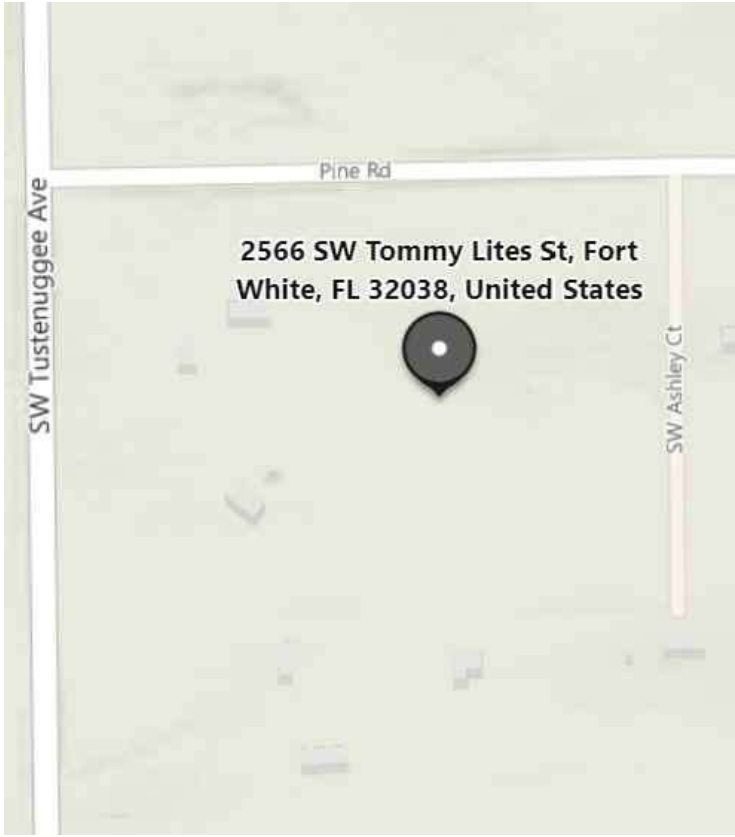


PV PROJECT - 16.59kWdc



1 PROPERTY ASSESSOR MAP - PROJECT LOCATION NTS



2 AERIAL MAP - PROJECT LOCATION NTS

SCOPE OF WORK

THESE PLANS ARE FOR THE INSTALLATION OF A ROOF MOUNTED PHOTOVOLTAIC (PV) SYSTEM. THE PV SYSTEM WILL BE INTERCONNECTED WITH THE CEC UTILITY GRID THROUGH EXISTING ELECTRICAL EQUIPMENT AND WILL OPERATE IN PARALLEL VIA SUPPLY(LST) SIDE CONNECTION WITH NET ENERGY METER.

GOVERNING BUILDING CODES

- 2020 FLORIDA BUILDING CODE, 7TH EDITION
- 2020 FLORIDA RESIDENTIAL CODE, 7TH EDITION
- 2017 NATIONAL ELECTRICAL CODE, NEC
- 2020 FLORIDA FIRE PREVENTION CODE 7TH EDITION.
- UL STANDARDS
 - RACKING - UL 2703
 - PV MODULE - UL 1703
 - INVERTER - UL 1741

DESIGN SPECIFICATIONS

- AHJ - Columbia County
- UTILITY - CEC
- BUILDING RISK CATEGORY II
- DESIGN WIND SPEED (ULT) - 120MPH
- DESIGN SNOW LOAD - 0PSF
- EXPOSURE CATEGORY - C
- MEAN ROOF HEIGHT - 15FT
- ROOF SLOPE - 22.62°

PV SYSTEM SPECIFICATIONS

- PV MODULE: 42 x CS3W-395; 16.59kWdc
- INVERTER: IQ7+-72-2-US
- RACKING: Ecofasten Rock-it
- ROOF TYPE:METAL PANEL
- AZIMUTH:150°, 330°

PV INSTALLATION OVERVIEW

ELECTRICAL

- POINT OF CONNECTION: SUPPLY(LST)
- MAX INV OUTPUT CURRENT: 1.21A Ea.
- PV AC DEDICATED OCP DEVICE RATING: $(42 * 1.21A) * 125\% = 63.525A$, 70A OCP
- UTILITY AC DISCONNECT REQ'D: YES

STRUCTURAL

- MAX ALLOWABLE SPACING BETWEEN ATTACH POINTS: 44 Inches
- MIN. NUMBER OF ATTACHMENT POINTS: 87
- WEIGHT PER ATTACHMENT POINT: 31.8LBS/ATTACH
- PV DEAD LOAD: 2.77PSF
- LENGTH OF RAIL REQUIRED: 294FT

Sheet List Table

Sheet Number	Sheet Title
PV01	COVER
PV02	NOTES
PV03	E_PV SITE PLAN
PV04	ELEVATION
PV05	LINE DIAGRAM
PV06	S_PV SITE LAYOUT
PV07	PV ATTACH PLAN
R01	MODULE DATASHEET
R02	INVERTER DATASHEET
R03	IQ COMBINER
R04	RACKING DATASHEET



BAPS
Engineering & Permitting

Project Type - Photovoltaic

Project Location:

2566 Tommy Lites St,
Fort White, FL 32038

Parcel Number: 17-6S-17-09690-107
Assessor Phone # (386) 758-1083

PV SYSTEM SPECIFICATIONS

- PV MODULE: 42 x CS3W-395; 16.59kWdc
- INVERTER: IQ7+-72-2-US
- RACKING: Ecofasten Rock-it
- ROOF TYPE:METAL PANEL
- AZIMUTH:150°, 330°
- ROOF SLOPE:22.62°

File Name:

01_BUFORD KYLE_COVER.DWG

Sheet Number and Title:

PV01 - COVER

Sheet Size:

ANSI full bleed B (17.00 x 11.00 Inches)

Drawing history

no.	drawn by	revision	date
01	DCG	----	4/16/22

Permit manager

Bay Area Project Solutions, LLC
379 Douglas Rd, Suite A
Oldsmar, FL 34677

Rachael@bayareaprojectsolutions.com

Chad
E
Widup

Digitally
signed by
Chad E Widup
Date:
2022.04.24
12:44:52
-04'00'



This item has been digitally signed and sealed
by Chad Widup, PE on Apr 23, 2022 using a
Digital Signature.

Chad Widup, P.E. NO. 60302
39905 Grays Airport Road
Lady Lake, FL 32159

Printed copies of this document are not
considered signed and sealed and the SHA
authentication code must be verified on any
electronic copies.

PV01

A

B

C

D

E

F

G

1

2

3

INSTALLATION NOTES

1. THE EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURES INSTALLATION INSTRUCTIONS.

2. THE ACTUAL LOCATION OF THE ARRAY AND PLACEMENT OF THE MECHANICAL ANCHORS ARE SUBJECT TO VARIANCES DEPENDING ON SITE CONDITIONS AND/OR ROOF OBSTRUCTIONS. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SPECIFICATIONS BEFORE COMMENCING.

3. ALL OUTDOOR EQUIPMENT SHALL BE RAIN TIGHT WITH MINIMUM NEMA3-R RATING.

4. ALL LOCATIONS ARE APPROXIMATE AND REQUIRE FIELD VERIFICATION.

5. ALL WORK SHALL COMPLY WITH THE BUILDING CODES SET FORTH BY THE GOVERNING JURISDICTION.

6. ALL EQUIPMENT SHALL MEET MINIMUM SETBACKS AS REQUIRED BY THE NATIONAL FIRE CODE, NFC AND THE NATIONAL ELECTRICAL CODE, NEC.

GENERAL PV SITE NOTES

1. PV ARRAY NOT TO DIRUPT ATTIC VENTS OR PLUMBING VENTS. ARRAY TO SPAN OR EXTEND TERMINATION PLUMBING VENTS WITHOUT ANY IMPACT ON THEIR FUNCTIONALITY.

2. PANELS WILL NOT EXCEED THE OVERALL HEIGHT OR ROOF PITCH OF THE EXISTING STRUCTURE.

ABBREVIATIONS

(E) - EXISTING

(N) - NEW

TYP - TYPICAL

NTS - NOT TO SCALE

MIN - MINIMUM

MAX - MAXIMUM

AC - ALTERNATING CURRENT

DC - DIRECT CURRENT

PV - PHOTOVOLTAIC

MOD - PV MODULE

INV - DC/AC PV INVERTER

POC - POINT OF CONNECTION(PV)

RSB - RAPID SHUTDOWN BOX

CB - CIRCUIT BREAKER (EX. 20A/2P CB - 20AMP 2-POLE CIRCUIT BREAKER)

C - CONDUIT

OCP - OVERCURRENT PROTECTION

OCPD- OVERCURRENT PROTECTION DEVICE

MSD - MAIN SERVICE DISCONNECT

DISC - DISCONNECT

MSP - MAIN SERVICE PANEL

SP - SUB PANEL

PLP - PROTECTED LOADS PANEL

MLO - MAIN LUG ONLY


MB - MAIN BREAKER

EGC - EQUIPMENT GROUNDING CONDUCTOR


GEC - GROUNDING ELECTRODE CODUCTOR

GES - GROUNDING ELECTRODE SYSTEM


SYMBOLS




UTILITY METER




PV MODULE




DC/AC UTILITY INTERACTIVE INVERTER




DISCONNECT




CB DOUBLE POLE



CB SINGLE POLE



FUSE



FUSED DISCONNECT

4

5

6

ELECTRICAL NOTES

1. INSTALLATION TO BE COMPLIANT WITH NFPA 1 & NFPA70 (NATIONAL ELECTRICAL CODE)

2. THE PV SYSTEM IS AN UNGROUNDED PV ARRAY AND HAS A GROUND-FAULT PROTECTION DEVICE THAT MEETS THE REQUIREMENTS OF 690.41(B)(1) AND (2)

3. THE EXACT LOCATION OF NEW ELECTRICAL EQUIPMENT AND CONDUIT RUN RELATING TO THIS PROJECT IS SUBJECT TO CHANGE AND WILL BE DETERMINED ON SITE BY THE CONTRACTOR.

4. ALL CLEARANCES AND WORK SPACE AS REQUIRED PER NEC 110.26 SHALL BE FOLLOWED

5. THE INVERTER(S) SHALL MEET ALL CURRENT CODE REQUIREMENTS FOR RAPID SHUTDOWN AS DEFINED IN NEC 690.12.

6. ALL EQUIPMENT TO BE LISTED OR LABELED FOR ITS APPLICATION(UL OR OTHER APPROVED LISTINGS)

6.1. PV MODULE - UL1703

6.2. INVERTER - UL1741

6.3. RACKING SYSTEM - UL2703

7. GROUNDING

7.1. ALL EQUIPMENT SHALL BE PROPERLY GROUNDED PER THE REQUIREMENTS OF NEC ARTICLES 250 & 690

7.2. MODULE BONDING METHOD SHALL BE INTEGRATED GROUNDING MID CLAPS. REFER TO MANUFACTURES SPECIFIC INSTRUCTIONS FOR PROPER BONDING TECHNIQUES.

7.3. GROUNDING SYSTEM COMPONENTS SHALL BE LISTED FOR THEIR PURPOSE, AND GROUNDING DEVICES SHALL BE RATED FOR DIRECT BURIAL

7.4. EGC SHALL BE SIZED IN ACCORDAGE WITH 250.122 AND ARRAY EGC'S SMALLER THAN 6AWG SHALL COMPLY WITH 250.120(C)

8. ALL CONDUCTORS ARE COPPER, UNLESS SPECIFIED OTHERWISE

9. ALL CONDUIT, RACEWAYS, AND JUNCTION BOXES SHALL BE SIZED ACCORDING TO THE APPLICABLE CODE IF THE SIZE IS NOT SPECIFIED.

10. SIGNAGE SHALL BE APPLIED ACCORDING TO GOVERNING BUILDING CODES AND LOCAL JURISDICTIONS SPECIFIC REQUIREMENTS.

11. EQUIPMENT INSTALLED IN DIRECT SUNLIGHT MUST BE RATED FOR EXPECTED OPERATING TEMPERATURE AS SPECIFIED BY NEC.

12. CALCULATION OF MAXIMUM CIRCUIT CURRENT FOR THE SPECIFIC CIRCUIT SHALL BE CALCULATED IN ACCORDANCE WITH 690.8(A)(1) THROUGH (A)(6). CONDUCTOR AMPACITY SHALL BE SIZED TO NOT CARRY LESS THAN THE LARGER OF 690.8(B)(1) OR (2)

13. DC PV SOURCE AND DC OUTPUT CURRENT CIRCUITS ON OR INSIDE A BUILDING SHALL BE CONTAINED IN METAL RACEWAYS, TYPE MC METAL-CLAD CABLE THAT COMPLIES WITH 250.118(10), OR METAL ENCLOSURES FROM THE POINT OF PENETRATION OF THE SURFACE OF THE BUILDING OR STRUCTURE TO THE FIRST READILY ACCESSIBLE DISCONNECTING MEANS.(690.31(G))

14. ACCESS TO BOXES; JUNCTION, PULL, AND OUTLET BOXES LOCATED BEHIND MODULES OR PANELS SHALL BE SO INSTALLED THAT THE WIRING CONTAINED IN THEM CAN BE RENDERED ACCESSIBLE DIRECTLY OR BY DISPLACEMENT OF A MODULE(S) SECURED BY REMOVABLE FASTENERS AND CONNECTED BY FLEXIBLE WIRING SYSTEM.(690.34)

15. PV POINT OF CONNECTION. THE OUTPUT OF AN INTERCONNECTED ELECTRIC POWER SOURCE SHALL BE CONNECTED AS SPECIFIED IN 705.12(A) or (B).

FIRE OFFSETS - SYSTEM WILL BE INSTALLED PER 2018 NFPA 1, CH 11.12

NFPA 11.12.2.2.2.1 - PATHWAYS

NOT LESS THAN TWO 36IN WIDE PATHWAYSON SEPARATE ROOF PLANES, FROM GUTTER TO RIDGE, SHALL BE PROVIDED ON ALL BUILDINGS. ONE PATHWAY SHALL BE PROVIDED ON THE STREET OR DRIVEWAY SIDE OF THE ROOF. FOR EACH ROOF PLANS WITH A PV ARRAY, A 36IN WIDE PATHWAY FROM GUTTER TO RIDGE SHALL BE PROVIDED ON THE SAME PLAN AS THE PV ARRAY, ON AN ADJACENT ROOF PLANE OR STRADDLING THE SAME AND ADJACENT ROOF PLANES. PATHWAYS SHALL BE LOCATED IN AREAS WITH MINIMAL OBSTRUCTIONS SUCH AS VENT PIPES, CONDUIT, OR MECHANICAL EQUIPMENT.

11.12.2.2.2.2

FOR PV ARRAYS OCCUPYING UP TO 33 PERCENT OF THE PLAN VIEW ROOF AREA, A MIN. 18IN PATHWAY SHALL BE PROVIDED ON EITHER SIDE OF A HORIZONTAL RIDGE, FOR PV ARRAYS OCCUPYING MORE THAN 33 PERCENT OF THE PLAN VIEW ROOF AREA, A MIN 36IN PATHWAY SHALL BE PROVIDED ON EITHER SIDE OF A HORIZONTAL RIDGE.

THE ACCESS PATHWAY SHALL BE LOCATED AT A STRUCTURALLY STRONG LOCATION OF THE BUILDING, SUCH AS A BEARING WALL.

7

8

9

10

STRUCTURAL NOTES

1. PV SYSTEM CONSIST OF THE PV MODULES, RAILING, AND CONNECTION HARDWARE

2. RACKING SYSTEM & PV ARRAY SHALL BE INSTALLED ACCORDING TO CODE-COMPLIANT INSTALLATION MANUAL

3. MAXIMUM SPACING BETWEEN CONNECTION POINTS 44 Inches

8. THE ATTACHMENTS SHOULD BE STAGGERED, WHERE POSSIBLE, TO ALLOW DISTRIBUTION OF THE DESIGN LOADS EVENLY TO THE STRUCTURE.

9. ALL ROOF PENETRATIONS SHALL BE FLASHED AND SEALED BY APPROVED METHOD PER ROOF TYPE MANUFACTURE.

10. TYP. ROOF SUPPORT STRUCTURE; 2" X 4", 24"O.C.

11. REFER TO TABLE 1.1 FOR MAX OVERHANG FROM LAST ATTACHMENT.

12. PV ARRAY SHALL BE A MINIMUM 3" ABOVE THE ROOFING MATERIAL.

LOAD INFORMATION

1. THE COMBINED LOADS WITH THE PV ROOF EQUIPMENT INSTALLED ARE NOT LARGER THAN THE COMBINED LOADS AS REQUIRED BY THE BUILDING CODE FOR THE ROOF WITHOUT PANELS.

2. NUMBER OF ATTACHMENT POINTS: 87

3. WEIGHT PER ATTACHMENT POINT: 31.8LBS/ATTACH

4. PV DEAD LOAD: 2.77PSF


5. DESIGN SNOW LOAD

5.1. GROUND SNOW LOAD - 0PSF

6. ALLOWABLE DESIGN LOADS FOR PV MODULE:

6.1. WIND = 62PSF

6.2. SNOW = 125PSF



Project Type - Photovoltaic

Project Location:

2566 Tommy Lites St,
Fort White, FL 32038

Parcel Number: 17-6S-17-09690-107

Assessor Phone # (386) 758-1083

PV SYSTEM SPECIFICATIONS

1. PV MODULE: 42 x CS3W-395; 16.59kWdc

2. INVERTER: IQ7+-72-2-US

3. RACKING: Ecofasten Rock-it

4. ROOF TYPE:METAL PANEL

5. AZIMUTH:150°, 330°

6. ROOF SLOPE:22.62°

File Name:

02_BUFORD KYLE_NOTES.DWG

Sheet Number and Title:

PV02 - NOTES

Sheet Size:

ANSI full bleed B (17.00 x 11.00 Inches)

Drawing history

no.	drawn by	revision	date
01	DCG	----	4/16/22

Permit manager

Bay Area Project Solutions, LLC

379 Douglas Rd, Suite A


Oldsmar, FL 34677

Rachael@bayareaprojectsolutions.com

Chad E Widup

Digitally signed by Chad E Widup

Date: 2022.04.24 12:45:18 -04'00'



This item has been digitally signed and sealed by Chad Widup, PE on Apr 23, 2022 using a Digital Signature.

Chad Widup, P.E. NO. 60302

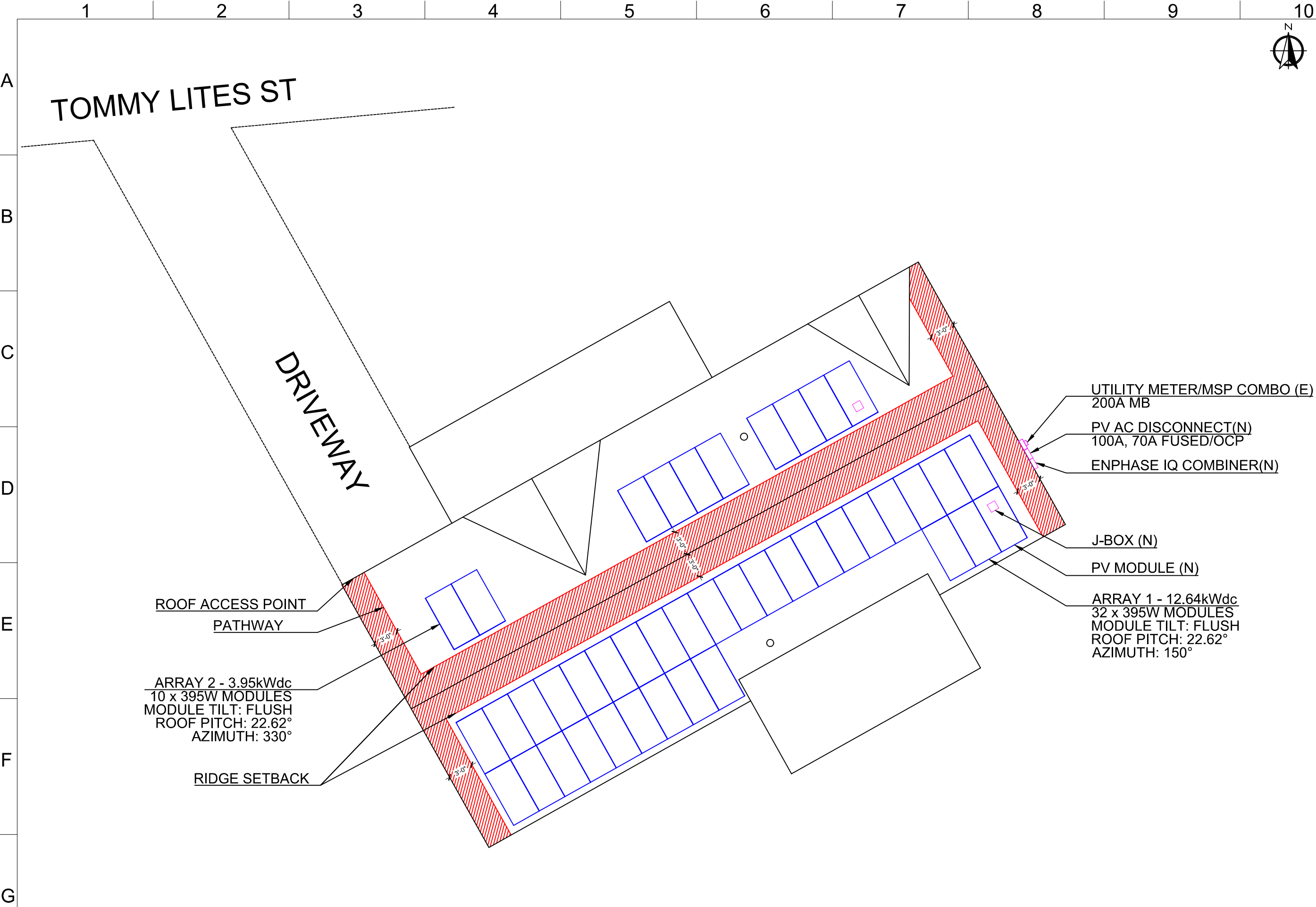
39905 Grays Airport Road


Lady Lake, FL 32159

Printed copies of this document are not considered signed and sealed and the SHA authentication code must be verified on any electronic copies.

PV02

4/16/2022 5:05 PM





BAPS
Engineering & Permitting

Project Type - Photovoltaic

Project Location:
2566 Tommy Lites St,
Fort White, FL 32038

Parcel Number: 17-6S-17-09690-107
Assessor Phone # (386) 758-1083

PV SYSTEM SPECIFICATIONS

1. PV MODULE: 42 x CS3W-395; 16.59kWdc
2. INVERTER: IQ7+-72-2-US
3. RACKING: Ecofasten Rock-it
4. ROOF TYPE:METAL PANEL
5. AZIMUTH:150°, 330°
6. ROOF SLOPE:22.62°

File Name:
03_2017NEC_E_PV SITE LAYOUT.DWG

Sheet Number and Title:
PV03 - E_PV SITE PLAN

Sheet Size:
ANSI full bleed B (17.00 x 11.00 Inches)


Drawing history

no.	drawn by	revision	date
01	DCG	----	4/16/22

Permit Manager
Bay Area Project Solutions, LLC
379 Douglas Rd, Suite A
Oldsmar, FL 34677
Rachael@bayareaprojectsolutions.com

Chad E Widup

Digitally signed by
Chad E Widup
Date:
2022.04.24
12:54:43
-04'00'



This item has been digitally signed and sealed by Chad Widup, PE on Apr 25, 2022 using a Digital Signature.

Chad Widup, P.E. NO. 60302
39905 Grays Airport Road
Lady Lake, FL 32159

Printed copies of this document are not considered signed and sealed and the SHA authentication code must be verified on any electronic copies.

4

PV SITE PLAN W/ MODULE LAYOUT

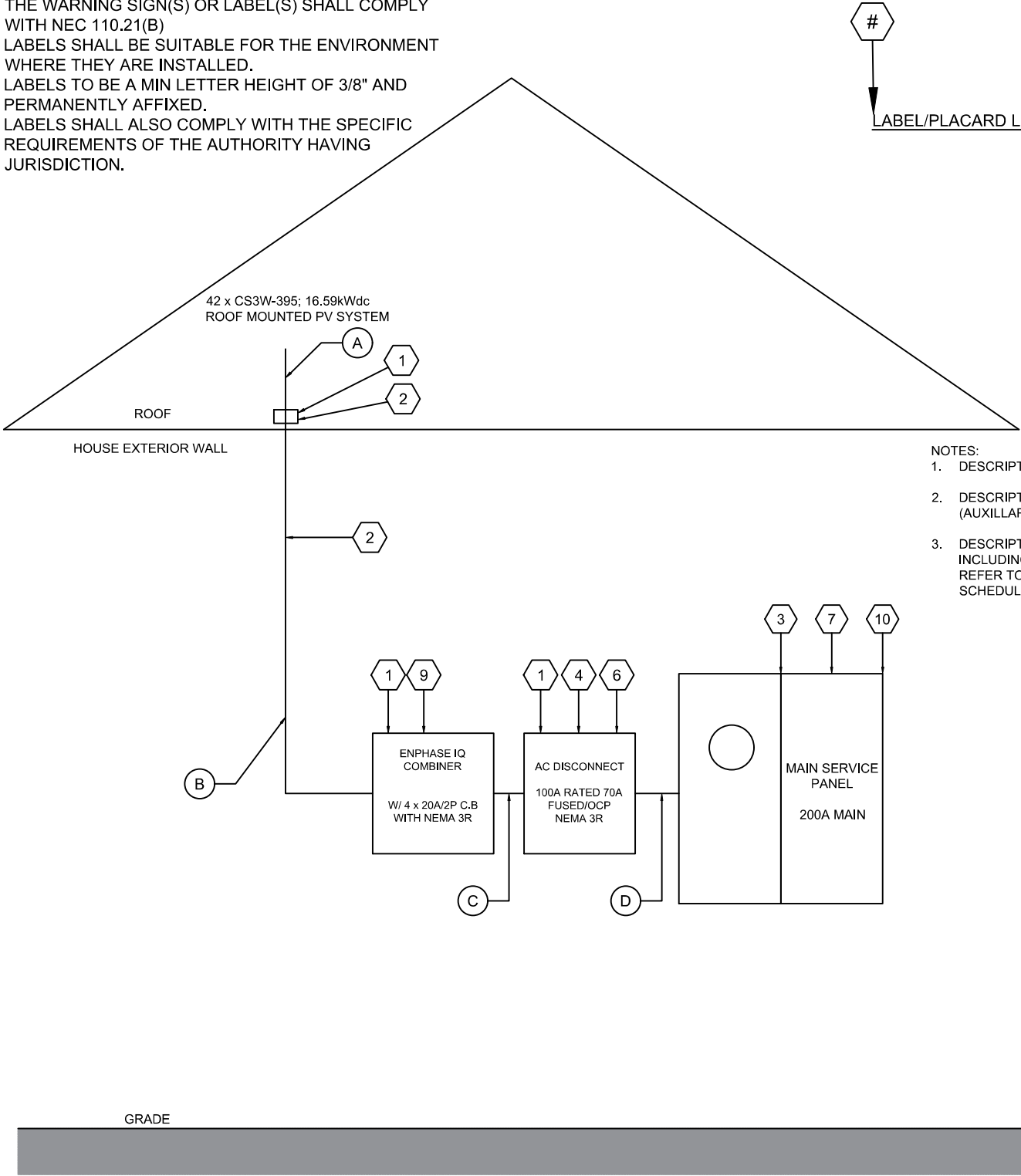
Scale: 3/32" = 1'-0"

PV03

A
B
C
D
E
F
G

NEC LABEL NOTES:

1. THE WARNING SIGN(S) OR LABEL(S) SHALL COMPLY WITH NEC 110.21(B)
2. LABELS SHALL BE SUITABLE FOR THE ENVIRONMENT WHERE THEY ARE INSTALLED.
3. LABELS TO BE A MIN LETTER HEIGHT OF 3/8" AND PERMANENTLY AFFIXED.
4. LABELS SHALL ALSO COMPLY WITH THE SPECIFIC REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.



- NOTES:
1. DESCRIPTION OF COMBINER BOX.
 2. DESCRIPTION OF NON-FUSED DISCONNECT (AUXILLARY GENERATION DISCONNECT)
 3. DESCRIPTION OF CONDUIT BEING USED, INCLUDING DIAMETER OF CONDUIT TYPE. REFER TO CONDUIT AND CONDUCTOR SCHEDULE ON LINE DIAGRAM

4 RISER DIAGRAM
Scale: NTS

LABEL 1 - NEC 690.13(B)
APPLY TO DISCONNECTING MEANS WHERE THE LINE AND LOAD TERMINALS MAY BE ENERGIZED IN THE OPEN POSITION

LABEL 2 - NEC 690.31(G)(4)
APPLY TO EXPOSED RACEWAYS, CABLE TRAYS, OTHER WIRING METHODS, COVERS, ENCLOSURES OF PULL BOXES, AND J-BOXES. SPACING BETWEEN LABELS OR MARKINGS SHALL NOT BE MORE THAN 10FT APART.

LABEL 3 - NEC 690.56(C)(1)(a)
APPLY TO LABEL ON OR NO MORE THAN 3FT FROM THE SERVICE DISCONNECTING MEANS TO WHICH THE PV SYSTEMS ARE CONNECTED AND SHALL INDICATE THE LOCATION OF ALL IDENTIFIED RAPID SHUTDOWN SWITCHES IF NOT AT THE SAME LOCATION

LABEL 4 - NEC 690.56(B) & NFPA 11.12.2.1.1.6
APPLY TO RAPID SHUTDOWN SWITCH
PV SYSTEM COMMENCES RAPID SHUTDOWN SEQUENCE UPON DISCONNECT FROM AC SOURCE - COMPLIES WITH NEC 690.12

INITIATION DEVICE SHALL BE LOCATED AT A READILY ACCESSIBLE LOCATION OUTSIDE THE BUILDING(LABEL SHALL BE WITHIN 3FT OF SWITCH)

LABEL 5 - 690.53(IF APPLICABLE)
APPLY TO DC DISCONNECT/INVERTER

LABEL 6 - NEC 690.54
APPLY TO MAIN PV AC DISCONNECT

LABEL 7 - NEC 705.12(B)(3)
APPLY TO MSP

LABEL 8 - NEC 705.12(B)(2)(3)(b)
APPLY TO BACK-FED BREAKER, IF APPLICABLE

LABEL 9 - NEC 705.12(B)(2)(3)(c)
PROVIDE AT PV COMBINER OR MSP IF APPLICABLE

LABEL 10 - NFPA 1, 11.12.2.1.5
INSTALLER INFORMATION LOCATED ADJACENT TO THE MAIN DISCONNECT, INDICATING THE NAME AND EMERGENCY TELEPHONE NUMBER OF THE COMPANY

! WARNING !

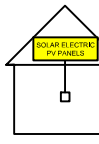
ELECTRIC SHOCK HAZARD

TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

WARNING: PHOTOVOLTAIC POWER SOURCE

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY.



RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

PHOTOVOLTAIC SYSTEM ! DC DISCONNECT !

MAX SYSTEM VOLTAGE: 480VDC
MAX CIRCUIT CURRENT: 12A
MAX OUT CURRENT(DC TO DC CONV.): 15A

PHOTOVOLTAIC SYSTEM ! AC DISCONNECT !

RATED AC OUTPUT CURRENT: 42 x 1.21A = 50.82A
NOMINAL OPERATING VOLTAGE: 240VAC

! WARNING !

DUAL POWER SUPPLY SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM

! WARNING !

POWER SOURCE OUTPUT CONNECTION: DO NOT RELOCATE THIS OVERCURRENT DEVICE

! WARNING !

DEDICATED SOLAR PANEL DO NOT CONNECT ANY OTHER LOADS

IN CASE OF EMERGENCY CALL AT BAY AREA PROJECT SOLUTION LLC



BAPS
Engineering & Permitting

Project Type - Photovoltaic

Project Location:

2566 Tommy Lites St,
Fort White, FL 32038

Parcel Number: 17-6S-17-09690-107
Assessor Phone # (386) 758-1083

PV SYSTEM SPECIFICATIONS

1. PV MODULE: 42 x CS3W-395; 16.59kWdc
2. INVERTER: IQ7+-72-2-US
3. RACKING: Ecofasten Rock-it
4. ROOF TYPE:METAL PANEL
5. AZIMUTH:150°, 330°
6. ROOF SLOPE:22.62°

File Name:

03_BUFORD KYLE- E_ELEVATIONS.DWG

Sheet Number and Title:

PV04 - ELEVATION

Sheet Size:

ANSI full bleed B (17.00 x 11.00 Inches)

Drawing history

no.	drawn by	revision	date
01	DCG	----	4/16/22

Permit manager

Bay Area Project Solutions, LLC
379 Douglas Rd, Suite A
Oldsmar, FL 34677

Rachael@bayareaprojectsolutions.com

Chad E Widup

Digitally signed by
Chad E Widup

Date:

2022.04.24

12:55:47

-04'00'



This item has been digitally signed and sealed by Chad Widup, PE on Apr 23, 2022 using a Digital Signature.

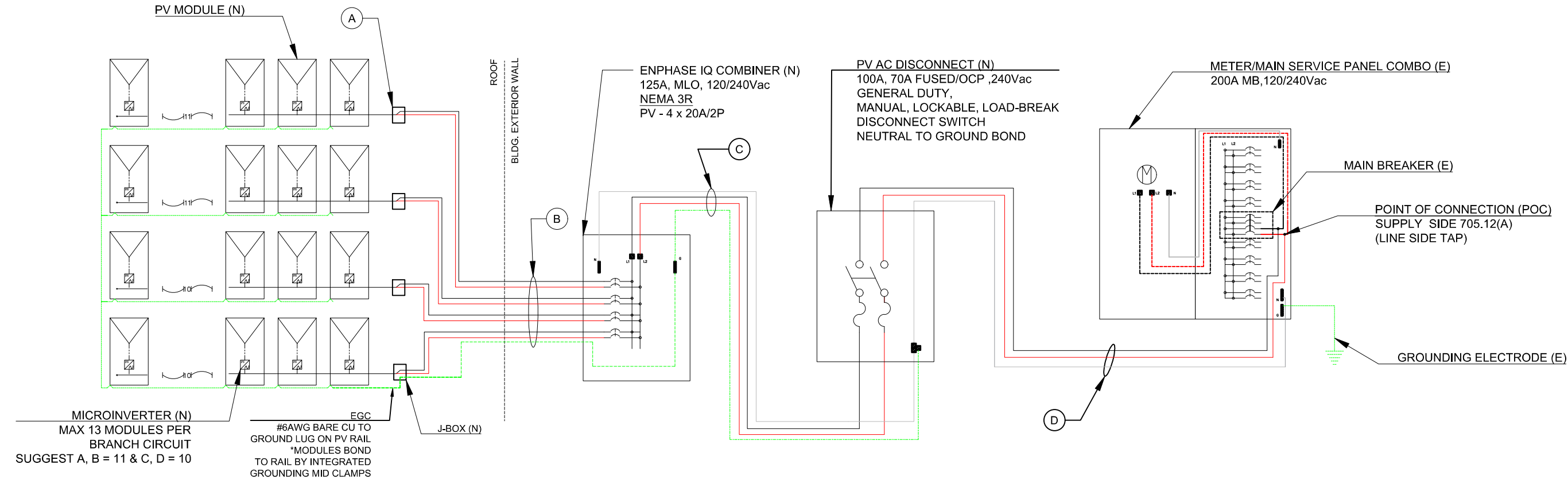
Chad Widup, P.E. NO. 60302
39905 Grays Airport Road
Lady Lake, FL 32159

Printed copies of this document are not considered signed and sealed and the SHA authentication code must be verified on any electronic copies.

PV04

A
B
C
D
E
F
G

Electrical Calculations - Photovoltaic System									
Project Details			Microinverter			PV Module			Branch Circuit Summary
Project Name	PV PROJECT		Model Number	IQ7PLUS 72-2-US		Model Number	CS3W-395		PV Combiner A
Project Location	FORT WHITE, FL		Max input PV Power	440	Wdc	Nominal Output @ STC, Pmp	395	Wdc	# of Microinverters
Module -	42	Canadian Solar CS3W-395	DC Max Voltage	60		Open Circuit Voltage, Voc	47	Vdc	Max Continuous Load (A)
Inverter -	42	Enphase IQ7PLUS-72-2-US	Nominal Output Current	1.21	A	Max Power Point, Vmp	38.5	Vdc	# of branch Circuits
Utility -	240	Vac	Nominal Voltage	240	Vac	Short Circuit Current, Isc	10.82	A	
DC Rating	16.59	kW	AC Max Output Power	295	Wac	Max Power Point Current, Imp	10.26	A	Busbar Calculation = 200 * 120%
AC Rating	12.39	kW	Max Continuous output Power	290	Wac	VOC Temp Coeff	-0.29	%/°C	Sum of OCP supplying bus
Min. Ambient Temp, °C	0	32 °F	CEC Weighted Efficiency	97	%	Dimensions, LxWxH (in)	83.0 x 41.3 x 1.57		705.12(D)(2) NOT Satisfied: Must utilize supply side connection
Max. Ambient Temp, °C	35	95 °F	Max Units per 20A Branch Circuit	13		Weight	54.9	lbs	
Branch Circuit Sizing									
Inputs	Branch Circuit Combiner A								
# of Branch Circuits	4								
Individual Branch Circuits	A	B	C	D					
Microinverters per Branch Circuit	11	11	10	10					
Output current per string (A)	13.31	13.31	12.10	12.10					
125% of Output for min. OCP (A)	16.64	16.64	15.13	15.13					
Min. Breaker Size (A)	20	20	20	20					



Conduit and Conductor Schedule						
Tag	Description and Conductor Type	Min. Conductor Gauge	Number of Conductors	Typical Conduit Type	Min. Conduit Size	Max one way length (ft)
A	Enphase Q Cable	12AWG	(L ₁ , L ₂), (G)	FREE AIR	MFG CABLE	20
B	j-box to Combiner., THWN-2	12AWG	4 x (L ₁ , L ₂), G	*MC CABLE	MC	40
C	Combiner to Disco, THWN-2	4AWG	L ₁ , L ₂ , N, (#10 G)	PVC, EMT, or FMC	1"	5
D	Disco to POC, THWN-2	4AWG	L ₁ , L ₂ , N,	PVC, EMT, or FMC	1"	5
Notes: LFMC or LFNC can be used as necessary, if "uses permitted" of the current version of the NEC are met. (G) can be #8AWG THWN-2 For Conduit sizing refer to Chapter 9 Tables, NEC					NEC 690.45-46, Table 250.66, Table 250.122	

Conductor Sizing					
Inverter output CKT			Combiner output ckts		
Distance above roof			PV Combiner A		
Amb. Temp. Adder for Rooftops (°F)	40	310.15(B)(6)	Design temperature (°F)	94	
Design temperature (°F)	135		Max Ambient Temp. Range (°F)	87-95	310.15(B)(2)(a)
Adjusted Temp. Range for Roof	132-140	310.15(B)(2)(a)	Temp. Rating of Conductor	75°C	
Temp. Rating of Conductor	75°C		No. of Current Carrying Cond.	<4	310.15(B)(3)(a)
No. of Current Carrying Cond.	<4	310.15(B)(3)(a)	Max Continuous Load (A)	64	
Overcurrent Protection (A)	20	690.8(B)(1)(a)			
125% of Output for Min. OCP(A)	16.6	690.8(A)	Overcurrent Protection (A)	70	
Amb. Temp Correction Factor	0.58	310.15(B)(2)(a)	Amb. Temp Correction Factor	0.94	310.15(B)(2)(a)
Raceway Fill Adjustment Factor	100%	310.15(B)(3)(a)	Raceway Fill Adjustment Factor	100%	310.15(B)(3)(a)
Wire Size (AWG or MCM)	12	310.15(B)(16)	Wire Size (AWG or MCM)	4	310.15(B)(16)
Allowable Ampacity (Amps)	25		Allowable Ampacity (Amps)	85	
Adjusted Ampacity (Amps)	15	25*0.58*1=14.5	Adjusted Ampacity (Amps)	80	85*0.94*1=79.9



Project Type - Photovoltaic

Project Location:
2566 Tommy Lites St,
Fort White, FL 32038

Parcel Number: 17-6S-17-09690-107
Assessor Phone # (386) 758-1083

- PV SYSTEM SPECIFICATIONS**
1. PV MODULE: 42 x CS3W-395; 16.59kWdc
 2. INVERTER: IQ7+-72-2-US
 3. RACKING: Ecofasten Rock-it
 4. ROOF TYPE: METAL PANEL
 5. AZIMUTH: 150°, 330°
 6. ROOF SLOPE: 22.62°

File Name:
04_BUFORD KYLE_LINE
DIAGRAM_ENPH_IQ7 1.DWG

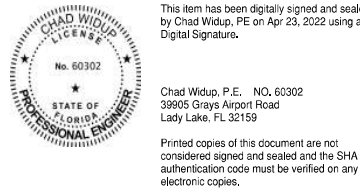
Sheet Number and Title:
PV05 - LINE DIAGRAM

Sheet Size:
ANSI full bleed B (17.00 x 11.00 Inches)

Drawing history			
no.	drawn by	revision	date
01	DCG	---	4/16/22

Design
Bay Area Project Solutions, LLC
379 Douglas Rd, Suite A
Oldsmar, FL 34677
Rachael@bayareaprojectsolutions.com

Chad E Widup
Digitally signed by
Chad E Widup
Date:
2022.04.24
12:56:32
-04'00'



PV05

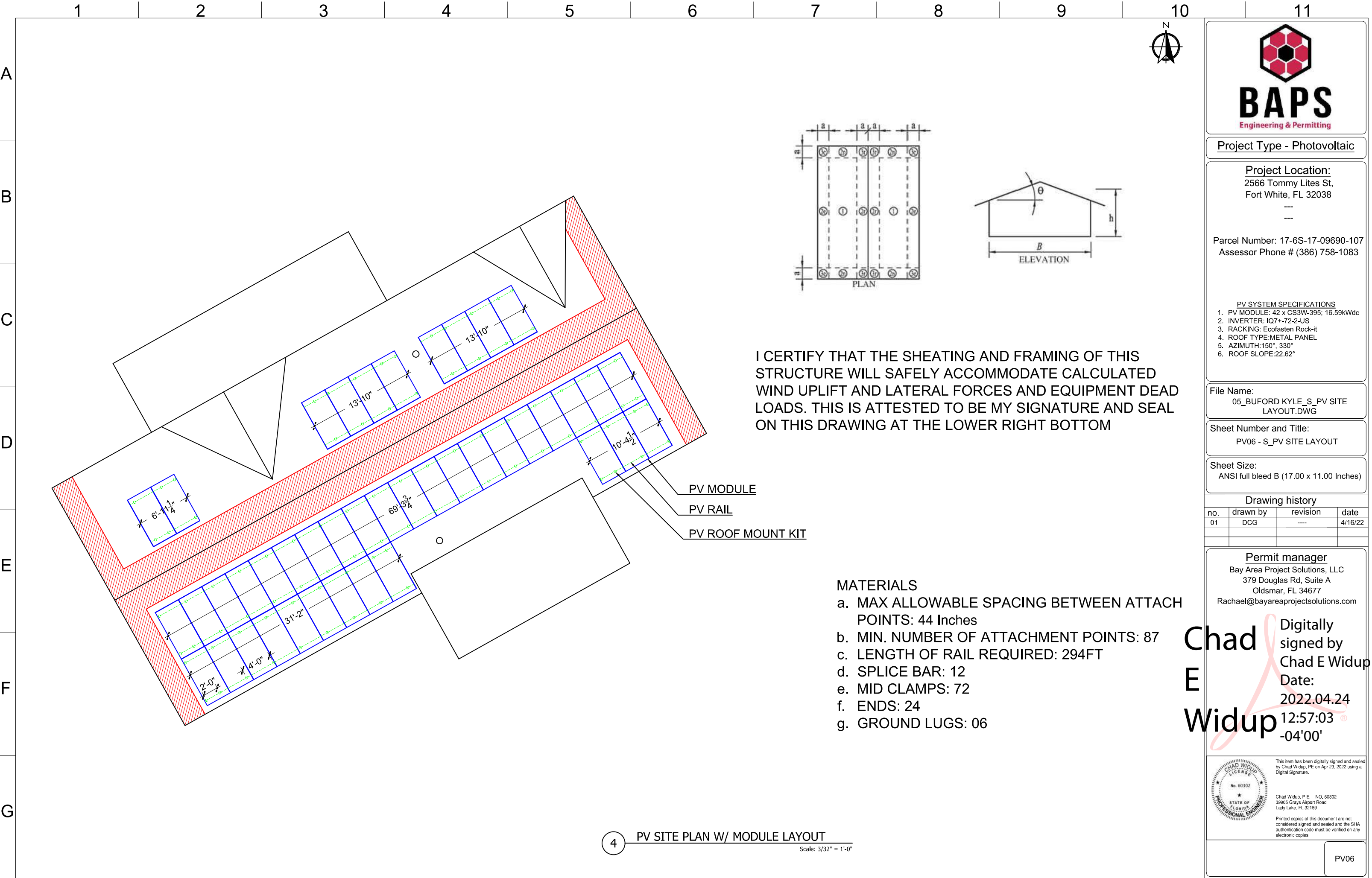
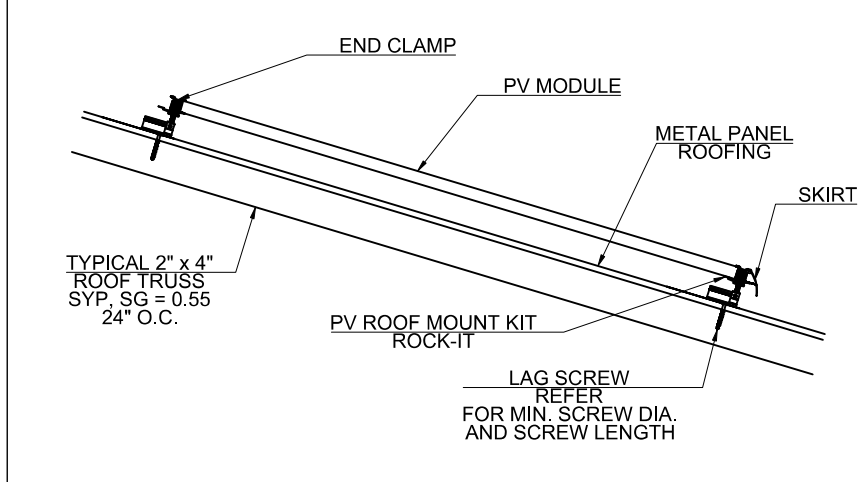
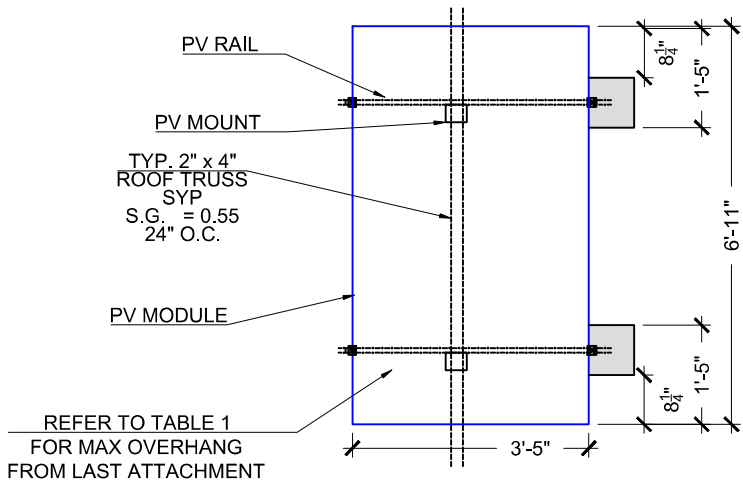


TABLE 1

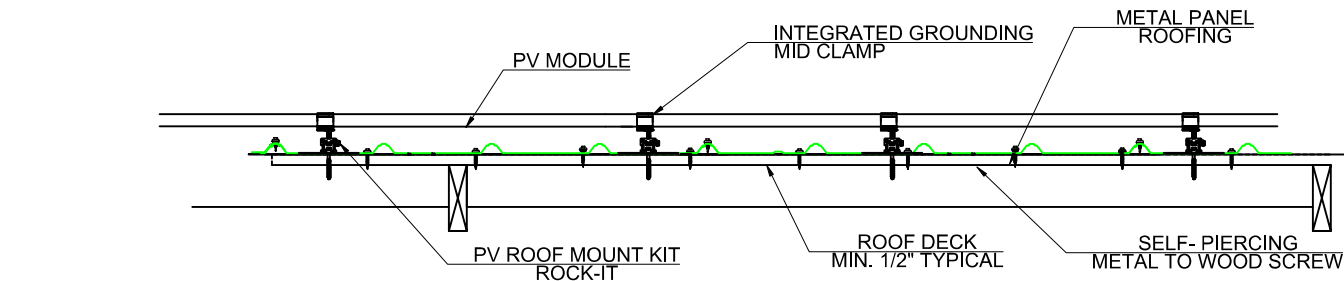
ASCE 7-16 CHAPTER 29 WIND LOADS - Rooftop Solar Panels Minimum Design Loads - Part 1: Enclosed(Gable,Hip,Flat h<60ft, 0°<0<45°)									
Wind Load Parameters - Inputs									
Risk Category	II		120 mph		Table 1.5-1				
Basic Wind Speed (Ult)	21° to 27°				Figure 26.5-1B				
Roof Angle	Gable								
Roof Type	C				Section 26.7				
Exposure Cat.	B,C, or D								
Mean Roof Height	h		15.00 ft						
Roof attachment	5/16" x 4.75" Lag Screw								
Rafter/Truss Spacing	24		in O.C.						
No. of Rails	2								
No. of Modules - Portrait	42								
No. of Modules - Landscape	0								
Module Model Number	CS3W-395								
bldg. least horizontal dim (typ.)	360		in						
Elevation	<1000		ft						
Est. # of attachment points	87								
PV Dead Load				Module and Racking Specs					
# of Modules	42			Dimensions, LxWxH (in)		83.0 x 41.3 x 1.57			
Module	W _{mod}	55	lbs	Width		3.44	ft		
Array	W _{mod}	2306	lbs	Length		6.92	ft		
Micro/optimizer	W _{mic}	168	lbs	Module Area		23.78	ft²		
PV Rail	W _{pv rail}	294	lbs	Dead Load - Rail, Clamps, Mounts		1	lb/ft		
Total Weight	W _{total}	2768	lbs	Total Rail Length		294	ft		
Total Area	A _f	998.74	ft²	Module load ratings		Ultimate	Allowable		
Dead Load	D _{pv}	2.77	psf	Load Rating - Snow(psf)		113.4	75.6		
Weight/attachment		31.8	lbs	Load Rating - Wind(psf)		-50.4	-33.6		
PV Attachment - Results									
Roof Zones - Gable 21° to 27°									
	1	2e	2r	2n	3e	3r			
GC _g - Uplift	-1.5	-1.5	-2.1	-2.1	-2.1	-2.3			
GC _g - Down	0.5	0.5	0.5	0.5	0.5	0.5			
p = q _s (GC _g)(γ _e)(γ _s)	-20.6	-20.6	-29.9	-29.9	-29.9	-33.0	psf	29.4-7	
p = q _s (GC _g)(γ _e)(γ _s)	7.8	7.8	7.8	7.8	7.8	7.8	psf	29.4-7	
Max Allowable Span	6	6	6	6	6	6	ft	*notes	
Max Cantilever (in)	24	24	24	24	24	24	ft	Max span * 33% (in)	
Notes									
Eq.1 Point Load = Roof Zone psf * TA									
Eq.2 TA = (Module Length/2) * Max Span									
Eq.3 *Max span Equation, SF = Allowable pullout / Point Load									
Eq.4 Max Span = Allowable Pullout / (SF * Roof Zone psf * L/2)									
a) The Max span between attachment points must not exceed the rail spans provided by racking manufacture.									
b) Allowable Module load ratings are determined by SF = 1.5									
Wind Load Parameters									
Wind Speed (asf)	93	mph	FRC R301.2.1.3						
Effective Wind Area	23.78	ft²	26.20						
Wind Directionality	K _d	0.85	Table 26.6-1						
Topographic factor	K _{zt}	1.00	26.8 or 26.8.2						
Ground Elevation Factor	K _e	1.00	Table 26.9-1						
Velocity Exposure Coefficient	K _z	0.85	Table 26.10-1						
Array Edge Factor	γ _e	1.50	29.4.4 *Modules are considered Exposed						
Solar Panel Equalization Factor	γ _s	0.65	Fig. 29.4-8						
Velocity Pressure	q _h	15.98	psf	q _h = 0.00256 K _d K _{zt} K _e K _z V²					
Added Safety Factor	1.2								
Allowable Pullout per mount	859.2	lbs							
0.4h or 0.6h	6.00	ft	Flat - 0.6h, Gable, Hip - 0.4h						
10% of least horizontal dim	3.00	ft	10% of least hor. Dim. Or 0.4h, whichever is smaller, but not less than either 4% of least hor. Or 3ft. (Flat roof - 0.6h).						
Roof Zone Set Back	a	3.00	ft						
	h ₂	5	in	Not > 10 in (panel height above roof)					
	2h ₂	10	in	*min distance array shall be from the roof edge, Gable Ridge, or hip ridge					
		0.25	in	min gap between all panels but not > 6.7ft					
	d1	1.00	ft	Horizontal distance orthogonal to panel edge					
	d2	0.25	ft	Horizontal distance from edge of one panel to the nearest edge in the next row					
	0.5h	7.50	ft	*modules are considered exposed that are within 1.5Lp from roof edge					

** No Exposed or Edge Conditions Allowed

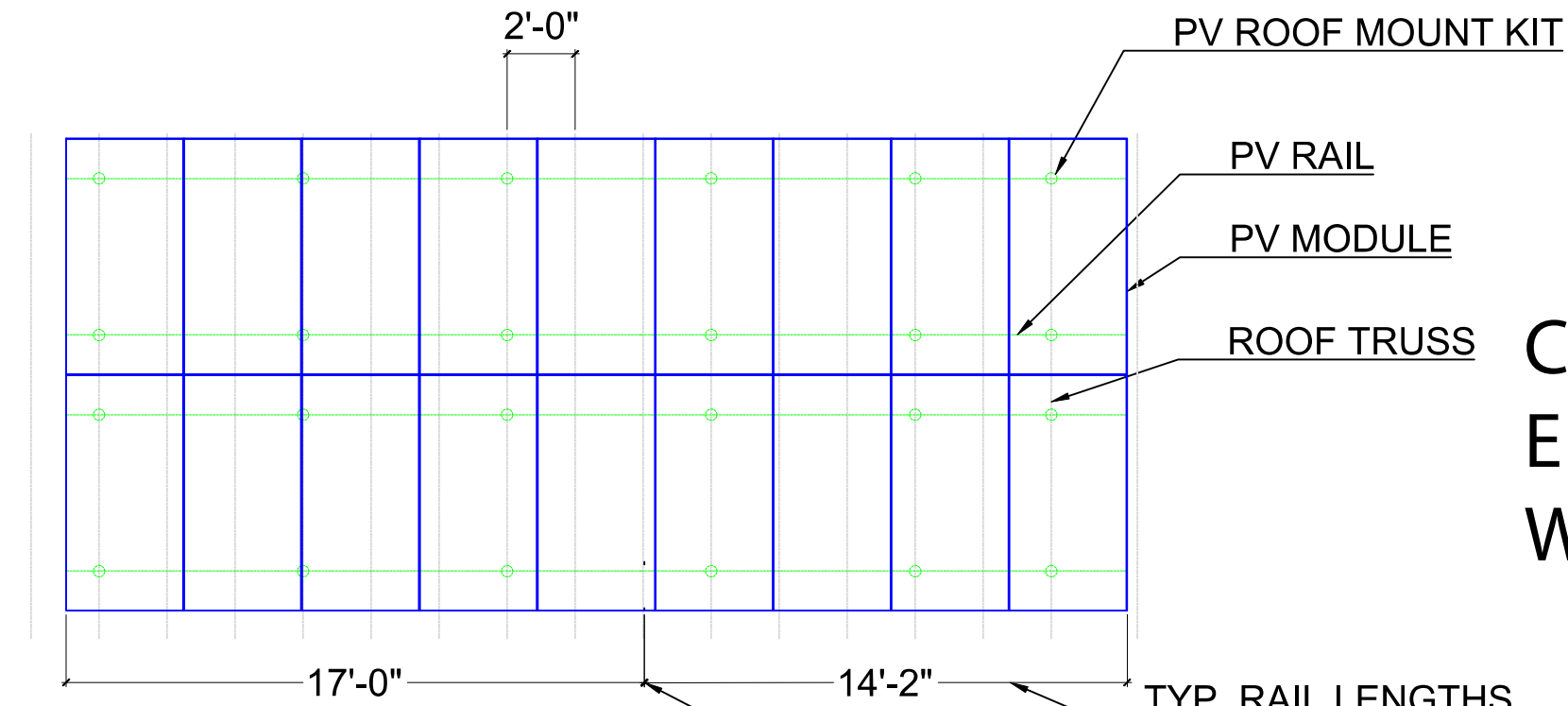


A ALLOW. CLAMPING AREA - TOP DOWN
Scale: 3/8" = 1'-0"

B CONNECTION DETAIL - SIDE VIEW
Scale: 1:16



C CONNECTION DETAIL - FRONT VIEW
Scale: 3/4" = 1'



D MODULE ATTACHMENT PLAN W/ RAIL LENGTHS
Scale: 3/16" = 1'-0"



Project Type - Photovoltaic

Project Location:
2566 Tommy Lites St,
Fort White, FL 32038

Parcel Number: 17-6S-17-09690-107
Assessor Phone # (386) 758-1083

PV SYSTEM SPECIFICATIONS
1. PV MODULE: 42 x CS3W-395; 16.59kWdc
2. INVERTER: IQ7+-72-2-US
3. RACKING: Ecofasten Rock-it
4. ROOF TYPE: METAL PANEL
5. AZIMUTH: 150°, 330°
6. ROOF SLOPE: 22.62°

File Name:
06_BUFORD KYLE_SHINGLE_H-Q.PEAK
G5.DWG

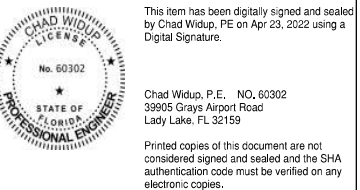
Sheet Number and Title:
PV07 - PV ATTACH PLAN

Sheet Size:
ANSI full bleed B (17.00 x 11.00 Inches)

Drawing history			
no.	drawn by	revision	date
01	DCG	---	4/16/22

Permit manager
Bay Area Project Solutions, LLC
379 Douglas Rd, Suite A
Oldsmar, FL 34677
Rachael@bayareaprojectsolutions.com

Digitally signed by
Chad E Widup
Date:
2022.04.24
12:57:37
-04'00'



This item has been digitally signed and sealed by Chad Widup, PE on Apr 23, 2022 using a Digital Signature.
Chad Widup, P.E. NO. 60302
39905 Grays Airport Road
Lady Lake, FL 32159
Printed copies of this document are not considered signed and sealed and the SHA authentication code must be verified on any electronic copies.

PV07



HiKu

SUPER HIGH POWER POLY PERC MODULE 395 W ~ 420 W

CS3W-395 | 400 | 405 | 410 | 415 | 420P (IEC1000 V)

CS3W-395 | 400 | 405 | 410 | 415 | 420P (IEC1500 V)

MORE POWER



24 % higher power than conventional modules



Up to 4.5 % lower LCOE
Up to 2.7 % lower system cost



Low NMOT: 42 ± 3 °C
Low temperature coefficient (Pmax):
-0.37 % / °C



Better shading tolerance

MORE RELIABLE



Lower internal current,
lower hot spot temperature



Minimizes micro-crack impacts



Heavy snow load up to 5400 Pa,
wind load up to 3600 Pa*

25 years

linear power output warranty*

12 years

enhanced product warranty on materials
and workmanship*

*According to the applicable Canadian Solar Limited Warranty Statement.

MANAGEMENT SYSTEM CERTIFICATES*

ISO 9001:2015 / Quality management system
ISO 14001:2015 / Standards for environmental management system
OHSAS 18001:2007 / International standards for occupational health & safety

PRODUCT CERTIFICATES*

IEC 61215 / IEC 61730: VDE / CE / MCS / KS / INMETRO
UL 1703 / IEC 61215 performance: CEC listed (US)
UL 1703: CSA / IEC 61701 ED2: VDE / IEC 62716: VDE / IEC 60068-2-68: SGS
UNI 9177 Reaction to Fire: Class 1 / Take-e-way
Canadian Solar recycles panels at the end of life cycle



* As there are different certification requirements in different markets, please contact your local Canadian Solar sales representative for the specific certificates applicable to the products in the region in which the products are to be used.

CANADIAN SOLAR INC. is committed to providing high quality solar products, solar system solutions and services to customers around the world. No. 1 module supplier for quality and performance/price ratio in IHS Module Customer Insight Survey. As a leading PV project developer and manufacturer of solar modules with over 38 GW deployed around the world since 2001.

* For detail information, please refer to Installation Manual.

CANADIAN SOLAR INC.

Canadian Solar MSS (Australia) Pty Ltd., 44 Stephenson St, Cremorne VIC 3121, Australia
sales.au@canadiansolar.com, www.canadiansolar.com/au

Chad E Widup

Digitally signed by Chad E Widup
Date: 2022.04.24 12:58:43 -04'00'



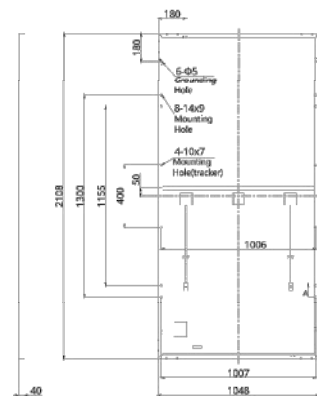
This item has been digitally signed and sealed by Chad Widup, PE on Apr 23, 2022 using a Digital Signature.

Chad Widup, P.E. NO. 60302
39905 Grays Airport Road
Lady Lake, FL 32159

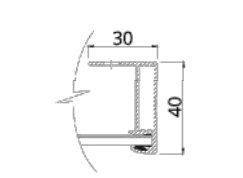
Printed copies of this document are not considered signed and sealed and the SHA authentication code must be verified on any electronic copies.

ENGINEERING DRAWING (mm)

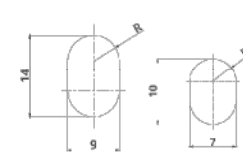
Rear View



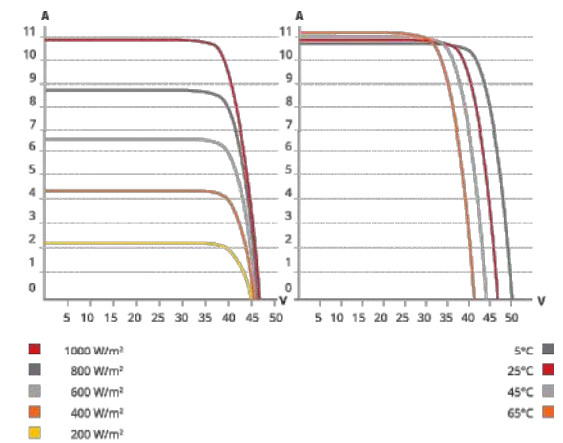
Frame Cross Section A-A



Mounting Hole



CS3W-400P / I-V CURVES



ELECTRICAL DATA | STC*

CS3W	395P	400P	405P	410P	415P	420P
Nominal Max. Power (Pmax)	395 W	400 W	405 W	410 W	415 W	420 W
Opt. Operating Voltage (Vmp)	38.5 V	38.7 V	38.9 V	39.1 V	39.3 V	39.5 V
Opt. Operating Current (Imp)	10.26 A	10.34 A	10.42 A	10.49 A	10.56 A	10.64 A
Open Circuit Voltage (Voc)	47.0 V	47.2 V	47.4 V	47.6 V	47.8 V	48.0 V
Short Circuit Current (Isc)	10.82 A	10.90 A	10.98 A	11.06 A	11.14 A	11.26 A
Module Efficiency	17.88%	18.11%	18.33%	18.56%	18.79%	19.01%
Operating Temperature	-40°C ~ +85°C					
Max. System Voltage	1500V (IEC/UL) or 1000V (IEC/UL)					
Module Fire Performance	TYPE 1 (UL 1703) or CLASS C (IEC 61730)					
Max. Series Fuse Rating	20 A					
Application Classification	Class A					
Power Tolerance	0 ~ + 5 W					

* Under Standard Test Conditions (STC) of irradiance of 1000 W/m², spectrum AM 1.5 and cell temperature of 25°C. Measurement uncertainty: ±3 % (Pmax).

ELECTRICAL DATA | NMOT*

CS3W	395P	400P	405P	410P	415P	420P
Nominal Max. Power (Pmax)	294 W	297 W	301 W	305 W	308 W	312 W
Opt. Operating Voltage (Vmp)	35.8 V	36.0 V	36.1 V	36.3 V	36.5 V	36.7 V
Opt. Operating Current (Imp)	8.21 A	8.27 A	8.33 A	8.39 A	8.45 A	8.51 A
Open Circuit Voltage (Voc)	44.1 V	44.3 V	44.4 V	44.6 V	44.8 V	45.0 V
Short Circuit Current (Isc)	8.73 A	8.79 A	8.86 A	8.92 A	8.99 A	9.08 A

* Under Nominal Module Operating Temperature (NMOT), irradiance of 800 W/m² spectrum AM 1.5, ambient temperature 20°C, wind speed 1 m/s.

MECHANICAL DATA

Specification	Data
Cell Type	Poly-crystalline
Cell Arrangement	144 [2 X (12 X 6)]
Dimensions	2108 X 1048 X 40 mm (83.0 X 41.3 X 1.57 in)
Weight	24.9 kg (54.9 lbs)
Front Cover	3.2 mm tempered glass
Frame	Anodized aluminium alloy, crossbar enhanced
J-Box	IP68, 3 bypass diodes
Cable	4 mm² (IEC), 12 AWG (UL)
Cable Length (Including Connector)	Portrait: 500 mm (19.7 in) (+) / 350 mm (13.8 in) (-); landscape: 1400 mm (55.1 in); leap-frog connection: 1670 mm (65.7 in)*
Connector	T4-PC-1 (IEC 1000 V) or PV-KST4/xy-UR, PV-KBT4/xy-UR (IEC 1000 V) or T4-PC-1 (IEC 1500 V) or T4-PPE-1 (IEC 1500 V) or PV-KST4-EVO2/XY, PV-KBT4-EVO2/XY (IEC 1500 V) or UTXCFA4AM, UTXCMA4AM (IEC 1500 V)
Per Pallet	27 pieces
Per Container (40' HQ)	594 pieces

* For detailed information, please contact your local Canadian Solar sales and technical representatives.

TEMPERATURE CHARACTERISTICS

Specification	Data
Temperature Coefficient (Pmax)	-0.37 % / °C
Temperature Coefficient (Voc)	-0.29 % / °C
Temperature Coefficient (Isc)	0.05 % / °C
Nominal Module Operating Temperature	42 ± 3°C

PARTNER SECTION



* The specifications and key features contained in this datasheet may deviate slightly from our actual products due to the on-going innovation and product enhancement. Canadian Solar Inc. reserves the right to make necessary adjustment to the information described herein at any time without further notice.
Please be kindly advised that PV modules should be handled and installed by qualified people who have professional skills and please carefully read the safety and installation instructions before using our PV modules.

CANADIAN SOLAR INC.

Canadian Solar MSS (Australia) Pty Ltd., 44 Stephenson St, Cremorne VIC 3121, Australia
sales.au@canadiansolar.com, www.canadiansolar.com/au

March 2020. All rights reserved. PV Module Product Datasheet V5.59_AU
* Manufactured and assembled in China, Thailand and Vietnam.

Data Sheet
Enphase Microinverters
Region: AMERICAS

Enphase IQ 7 and IQ 7+ Microinverters

The high-powered smart grid-ready **Enphase IQ 7 Micro™** and **Enphase IQ 7+ Micro™** dramatically simplify the installation process while achieving the highest system efficiency.

Part of the Enphase IQ System, the IQ 7 and IQ 7+ Microinverters integrate with the Enphase IQ Envoy™, Enphase IQ Battery™, and the Enphase Enlighten™ monitoring and analysis software.

IQ Series Microinverters extend the reliability standards set forth by previous generations and undergo over a million hours of power-on testing, enabling Enphase to provide an industry-leading warranty of up to 25 years.



Easy to Install

- Lightweight and simple
- Faster installation with improved, lighter two-wire cabling
- Built-in rapid shutdown compliant (NEC 2014 & 2017)

Productive and Reliable

- Optimized for high powered 60-cell and 72-cell* modules
- More than a million hours of testing
- Class II double-insulated enclosure
- UL listed

Smart Grid Ready

- Complies with advanced grid support, voltage and frequency ride-through requirements
- Remotely updates to respond to changing grid requirements
- Configurable for varying grid profiles
- Meets CA Rule 21 (UL 1741-SA)

* The IQ 7+ Micro is required to support 72-cell modules.



To learn more about Enphase offerings, visit enphase.com



Enphase IQ 7 and IQ 7+ Microinverters

INPUT DATA (DC)	IQ7-60-2-US / IQ7-60-B-US		IQ7PLUS-72-2-US / IQ7PLUS-72-B-US	
Commonly used module pairings ¹	235 W - 350 W +		235 W - 440 W +	
Module compatibility	60-cell PV modules only		60-cell and 72-cell PV modules	
Maximum input DC voltage	48 V		60 V	
Peak power tracking voltage	27 V - 37 V		27 V - 45 V	
Operating range	16 V / 48 V		16 V - 60 V	
Min/Max start voltage	22 V / 48 V		22 V / 60 V	
Max DC short circuit current (module Isc)	15 A		15 A	
Overvoltage class DC port	II		II	
DC port backfeed current	0 A		0 A	
PV array configuration	1 x 1 ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit			
OUTPUT DATA (AC)	IQ 7 Microinverter		IQ 7+ Microinverter	
Peak output power	250 VA		295 VA	
Maximum continuous output power	240 VA		290 VA	
Nominal (L-L) voltage/range ²	240 V / 211-264 V	208 V / 183-229 V	240 V / 211-264 V	208 V / 183-229 V
Maximum continuous output current	1.0 A (240 V)	1.15 A (208 V)	1.21 A (240 V)	1.39 A (208 V)
Nominal frequency	60 Hz		60 Hz	
Extended frequency range	47 - 68 Hz		47 - 68 Hz	
AC short circuit fault current over 3 cycles	5.8 Arms		5.8 Arms	
Maximum units per 20 A (L-L) branch circuit ³	16 (240 VAC)	13 (208 VAC)	13 (240 VAC)	11 (208 VAC)
Overvoltage class AC port	III		III	
AC port backfeed current	0 A		0 A	
Power factor setting	1.0		1.0	
Power factor (adjustable)	0.7 leading ... 0.7 lagging		0.7 leading ... 0.7 lagging	
EFFICIENCY	@240 V	@208 V	@240 V	@208 V
Peak CEC efficiency	97.6 %	97.6 %	97.5 %	97.3 %
CEC weighted efficiency	97.0 %	97.0 %	97.0 %	97.0 %
MECHANICAL DATA				
Ambient temperature range	-40°C to +65°C			
Relative humidity range	4% to 100% (condensing)			
Connector type (IQ7-60-2-US & IQ7PLUS-72-2-US)	MC4 (or Amphenol H4 UTX with additional Q-DCC-5 adapter)			
Connector type (IQ7-60-B-US & IQ7PLUS-72-B-US)	Friends PV2 (MC4 intermateable). Adaptors for modules with MC4 or UTX connectors: = PV2 to MC4: order ECA-S20-S22 = PV2 to UTX: order ECA-S20-S25			
Dimensions (WxHxD)	212 mm x 175 mm x 30.2 mm (without bracket)			
Weight	1.08 kg (2.38 lbs)			
Cooling	Natural convection - No fans			
Approved for wet locations	Yes			
Pollution degree	PD3			
Enclosure	Class II double-insulated, corrosion resistant polymeric enclosure			
Environmental category / UV exposure rating	NEMA Type 6 / outdoor			
FEATURES				
Communication	Power Line Communication (PLC)			
Monitoring	Enlighten Manager and MyEnlighten monitoring options. Both options require installation of an Enphase IQ Envoy.			
Disconnecting means	The AC and DC connectors have been evaluated and approved by UL for use as the load-break disconnect required by NEC 690.			
Compliance	CA Rule 21 (UL 1741-SA) UL 62109-1, UL1741/IEEE1547, FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO. 1071-01 This product is UL Listed as PV Rapid Shut Down Equipment and conforms with NEC-2014 and NEC-2017 section 690.12 and C22.1-2015 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according manufacturer's instructions.			

1. No enforced DC/AC ratio. See the compatibility calculator at <https://enphase.com/en-us/support/module-compatibility>.
2. Nominal voltage range can be extended beyond nominal if required by the utility.
3. Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

To learn more about Enphase offerings, visit enphase.com

© 2018 Enphase Energy. All rights reserved. All trademarks or brands used are the property of Enphase Energy, Inc.
2018-05-24





ROCKIT

COMPLETE RAIL-LESS RACKING SYSTEM

The RockIt system is the industry's premier rail-less PV racking system for composition shingle, tile, and metal roofs. Designed in conjunction with the needs of installers, RockIt quickly & easily installs with a single tool. Featuring an easy-to-position alignment slide and a top-down leveling system, RockIt is logistically intelligent with no need to ship or transport long rails. Components are available in a black finish that complements both commercial and residential applications. Conforms to UL 2703.

FEATURES & BENEFITS

- Patented watertight technology
- Fully integrated bonding
- Top-down leveling system
- North-South adjustability
- Single tool install

STREAMLINED INSTALLATION WITH MINIMAL ROOF PENETRATIONS



Composition Shingle,
Tile, Metal



Rail-Less



Structural-Attach
Direct-Attach



ECOFASTENSOLAR.COM

ROCKIT

COUPLING

The fast installing RockIt Coupling easily attaches to the module frame to bridge the gaps between modules.

SKIRT

The sleek black Skirt installs first and acts as an alignment guide for the entire array. The Skirt End Cap does double duty as a skirt coupling device and an aesthetically-pleasing finishing touch.

ROCKIT MOUNT

Featuring integrated bonding pins, the RockIt Mount connects to the Slide and can easily be positioned for fast installation. Features top-down leveling.

ROCKIT SLIDE

Available in three variations, the RockIt Slide allows installation on composition shingle, tile, and metal roofs.

FRAME MLPE MOUNT

Attaches and fully bonds MLPE's (Module Level Power Electronics) to the module frame with a single bolt clip.

