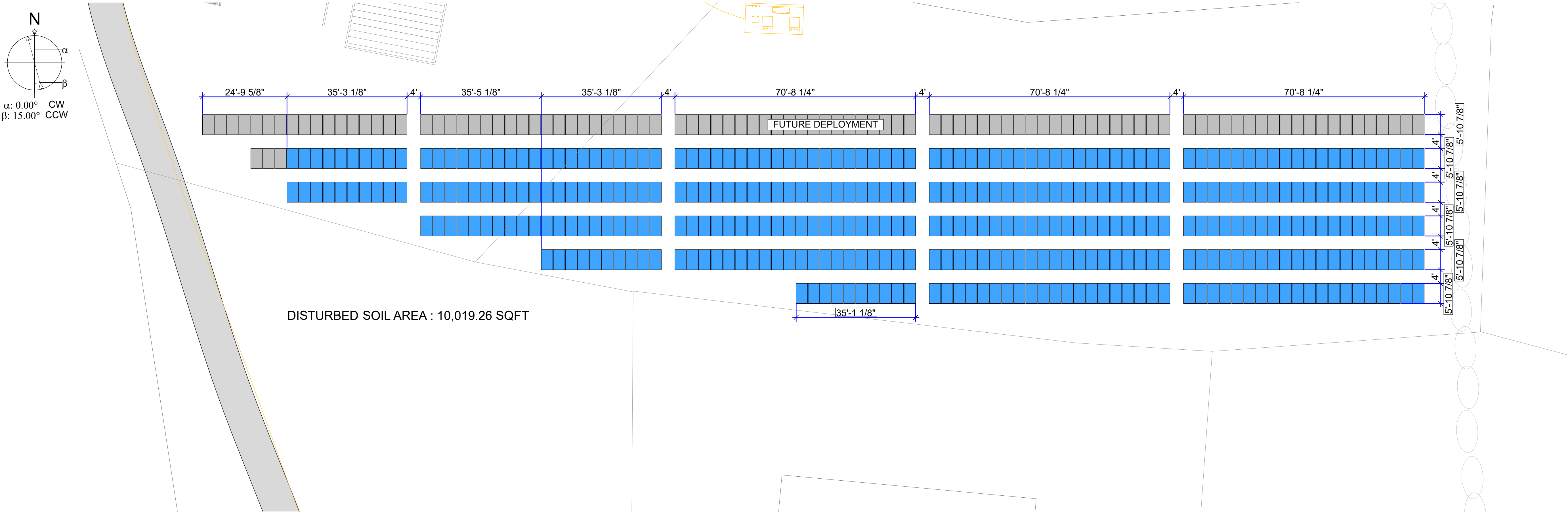
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STREET	LOVANGO CAY, 1
CITY/ST/ZIP	ST. JOHN, U.S. VIRGIN ISLANDS 008
NOTES	

FILE NAME	2024-0712 Lovango Cay.pln		
SCALE	AS NOTED		
DRAWN BY	CW, CS	DATE DRAFTED: 11/22/2024	
CHECKED BY	TP	SHEET SIZE: ARCH D	

DRAWING NO.	PV101
DRAWING TITLE	PV LAYOUT

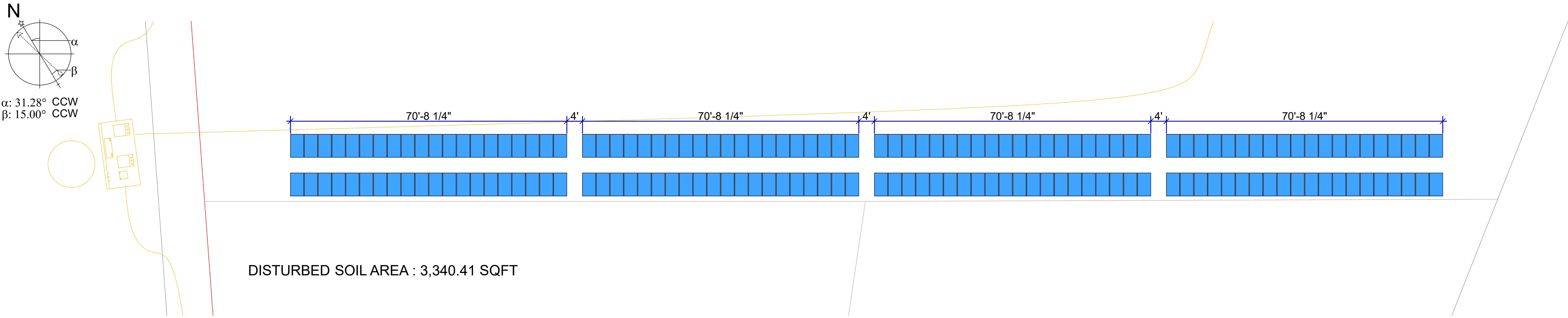
1 PV SYSTEM OPTIONS





1 DIMENSIONED PV LAYOUT, A

0 8' 16' 32'



2 DIMENSIONED PV LAYOUT, C

0 8' 16' 32'

NOTE:
DISTURBED SOIL AREA REFLECTS THE AREA UNDERNEATH
THE MODULES, EXCLUDING THE INTER-ROW SPACING

solar
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INC

HARVARD, MA 01451-0242
www.solar design.com

tel: 978-456-6855
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LOVANGO CAY

SUBMISSION

CZM SET

Friday, November 22, 2024

PROFESSIONAL STAMP

REGISTERED ENGINEER

EDWARD
PORTNEY
1755-E

U.S. VIRGIN ISLANDS

MARK	DATE	DESCRIPTION

CONTRACTOR

NAME

STREET

CITY/ST/ZIP

NOTES

SITE

NAME

STREET

CITY/ST/ZIP

NOTES

DRAWING

FILE NAME

SCALE

DRAWN BY

CHECKED BY

DRAWING NO.

DRAWING TITLE

2024-0712 Lovango Cay.pln

AS NOTED

CW, CS

TP

DATE DRAFTED: 11/22/2024

SHEET SIZE: ARCH D

PV102

DIMENSIONED PV LAYOUT, A & C



1 DIMENSIONED PV LAYOUT, D



NOTE:
DISTURBED SOIL AREA REFLECTS THE AREA UNDERNEATH
THE MODULES, EXCLUDING THE INTER-ROW SPACING

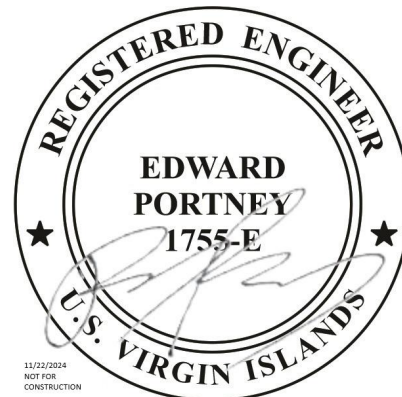


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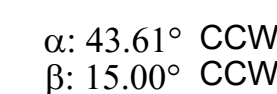
LOVANGO CAY

CZM SET

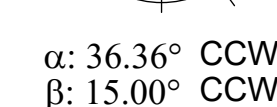
Friday, November 22, 2024



MARK		DATE		DESCRIPTION	
SITE	REVISION	NOTES			
CONTRACTOR	NAME				
	STREET				
	CITY/ST/ZIP				
	NOTES				
SITE	NAME	LOVANGO CAY			
	STREET	LOVANGO CAY, 1			
	CITY/ST/ZIP	ST. JOHN, U.S. VIRGIN ISLANDS 00830			
	NOTES				
DRAWING	FILE NAME	2024-0712 Lovango Cay.glm			
	SCALE	AS NOTED			
	DRAWN BY	CW, CS	DATE DRAFTED: 11/23/2024		
	CHECKED BY	TP	SHEET SIZE: ARCH D		
	DRAWING NO.	PV103			
	DRAWING TITLE	DIMENSIONED PV LAYOUT, D & E			



0 4' 8' 16'

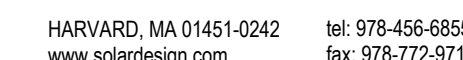


Technical drawing of a roof layout showing two rows of blue rectangular tiles. The top row is labeled with dimensions 70'-8 1/4" and 4'-0". The bottom row is labeled with dimensions 31'-8 5/8" and 4'-0". A diagonal line is drawn across the bottom row.

A horizontal timeline with tick marks at 0, 4', 8', and 16 minutes. The segments between 0 and 4', 4' and 8', and 8' and 16' are shaded black.

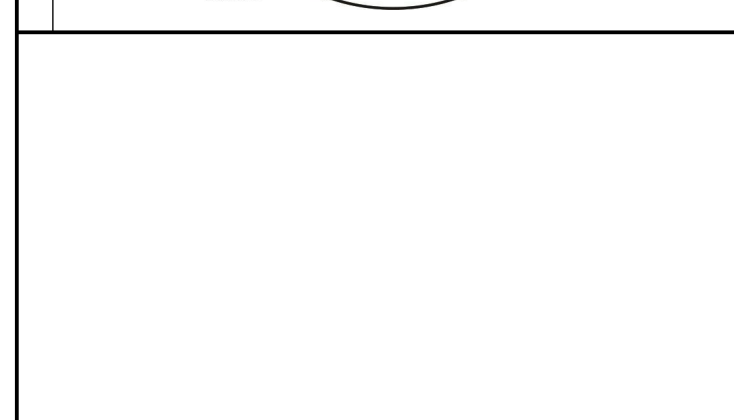
A horizontal timeline with tick marks at 0, 4', 8', and 16 minutes. The segments between 0 and 4', 4' and 8', and 8' and 16' are shaded black, while the segment between 0 and 4' is white.

NOTE:
DISTURBED SOIL AREA REFLECTS THE AREA UNDERNEATH
THE MODULES, EXCLUDING THE INTER-ROW SPACING



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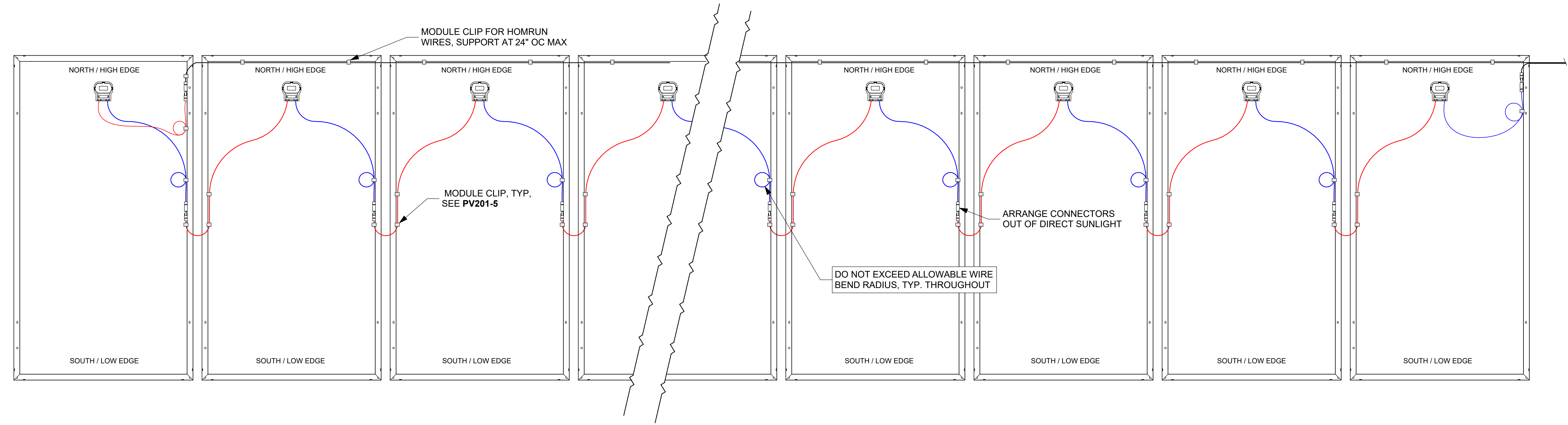
SUBMISSION	CZM SET
	Friday, November 22, 2024



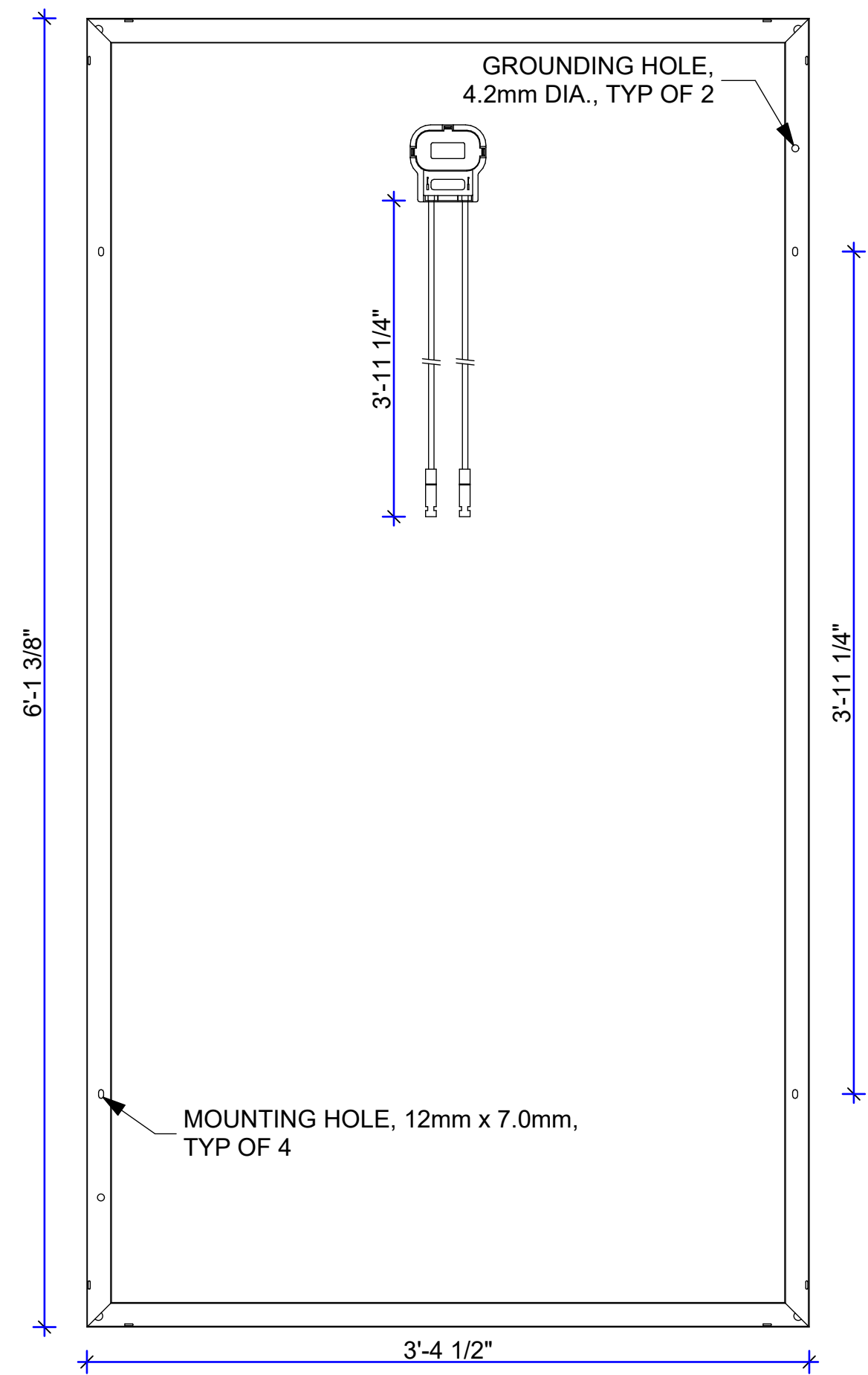
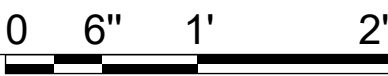
CONTRACTOR	NAME	
	STREET	
	CITY/ST/ZIP	
	NOTES	

NG	FILE NAME	2024-0712 Lovango Cay.pln	
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	DRAWN BY	CW, CS	DATE DRAFTED: 11/22/2024
	CHECKED BY	TP	SHEET SIZE: ARCH D

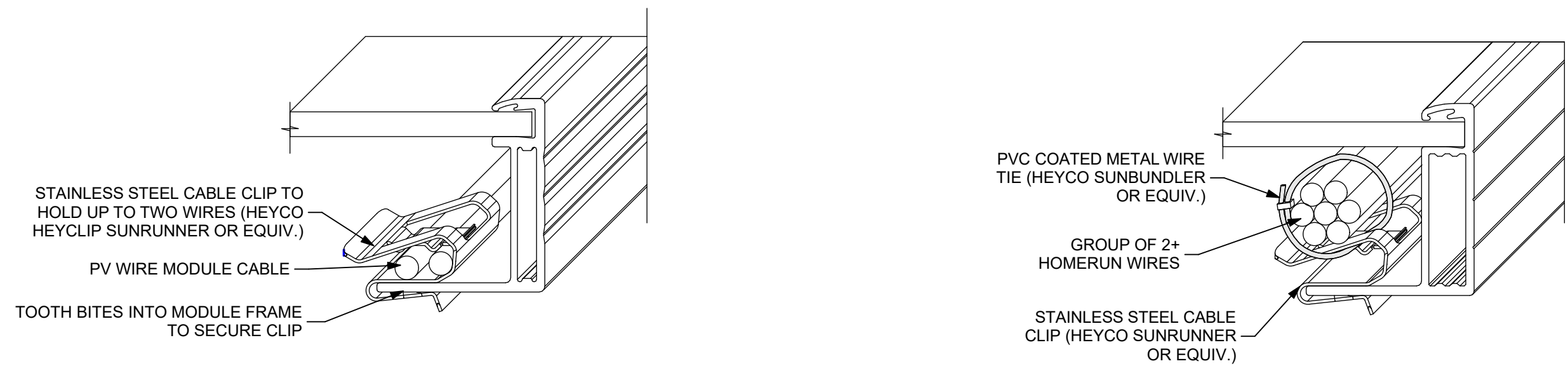
		α C



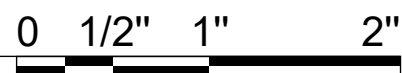
1 TYPICAL SOURCE CIRCUIT WIRING



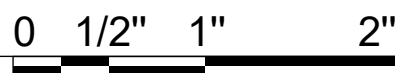
2 MODULE DETAILS



3 2-WIRE MODULE CLIP



4 HOMERUN WIRING CLIP

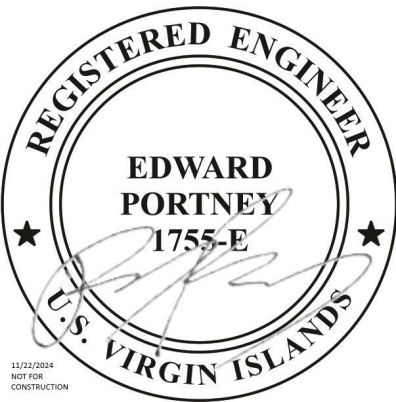


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LOVANGO CAY

CSZM SET
Friday, November 22, 2024



MARK	DATE	DESCRIPTION

CONTRACTOR	NAME
	STREET
	CITY/ST/ZIP
	NOTES

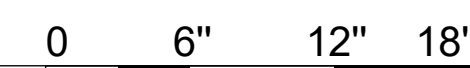
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	STREET	LOVANGO CAY, 1
	CITY/ST/ZIP	ST. JOHN, U.S. VIRGIN ISLANDS 00830
	NOTES	

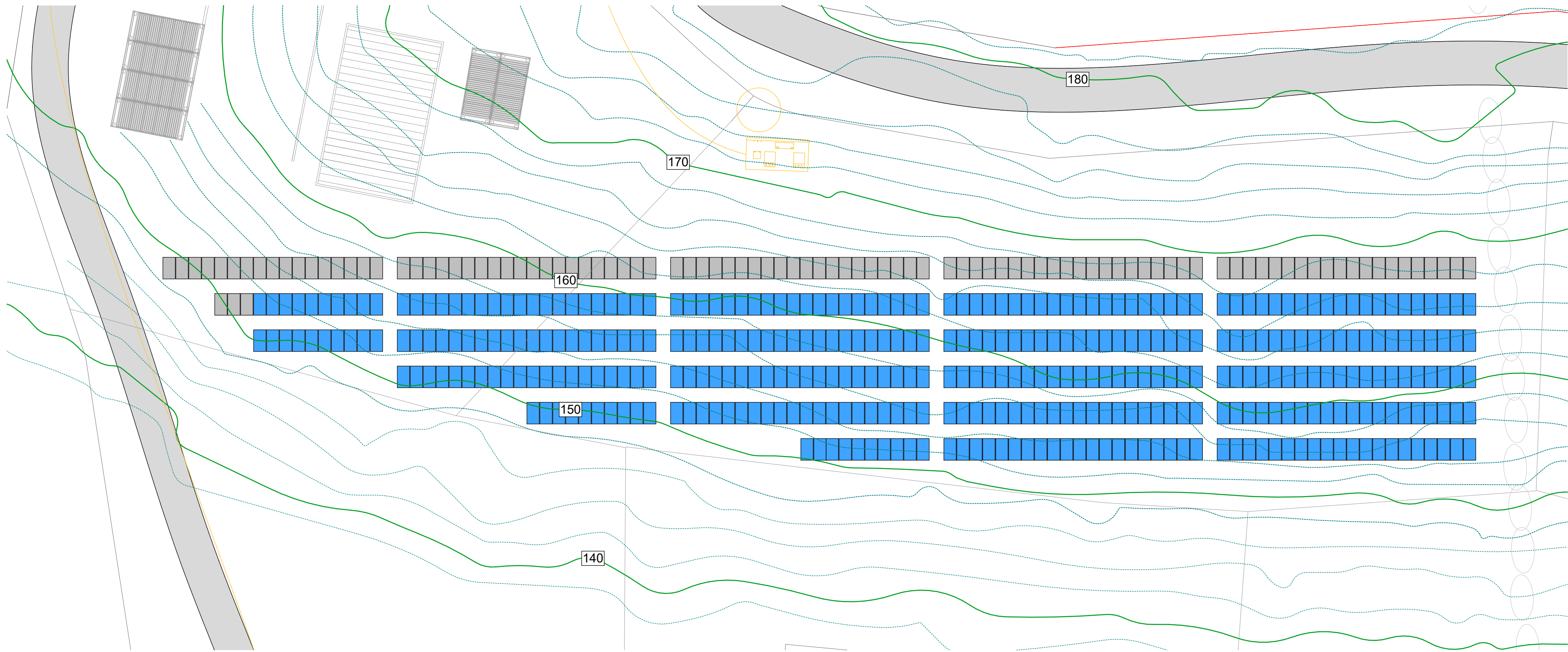
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SCALE	AS NOTED		
DRAWN BY	CW, CS	DATE DRAFTED:	11/22/2024

DRAWING NO.	PV202
DRAWING TITLE	MODULE DETAILS



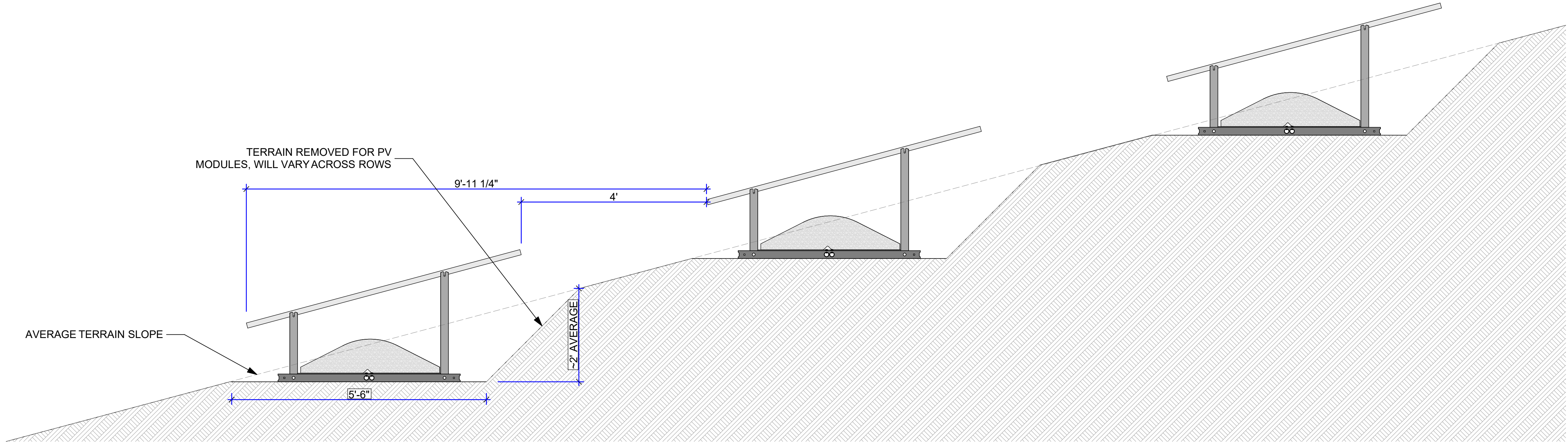
A horizontal scale bar with tick marks at 0, 6", 12", and 18". The segments between 0 and 6", 6" and 12", and 12" and 18" are shaded black.





180	ELEVATION ABOVE SEA LEVEL (FT)
	MAJOR CONTOUR LINE (10')
	MINOR CONTOUR LINE (2')

1 TOPOGRAPHIC LAYOUT, SYSTEM A



2 ELEVATION VIEW, SYSTEM A

NOTE:
ABOVE LAYOUT SHOWS AVERAGE SLOPE OF 14.93° ACROSS THE ARRAY. SLOPE TO VARY PER TOPOGRAPHIC LAYOUT SHOWN IN 204.1 AND PER FIELD CONDITIONS

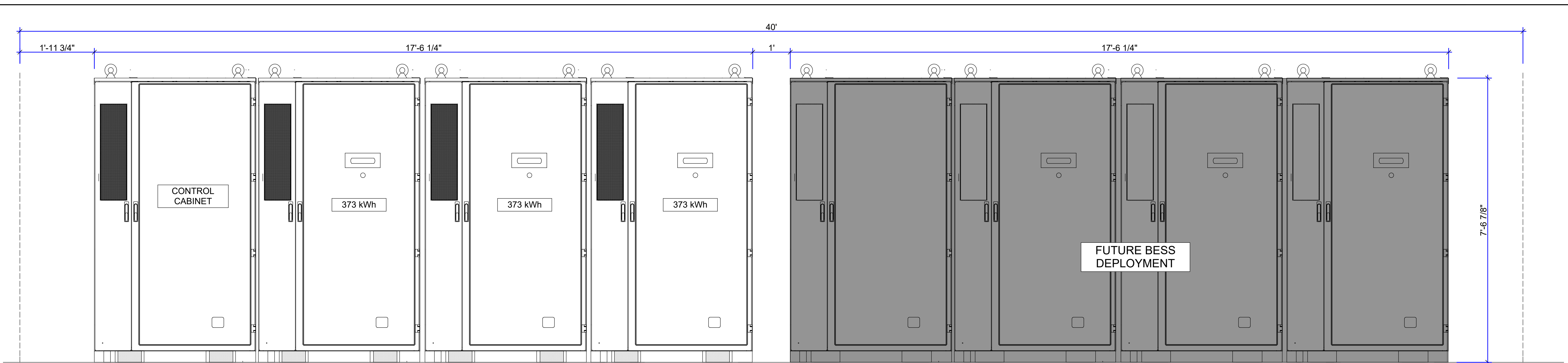
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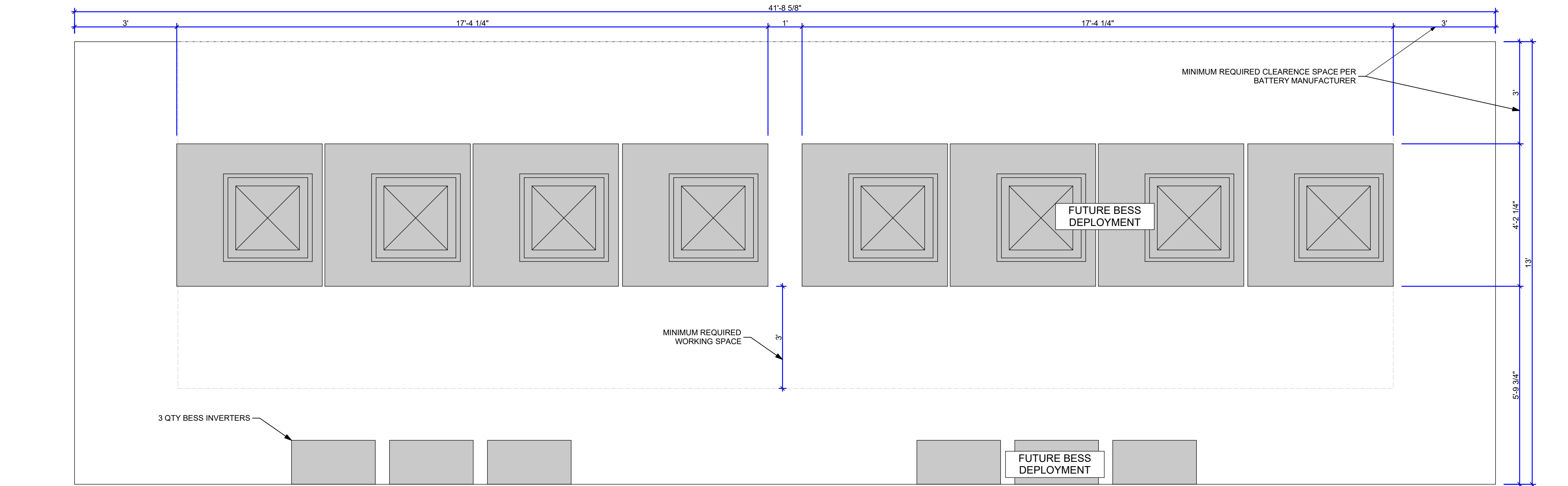
LOVANGO CAY

SUBMISSION	CZM SET	
	Friday, November 22, 2024	
PROFESSIONAL STAMP		

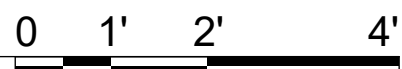
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CONTRACTOR	NAME		
	CITY/ST/ZIP		
	NOTES		
SITE	NAME		LOVANGO CAY
	STREET		LOVANGO CAY, 1
	CITY/ST/ZIP		ST. JOHN, U.S. VIRGIN ISLANDS 00830
	NOTES		
DRAWING	FILE NAME		2024-0712 Lovango Cay.pln
	SCALE		AS NOTED
	DRAWN BY	CW, CS	DATE DRAFTED: 11/22/2024
	CHECKED BY	TP	SHEET SIZE: ARCH D
	DRAWING NO.		PV204
DRAWING TITLE			
			RACKING ELEVATION, SYSTEM A



1 BESS ELEVATION



2 BESS LAYOUT



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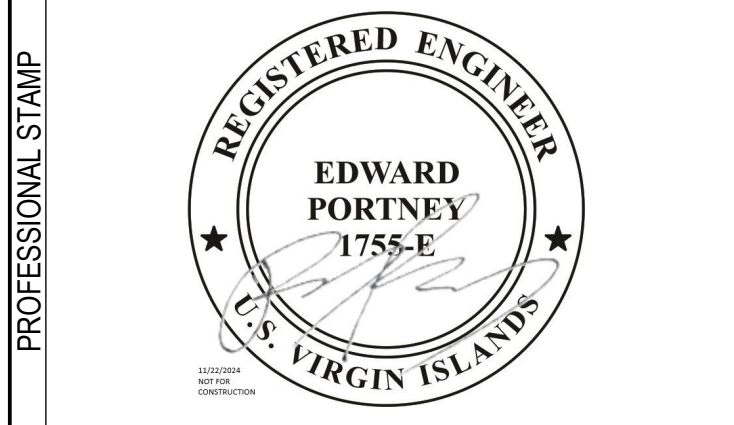
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LOVANGO CAY

SUBMISSION

CZM SET

Friday, November 22, 2024



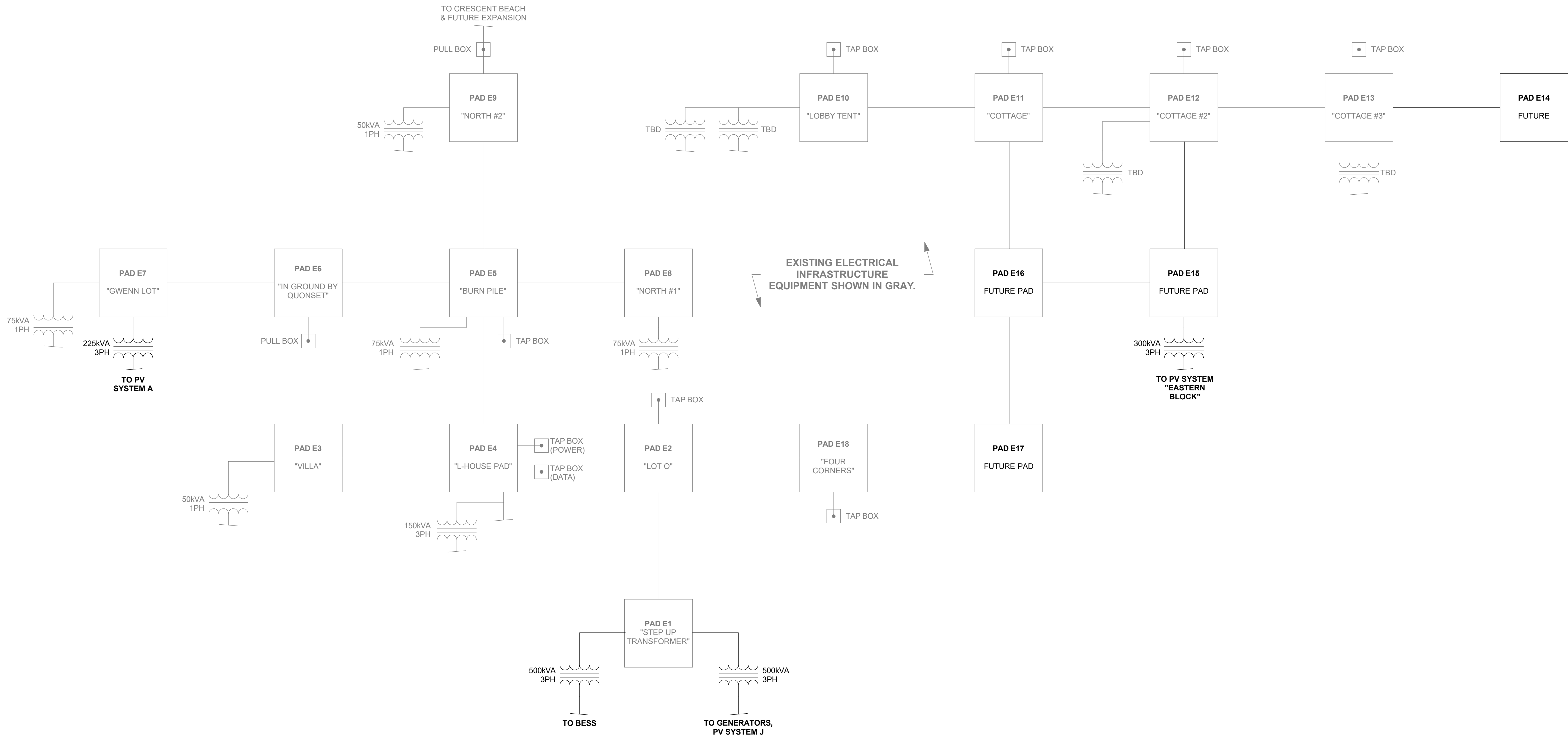
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CONTRACTOR	NAME	
	STREET	
	CITY/ST/ZIP	
	NOTES	

SITE	NAME	LOVANGO CAY
	STREET	LOVANGO CAY, 1
	CITY/ST/ZIP	ST. JOHN, U.S. VIRGIN ISLANDS 00830
	NOTES	

DRAWING	FILE NAME	2024-0712 Lovango Cay.pln
	SCALE	AS NOTED
	DRAWN BY	CW, CS DATE DRAFTED: 11/22/2024
	CHECKED BY	TP SHEET SIZE: ARCH D

DRAWING NO.	PV502
DRAWING TITLE	BESS EQUIPMENT



1 MV LOOP SINGLE LINE



HARVARD, MA 01461-0242

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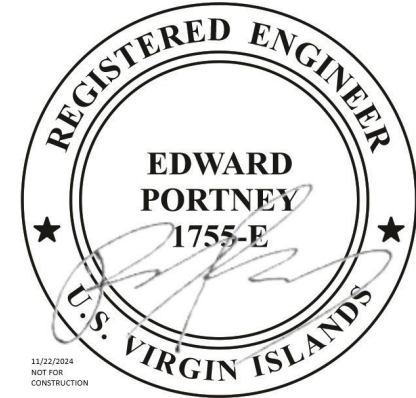
LOVANGO CAY

SUBMISSION

CZM SET

Friday, November 22, 2024

PROFESSIONAL STAMP



MARK	DATE	DESCRIPTION

CONTRACTOR

NAME

STREET

CITY/ST/ZIP

NOTES

SITE

NAME

STREET

CITY/ST/ZIP

NOTES

DRAWING

FILE NAME

2024-0712 Lovango Cay.pln

SCALE

AS NOTED

DRAWN BY

CW, CS

DATE DRAFTED:

11/22/2024

CHECKED BY

TP

SHEET SIZE:

ARCH D

DRAWING NO.

PV601

DRAWING TITLE

SINGLE LINE, OVERALL

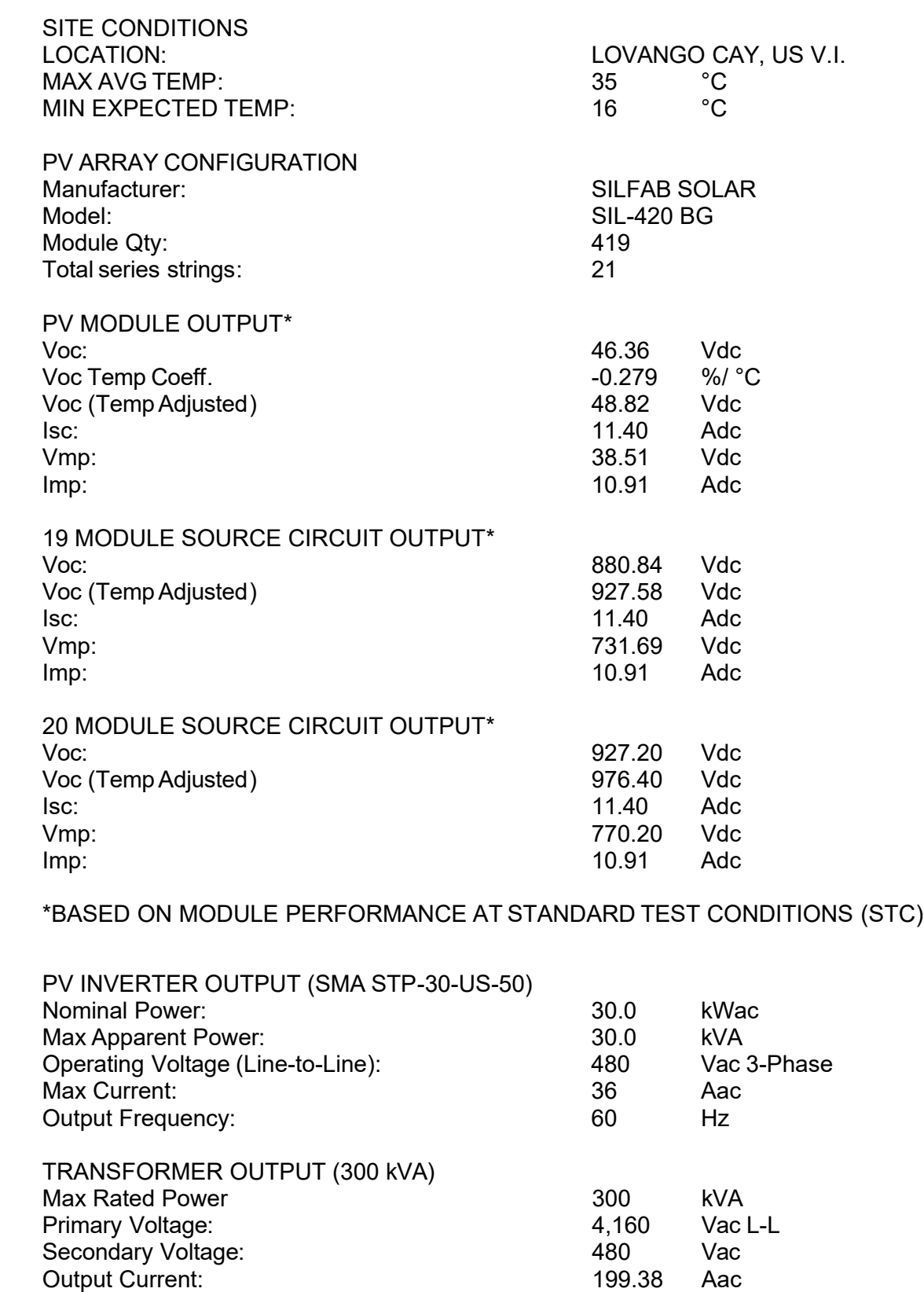


TABLE 2: TRIP LEVEL SETTINGS TO STOP INVERTER			V _{NOM} = 277V L-N
ID	DESCRIPTION	SET POINT	TOTAL CLEAR TIME
1	LINE UNDER VOLTAGE (FAST)	138.5 V	1.1 SEC
2	LINE UNDER VOLTAGE (SLOW)	243.7 V	3.0 SEC
3	LINE OVER VOLTAGE (FAST)	304.7 V	2.0 SEC
4	LINE OVER VOLTAGE (SLOW)	332.4 V	0.16 SEC
5	LINE UNDER FREQUENCY (FAST)	56.5 Hz	0.16 SEC
6	LINE UNDER FREQUENCY (SLOW)	58.5 Hz	300 SEC
7	LINE OVER FREQUENCY (FAST)	61.2 Hz	300 SEC
8	LINE OVER FREQUENCY (SLOW)	62.0 Hz	0.16 SEC
9	UTILITY RESTORATION DETECTION	$263.1 \leq V \leq 290.8V$ $59.5 \leq f \leq 60.5$	300 SEC

INVERTER TRIP LEVEL NOTES:

1. INVERTER TOTAL CLEARING TIME INCLUDES MECHANICAL OPERATION TIME OF 3 CYCLES (0.05s)
2. UTILITY RESTORATION DETECTION WILL USE THE FACTORY SETTINGS FOR A UL 1741SB CERTIFIED INVERTER.

TABLE 1: PHOTOVOLTAIC SYSTEM EQUIPMENT LIST		QTY
(A)	SILFAB 420W PV MODULE, SIL-420 BG	419
(B1)	SMA SUNNY TRIPOWER 30-US STP-30-US-50 INVERTER, 30kW, 36Aac MAX OUTPUT CURRENT, 277/480Vac OUTPUT	6
(B2)	MAINTENANCE AC DISCONNECT, 277/480V , MIN 50A, 3- POLE, NEMA3R OR NEMA4X, ABB-EOT45U3P4-P OR EQUIV.	6
(C)	PV PANELBOARD, 277/480V, 60A BUSBAR WITH 60A MAIN BREAKER, BRANCH BREAKERS AS NOTED, NEMA3R	1
(D)	TRANSIENT VOLTAGE SURGE SUPPRESSOR INTEGRATED INTO PANEL, 120ka MINIMUM RATING	1
(E)	WEATHER STATION IN ARRAY FIELD	1
(F)	NEW UTILITY OWNED 300kVA PAD MOUNTED TRANSFORMER, 277/480VAC Yg SECONDARY, 2.40/4.16kV Yg PRIMARY	1

*REFLECTS TOTAL QUANTITY AFTER FUTURE DEPLOYMENT

GENERAL EQUIPMENT NOTES:

1. ALL EQUIPMENT TO BE RATED FOR USE AS SERVICE ENTRANCE EQUIPMENT.

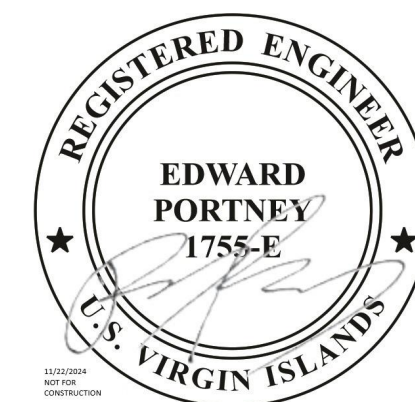
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LOVANGO CAY

CZM SET

Friday, November 22, 2024



	MARK	DATE	DESCRIPTION
REVISION NOTES			
CONTRACTOR	NAME		
	STREET		
	CITY/ST/ZIP		
	NOTES		
SITE	NAME		LOVANGO CAY
	STREET		LOVANGO CAY, 1
	CITY/ST/ZIP		ST. JOHN, U.S. VIRGIN ISLANDS 00830
	NOTES		
DRAWING	FILE NAME		2024-07-12 Lovango Cay.pln
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	DRAWN BY		CW, CS DATE DRAFTED: 11/22/2024
	CHECKED BY		TP SHEET SIZE: ARCH D
	DRAWING NO.		PV603
	DRAWING TITLE		SINGLE LINE, EASTERN BLOCK

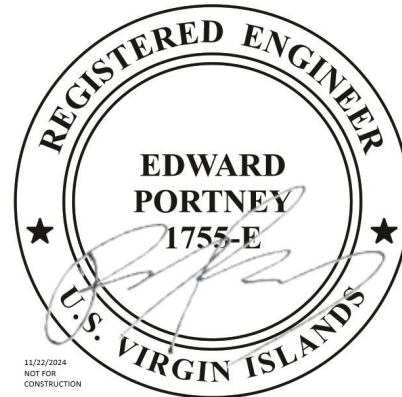
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LOVANGO CAY

CZM SET

Friday, November 22, 2024



SUBMISSION
PROFESSIONAL STAMP

MARK	DATE	DESCRIPTION

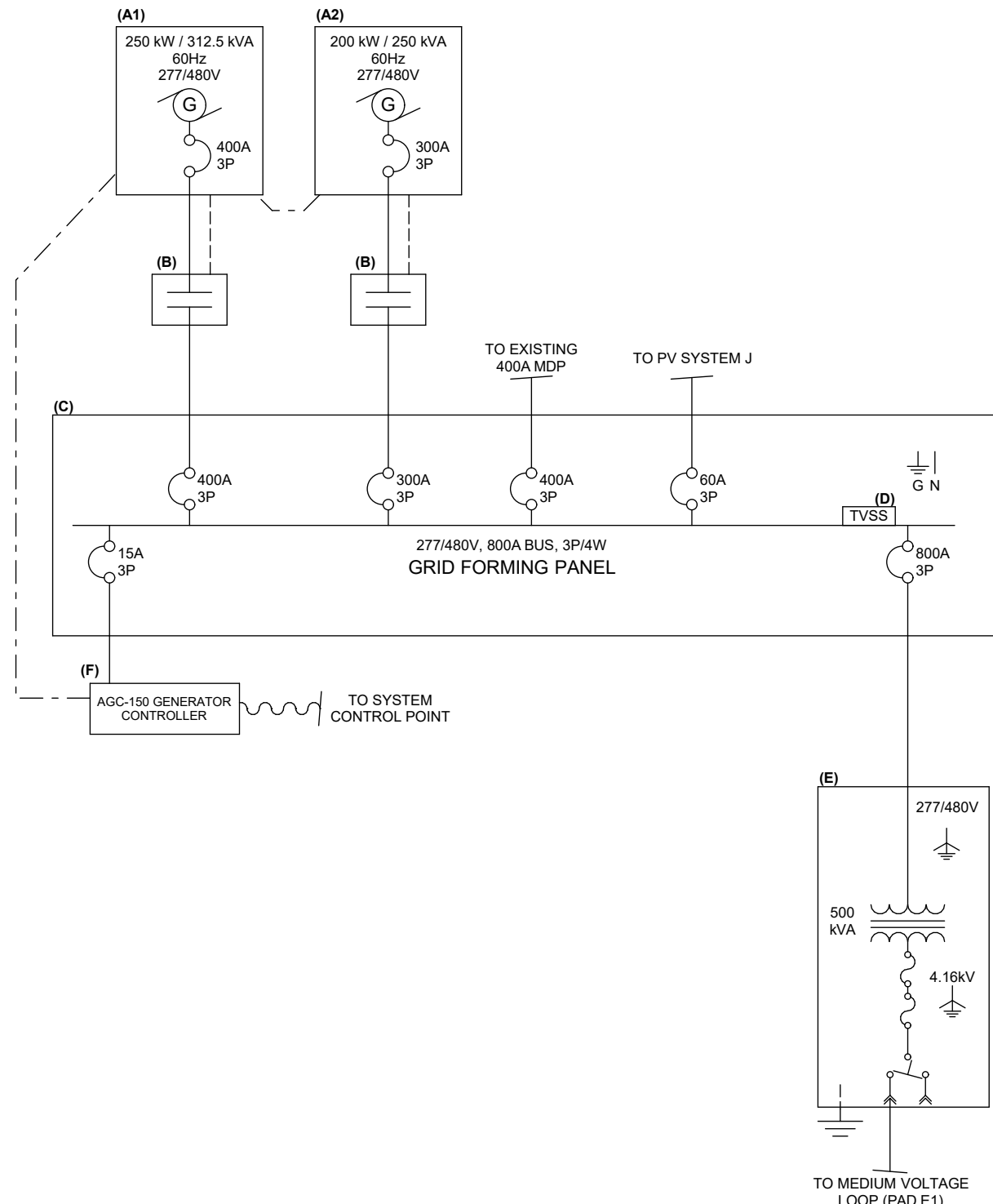
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	STREET
	CITY/ST/ZIP
	NOTES

SITE	NAME
	STREET
	CITY/ST/ZIP
	NOTES

DRAWING	FILE NAME
	SCALE
	DRAWN BY
	CHECKED BY
	DRAWING NO.
	DRAWING TITLE

PV604

SINGLE LINE, GEN, BATTERY



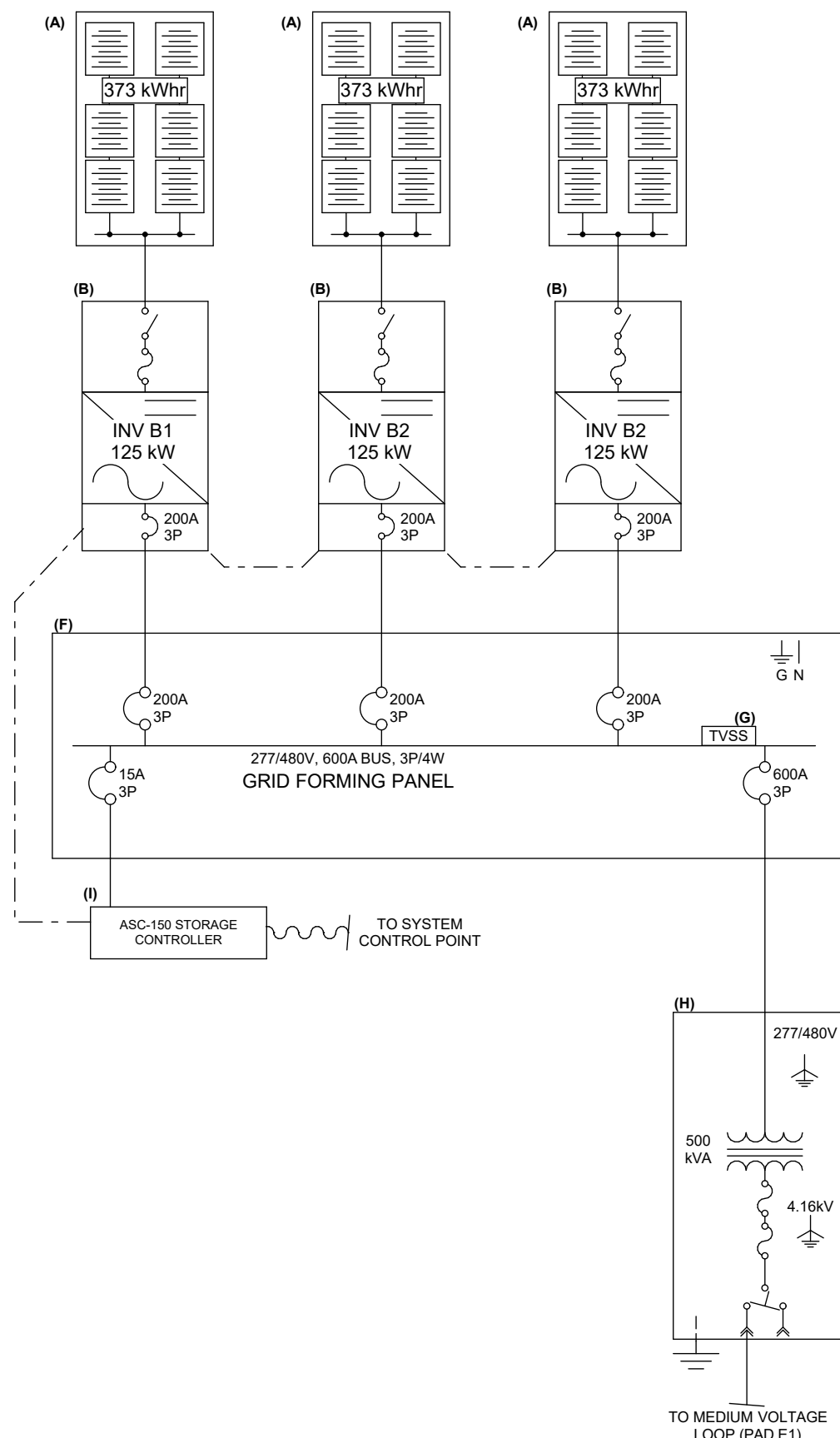
SITE CONDITIONS
LOCATION: LOVANGO CAY, US V.I.
MAX AVG TEMP: 35 °C
MIN EXPECTED TEMP: 16 °C

BESS INVERTER OUTPUT (MPS-125)
Nominal Power: 125.0 kWac
Max Apparent Power: 125.00 kVA
Operating Voltage (Line-to-Line): 480 Vac 3-Phase
Max Current: 150.0 Aac
Output Frequency: 60 Hz

TRANSFORMER OUTPUT (300 kVA)
Max Rated Power: 300 kVA
Primary Voltage: 4,160 Vac L-L
Secondary Voltage: 480 Vac
Output Current: 41.64 Aac

TABLE 1: PHOTOVOLTAIC SYSTEM EQUIPMENT LIST	
(A1) 250kW, 312.5 kVA GRID FORMING GENERATOR, 277/480V OUTPUT, 3P/4W, 300A MAXIMUM OUTPUT CURRENT	1
(A2) 200kW, 250 kVA GRID FORMING GENERATOR, 277/480V OUTPUT, 3P/4W, 240A MAXIMUM OUTPUT CURRENT	1
(B) GENERATOR CONTACTOR, 277/480Vac 3 POLE, 400A MIN RATING, SIGNAL FROM GENERATOR CONTROLLER	1
(C) GRID FORMING PANELBOARD, 800A BUS, 800A MAIN BREAKER, 3P/4W, BRANCH BREAKERS AS NOTED, NEMA 3R	1
(D) TRANSIENT VOLTAGE SURGE SUPPRESSOR INTEGRATED INTO PANEL, 120KA MINIMUM RATING	1
(E) NEW UTILITY OWNED 300kVA PAD MOUNTED TRANSFORMER, 277/480VAC Yg SECONDARY, 2,40/4.16kV Yg PRIMARY	1
(F) AGC-150 GENERATOR CONTROLLER	1

GENERAL EQUIPMENT NOTES:
1. ALL EQUIPMENT TO BE RATED FOR USE AS SERVICE ENTRANCE EQUIPMENT.



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Max Current: 150.0 Aac
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TRANSFORMER OUTPUT (500 kVA)
Max Rated Power: 500 kVA
Primary Voltage: 4,160 Vac L-L
Secondary Voltage: 480 Vac
Output Current: 34.62 Aac

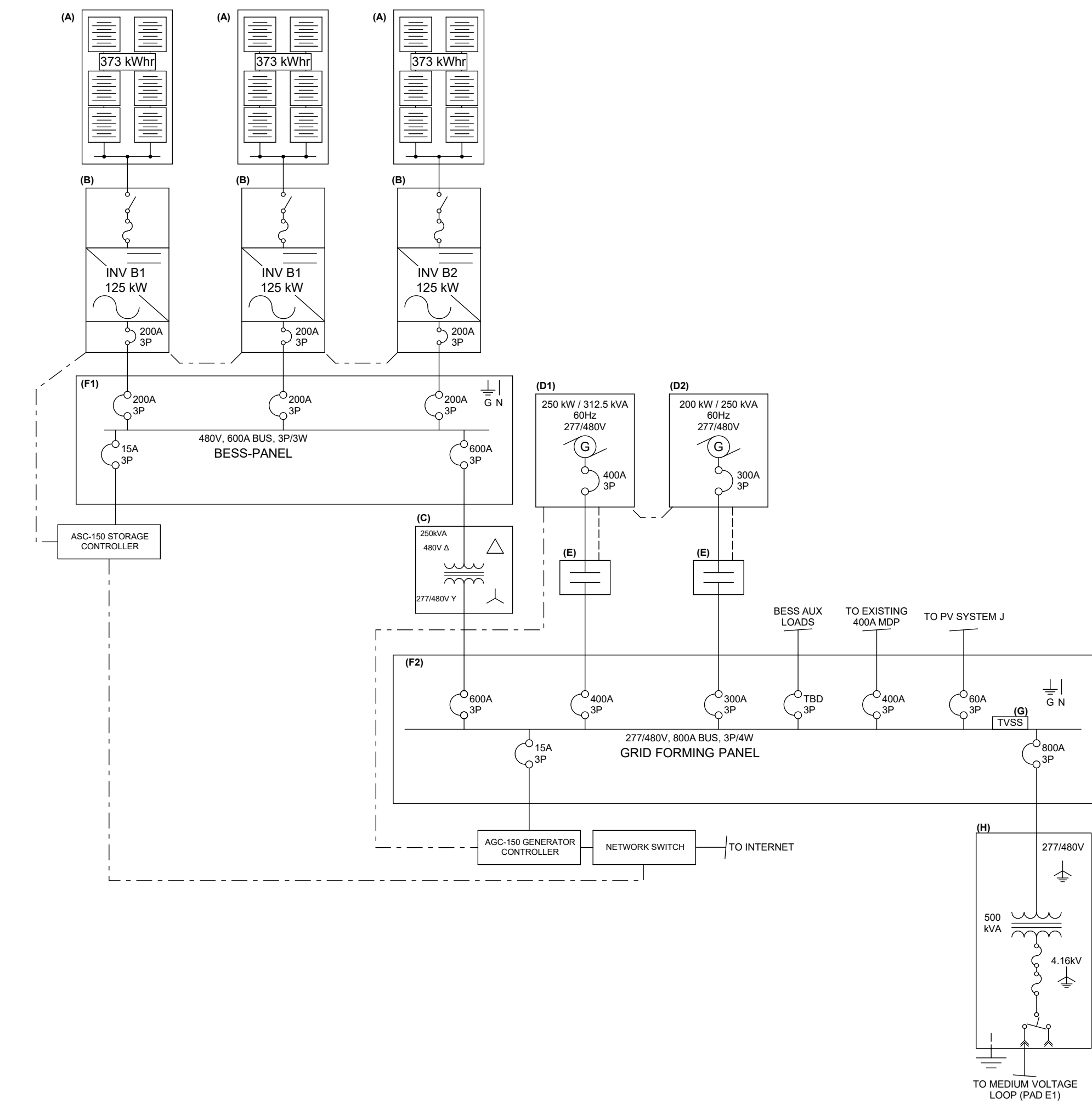
TABLE 1: PHOTOVOLTAIC SYSTEM EQUIPMENT LIST	
(A) BATTERY ENCLOSURE, 1000 kWhr OF BATTERY STORAGE (4hr RUNTIME MIN), NEMA 3R	1
(B) DYNAPOWER MPS125kW INVERTER, 125kW, 150.0Aac MAX OUTPUT CURRENT, 480Vac OUTPUT	1
(C) GRID FORMING PANELBOARD, 800A BUS, 800A MAIN BREAKER, 3P/4W, BRANCH BREAKERS AS NOTED, NEMA 3R	1
(D) TRANSIENT VOLTAGE SURGE SUPPRESSOR INTEGRATED INTO PANEL, 120KA MINIMUM RATING	1
(E) NEW UTILITY OWNED 300kVA PAD MOUNTED TRANSFORMER, 277/480VAC Yg SECONDARY, 2,40/4.16kV Yg PRIMARY	1
(F) UTILITY MICROGRID CONTROLLER	1

GENERAL EQUIPMENT NOTES:
1. ALL EQUIPMENT TO BE RATED FOR USE AS SERVICE ENTRANCE EQUIPMENT.

TABLE 2: TRIP LEVEL SETTINGS TO STOP INVERTER		V _{nom} = 277V L-N
ID	DESCRIPTION	TOTAL CLEAR TIME
1	LINE UNDER VOLTAGE (FAST)	138.5 V 1.1 SEC
2	LINE UNDER VOLTAGE (SLOW)	243.7 V 3.0 SEC
3	LINE OVER VOLTAGE (SLOW)	304.7 V 2.0 SEC
4	LINE OVER VOLTAGE (FAST)	332.4 V 0.16 SEC
5	LINE UNDER FREQUENCY (FAST)	56.5 Hz 0.16 SEC
6	LINE UNDER FREQUENCY (SLOW)	58.5 Hz 300 SEC
7	LINE OVER FREQUENCY (SLOW)	61.2 Hz 300 SEC
8	LINE OVER FREQUENCY (FAST)	62.0 Hz 0.16 SEC
9	UTILITY RESTORATION DETECTION	263.1 ≤ V ≤ 290.8V 300 SEC

INVERTER TRIP LEVEL NOTES:
1. INVERTER TOTAL CLEARING TIME INCLUDES MECHANICAL OPERATION TIME OF 3 CYCLES (0.05s)
2. UTILITY RESTORATION DETECTION WILL USE THE FACTORY SETTINGS FOR A UL 1741SB CERTIFIED INVERTER.

1 SINGLE LINE, GENERATOR



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TRANSFORMER OUTPUT (300 kVA)
Max Rated Power: 300 kVA
Primary Voltage: 4,160 Vac L-L
Secondary Voltage: 480 Vac
Output Current: 41.64 Aac

TABLE 1: PHOTOVOLTAIC SYSTEM EQUIPMENT LIST	
(A) BATTERY ENCLOSURE, 1000 kWhr OF BATTERY STORAGE TOTAL (4hr RUNTIME MIN), NEMA 3R	1
(B) DYNAPOWER MPS125kW INVERTER, 125kW, 150.0Aac MAX OUTPUT CURRENT, 480Vac OUTPUT	2
(C) BESS ISOLATION TRANSFORMER, 250kVA, 480Vac Δ TO 277/480 WYE, NEMA3R	1
(D1) 250kW, 312.5 kVA GRID FORMING GENERATOR, 277/480V OUTPUT, 3P/4W, 300A MAXIMUM OUTPUT CURRENT	1
(D2) 200kW, 250 kVA GRID FORMING GENERATOR, 277/480V OUTPUT, 3P/4W, 240A MAXIMUM OUTPUT CURRENT	1
(E) GENERATOR CONTACTOR, 277/480Vac 3 POLE, 400A MIN RATING, SIGNAL FROM GENERATOR CONTROLLER	1
(F1) AC PANELBOARD FOR COMBINING BATTERY AC OUTPUT, 600A BUS, 600A MAIN BREAKER, 3P/3W, NEMA 3R	1
(F2) GRID FORMING PANELBOARD, 800A BUS, 800A MAIN BREAKER, 3P/4W, BRANCH BREAKERS AS NOTED, NEMA 3R	1
(G) TRANSIENT VOLTAGE SURGE SUPPRESSOR INTEGRATED INTO PANEL, 120KA MINIMUM RATING	1
(H) NEW UTILITY OWNED 500kVA PAD MOUNTED TRANSFORMER, 277/480VAC Yg SECONDARY, 2,40/4.16kV Yg PRIMARY	1

GENERAL EQUIPMENT NOTES:
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2. UTILITY RESTORATION DETECTION WILL USE THE FACTORY SETTINGS FOR A UL 1741SB CERTIFIED INVERTER.

3 SINGLE LINE, GENERATOR/ BESS ALT.

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Integrated System Manager - Monitoring and control for up to 35 inverters (max. 150 kVA) - Remote access with Sunny Portal powered by eneeOS - SMA Dynamic Power Control	Sunny Tripower X is the new innovative inverter solution for commercial PV systems.
Enhanced safety - Isolated DC/AC and DC/DC, IEC signal for module-level shutdown - Advanced DC/AC and fault protection - Optimized DC type 2 and type 1 surge protection	
Maximum yields - Power optimizers for flexible array design - SMA ShadePix string-level optimization - Integrated V-Curve diagnostics	
Smart monitoring, control and service - SMA Sunny Connected provides monitoring and service solution - SMA eneeOS cross-inverter energy management platform - Centerpiece of the proven SMA Energy System Business	

DYNAPOWER
85 Meadowland Drive, South Burlington, Vermont USA 05403
1.802.860.7200 | sales@dynapower.com
dynapower.com



Integrated System Manager - Monitoring and control for up to 35 inverters (max. 150 kVA) - Remote access with Sunny Portal powered by eneeOS - SMA Dynamic Power Control	Sunny Tripower X is the new innovative inverter solution for commercial PV systems.
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solar design associates inc HARVARD, MA 01451-0242 tel: 978-456-6855 www.solardesign.com fax: 978-772-9715					
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LOVANGO CAY					
SUBMISSION	CZM SET				
Friday, November 22, 2024					
PROFESSIONAL STAMP	REGISTERED ENGINEER EDWARD PORTNEY 1755-E U.S. VIRGIN ISLANDS ILLUSTRATION BY COMPUTER				
REVISION NOTES	MARK	DATE	DESCRIPTION		
CONTRACTOR	NAME				
	STREET				
	CITY/ST/ZIP				
	NOTES				
SITE	NAME		LOVANGO CAY		
	STREET		LOVANGO CAY, 1		
	CITY/ST/ZIP		ST. JOHN, U.S. VIRGIN ISLANDS 00830		
	NOTES				
	FILE NAME		2024-0712 Lovango Cay.pln		
	SCALE		AS NOTED		
	DRAWN BY		CW, CS	DATE DRAFTED: 11/22/2024	
	CHECKED BY		TP	SHEET SIZE: ARCH D	
DRAWING	DRAWING NO.		PV606		
	DRAWING TITLE		DATASHEETS		