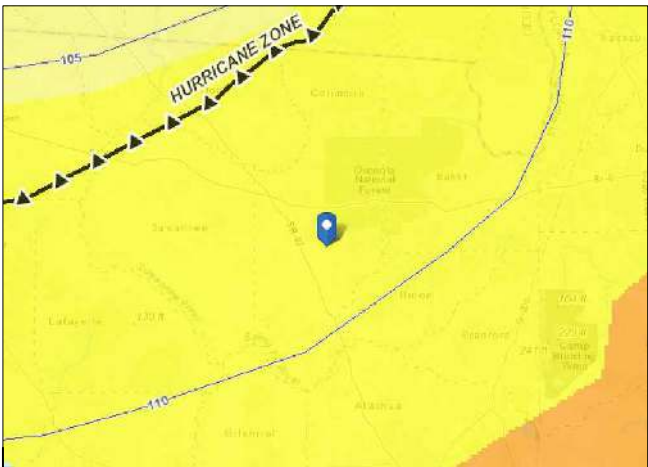




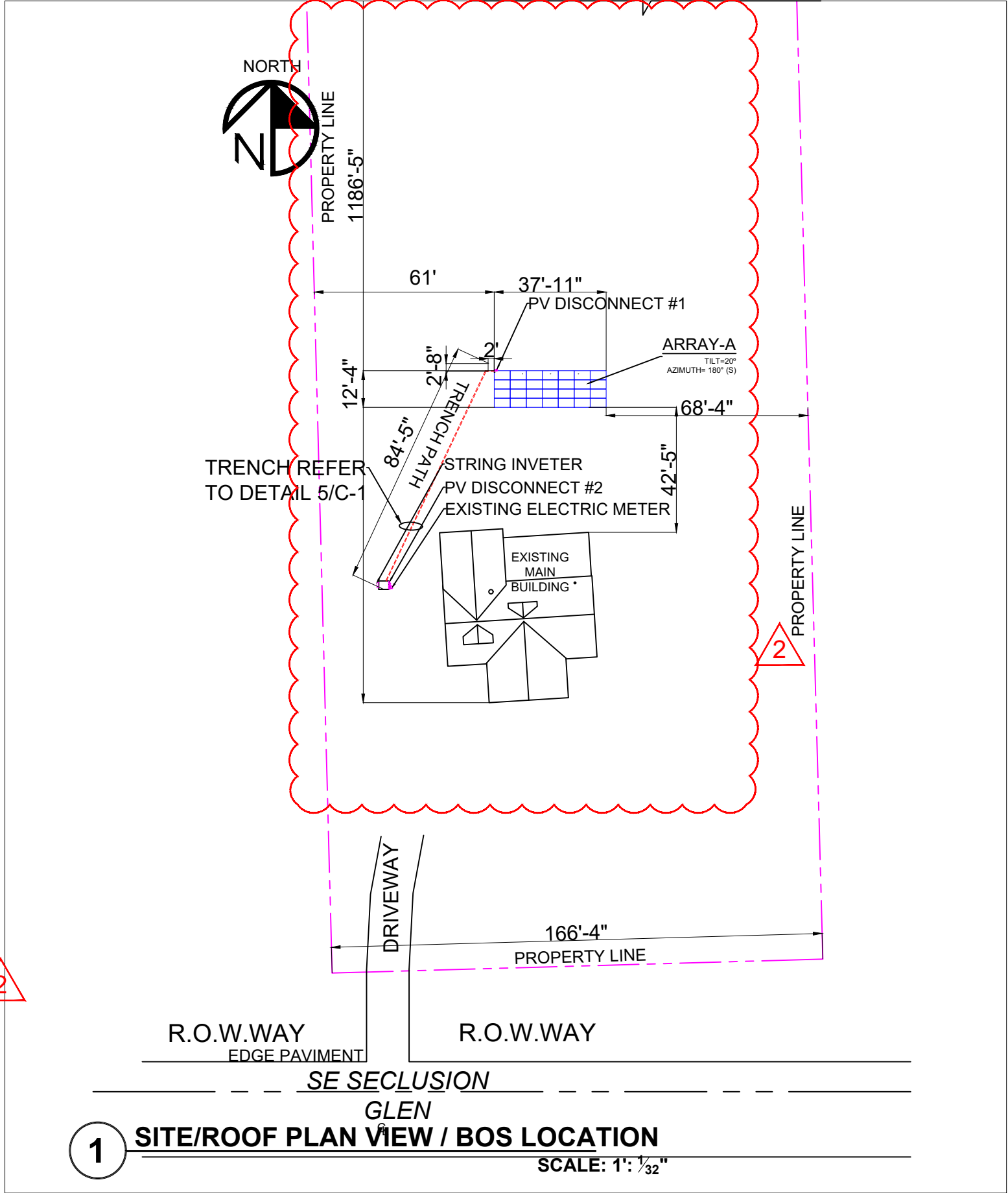
2 LOCATION MAP / WIND ZONES
N.T.S.



3 IRRADIANCE MAP
N.T.S.



4 3D RENDERING
N.T.S.



1 SITE/ROOF PLAN VIEW / BOS LOCATION
SCALE: 1' = 1/32"

PROJECT DESCRIPTION

SYSTEM CAPACITY: 9.52 KW DC / 7.6 KW AC

PV PANELS: (28) SIL-340 BY SILFAB

OPTIMIZERS: (28) P370 BY SOLAR EDGE

INVERTER: (1) SE-7600-US BY SOLAR EDGE

RACKING SYSTEM: CROSS RAIL 80 BY K2

PROJECT INFORMATION

PROJECT LATITUDE	30.15132	MIN AMBIENT TEMP	1 ° C
PROJECT LONGITUDE	-82.60546	MAX AMBIENT TEMP	35 ° C
AHJ	COLUMBIA COUNTY	WIND EXPOSURE	C
		MAX WIND SPEED	109 MPH

DRAWINGS INDEX

C-1	COVER SHEET
C-2	SAFETY PLANS
E-1	ONE LINE RISER DIAGRAM
E-2	SAFETY LABELS
S-1	STRUCTURAL PLAN
S-2	RACKING PLAN
D-1	PV MODULES DATA SHEET
D-2	SMART MONITORING DATA SHEET
D-3	INVERTER DATA SHEET

GENERAL NOTES

PER FL. STATUTE 377.705 (REVISED 7/1/2017), I RAFAEL A. GONZALEZ SOTO, P.E. 83104 AN ENGINEER LICENSED PURSUANT TO CHAPTER 471, CERTIFY THAT THE PV ELECTRICAL SYSTEM AND ELECTRICAL COMPONENTS ARE DESIGNED AND APPROVED USING THE STANDARDS CONTAINED IN THE MOST RECENT VERSION OF THE FLORIDA BUILDING CODE.

APPLICABLE CODES: 2020 FLORIDA BUILDING CODE 7TH EDITION, ASCE 7-16 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES, NEW ELECTRICAL CODE, NFPA 70 AND NEC 2017.

ALL WIND DESIGN CRITERIA AND PARAMETERS ARE FOR HIP AND GABLE RESIDENTIAL ROOFS, CONSIDERING FROM A 7° TO A MAXIMUM 27° (2/12 TO A MAXIMUM 6/12 PITCH ROOF IN SCHEDULE. ALL RESIDENTIAL ROOFS SHALL NOT EXCEED 30'-0" MEAN ROOF HEIGHT. ROOF SEALANTS SHALL CONFORM TO ASTM C920 AND ASTM 6511, AND IT IS RESPONSIBILITY OF THE CONTRACTOR TO PILOT FILL ALL HOLES.

CONTRACTOR SHALL ENSURE ALL ROOF PENETRATIONS TO BE INSTALLED AND SEALED PER 2020 FLORIDA BUILDING CODE 7TH EDITION OR LOCAL GOVERNING CODE.

ALL WIRING METHODS AND INSTALLATION PRACTICES SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE (NEC) 2017, LOCAL STATE CODES, AND OTHER APPLICABLE LOCAL CODES. MEANS SHALL BE PROVIDED TO DISCONNECT ALL CURRENT CARRYING CONDUCTORS OF THE PHOTOVOLTAIC POWER SOURCE FROM ALL OTHER CONDUCTORS IN THE BUILDING. CONNECTORS TO BE TORQUED PER DEVICE LISTING, OR MANUFACTURERS RECOMMENDATIONS. NON-CURRENT CARRYING METAL PARTS SHALL BE CHECKED FOR PROPER GROUNDING.

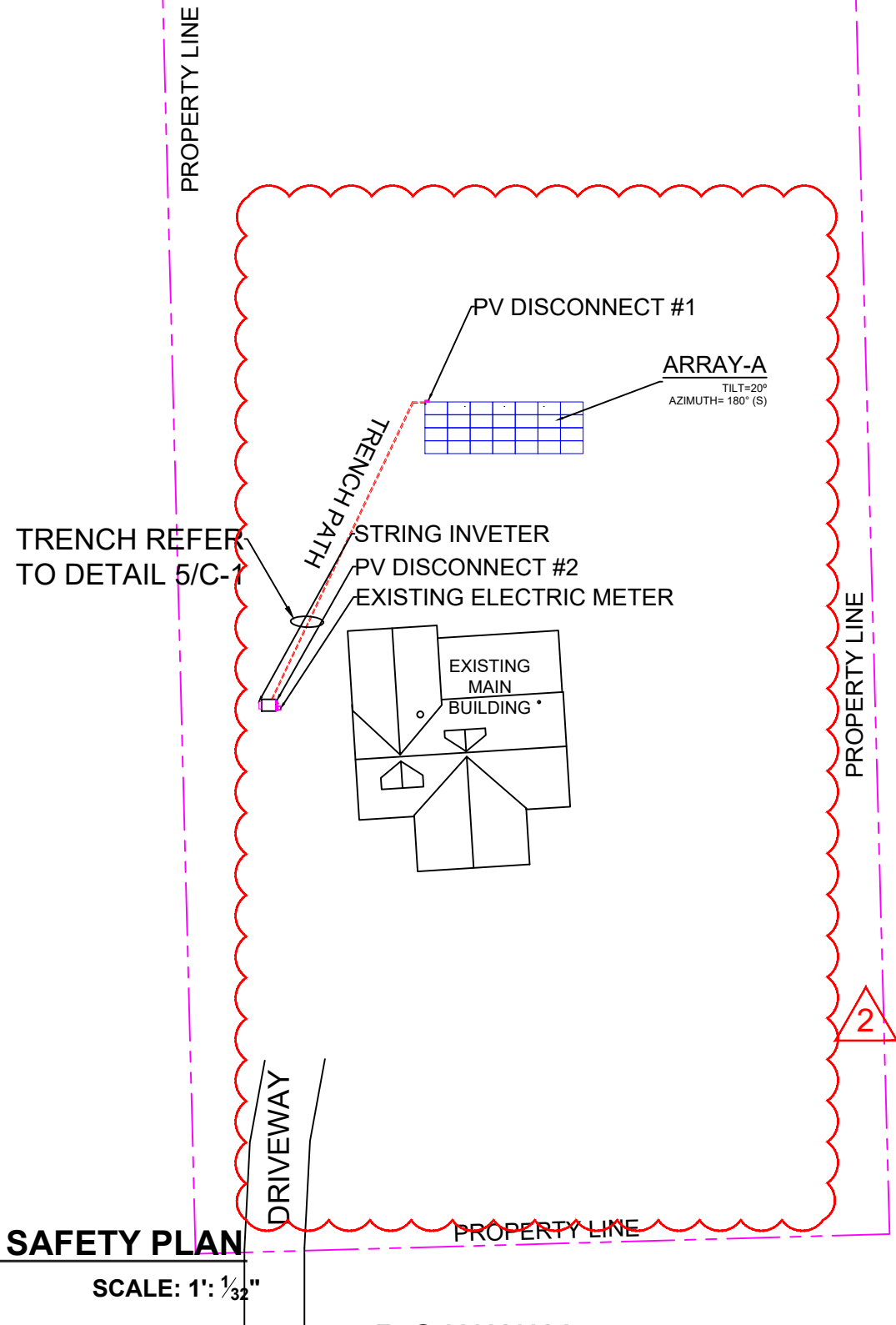
REQUIRED SAFETY SIGNS AND LABELS SHALL BE PERMANENTLY ATTACHED BY ADHESIVE, OR OTHER MECHANICAL MEANS, LABELS SHALL COMPLY WITH ARTICLE 690 VI OF THE NEC 2017 OR OTHER APPLICABLE STATE AND LOCAL CODES. SEE LABELS AND MARKING PAGE FOR MORE INFORMATION.

RACKING ROOF MOUNT SYSTEM SHALL BE INSTALLED FOLLOWING MANUFACTURERS INSTRUCTION SPEC'S, INCLUDING ALL GROUNDING WEEB CLIPS, GROUND LUGS, AND RAIL SPLICE KITS FOR ELECTRICAL CONTINUITY.

MECAWIND TOOL IS BASED ON THE C&C WIND LOADS FOR ENCLOSED BUILDINGS. DESIGN WIND PRESSURES ARE CALCULATED USING ASCE 7-16 EQUATION 30.6-1. ALL NOTES IN FIGURES ASCE 7-16 30.4-1 AND 30.4-2(A,B AND /67C) HAVE BEEN INCORPORATED. MEAN ROOF HEIGHT MUST BE LESS THAN 60 FEET.

COVER SHEET

DOCUMENT CONTROL				ENGINEER CONTACT INFORMATION				ENGINEERING STAMP				CONTRACTOR CONTACT INFORMATION				CONTRACTOR LOGO				CUSTOMER:				SHEET NAME:			
ISSUED FOR PERMIT				DATE	CAD	QC		ENGINEPARTNERS LLC				TITAN SOLAR POWER FL				JONATHAN MOSER				PROJECT ADDRESS:				PROJECT ID:			
REV				DATE	CAD	QC		C.A. 32661				12221 N US HIGHWAY 301				249 SE SECLUSION GLEN				25 FT AWAY FROM PROPERTY LINE. LAYOUT REVISED				TSP64089			
								255 GIRALDA AVE				THONOTASSA, FL 33592				LAKE CITY, FL 32025				REVISION - LAYOUT LOCATION REVISED				PARCEL NUMBER:			
								CORAL GABLES, FL 33134				(813) 982 -9001												10-4S-17-08305-003			
								DESIGN@ENGINEPARTNERS.COM				#EC13008093												ENGINEER OF RECORD:			
								833 - 888 - 3644																ENG. RAFAEL A. GONZALEZ SOTO, PE			
																								DATE:			
																								10-09-2021			
																								SHEET TITLE:			
																								C-1			
																								SHEETS:			
																								1 OF 9			



1 SAFETY PLAN
SCALE: 1' = 1/32"

LOCATION OF NEAREST URGENT CARE FACILITY

NAME:

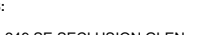
ADDRESS:

PHONE NUMBER:

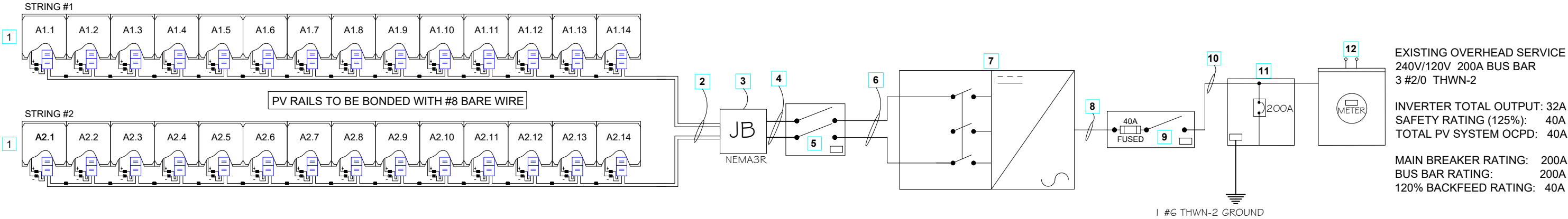
NOTES:

1. INSTALLERS SHALL DRAW IN DESIGNATED SAFETY AREA AROUND HOME

2. INSTALLERS SHALL UPDATE NAME ADDRESS AND PHONE NUMBER OF NEAREST URGENT CAR FACILITY RELATIVE TO THE SITE BEFORE STARTING WORK

DOCUMENT CONTROL				DATE	CAD	QC	ENGINEER CONTACT INFORMATION		ENGINEERING STAMP		CONTRACTOR CONTACT INFORMATION			CUSTOMER: JONATHAN MOSER		SHEET NAME: SAFETY PLAN		
ISSUED FOR PERMIT				02-10-21	AC	DM	ENGIPARTNERS LLC C.A. 32661 255 GIRALDA AVE CORAL GABLES, FL 33134 DESIGN@ENGIPARTNERS.COM 833 - 888 - 3644			Digitally signed by Rafael A Gonzalez Soto Date: 2021.10.12 06:50:22 -04'00'	TITAN SOLAR POWER FL 12221 N US HIGHWAY 301 THONOTASASSA, FL 33592 (813) 982 - 9001 #EC13008093			PROJECT ADDRESS: 249 SE SECLUSION GLEN LAKE CITY, FL 32025				
REV	DESCRIPTION			DATE	CAD	QC												
	25 FT AWAY FROM PROPERTY LINE. LAYOUT REVISED			05-11-2021	DP	DM												SHEET TITLE: C-2
	REVISION - LAYOUT LOCATION REVISED			10-11-2021	CS	NT										SHEETS: 2 OF 9		

	WIRE SIZES, QUANTITY & TYPE			RACEWAY SIZE, TYPE, LOCATION & INFO.			WIRE AMPACITY CALCULATIONS						ADDITIONAL INFORMATION				
WIRE TAG	CONDUCTOR QTY. SIZE & TYPE	NEUTRAL QTY. SIZE & TYPE	GROUND QTY. SIZE & TYPE	RACEWAY SIZE & TYPE	RACEWAY LOCATION	RACEWAY HEIGHT ABOVE ROOF	OUTPUT CURRENT	125% OF OUTPUT CURRRENT	MIN OCPD	WIRE DE-RATED CALCULATION				DIST.	VOLTAGE	VOLTAGE DROP %	CONDUIT FILL %
										WIRE RATING	AMBIENT TEMP	# OF COND.	FINAL AMPACITY				
DC (BEFORE JB)	(2) #10 AWG PV WIRE	N/A	(1) #8 AWG BARE COPPER	NOT APPLICABLE	UNDER ARRAY	1/2" TO 3-1/2"	15A	18.8A	20A	40A X 0.76 X 1 = 30.4 A				10 FT.	350V	0.11%	6.4%
DC (AFTER JB)	(4) #6 AWG THWN-2	N/A	(1) #8 AWG THWN-2	3/4" EMT CONDUIT	ABOVE ROOF	1/2" TO 3-1/2"	15A	18.8A	20A	40A X 0.76 X 0.8 = 24.3 A				96.5 FT.	240V	0.21%	8.1%
AC (INVERTER TO METER)	(2) #8 AWG THWN-2	(1)#8AWG THWN-2	(1) #8 AWG THWN-2	1" PVC CONDUIT	EXTERIOR WALL	"N/A"	32A	40A	40A	55A X 0.76 X 1 = 41.8 A				20 FT.	240V	1.58%	7.7%



1

ONE LINE RISER DIAGRAM

N.T.S.

LEGEND:

1	(28) SIL-340 BY SILFAB - REFER TO D-1 SHEET	2	4 #10 PV WIRE 1 #8 BARE WIRE GROUND 3/4" EMT CONDUIT	3	NEMA3R JUNCTION BOX
4	4 #10 THWN-2 1 #8 THWN-2 GROUND 3/4" EMT CONDUIT	5	PV SYSTEM DISCONNECT	6	4 #6 THWN-2 1 #8 THWN-2 GROUND 1" PVC SCH-80 CONDUIT
7	SE7600H-US BY SOLAREEDGE REFER TO D-3 SHEET	8	2 #8 L1,L2 THWN-2 1#8 THWN-2 NEUTRAL 3/4" EMT CONDUIT	9	PV SYSTEM DISCONNECT
10	2 #8 L1,L2 THWN-2 1#8 THWN-2 NEUTRAL 3/4" EMT CONDUIT	11	PV INTERCONNECTION POINT	12	UTILITY ELECTRICAL SERVICE

DOCUMENT CONTROL				DATE	CAD	QC	ENGINEER CONTACT INFORMATION			ENGINEERING STAMP			CONTRACTOR CONTACT INFORMATION			CONTRACTOR LOGO		CUSTOMER:		SHEET NAME:									
ISSUED FOR PERMIT				02-10-21	AC	DM	ENGIPARTNERS LLC			RAFAEL A. GONZALEZ SOTO FLORIDA PROFESSIONAL ENGINEER NO. 83104 DATE 02-10-21 Digitally signed by Rafael A Gonzalez Soto Date: 2021.10.12 06:50:28 -04'00'			TITAN SOLAR POWER FL					12221 N US HIGHWAY 301					JONATHAN MOSER		ONE LINE RISER DIAGRAM				
REV	DESCRIPTION			DATE	CAD	QC	C.A. 32661 255 GIRALDA AVE CORAL GABLES, FL 33134						THONOTASASSA, FL 33592					PROJECT ADDRESS:			PROJECT ID:			ENGINEER OF RECORD:			SHEET TITLE:		
							DESIGN@ENGIPARTNERS.COM											(813) 982 - 9001			249 SE SECLUSION GLEN LAKE CITY, FL 32025			TSP64089			ENG. RAFAEL A. GONZALEZ SOTO, PE		
							833 - 888 - 3644			#EC13008093						10-4S-17-08305-003			DATE:			SHEETS:							
																			02-09-2021			3 OF 9							



WARNING

ELECTRICAL SHOCK HAZARD

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

LABEL LOCATION:
AC DISCONNECT,
POINT OF INTERCONNECTION
PER CODE: NEC 690.13 (B)



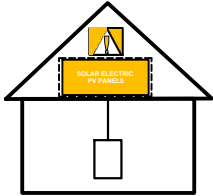
WARNING

**TURN OFF PHOTVOLTAIC
AC DISCONNECT PRIOR TO
WORKING INSIDE PANEL**

LABEL LOCATION:
AC DISCONNECT, MAIN PANEL
PER CODE: NEC 110.27 (C)
OSHA 1910.145(f)(7)

**SOLAR PV SYSTEM EQUIPPED
WITH RAPID SHUTDOWN**

TURN RAPID SHUTDOWN
SWITCH TO THE "OFF"
POSITION, TO
SHUTDOWN CONDUCTORS
OUTSIDE THE ARRAY.
CONDUCTORS WITHIN
ARRAY REMAIN
ENERGIZED IN SUNLIGHT



LABEL LOCATION:
AC DISCONNECT, MAIN PANEL
PER CODE: NEC 690.56(C)(3)

**PHOTOVOLTAIC
SYSTEM EQUIPPED
WITH RAPID SYSTEM
SHUTDOWN**

LABEL LOCATION:
AC DISCONNECT
POINT OF INTERCONNECTION
PER CODE: NEC 690.56(C)

INVERTER #1

NOMINAL OPERATING AC VOLTAGE

240 V

NOMINAL OPERATING AC FREQUENCY

60 HZ

MAXIMUM AC POWER

7.6 KW

MAXIMUM AC CURRENT

32 AMPS

MAX OVERCURRENT DEVICE RATING
FOR AC MODULE PROTECTION

N/A

LABEL LOCATION:
INVERTER
PER CODE: NEC 690.52

MAXIMUM VOLTAGE

480 VDC

MAXIMUM CIRCUIT CURRENT

20 A

MAX RATED OUTPUT CURRENT OF
THE CHARGE CONTROLLER OR DC-TO-DC
CONVERTER
(IF INSTALLED)

15 A

LABEL LOCATION:
INVERTER
PER CODE: NEC 690.53

PHOTOVOLTAIC AC DISCONNECT

RATED AC OUTPUT CURRENT:

32 A

NOMINAL OPERATING AC VOLTAGE:

240V

LABEL LOCATION:
AC DISCONNECT
PER CODE: NEC 690.54

**MAIN PHOTOVOLTAIC
SYSTEM DISCONNECT**

LABEL LOCATION:
AC DISCONNECT
PER CODE: NEC 690.13 (B)

**WARNING: PHOTOVOLTAIC
POWER SOURCE**

LABEL LOCATION:
MAIN SERVICES DISCONNECT, DC CONDUIT
PER CODE: NEC 690.31 (G) (3)



WARNING

**DUAL POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM**

LABEL LOCATION:
POINT OF
INTERCONNECTION
PER CODE: NEC 705.12 (B)(3)



WARNING

**POWER SOURCE OUTPUT CONNECTION. DO NOT
RELOCATE THIS OVERCURRENT DEVICE**

LABEL LOCATION:
POINT OF
INTERCONNECTION
PER CODE: NEC
705.12(B)(2)(3)(b)



CAUTION

PHOTOVOLTAIC SYSTEM CIRCUIT IS SUPPLY SIDE

LABEL LOCATION:
MAIN SERVICE PANEL
PER CODE: NEC 690.45(B)(5)

**DO NOT DISCONNECT
UNDER LOAD**

LABEL LOCATION:
POINT OF
INTERCONNECTION
PER CODE:
NEC 690.33(E)(2) & NEC
690.15 (C)

**CAUTION: SOLAR ELECTRIC
SYSTEM CONNECTED**

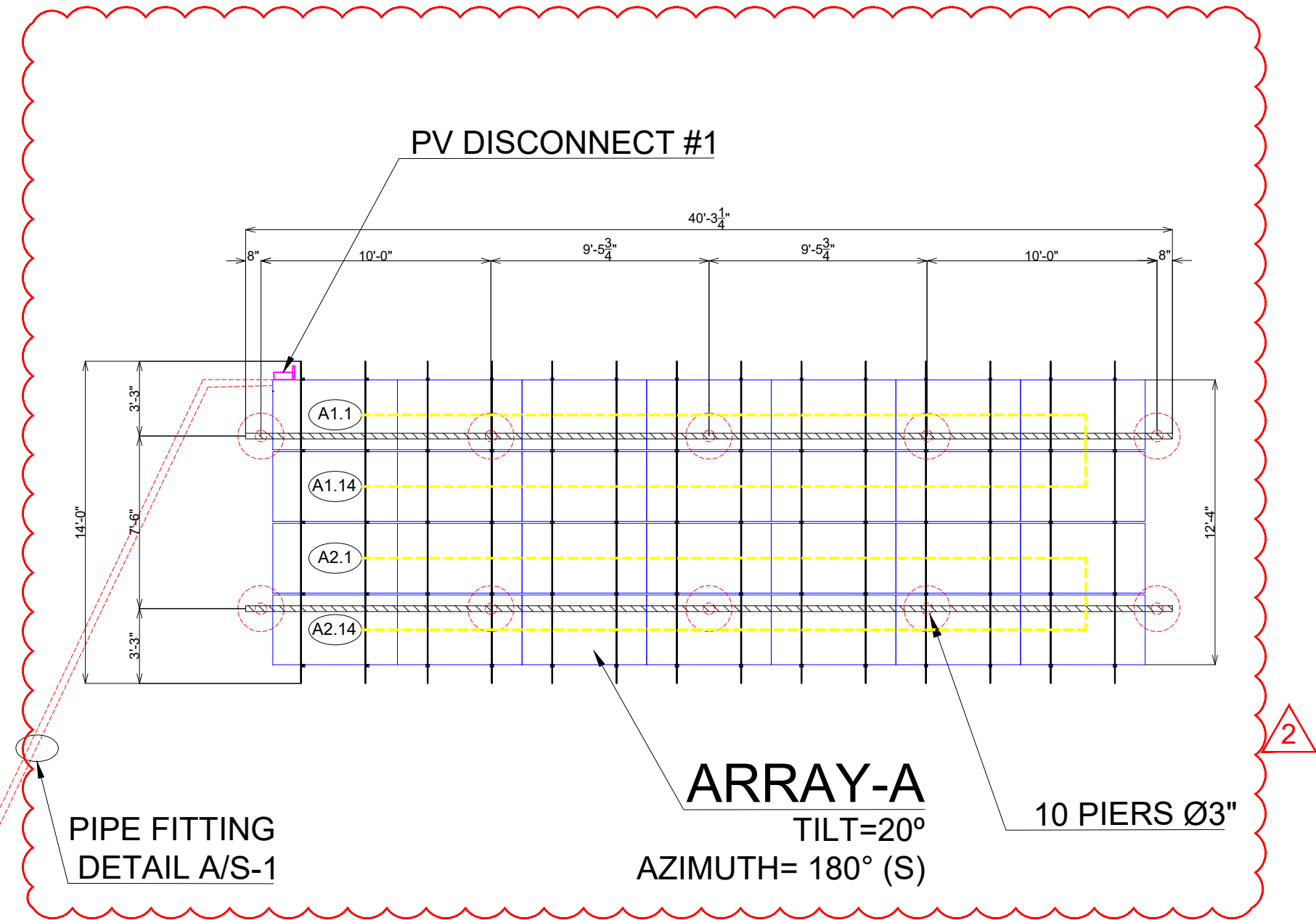
LABEL LOCATION: POINT OF INTERCONNECTION
PER CODE: NEC 690.15, NEC 690.13(B)

1

PV SAFETY LABELS DATA
N.T.S.

DOCUMENT CONTROL				ENGINEER CONTACT INFORMATION				CONTRACTOR CONTACT INFORMATION				CUSTOMER:		SHEET NAME:		
ISSUED FOR PERMIT				ENGINEER OF RECORD				CONTRACTOR LOGO				JONATHAN MOSER		SAFETY LABELS		
REV DESCRIPTION				ENGINEER OF RECORD				TITAN SOLAR POWER FL				PROJECT ADDRESS:		PROJECT ID:		
				C.A. 32661 255 GIRALDA AVE CORAL GABLES, FL 33134 DESIGN@ENGIPARTNERS.COM 833 - 888 - 3644				12221 N US HIGHWAY 301 THONOTASASSA, FL 33592 (813) 982 -9001 #EC13008093				249 SE SECLUSION GLEN LAKE CITY, FL 32025		TSP64089		
												PARCEL NUMBER:		ENGINEER OF RECORD:		
												10-4S-17-08305-003		ENG. RAFAEL A. GONZALEZ SOTO, PE		
														DATE:		
														02-09-2021		
														SHEET TITLE:		
														E-2		
														SHEETS:		
														4 OF 9		

WEIGHTED AVERAGE	
WORST CASE MODULE:	ZONE 1: 0%
	ZONE 3: 100%
	47.01 (1) = 47.01psf



1 STRUCTURAL PLAN & PV MODULES LAYOUT N.T.S.

DESIGN WIND PRESSURE
CALCULATIONS FOR SOLAR
MODULES INSTALLED ON GROUND

ARRAY DETAILS			
FBC VERSION	2017	RISK CATEGORY	I
CONFIG	4x7	EXPOSURE CATEGORY	C
MODS / PIERS	3	N-S SPACING	7'- 6"
PIERS	10	PIPE CANTILEVER	0'- 6"
SOUTH PIERS	5 (2'-6")	ULTIMATE WIND SPEED	110mph
NORTH PIERS	5 (4'-6")	TOTAL PIPE LENGTH	65'-10"
DIAGONAL PIPES	YES	GROUND SNOW LOAD	0 psf
TOTAL RAILS	14		
RAIL CANTILEVER	1'-6"		
RAIL TYPE	CROSS RAIL 80		

SUBSTRUCTURE		FOUNDATION	
TILT ANGLE	20°	SOIL CLASS	4
PIPE SIZE	3"	HOLE DIAMETER	1'-8"
E-W PIER SPACING	7'- 9"	TYPE	CONCRETE
DIAGONAL BRACING	YES	MIN HOLE DEPTH	5'-0"
TOTAL FOUNDATIONS	10		
SOUTH CLEARANCE	1'- 11"		
NORTH CLEARANCE	5'- 1"		

REACTION FORCES		
SHEAR	MOMENT	UPLIFT
2,709 lbs	0 ft-lbs	-2,753 lbs

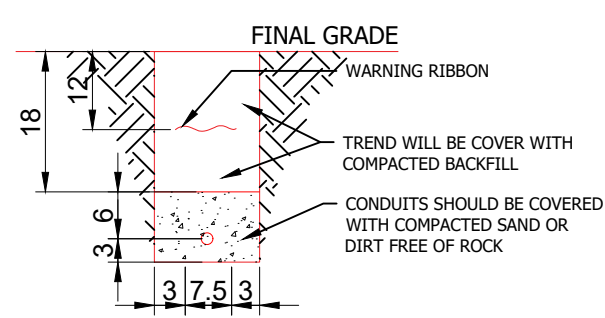
LEGEND & SYMBOLS

OBS ROOF OBSTRUCTIONS

XX.X ARRAY #
MODULE #
STRING #

PV MODULES

RAIL



A PIPE FITTING DETAIL N.T.S.

SIL-TITAN 340 NL (60 CELL)

66.9"

39.4"

UL 1703 CERTIFIED
PORTRAIT MAX. SURFACE LOAD: 83.54 psf
LANDSCAPE MAX. SURFACE LOAD: 50.13 psf
APPLIED WIND LOAD : 47.01 psf

NOTES:
-INSTALL MID CLAMPS BETWEEN MODULES AND ENDS CLAMPS AT THE END OF EACH ROW OF MODULES.
-ALUMINUM RAILS SHOULD ALWAYS BE SUPPORTED BY MORE THAN ONE FOOTING ON BOTH SIDES OF THE SPLICE.

2 SOLAR MODULE N.T.S.

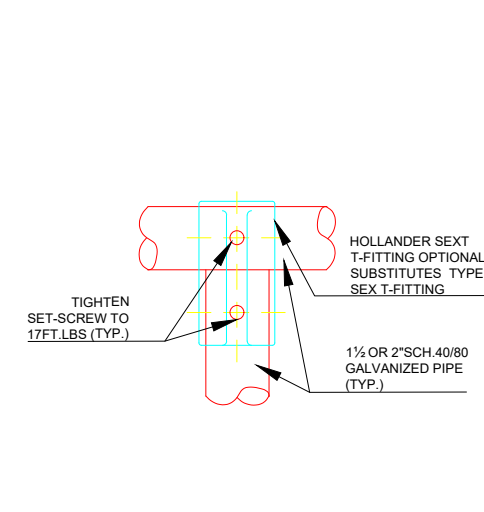
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ISSUED FOR PERMIT				02-10-21		AC		DM		ENGIPARTNERS LLC C.A. 32661 255 GIRALDA AVE CORAL GABLES, FL 33134 DESIGN@ENGIPARTNERS.COM 833 - 888 - 3644						Digitally signed by Rafael A Gonzalez Soto Date: 2021.10.12 06:50:43 -04'00'				TITAN SOLAR POWER FL 12221 N US HIGHWAY 301 THONOTASASSA, FL 33592 (813) 982 - 9001 #EC13008093						JONATHAN MOSER		STRUCTURAL PLAN					
REV				DATE		CAD		QC																		PROJECT ADDRESS:						249 SE SECLUSION GLEN LAKE CITY, FL 32025	
1				02-10-2021		AC		DM																		PROJECT CHANGED TO GROUND MOUNT. LAYOUT REVISED.							
2				10-11-2021		CS		NT												PARCEL NUMBER:		10-4S-17-08305-003		PROJECT ID: TSP64089		ENGINEER OF RECORD: ENG. RAFAEL A. GONZALEZ SOTO, PE DATE: 02-09-2021		SHEET TITLE: S-1 SHEETS: 5 OF 9					

	CrossRail 80 Material: aluminum Finish: mill
	CrossRail Mid Clamp UL2703+ Set 30-47 mm, 48-50 mm Material: stainless steel Finish: silver, dark
	CrossRail End Clamp Set 30-50mm Material: stainless steel Finish: silver, dark

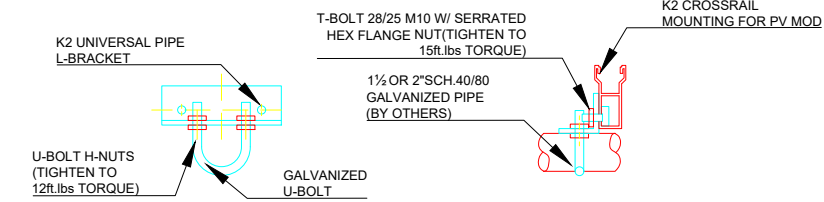
	Hollaender No. 70 External Coupling Material: aluminum
	Aluminum Hollaender SEXT Extended Barrel Tee OR Hollaender 5EX Material: aluminum
	Aluminum Hollaender 17 Adj. Elbow Material: aluminum
	Aluminum End Clamp Set Material: stainless steel Finish: silver, black Hardware: stainless steel
	Optional: End Cap for CR80 Material: glass fiber reinforced polamide
	Optional: External Omega Cable Clip Material: polyamide, black
	Optional: HEY Clip SunRunner Cable Clip SS, S6404 Material: stainless steel

NON UL LISTED COMPONENTS			
	K 2 Pipe L Bracket Kit Material: stainless steel, galvanized steel		
	JF3 MiniRail Screw w/ EPDM 6x32 Material: stainless steel		
	1/2 in Serrated Flange Nut and T-Bolt 28/15 M10 Material: stainless steel		

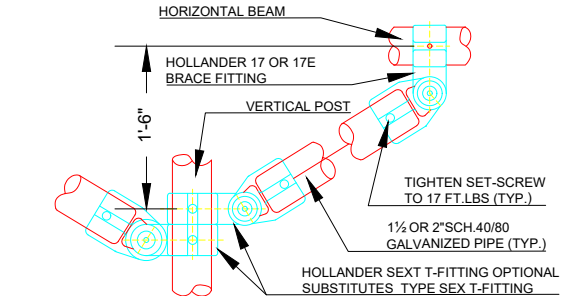
DOCUMENT CONTROL		DATE	CAD	QC
ISSUED FOR PERMIT		02-10-21	AC	DM
REV	DESCRIPTION	DATE	CAD	QC
1	PROJECT CHANGED TO GROUND MOUNT. LAYOUT REVISED.	02-10-2021	AC	DM



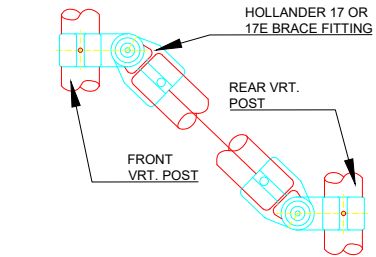
A GROUND MOUNT T-FITTING
SCALE: 3"=1'



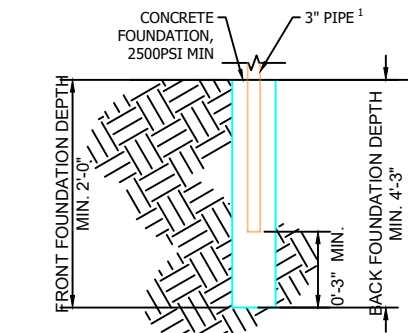
B K2 1.5" PIPE L-BRACKET
SCALE: 3"=1'



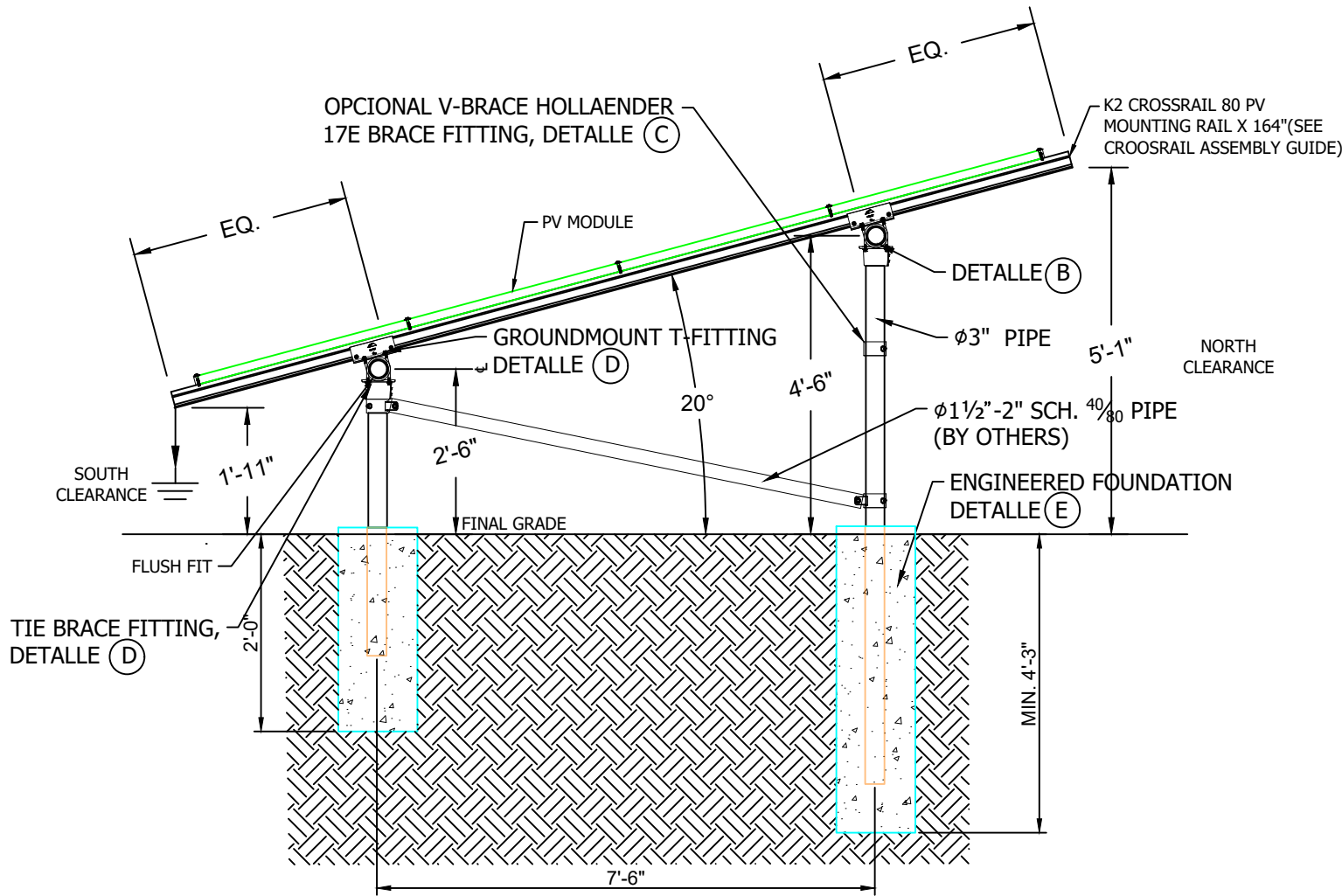
C OPTIONAL V-BRACE (TYP. EACH POST)
SCALE: 3"=1'



D TIE BRACE CONNECTIONS
SCALE: 3"=1'



E FOUNDATION DETAILS
SCALE: 1/2"= 1'



PV SYSTEM SIDE SECTION
SCALE: 3/4"=1'

DOCUMENT CONTROL		DATE	CAD	QC
ISSUED FOR PERMIT		02-10-21	AC	DM
REV	DESCRIPTION	DATE	CAD	QC
1	PROJECT CHANGED TO GROUND MOUNT. LAYOUT REVISED.	02-10-2021	AC	DM

ENGINEER CONTACT INFORMATION		ENGINEERING STAMP
ENGIPARTNERS LLC C.A. 32661 255 GIRALDA AVE CORAL GABLES, FL 33134 DESIGN@ENGIPARTNERS.COM 833 - 888 - 3644		Digitally signed by Rafael A Gonzalez Soto Date: 2021.10.12 06:50:51 -04'00' 

CONTRACTOR CONTACT INFORMATION	
TITAN SOLAR POWER FL 12221 N US HIGHWAY 301 THONOTASASSA, FL 33592 (813) 982 -9001 #EC13008093	

CONTRACTOR LOGO


CUSTOMER:	JONATHAN MOSER
PROJECT ADDRESS:	249 SE SECLUSION GLEN LAKE CITY, FL 32025
PARCEL NUMBER:	10-4S-17-08305-003

SHEET NAME:		
RACKING PLAN		
PROJECT ID:	ENGINEER OF RECORD:	SHEET TITLE:
TSP64089	ENG. RAFAEL A. GONZALEZ SOTO, PE	S-2
	DATE:	SHEETS:
	02-09-2021	6 OF 9



TITAN

SOLAR PANEL

60 Cell Monocrystalline PV Module



CHUBB
* Chubb provides error and omission insurance to Silfab Solar Inc.

SIL-340 NL
POWERED BY
SILFAB SOLAR



INDUSTRY LEADING WARRANTY

The Titan Solar Panel is manufactured by Silfab Solar and includes an industry leading 25-year product workmanship and 30-year performance warranty.

MAXIMUM ENERGY OUTPUT

Leveraging over 35+ years of worldwide experience in the solar industry, Silfab is dedicated to superior manufacturing processes and innovations such as Bifacial and Back Contact technologies, to ensure our partners, such as Titan Solar have the latest in solar innovation.

NORTH AMERICAN QUALITY

Silfab is the leading automated solar module manufacturer in North America. Utilizing premium quality materials and strict quality control management to deliver the highest efficiency, premium quality PV modules 100% made in North America.



BAA / ARRA COMPLIANT

Panels are designed and manufactured to meet Buy American Act Compliance. The US State Department, US Military and FAA have all utilized Silfab panels in their solar installations.

LIGHT AND DURABLE

Engineered to accommodate high wind load conditions for test loads validated up to 4000Pa uplift. The light-weight frame is exclusively designed for wide-ranging racking compatibility and durability.

QUALITY MATTERS

Total automation ensures strict quality controls during the entire manufacturing process at ISO certified facilities.

DOMESTIC PRODUCTION

Silfab Solar manufactures PV modules in two automated locations within North America. Our 500+ North American team is ready to help Titan Solar win the hearts and minds of customers, providing customer service and product delivery that is direct, efficient and local.

AESTHETICALLY PLEASING

All black sleek design, ideal for high-profile residential or commercial applications.

PID RESISTANT

PID Resistant due to advanced cell technology and material selection. In accordance to IEC 62804-1.

Electrical Specifications		SIL-340 NL mono PERC	
Test Conditions		STC	NOCT
Module Power (Pmax)	Wp	340	241
Maximum power voltage (Vpmax)	V	33.7	30.4
Maximum power current (Ipmax)	A	10.1	7.9
Open circuit voltage (Voc)	V	40.9	37.1
Short circuit current (Isc)	A	10.5	8.3
Module efficiency	%	20.0	17.7
Maximum system voltage (VDC)	V		1000
Series fuse rating	A		20
Power Tolerance	Wp		+/-3%

Measurement conditions: STC 1000 W/m² ± 0.5%, AM 1.5, Temperature 25 °C ± 0.5 °C, NOCT 800 W/m² ± 0.5%, AM 1.5, Measurement uncertainty ± 3%
* Sun simulator calibration reference module from Fraunhofer Institute. Electrical characteristics may vary by ±5% and power by ±3%.

Temperature Ratings		SIL-340 NL mono PERC	
Temperature Coefficient Isc		0.064 %/°C	
Temperature Coefficient Voc		-0.28 %/°C	
Temperature Coefficient Pmax		-0.36 %/°C	
NOCT (± 2 °C)		46 °C	
Operating temperature		-40/+85 °C	

Mechanical Properties and Components		SIL-340 NL mono PERC	
Module weight		41 ±0.4 lbs	
Dimensions (H x L x D)		66.9 in x 39.4 in x 1.5 in	
Maximum surface load (wind/snow)**		83.5/112.8 lb/ft ²	
Hail impact resistance		1 in at 51.6 mph	
Cells		60 - Si mono PERC - 5 busbar, 6.25 x 6.25 inch	
Glass		0.126 in high transmittance, tempered, DSM anti-reflective coating	
Cables and connectors (refer to installation manual)		47.2 in, ø 0.22 in, MC4 from Staubli	
Backsheet		High durability, superior hydrolysis and UV resistance, multi-layer dielectric film, fluorine-free PV backsheet	
Frame		Anodized Aluminum (Black)	
Bypass diodes		3 diodes - 30SQ045T (45V max DC blocking voltage, 30A max forward rectified current)	
Junction Box		UL 3730 Certified, IEC 62790 Certified, IP67 rated	

Warranties		SIL-340 NL mono PERC	
Module product workmanship warranty		25 years**	
Linear power performance guarantee		30 years	
		≥ 97.1% end 1 st year	≥ 91.6% end 12 th year
		≥ 85.1% end 25 th year	≥ 82.6% end 30 th year

Certifications		SIL-340 NL mono PERC	
Product		ULC ORD C1703, UL1703, CEC Listed***, UL 61215-1/-1-1/-2, UL 61730-1/-2, IEC 61215-1/-1-1/-2***, IEC 61730-1/-2***, CSA C22.2 #61730-1/-2***, IEC 62716 Ammonia Corrosion; IEC 61701:2011 Salt Mist Corrosion Certified, UL Fire Rating: Type 2	
Factory		ISO 9001:2015	

Modules Per Pallet: 26
Pallets Per Truck: 36
Modules Per Truck: 936

*Warning: Read the Safety and Installation Manual for mounting specifications and before handling, installing and operating modules.

**12 year extendable to 25 years subject to registration and conditions out in our "Warranty" at www.silfab.com.

***September 2020 expected completion date.

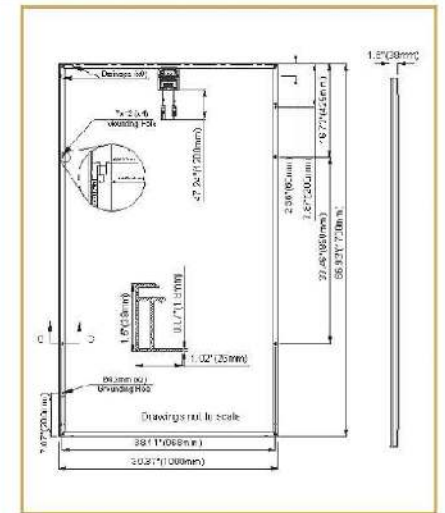
PAN files generated from 3rd party performance data are available for download at: www.silfab.com/download



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ISSUED FOR PERMIT				02-10-21				AC/DM				2021.10.12				TITAN SOLAR POWER FL				JONATHAN MOSER				PV MODULES DATASHEET			
REV DESCRIPTION				DATE				CAD QC				THONOTASSA, FL 33592				(813) 982-9001				249 SE SECLUSION GLEN				PROJECT ID:			
												#EC13008093								PARCEL NUMBER:				TSP64089			
																				10-4S-17-08305-003				ENGINEER OF RECORD:			
																								ENG. RAFAEL A. GONZALEZ SOTO, PE			
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																								02-09-2021			
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Power Optimizer

For North America

P320 / P340 / **P370** / P400 / P401 / P405 / P485 / P505



POWER OPTIMIZER

PV power optimization at the module-level

- Specifically designed to work with SolarEdge inverters
- Up to 25% more energy
- Superior efficiency (99.5%)
- Mitigates all types of module mismatch losses, from manufacturing tolerance to partial shading
- Flexible system design for maximum space utilization
- Fast installation with a single bolt
- Next generation maintenance with module-level monitoring
- Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)
- Module-level voltage shutdown for installer and firefighter safety

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Power Optimizer

For North America

P320 / P340 / **P370** / P400 / P401 / P405 / P485 / P505

Optimizer model (typical module compatibility)	P320 (for 60-cell modules)	P340 (for high-power 60-cell modules)	P370 (for higher-power 60 and 72-cell modules)	P400 (for 72 & 96-cell modules)	P401 (for high-power 60 and 72-cell modules)	P405 (for high-voltage modules)	P485 (for high-voltage modules)	P505 (for higher current modules)	
INPUT									
Rated Input DC Power ⁽¹⁾	320	340	370	400	405	485	505	W	
Absolute Maximum Input Voltage (V _{oc} at lowest temperature)	48		60	80	60	125 ⁽²⁾	83 ⁽²⁾	V _{dc}	
MPPT Operating Range	8 - 48		8 - 60	8 - 80	8-60	12.5 - 105	12.5 - 83	V _{dc}	
Maximum Short Circuit Current (I _{sc})		11		10.1	11.75	11	14	A _{dc}	
Maximum DC Input Current		13.75		12.5	14.65	12.5	17.5	A _{dc}	
Maximum Efficiency				99.5				%	
Weighted Efficiency				98.8			98.6	%	
Overvoltage Category				II					
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREDGE INVERTER)									
Maximum Output Current				15				A _{dc}	
Maximum Output Voltage				60		85		V _{dc}	
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREDGE INVERTER OR SOLAREDGE INVERTER OFF)									
Safety Output Voltage per Power Optimizer				1 ± 0.1				V _{dc}	
STANDARD COMPLIANCE									
EMC				FCC Part15 Class B, IEC61000-6-2, IEC61000-6-3					
Safety				IEC62109-1 (class II safety), UL1741					
Material				UL94 V-0, UV Resistant					
RoHS				Yes					
INSTALLATION SPECIFICATIONS									
Maximum Allowed System Voltage				1000				V _{dc}	
Compatible inverters				All SolarEdge Single Phase and Three Phase inverters					
Dimensions (W x L x H)		129 x 153 x 27.5 / 5.1 x 6 x 1.1	129 x 153 x 33.5 / 5.1 x 6 x 1.3	129 x 153 x 29.5 / 5.1 x 6 x 1.16	129 x 159 x 49.5 / 5.1 x 6.3 x 1.9	129 x 162 x 59 / 5.1 x 6.4 x 2.3		mm / in	
Weight (including cables)		630 / 1.4	750 / 1.7	655 / 1.5	845 / 1.9	1054 / 2.3		gr / lb	
Input Connector				MC4 ⁽³⁾	Single or dual MC4 ⁽³⁾	MC4 ⁽³⁾			
Input Wire Length				0.16 / 0.52				m / ft	
Output Wire Type / Connector				Double Insulated / MC4					
Output Wire Length		0.9 / 2.95		1.2 / 3.9				m / ft	
Operating Temperature Range ⁽⁴⁾				-40 - +85 / -40 - +185				°C / °F	
Protection Rating				IP68 / NEMA6P					
Relative Humidity				0 - 100				%	

- (1) Rated power of the module at STC will not exceed the optimizer "Rated Input DC Power". Modules with up to +5% power tolerance are allowed.
(2) NEC 2017 requires max input voltage be not more than 80V.
(3) For other connector types please contact SolarEdge.
(4) For dual version for parallel connection of two modules use P485-4NMDMRM. In the case of an odd number of PV modules in one string, installing one P485 dual version power optimizer connected to one PV module. When connecting a single module seal the unused input connectors with the supplied pair of seals.
(5) For ambient temperature above +85°C / +185°F power de-rating is applied. Refer to Power Optimizers Temperature De-Rating Technical Note for more details.

PV System Design Using a SolarEdge Inverter ⁽⁶⁾⁽⁷⁾	Single Phase HD-Wave	Single phase	Three Phase for 208V grid	Three Phase for 277/480V grid	
Minimum String Length (Power Optimizers)	P320, P340, P370, P400, P401 P405, P485, P505	8	10	18	
Maximum String Length (Power Optimizers)		6	8	14	
Maximum Power per String		25	25	50 ⁽⁸⁾	
Maximum Power per String	5700 (6000 with SE7600-US - SE11400-US)	5250	6000 ⁽⁹⁾	12750 ⁽¹⁰⁾	W
Parallel Strings of Different Lengths or Orientations		Yes			

- (6) For detailed string sizing information refer to: http://www.solaredge.com/sites/default/files/string_sizing_na.pdf
(7) It is not allowed to mix P405/P485/P505 with P320/P340/P370/P400/P401 in one string.
(8) A string with more than 30 optimizers does not meet NEC rapid shutdown requirements, safety voltage will be above the 30V requirement.
(9) For 208V grid it is allowed to install up to 6,000W per string when the maximum power difference between each string is 1,000W.
(10) For 277/480V grid it is allowed to install up to 15,000W per string when the maximum power difference between each string is 2,000W.

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ISSUED FOR PERMIT				02-10-21		AC	DM	ENGIPARTNERS LLC						TITAN SOLAR POWER FL						JONATHAN MOSER		SMART MONITORING DATASHEET			
REV				DATE		CAD	QC	C.A. 32661 255 GIRALDA AVE CORAL GABLES, FL 33134						12221 N US HIGHWAY 301						PROJECT ADDRESS:					
								DESIGN@ENGIPARTNERS.COM						THONOTASSA, FL 33592						249 SE SECLUSION GLEN LAKE CITY, FL 32025					
								833 - 888 - 3644						(813) 982 - 9001						PARCEL NUMBER:					
														#EC13008093				10-4S-17-08305-003		PROJECT ID:		ENGINEER OF RECORD:		SHEET TITLE:	
																				TSP64089		ENG. RAFAEL A. GONZALEZ SOTO, PE		D-2	
																						DATE:		SHEETS:	
																						02-09-2021		8 OF 9	

Single Phase Inverter with HD-Wave Technology

for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US /
SE7600H-US / SE10000H-US / SE11400H-US



INVERTERS

Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking 99% weighted efficiency
- Quick and easy inverter commissioning directly from a smartphone using the SolarEdge SetApp
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014 and 2017, per article 690.11 and 690.12
- UL1741 SA certified, for CPUC Rule 21 grid compliance
- Small, lightweight, and easy to install both outdoors or indoors
- Built-in module-level monitoring
- Optional: Faster installations with built-in consumption metering (1% accuracy) and production revenue grade metering (0.5% accuracy, ANSI C12.20)

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Single Phase Inverter with HD-Wave Technology for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US/
SE7600H-US / SE10000H-US / SE11400H-US

MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
APPLICABLE TO INVERTERS WITH PART NUMBER	SEXXXXH-XXXXXBX4							
OUTPUT								
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
AC Output Voltage Min.-Nom.-Max. (211 - 240 - 264)	✓	✓	✓	✓	✓	✓	✓	Vac
AC Output Voltage Min.-Nom.-Max. (183 - 208 - 229)	-	✓	-	✓	-	-	✓	Vac
AC Frequency (Nominal)	59.3 - 60 - 60.5 ⁽¹⁾							Hz
Maximum Continuous Output Current @240V	12.5	16	21	25	32	42	47.5	A
Maximum Continuous Output Current @208V	-	16	-	24	-	-	48.5	A
Power Factor	1, Adjustable - 0.85 to 0.85							
GFDI Threshold	1							A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes							
INPUT								
Maximum DC Power @240V	4650	5900	7750	9300	11800	15500	17650	W
Maximum DC Power @208V	-	5100	-	7750	-	-	15500	W
Transformer-less, Ungrounded	Yes							
Maximum Input Voltage	480							Vdc
Nominal DC Input Voltage	380							Vdc
Maximum Input Current @240V ⁽²⁾	8.5	10.5	13.5	16.5	20	27	30.5	Adc
Maximum Input Current @208V ⁽²⁾	-	9	-	13.5	-	-	27	Adc
Max. Input Short Circuit Current	45							Adc
Reverse-Polarity Protection	Yes							
Ground-Fault Isolation Detection	600k Ω Sensitivity							
Maximum Inverter Efficiency	99	99.2						%
CEC Weighted Efficiency	99						99 @ 240V 98.5 @ 208V	%
Nighttime Power Consumption	< 2.5							W

⁽¹⁾ For other regional settings please contact SolarEdge support
⁽²⁾ A higher current source may be used; the inverter will limit its input current to the values stated

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REV				DATE		CAD	QC	C.A. 32661 255 GIRALDA AVE CORAL GABLES, FL 33134				No. 83104 STATE OF FLORIDA PROFESSIONAL ENGINEER		12221 N US HIGHWAY 301 THONOTASASSA, FL 33592				249 SE SECLUSION GLEN LAKE CITY, FL 32025					
								DESIGN@ENGINEPARTNERS.COM				Date: 2021.10.12 06:51:13 -04'00'		(813) 982 -9001 #EC13008093				PARCEL NUMBER: 10-4S-17-08305-003					
								833 - 888 - 3644												PROJECT ID: TSP64089			
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																				SHEET TITLE: D-3			
																				SHEETS: 9 OF 9			