



Scott E. Wyssling, PE, PP, CME

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August 5, 2021

Ken Trappen
Advanced Solar Solutions
39650 Mallard
Bass Lake, CA 93604

Scott E
Wyssling

Digitally signed by Scott E Wyssling
DN: C=US, S=Utah, L=Alpine,
O=Wyssling Consulting, CN=Scott E
Wyssling +
E=swyssling@wysslingconsulting.com
Reason: I am the author of this document
Location: your signing location here
Date: 2021.08.05 12:49:02-06'00'
Foxit PhantomPDF Version: 10.1.4

Re: Engineering Services
King Residence
1357 NW Ogden Loop, Lake City FL
19.500 kW System

Pursuant to your request, we have reviewed the following information regarding ground mount solar panel installation at the above referenced location:

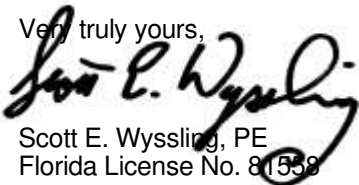
1. Structural calculations/requirements prepared by IronRidge identifying specific site requirements for the proposed ground mount system.
2. Design drawings of the proposed system including a site plan, and details for the solar panels. This information was prepared by Advanced Solar Solutions and will be utilized for approval and construction of the proposed system.

Based on our review of the Photovoltaic Array installed at 6 modules high and 5 modules wide. The PV array shall have an East/West spacing of 13'-4" feet on center and a North/South spacing of 7'-6" feet max. Based on a wind speed of 117 mph, Exposure C, it was determined that the minimum required footing depth is 48 inches below grade with a 18" diameter pier footing and the min post size is 2" Dia. The footing size based upon the worst case loading due to horizontal and vertical wind loading.

Based on the above evaluation, it is the opinion of this office that with appropriate construction the footing and post assembly will adequately support the proposed solar array. This evaluation is in conformance with the FBC 2020, 7th Edition, current industry and standards, and based on information supplied to us at the time of this report.

Should you have any questions regarding the above or if you require further information do not hesitate to contact me.

Very truly yours,


Scott E. Wyssling, PE
Florida License No. 81558



[illegible]

GENERAL NOTES:*

PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE PROVIDED AS PER SECTION *NEC 110.26*.

PV SYSTEM COMPONENTS; INCLUDING BUT NOT LIMITED TO, MODULES, INVERTERS AND SOURCE CIRCUIT COMBINERS ARE IDENTIFIED AND LISTED FOR USE IN PV SYSTEMS IN COMPLIANCE WITH *NEC 690.4 AND 690.6* AND *ALL UL, IEC, IEEE* CLASSIFICATIONS AS REQUIREMENTS.

RAPID SHUTDOWN NOTES:*

PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDING SHALL INCLUDE A **RAPID SHUTDOWN FUNCTION** THAT CONTROLS SPECIFIC PV CONDUCTORS IN ACCORDANCE WITH *2017 NEC 690.12(A)-(D)*

EQUIPMENT LOCATIONS & ELECTRICAL NOTES:*

JUNCTION AND PULL BOXES ARE PERMITTED TO BE INSTALLED UNDER PV MODULES IN COMPLIANCE WITH *NEC 690.34*.

ADDITIONAL AC DISCONNECT(S) SHALL BE PROVIDED WHERE THE INVERTER IS NOT WITHIN SIGHT OF THE AC SERVICING DISCONNECT. *2017 NEC 690.15(A)*

ALL EQUIPMENT SHALL BE INSTALLED **ACCESSIBLE TO QUALIFIED PERSONNEL** IN COMPLIANCE WITH *NEC* APPLICABLE CODES.

ALL COMPONENTS ARE **LISTED FOR THEIR INTENDED PURPOSE AND RATED FOR OUTDOOR USAGE** WHEN APPLICABLE.

STRUCTURAL AND INSTALLATION NOTES:*

RACKING SYSTEM & PV PANELS MOUNTED ON A ROOFTOP SHALL BE LISTED AND LABELED IN ACCORDANCE WITH *UL 1703* AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER INSTALLATION INSTRUCTIONS.

ALL PV RACKING ATTACHMENT POINTS SHALL NOT EXCEED THE PRE-ENGINEERED **MAX SPANS** OUTLINED BY THE RACKING MANUFACTURES ENGINEER OF RECORD.

GROUNDING NOTES:*

IN **UNGROUND**ED SYSTEMS ONLY THE DC CONDUCTORS ARE UNGROUNDED AND REQUIRE AN EQUIPMENT GROUNDING CONDUCTOR. ALL METAL ELECTRICAL EQUIPMENT AND STRUCTURAL COMPONENTS BONDED TO

GROUND, IN COMPLIANCE WITH *NEC 250.134* AND *NEC 250.136(A)*.

PV EQUIPMENT INCLUDING **MODULE FRAMES AND OTHER METAL PARTS SHALL BE GROUNDED** IN COMPLIANCE WITH *NEC 690.43* AND MINIMUM GROUND CONDUCTORS SIZED IN ACCORDANCE WITH *NEC TABLE 250.122*.

CONDUCTIVE PARTS OF MODULE FRAMES, MODULE RACKING, AND ENCLOSURES SHALL BE GROUNDED IN COMPLIANCE WITH *NEC 250.134 AND NEC 250.136(A)*.

UL2703 APPROVED **MODULE AND RACK GROUNDING** SHALL BE USED AND INSTALLED PER MANUFACTURER'S INSTALLATION MANUAL. IF *UL2703* APPROVED GROUNDING IS NOT USED, MODULE GROUNDING LUGS MUST BE INSTALLED AT THE SPECIFIED GROUNDING LUG HOLES PER THE MANUFACTURER'S INSTALLATION REQUIREMENTS.

THE GROUNDING CONNECTION TO A MODULE SHALL BE ARRANGED SUCH THAT THE REMOVAL OF A MODULE DOES NOT INTERRUPT A GROUNDING CONDUCTOR TO ANOTHER MODULE.

THE GROUNDING ELECTRODE SYSTEM COMPLIES WITH *NEC 690.47* AND *NEC 250.50* THROUGH *NEC 250.106*. IF EXISTING SYSTEM IS INACCESSIBLE OR INADEQUATE, A GROUNDING ELECTRODE SYSTEM WILL BE PROVIDED IN COMPLIANCE WITH *NEC 250, NEC 690.47* AND *AHJ*.

PV SYSTEMS SHALL BE PROVIDED WITH **DC GROUND-FAULT PROTECTION** *2017 NEC 690.41(B)*

INTERCONNECTION / POC NOTES:*

ALL LOAD-SIDE INTERCONNECTIONS ARE IN COMPLIANCE WITH *2017 NEC 705.12(B)*

THE TOTAL RATING OF ALL OCPD IN SOLAR LOAD CENTERS SHALL NOT EXCEED THE RATED AMPACITY OF THE BUSBAR EXCLUDING THE OCPD PROTECTING THE BUSBAR IN COMPLIANCE WITH *NEC 705.12(B)(2)(3)(c)*

ALL FEEDER TAP (LOAD SIDE) INTERCONNECTIONS ARE IN COMPLIANCE WITH *2017 NEC 705.12(B)(2)(1)*

THE PV SYSTEM BACK-FEED BREAKER SHALL BE INSTALLED ON THE OPPOSITE END OF THE BUS BAR AND IT SHALL ALSO BE SIZED APPROPRIATELY AS PER *2017 NEC 705.12(B)(2)(3)(b)*

SUPPLY SIDE TAP INTERCONNECTIONS ARE IN COMPLIANCE WITH *NEC 705.12(A)* WITH SERVICE ENTRANCE CONDUCTORS IN COMPLIANCE WITH *NEC 230.42*

BACKFEEDING BREAKER FOR INVERTER OUTPUT IS EXEMPT FROM ADDITIONAL FASTENING *2017 NEC 705.12(B)(5)*

MICROINVERTER BRANCH CIRCUITS SHALL BE CONNECTED TO A SINGLE OCPD IN ACCORDANCE WITH THEIR INSTALLATION INSTRUCTIONS AND *NEC 690.9*

DISCONNECTS AND OCPD NOTES:*

ALL DISCONNECTING SWITCHES WILL BE CONFIGURED SO THAT ALL ENERGIZED CONDUCTORS WHEN DISCONNECT IS OPEN SHALL BE ON THE TERMINALS MARKED, “LINE SIDE” (TYPICALLY THE UPPER TERMINALS)

ALL AC DISCONNECTS SHALL BE LABELED, LOCKABLE, OF VISIBLE BREAK TYPE SWITCH WITH EXTERNAL HANDLE AND ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL.

AC DISCONNECTS SHALL BE A “KNIFE BLADE” TYPE DISCONNECT. IF EXTERIOR, RATED TO NEMA 3R OR BETTER PER *NEC 110.28*

ADDITIONAL AC DISCONNECTS SHALL BE PROVIDED WHERE THE INVERTER IS NOT ADJACENT TO THE UTILITY AC DISCONNECT, OR NOT WITHIN SIGHT OF THE UTILITY AC DISCONNECT. *2017 NEC 690.15(A)*

BOTH POSITIVE AND NEGATIVE PV CONDUCTORS REMAIN UNGROUNDED. THEREFORE, BOTH SHALL REMAIN OPEN WHERE A DISCONNECT IS REQUIRED IN COMPLIANCE WITH *2017 NEC 690.15(D)*

ALL OCPD RATINGS AND TYPES SPECIFIED SHALL BE IN COMPLIANCE WITH *NEC 690.8, 690.9, 705.12* AND *240*.

BOTH POSITIVE AND NEGATIVE DC PV CONDUCTORS ARE UNGROUNDED; BOTH REQUIRE OVERCURRENT PROTECTION IN COMPLIANCE WITH *NEC 690.9*

ARC FAULT (AFCI) DC CIRCUIT PROTECTION IS REQUIRED FOR ALL PV SYSTEMS ON OR PENETRATING A BUILDING WITH A MAXIMUM SYSTEM VOLTAGE OF 80 VOLTS OR GREATER. ALL DC PV CIRCUITS INSTALLED IN OR ON BUILDINGS WILL BE ARC-FAULT CIRCUIT PROTECTED IN COMPLIANCE WITH *NEC 690.11, UL1699B* AND SHALL BE LISTED AND LABELED IN ACCORDANCE WITH *UL 1699 (B)*.

WIRING & CONDUIT NOTES:*

ALL CONDUIT AND CONDUCTORS SHALL BE APPROVED FOR THEIR INTENDED PURPOSE INCLUDING WET LOCATIONS AND EXPOSED TO SUNLIGHT. CONDUIT AND CONDUCTOR SIZE SPECIFICATIONS ARE BASED ON THE MINIMUM CODE REQUIREMENTS AND ARE NOT LIMITED TO UP SIZING.

ALL CONDUCTORS SHALL BE SIZED IN COMPLIANCE WITH *NEC 690.8, NEC 690.7*.

ALL CONDUCTORS SHALL BE DERATED AS APPLICABLE TO THEIR RESPECTIVE ENVIRONMENT INCLUDING DIRECT

SUNLIGHT IN ACCORDANCE WITH *2017 NEC 310.15(B)(3)(4)(c)*

EXPOSED UNGROUNDED DC PV SOURCE AND OUTPUT CIRCUITS SHALL USE CONDUCTORS LISTED AND IDENTIFIED AS PHOTOVOLTAIC (PV) WIRE IN COMPLIANCE *2017 NEC 690.31(C)(1)*. PV MODULES WIRE LEADS SHALL BE LISTED FOR USE WITH UNGROUNDED SYSTEMS IN COMPLIANCE WITH *2017 NEC 690.4(B)*

PV WIRE BLACK WIRE MAY BE FIELD-MARKED WHITE IN COMPLIANCE WITH *NEC 200.6 (A)(6)*.

PV MODULE CONDUCTORS LOCATED UNDER ARRAYS WILL BE SECURED IN A WORKMANLIKE MANNER IN COMPLIANCE WITH *NEC 110.12*.

WATERPROOFING:*

ALL NEW **ROOFTOP PENETRATIONS** SHALL BE SEALED AND MADE WEATHER TIGHT WITH APPROVED CHEMICAL SEALANT AND FLASHINGS WHERE REQUIRED PER CODE AND GENERAL BUILDING AND ROOFING WORKMANSHIP STANDARDS BY A LICENSED CONTRACTOR.

ALL **EXTERIOR ELECTRICAL EQUIPMENT, SHALL BE NEMA 3R** OR BETTER RATED. ALL EXTERIOR CONDUIT AND CONNECTORS SHALL BE RATED FOR WET LOCATIONS.

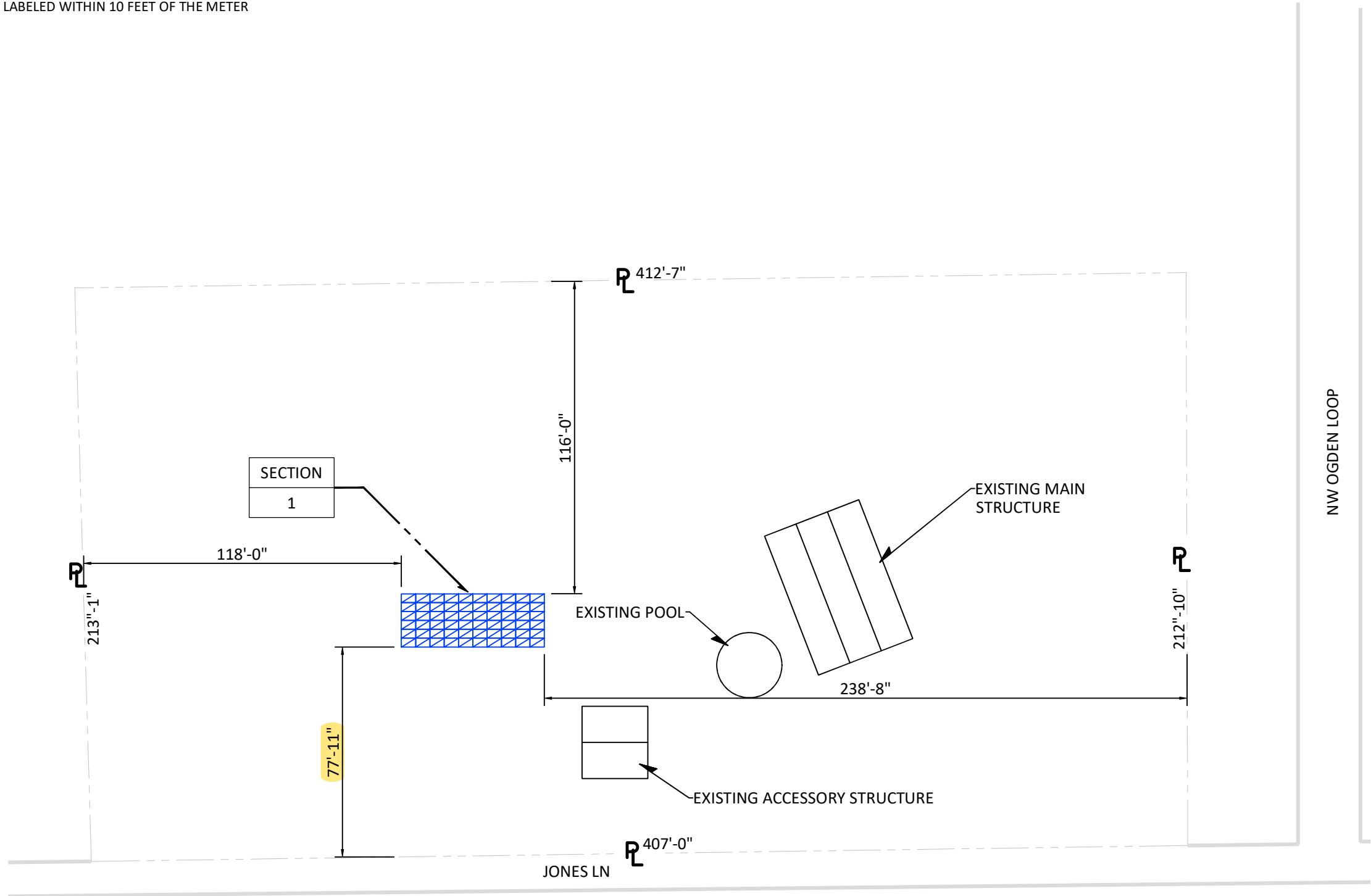
*ALL NOTES ARE AS APPLICABLE TO THIS PROJECT. DISREGARD ANY NOTES THAT DO NOT APPLY TO THIS PROJECT.

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 Daybreak Install LLC CVC56966 2100 N Main St Ste. 212 Fort Worth, TX 76164 (817) 995-9572	19.500 kW PHOTOVOLTAIC PLANS		REV	DATE	RELEASE
	NAME	King, Daniel		08/04/2021	SUBMIT FOR PERMIT
	ADDRESS	1357 NW Ogden Loop			
	ADDRESS	Lake City, FL 32055			
	APN				
			N-001		GENERAL NOTES

PV AC DISCONNECT LOCATED ON ACCESSIBLE EXTERIOR WALL WITH EXTERNAL HANDLE VISIBLE, LOCKABLE & LABELED WITHIN 10 FEET OF THE METER



GROUND MOUNT SETBACKS & AHJ NOTES

ALL GROUND MOUNTED STRUCTURES SHALL COMPLY WITH STATE AND LOCAL AHJ REQUIRED SETBACKS TO SEPTIC OR WASTEWATER SYSTEM COMPONENTS, LEACH FIELDS, PROPERTY LINES, ROADS, HIGHWAYS, RIGHT OF WAYS, SIDEWALKS, DRIVEWAYS, OTHER STRUCTURES, WATER WAYS, EASEMENTS, UTILITIES, TREES, FENCES AND FLOOD ZONES.

REV

DATE

RELEASE

08/04/2021

SUBMIT FOR PERMIT

PV-100G

PV ARRAY LAYOUT

19.500 kW PHOTOVOLTAIC PLANS

NAME

King, Daniel

ADDRESS

1357 NW Ogdan Loop

ADDRESS

Lake City, FL 32055

APN

CVC56966

2100 N Main St Ste. 212

Fort Worth, TX 76164

(817) 995-9572

Daybreak Install LLC

SECTION

1

PV ARRAY TAG

SECTION #

MODULE GROUP

SA

GA

SITE ACCESS

GATE ACCESS

AZIMUTH AND TILT TABLE

SECTION #	AZIMUTH	ARRAY PITCH / TILT
SECTION-1	180	20°

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SCOTT E. WYSSLING

LICENSE NO. PE1558

STATE OF FLORIDA

PROFESSIONAL ENGINEER

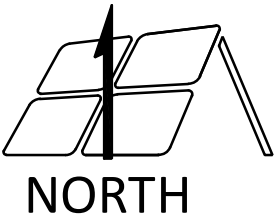
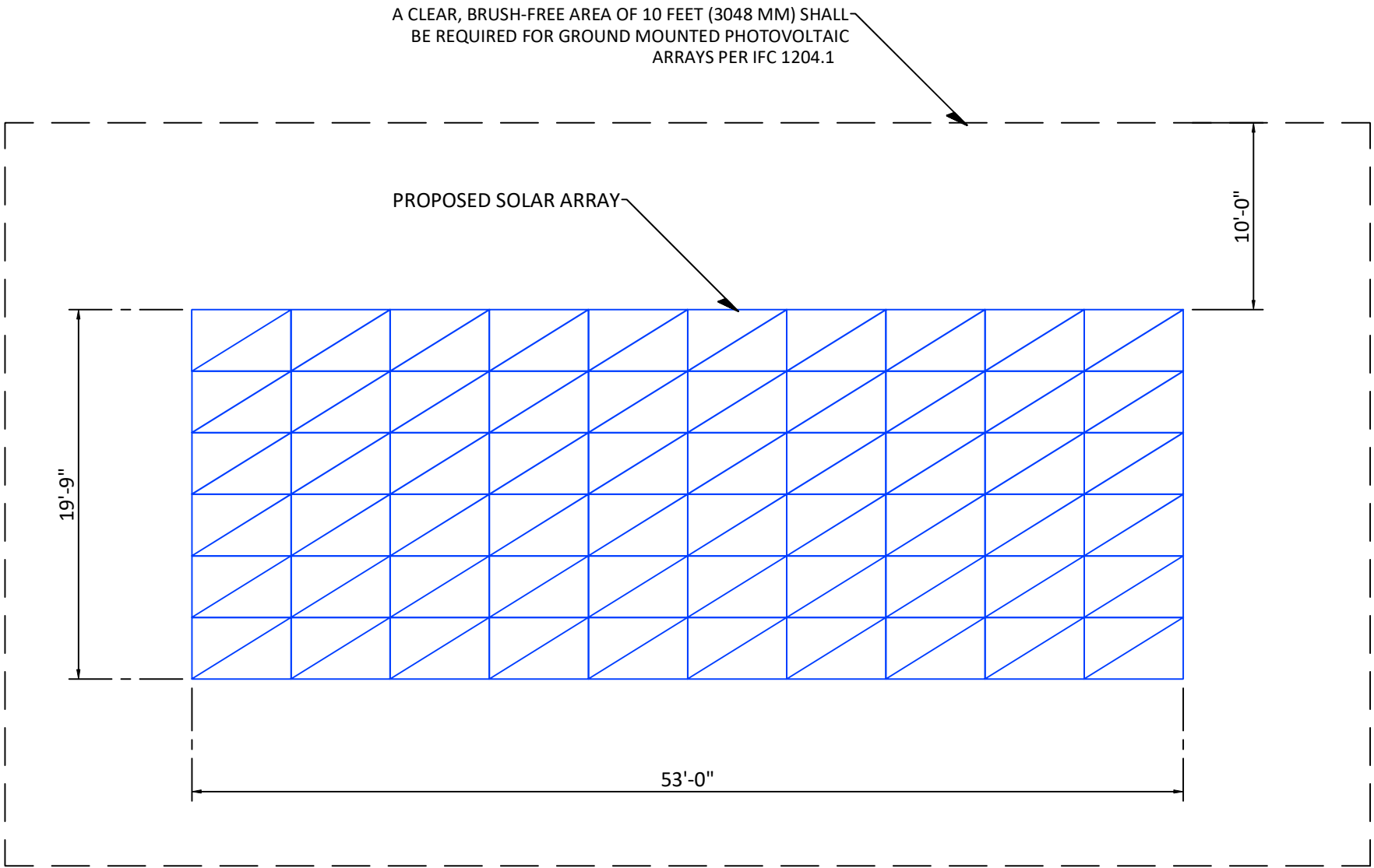
DAYBREAK SOLAR

NORTH

*EXISTING DIMENSIONS ARE APPROX. CONFIRM ALL DIMENSIONS SHOWN

SCALE: 1/44" = 1'0" @ SHEET SIZE A3

NOTE: ALL ELECTRICAL LAYOUT DETAILS ON SHEET E-100



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QTY 60 PEIMAR SM325M (FB) MODULES QTY 2 SolarEdge SE10000H-US (240V) INVERTER

SCALE: 1/8" = 1'0" @ SHEET SIZE A3

Daybreak Install LLC 2100 N Main St Ste. 212 Fort Worth, TX 76164 (817) 995-9572	CVC56966		19.500 kW PHOTOVOLTAIC PLANS		REV	DATE	RELEASE
	NAME	King, Daniel				08/04/2021	SUBMIT FOR PERMIT
	ADDRESS	1357 NW Ogden Loop					
	ADDRESS	Lake City, FL 32055					
		APN					
			PV-101G		DETAILED LAYOUT		



ALL FITTINGS SHALL BE TORQUED TO MANUFACTURER SPEC'S
ALL FITTINGS/HARDWARE SHALL BE ALUMINUM OR GALVANIZED

CANTILEVER,
≤40% OF MAX E-W
PIER SPACING

3'-0" MAX

3'-0" MAX

3'-0" MAX

3'-0" MAX

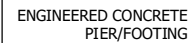
CANTILEVER,
≤40% OF MAX E-W
PIER SPACING

3'-0" MAX

3'-0" MAX

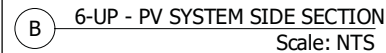
3'-0" MAX

3'-0" MAX



3" CROSS PIPE LENGTH
PER QTY OF MODULES

ARRAY TILT: 20 DEGREES



NOTE: PORTLAND TYPE V CEMENT
CONFORMING TO ASTM C150 SHALL BE
USED IN CONCRETE IN CONTACT WITH
SOIL.

SOIL PARAMETERS TO BE FIELD VERIFIED BY THE INSTALLER
SEE ENGINEERING TABLES AND DETAILS IN REFERENCE SHEETS

QTY 2 SolarEdge SE10000H-US (240V) INVERTER

XR1000 RAIL

IRONRIDGE 2" RAIL CONNECTOR

2" PIPE

IRONRIDGE 2" TOP CAP

C PIPE FITTINGS DETAIL

NOTE: ALL FOOTING DEPTHS REPRESENT REQUIRED EMBEDDED DEPTH INTO FIRM, NATIVE SOIL

 RACKING RAIL
 3" PIPE BEAM
 FOOTING W/ 3" PIPE

SECTION	PV ARRAY TAG SECTION # MODULE GROUP
1	

* DETAILS IN TOP VIEW

CONCRETE FOUNDATION, 2500PSI MIN

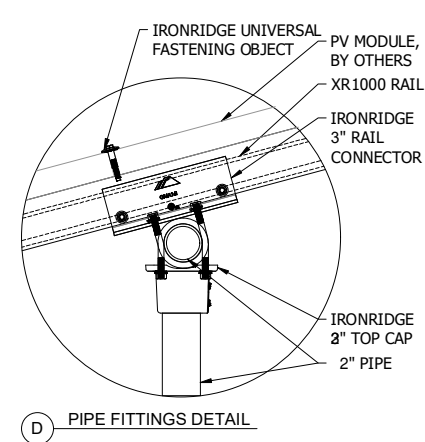
3" PIPE

PIER EMBEDMENT = $\frac{2}{3}$ FNDN DEPTH

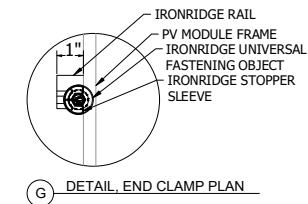
FOUNDATION DEPTH

J DRILL/POUR FOUNDATION

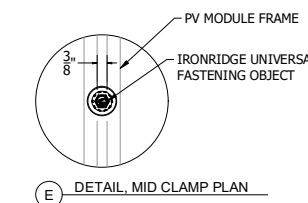
J DRILL/POUR FOUNDATION



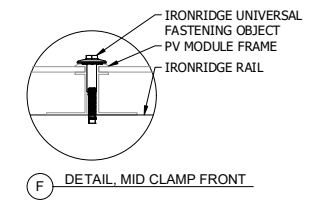
D PIPE FITTINGS DETAIL



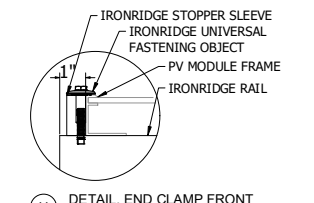
G DETAIL, END CLAMP PLAN



E DETAIL, MID CLAMP PLAN



(F) DETAIL, MID CLAMP FRONT



DETAIL: END CLAMP FRONT

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Daybreak Install LLC

CVC56966
2100 N Main St Ste. 212

Fort Worth, TX 76164

(817) 995-9572

CVC56966

19.500 kW PHOTON

NAME	King, Daniel
ADDRESS	1357 NW Oak

ADDRESS	1337 NW Ogle
ADDRESS	Lake City, FL

19.500 kW PHOTOVOLTAIC PLANS

RACKING LAYOUT

S-300



PV MODULE #1 SPECIFICATIONS		
MANUFACTURER	PEIMAR	
MODEL NUMBER	SM325M (FB)	
WEIGHT	41.01	lbs
DIMENSIONS	65.55 x 39.45 x 1.57	L" x W" x D"/THICK
PEAK POWER @ STC (Pmax)	325	WATTS
Voc (OPEN-CIRCUIT VOLTAGE)	41.67	VOLTS DC
Vmp (MAX-POWER VOLTAGE)	34.15	VOLTS DC
isc (SHORT-CIRCUIT CURRENT)	10.08	AMPS
imp (OPERATING CURRENT)	9.52	AMPS
MFR. Voc TEMP COEFFICIENT	0.28	%/K
MAX SERIES FUSE RATING	20.0	AMPS
TEMP. CORRECTED Voc	38.34	VOLTS DC

DC/DC OPTIMIZER (IF APPL.)		
MANUFACTURER	SolarEdge Technologies	
MODEL NUMBER	P370 Single (240V)	
WEIGHT	1.5	lbs
RATED OUTPUT isc	15	AMPS
MAX OUTPUT VOLTAGE	60	VOLTS
MAX INPUT VOLTAGE Voc	60	VOLTS

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PV SYSTEM MAXIMUM VOLTAGE (MODULE Voc _{MAX})									
DATA SOURCE		SOLARABCS.ORG/ABOUT/PUBLICATIONS/REPORTS/ EXPEDITED-PERMIT/MAP/							
EXTREME MIN. TEMP. [°C]	STC TEMPERATURE [°C]	CORRECTED TEMPERATURE	MFR. P _{MAX} TEMP COEFFICIENT [-0.0%/C] * 100	FORMULA	CORRECTED TEMP. COEFFICIENT	MODULE Voc [VDC]	TEMPERATURE CORRECTED OPEN CIRCUIT VOLTAGE		
-5	25	-30	0.28%	-0.08 + 1	0.92 *	41.67	38.34		

DC COMBINER / DISCONNECT #1		
MANUFACTURER		
MODEL NUMBER		
OCPD (DISCONNECT TYPE)		
WEIGHT		lbs
NEMA RATING		
LOCATION OF COMPONENT		
DC INPUT		
SERIES FUSE RATING FOR PV MODULES		AMPS (OCPD)
QUANTITY OF PV SOURCE CIRCUITS		QTY
MAX PV MODULE V _{oc}		VOLTS DC
MAX # OF MODULES IN CIRCUIT		QTY
MAX ALLOWED INPUT VOLTAGE		VOLTS DC
MAX INPUT FUSE/BREAKER RATING		AMPS
DC OUTPUT		
MAX CIRCUIT OUTPUT CURRENT		AMPS
MAX CONT. OUTPUT CURRENT		AMPS

DC COMBINER / DISCONNECT #2 (IF APPL.)		
MANUFACTURER		
MODEL NUMBER		
OCPD (DISCONNECT TYPE)		
WEIGHT		lbs
NEMA RATING		
LOCATION OF COMPONENT		
DC INPUT		
SERIES FUSE RATING FOR PV MODULES		AMPS (OCPD)
QUANTITY OF PV SOURCE CIRCUITS		QTY
MAX PV MODULE V_{oc}		VOLTS DC
MAX # OF MODULES IN CIRCUIT		QTY
MAX ALLOWED INPUT VOLTAGE		VOLTS DC
MAX INPUT FUSE/BREAKER RATING		AMPS
DC OUTPUT		
MAX CIRCUIT OUTPUT CURRENT		AMPS
MAX CONT. OUTPUT CURRENT		AMPS

DC COMBINER / DISCONNECT #3 (IF APPL.)		
MANUFACTURER		
MODEL NUMBER		
OCPD (DISCONNECT TYPE)		
WEIGHT		lbs
NEMA RATING		
LOCATION OF COMPONENT		
DC INPUT		
SERIES FUSE RATING FOR PV MODULES		AMPS (OCPD)
QUANTITY OF PV SOURCE CIRCUITS		QTY
MAX PV MODULE V _{oc}		VOLTS DC
MAX # OF MODULES IN CIRCUIT		QTY
MAX ALLOWED INPUT VOLTAGE		VOLTS DC
MAX INPUT FUSE/BREAKER RATING		AMPS
DC OUTPUT		
MAX CIRCUIT OUTPUT CURRENT		AMPS
MAX CONT. OUTPUT CURRENT		AMPS

STRING INVERTER #1 SPECIFICATIONS		
MANUFACTURER	SolarEdge	
MODEL NUMBER	SE10000H-US (240V)	
QUANTITY	2	INVERTER(S)
NOMINAL POWER RATING	10000	WATT AC
WEIGHT	38.8	lbs.
DC INPUT		
Max INPUT DC VOLTAGE	480	VOLTS DC
Min. MPPT VOLTAGE RANGE	400	VOLTS DC
Max. MPPT VOLTAGE RANGE	480	VOLTS DC
Max INPUT CURRENT	27.0	AMPS
MPPT QTY	N/A	
INTEGRATED DC DISCONNECT	Yes	COMPLY W/NEC 690.17
INTEGRATED AC DISCONNECT	NO	
AC OUTPUT		
NOMINAL VOLTAGE OUTPUT	240	VOLTS AC
MAX. AC APPARENT POWER	10000	WATTS
MAX OVERCURRENT PROTECTION (OCPD)	60	AMPS
MAX. OUTPUT CURRENT	42	AMPS - MAX

STRING INVERTER #2 SPECIFICATIONS (IF APPL.)		
MANUFACTURER		
MODEL NUMBER		
QUANTITY		INVERTER(S)
NOMINAL POWER RATING		WATT AC
WEIGHT		lbs.
DC INPUT		
Max INPUT DC VOLTAGE		VOLTS DC
Min. MPPT VOLTAGE RANGE		VOLTS DC
Max. MPPT VOLTAGE RANGE		VOLTS DC
Max INPUT CURRENT		AMPS
MPPT QTY		
INTEGRATED DC DISCONNECT		COMPLY W/NEC 690.17
INTEGRATED AC DISCONNECT		
AC OUTPUT		
NOMINAL VOLTAGE OUTPUT		VOLTS AC
MAX. AC APPARENT POWER		WATTS
MAX OVERCURRENT PROTECTION (OCPD)		AMPS
MAX. OUTPUT CURRENT		AMPS - MAX

AC COMBINER #1 (SOLAR LOAD CENTER)		
MANUFACTURER	GENERIC	
MODEL NUMBER	TBD 125A	
RATED OPERATIONAL VOLTAGE	240	VOLTS
RATED CURRENT	125	AMPS
NUMBER OF POLES	2	P
NEMA RATING	3R	
MAIN BREAKER SIZE	N/A	AMPS
TOTAL INPUT CURRENT	84.0	AMPS
NUMBER OF BRANCH CIRCUITS	2	CIRCUITS

AC COMBINER #2 (SOLAR LOAD CENTER)		
MANUFACTURER		
MODEL NUMBER		
RATED OPERATIONAL VOLTAGE		VOLTS
RATED CURRENT		AMPS
NUMBER OF POLES		P
NEMA RATING		
MAIN BREAKER SIZE		AMPS
TOTAL INPUT CURRENT		AMPS
NUMBER OF BRANCH CIRCUITS		CIRCUITS

AC DISCONNECT #1 (IF APPL.)		
MANUFACTURER	Square D	
MODEL NUMBER	D224NRB	
QUANTITY	1	AC DISCO.(S)
DISCONNECT DEVICE TYPE	Fusible	
RATED OPERATIONAL VOLTAGE	240	VOLTS
RATED CURRENT	200	AMPS
NUMBER OF POLES	2	P
NEMA RATING	3R	
FUSE RATING	110.0	AMPS
TOTAL INPUT CURRENT	84	AMPS

AC DISCONNECT #2 (IF APPL.)		
MANUFACTURER		
MODEL NUMBER		
QUANTITY		AC DISCO.(S)
DISCONNECT DEVICE TYPE		
RATED OPERATIONAL VOLTAGE		VOLTS
RATED CURRENT		AMPS
NUMBER OF POLES		P
NEMA RATING		
FUSE RATING		AMPS
TOTAL INPUT CURRENT		AMPS

AC SUB-PANEL #1 (IF APPL.)		
NEW OR EXISTING		
MAKE / MODEL		
TYPE OF PANEL		
NUMBER OF POLES		P
NEMA RATING		
BUSS BAR RATING		AMPS
SUB-PANEL MAIN BREAKER		AMPS
MAIN SERVICE PANEL P.O.C. BREAKER		AMPS
SUM OF EXISTING CIRCUIT BREAKERS		AMPS
MAX ALLOWABLE SOLAR CURRENT		AMPS
PV BACKFEED BREAKER #1		AMPS (Imax)
PV BACKFEED BREAKER #2		AMPS (Imax)
PV BACKFEED BREAKER #3		AMPS (Imax)
PV BACKFEED BREAKER #4		AMPS (Imax)

MAIN SERVICE PANEL (IF APPL.)		
NEW OR EXISTING	EXISTING	
ELECTRICAL SERVICE	120/240V Single Phase	
BUSS BAR RATED CURRENT	200	AMPS
MAIN BREAKER RATED CURRENT	200	AMPS
SUM OF EXISTING CIRCUIT BREAKERS		AMPS
MAX ALLOWABLE SOLAR CURRENT 100%	0	AMPS
MAX ALLOWABLE SOLAR CURRENT 120%	40	AMPS (Imax)
PV BACKFEED BREAKER #1		AMPS (Imax)
PV BACKFEED BREAKER #2		AMPS (Imax)
PV BACKFEED BREAKER #3		AMPS (Imax)
PV BACKFEED BREAKER #4		AMPS (Imax)
ALT. ENERGY BACKFEED BREAKER (IF APPL.)		AMPS (Imax)

 Daybreak Install LLC CVC56966 2100 N Main St Ste. 212 Fort Worth, TX 76164 (817) 995-9572	19.500 kW PHOTOVOLTAIC PLANS		REV	DATE	RELEASE
				08/04/2021	SUBMIT FOR PERMIT
			E-001		EQUIP. CALCULATIONS



WIRE AND CONDUCTOR NOTES

1. ANY CONDUCTOR LENGTH UNDER 50' DOESN'T REQUIRE VOLTAGE DROP CALCULATIONS

2. BECAUSE WE ARE UNABLE TO DETERMINE THE EXACT PATH THE INSTALLER WILL RUN CONDUCTORS; WORST CASE SCENARIOS, ROUNDING UP SIZES OF CONDUCTORS THAT ARE DEEMED QUESTIONABLE TO PREVENT ISSUES RELATED TO USING CONDUCTORS THAT ARE IMPROPERLY SIZED.

3. WIRING METHODS IN THESE CALCULATIONS DON'T EXCEED 1000 VOLTS

4. CEC/NEC 310.15(A)(2) (AS APPLICABLE) WHERE TWO DIFFERENT AMPACITIES APPLY TO ADJACENT PORTIONS OF A CIRCUIT, THE HIGHER AMPACITY SHALL BE PERMITTED TO BE USED BEYOND THE POINT OF TRANSITION, A DISTANCE EQUAL TO 10'-0" (3 METERS) OR 10% OF THE CIRCUIT LENGTH FIGURED AT THE HIGHER AMPACITY, WHICHEVER IS LESS. WHEN LESS THAN 10'-0" OR 10% OF THE CIRCUIT LENGTH; THE LESSER AMPACITY MAY BE USED.

WIRE COLOR CODING (2017) NEC SECTIONS 250.119 & 200.6

PV DC WIRING

EQUIPMENT GROUND

GREEN OR BARE, OR GREEN/YELLOW

GROUNDING CONDUCTOR.

TYPICALLY NEGATIVE

WHITE OR GRAY

UNGROUNDING CONDUCTOR(S).

TYPICALLY POSITIVE

ANY COLOR OTHER THAN GREEN OR WHITE/GRAY

CONVENTION IS RED FOR GROUNDING SYSTEMS

RED (+) AND BLACK (-) FOR UNGROUNDING SYSTEMS

AC WIRING

EQUIPMENT GROUND

GREEN OR BARE, OR GREEN/YELLOW

GROUNDING CONDUCTOR

(NEUTRAL)

WHITE OR GRAY

UNGROUNDING CONDUCTOR(S) HOT:

L1 AND L2

ANY COLOR OTHER THAN GREEN OR WHITE/GRAY ALLOWED.

CONVENTION IS L1 BLACK

CONVENTION IS L2 RED

DC WIRE AND CONDUIT SIZING CHART [SEE SHEET E-003 FOR THREE LINE DIAGRAM]

TAG	CIRCUIT ORIGIN	CIRCUIT DESTINATION	CONDUCTOR SPECIFICATIONS				REQUIRED CONDUCTOR AMPACITY								CONDUCTOR TEMPERATURE DERATING						CONDUIT FILL DERATING		CORRECTED AMPACITY CALCULATION						AMPACITY CHECK				
			QTY IN PARALLEL & MATERIAL	TEMP RATING (°C)	TRADE SIZE	AMPACITY @ 30°C PER 310.16	Isc (AMPS) OR COMPONENT (AMPS)	X	#OF COMBINED PARALLEL STRINGS	X	MAX CURRENT 690.8 (A)(1)	X	CONT. OPERATION 690.8 (B)(1)	=	REQUIRED AMPACITY	CIRCUIT ENVIRONMENT	AMBIENT TEMP. (°C)	HGT. ABOVE ROOF (in)	TEMP. ADDER PER 310.15 (B)(2)(c)	OPERAT. TEMP. (°C)	AMPACITY CORRECTION 310.15 (B)(2)(a)	# OF UNGRND. COND.	AMPACITY CORRECTION 310.15 (B)(3)(a)	COND. AMPACITY	X	TEMP. DERATING	X	CONDUIT FILL DERATING	=	CORRECTED AMPACITY	REQUIRED AMPACITY	<	CORRECTED AMPACITY
DC1	PV MODULE	DC/DC CONVERTER	(1) CU	90	#12 AWG	30	10.08	X	1	X	1.25	X	1.25	=	15.75	OPEN AIR	35	N/A	0	35	0.96	2	N/A	30	X	0.96	X	1.0	=	28.8	15.75	<	28.8
DC2	DC/DC CONVERTER	INVERTER	(1) CU	90	#10 AWG	40	15	X	1	X	1	X	1.25	=	18.75	OPEN AIR	35	N/A	0	35	0.96	4	N/A	40	X	0.96	X	1.0	=	38.4	18.75	<	38.4
DC3								X		X		X		=										X		X		=			<		
DC4								X		X		X		=										X		X		=			<		
DC5								X		X		X		=										X		X		=			<		
DC6								X		X		X		=										X		X		=			<		
DC7								X		X		X		=										X		X		=			<		
DC8								X		X		X		=										X		X		=			<		

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SCOTT E. WYSSLING

NO. PE1558

STATE OF FLORIDA

PROFESSIONAL ENGINEER

VOLTAGE DROP CALCULATIONS

%VD = (0.2 x DISTANCE x Imp x DC or AC RESISTANCE) / Vmp

CONDUCTOR RUN	WORST CASE V-DROP	AC/DC
INVERTER TO LOAD CENTER	1.7%	AC
TOTAL	1.7%	AC

AC WIRE AND CONDUIT SIZING CHART [SEE SHEET E-003 FOR THREE LINE DIAGRAM]

TAG	CIRCUIT ORIGIN	CIRCUIT DESTINATION	CONDUCTOR SPECIFICATIONS				REQUIRED CONDUCTOR AMPACITY				CONDUCTOR TEMPERATURE DERATING						CONDUIT FILL DERATING		CORRECTED AMPACITY CALCULATION						AMPACITY CHECK				
			QTY IN PARALLEL & MATERIAL	TEMP RATING (°C)	TRADE SIZE	AMPACITY @ 30°C PER 310.16	CONT. OPERATION 690.8 (B)(1)	X	MAX INV. OUTPUT CURRENT (AMPS) OR COMPONENT (AMPS)	=	REQUIRED AMPACITY	CIRCUIT ENVIRONMENT	AMBIENT TEMP. (°C)	HGT. ABOVE ROOF (in)	TEMP. ADDER PER 310.15 (B)(2)(c)	OPERAT. TEMP. (°C)	AMPACITY CORRECTION 310.15 (B)(2)(a)	# OF UNGRND. COND.	AMPACITY CORRECTION 310.15 (B)(3)(a)	COND. AMPACITY	X	TEMP. DERATING	X	CONDUIT FILL DERATING	=	CORRECTED AMPACITY	REQUIRED AMPACITY	<	CORRECTED AMPACITY
AC1	INVERTER	SOLAR LOAD CENTER	(1) CU	75	#6 AWG	65	1.25	X	42.0	=	52.5	UNDERGROUND	30	N/A	0	30	1.00	3	1.0	65	X	1.00	X	1.0	=	65.0	52.5	<	65.0
AC2	SOLAR LOAD CENTER	AC DISCONNECT	(1) CU	75	#1 AWG	130	1.25	X	84.0	=	105.0	EXT WALL	35	N/A	0	35	0.94	3	1.0	130	X	0.94	X	1.0	=	122.2	105.0	<	122.2
AC3	AC DISCONNECT	EXISTING SERVICE PANEL	(1) CU	75	#1 AWG	130	1.25	X	84.0	=	105.0	EXT WALL	35	N/A	0	35	0.94	3	1.0	130	X	0.94	X	1.0	=	122.2	105.0	<	122.2
AC4								X		=										X		X		=			<		
AC5								X		=										X		X		=			<		
AC6								X		=										X		X		=			<		
AC7								X		=										X		X		=			<		
AC8								X		=										X		X		=			<		
AC9								X		=										X		X		=			<		
AC10								X		=										X		X		=			<		

19.500 kW PHOTOVOLTAIC PLANS

NAME King, Daniel

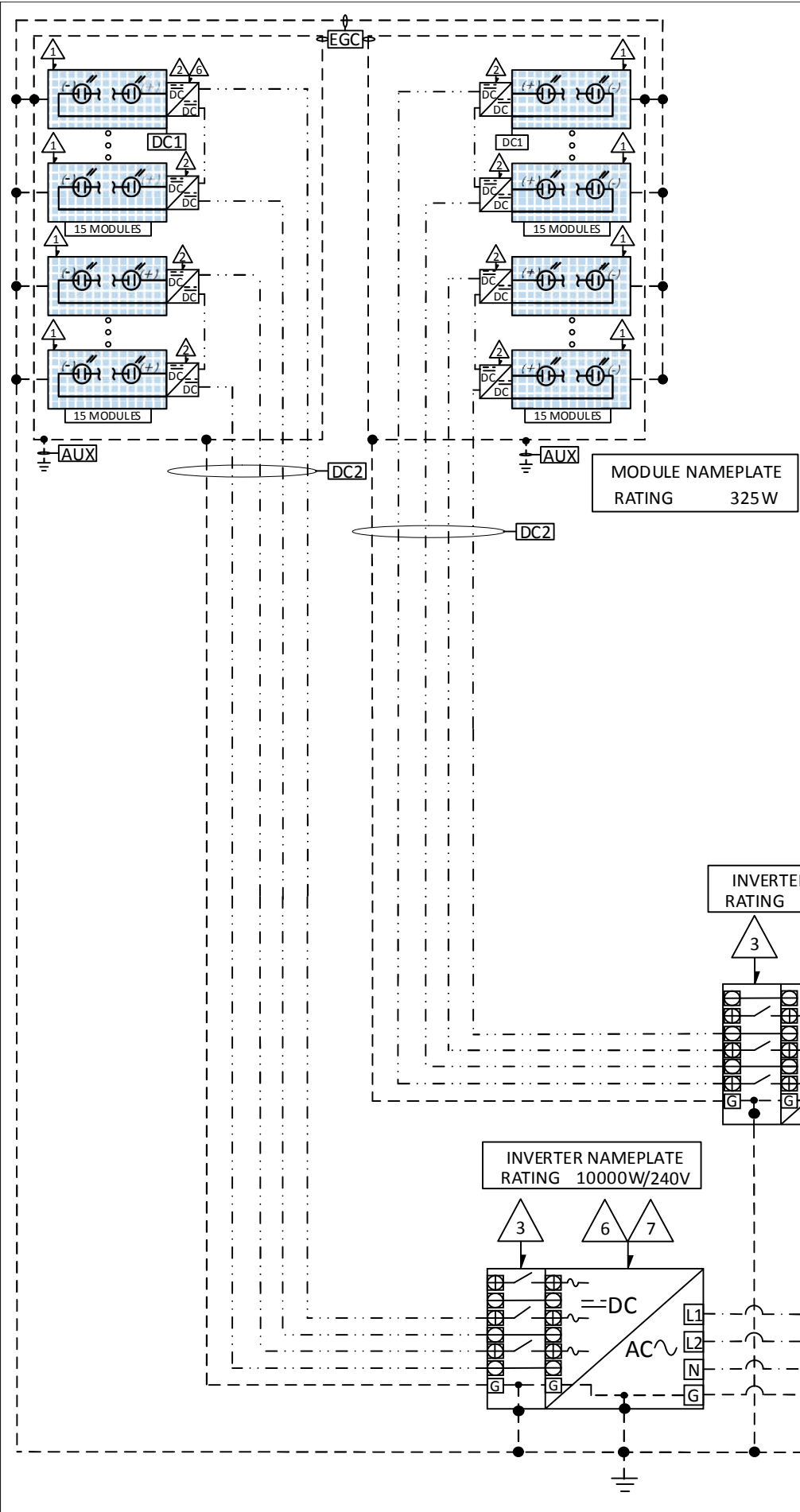
ADDRESS 1357 NW Ogden Loop

ADDRESS Lake City, FL 32055

APN

WIRE AND COND. CALCS.

E-002



EQUIPMENT TABLE		
TAG	QTY	COMPONENT
1	60	PV MODULES PEIMAR SM325M (FB)
2	60	DC/DC OPTIMIZER P370 Single (240V)
3	2	DC DISCONNECT INTEGRATED IN INV
4	0	DC COMBINER BOX
5	0	JUNCTION BOX
6	N/A	RAPID SHUTDOWN INTEGRATED IN INV & OPT
7	2	AC/DC INVERTER SolarEdge SE10000H-US (240V)
8	0	AC/DC INVERTER W/ INTE AC DISC
9	0	AC DISCONNECT (INDEPENDENT)
10	1	SOLAR LOAD CENTER GENERIC 125A BUS/MLO
11	0	PROD/GENERATION METER
12	0	SUB PANEL
13	1	AC DISCONNECT (FUSIBLE) Square D D224NRB
14		
15	1	EXISTING MAIN SERVICE PANEL 200A BUS/200A MB
16	1	EXISTING UTILITY METER 120/240V - 1Φ
17	0	BATTERY
18		
NOTE: EQUIP TAGS MAY NOT BE IN SEQUENTIAL ORDER, N/A USED SEE SHEET E-001 FOR ADDITIONAL ELECTRICAL SPECIFICATIONS		

STRING	MODULE QTY	INVERTER #				
1	15	INV 1				
2	15	INV 1				
3	15	INV 2				
4	15	INV 2				
BACK-FEED SOLAR BREAKER: N/A						
CONDUCTOR TABLE				CONDUIT TABLE		
TAG	QTY*	SIZE	TYPE	GROUND	SIZE	TYPE
DC1	2	#12 AWG	PV Wire	#6 AWG	N/A	Open Air
DC2	5	#10 AWG	PV Wire	#6 AWG	N/A	Open Air
DC3						
DC4						
DC5						
DC6						
DC7						
DC8						
AC1	4	#6 AWG	THWN-2	#6 AWG	3/4 inch	PVC
AC2	4	#1 AWG	THWN-2	#6 AWG	1-1/4 inch	EMT
AC3	4	#1 AWG	THWN-2	#6 AWG	1-1/4 inch	EMT
AC4						
AC5						
AC6						
AC7						
AC8						
AC9						
AC10						

LEGEND

DC#

DC CONDUCTOR TAG

AC#

AC CONDUCTOR TAG

EQUIPMENT TAG

GND

GROUND CONDUCTOR TAG

ELECTRICAL NOTES

UNGROUND PV SYSTEMS:
•INVERTERS, MODULES, AND DC COMPONENTS MUST BE LISTED FOR USE IN UNGROUNDED SYSTEMS, TYPICALLY TRANSFORMER-LESS (TL)
•OCPD'S WHERE NECESSARY MUST HAVE DISCONNECTING MEANS.
•PV SOURCE CIRCUITS MUST BE EITHER PV WIRE AND LISTED FOR WET LOCATIONS OR JACKETED MULTI-CONDUCTOR CABLES INSTALLED IN RACEWAY.
•THE AC SIDE IS STILL GROUNDED ON THE NEUTRAL CONDUCTOR.
•REQUIRE EQUIPMENT GROUNDING BUT DOES NOT HAVE SYSTEM GROUNDING; NO DC CURRENT-CARRYING CONDUCTOR IS CONNECTED TO GROUND. THESE CONDUCTORS ARE COLOR CODED DIFFERENTLY THAN GROUNDED PV SYSTEMS.

AC/DC ELECTRICAL NOTES:
•ALL OVERCURRENT PROTECTION DEVICES (OCPDs) MUST BE RATED FOR 600 VOLTS ON THE DC / PV POWER SIDE OF THE INVERTER.
•EXTERIOR ENCLOSURES TO BE NEMA TYPE 3R OR BETTER.
•ALL CONDUIT AND CONDUIT CONNECTIONS SHALL BE RATED FOR WET AND DAMP LOCATIONS WHEN APPLICABLE.

INTERCONNECTION NOTES:
•705.12(B)(4) CIRCUIT BREAKERS MUST BE SUITABLE FOR BACKFEEDING. NEC INFORMATIONAL NOTE: FUSED DISCONNECTS, UNLESS OTHERWISE MARKED, ARE SUITABLE FOR BACKFEEDING.
•690.13(F)(2) DEVICES MARKED WITH "LINE" AND "LOAD" SHALL NOT BE PERMITTED FOR BACKFEED OR REVERSE CURRENT

•705.12(B)(5) CIRCUIT BREAKERS BACK FEED FROM UTILITY INTERACTIVE INVERTERS (ANTI-ISLANDING, UL 1741 CERTIFIED)

•NO CENTER-FED MAIN BREAKER. PANEL CONFIGURED PER NEC 705.12(A) or (B)

* INCLUDES GROUND & CURRENT CARRYING CONDUCTORS

INVERTER NAMEPLATE
RATING 10000W/240V

INVERTER NAMEPLATE
RATING 10000W/240V

INVERTER NAMEPLATE
RATING 10000W/240V

INVERTER NAMEPLATE
RATING 10000W/240V

INVERTER NAMEPLATE
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RATING 10000W/240V

INVERTER NAMEPLATE
RATING 10000W/240V

INVERTER NAMEPLATE
RATING 10000W/240V



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NOTE: POINT OF CONNECTION TAP MAY BE INSTALLED LINE OR LOAD OF THE MAIN BREAKER - SHALL BE FIELD VERIFIED -

AC DISCONNECT NAMEPLATE
RATING 200A/240V
FUSE RATING 110A

MAIN C/B
RATING 200A

BUS RATING 200A

19.500 kW PHOTOVOLTAIC PLANS

CVC56966

Daybreak Install LLC

2100 N Main St Ste. 212
Fort Worth, TX 76164
(817) 995-9572

King, Daniel

1357 NW Ogden Loop
Lake City, FL 32055

APN

RELEASE

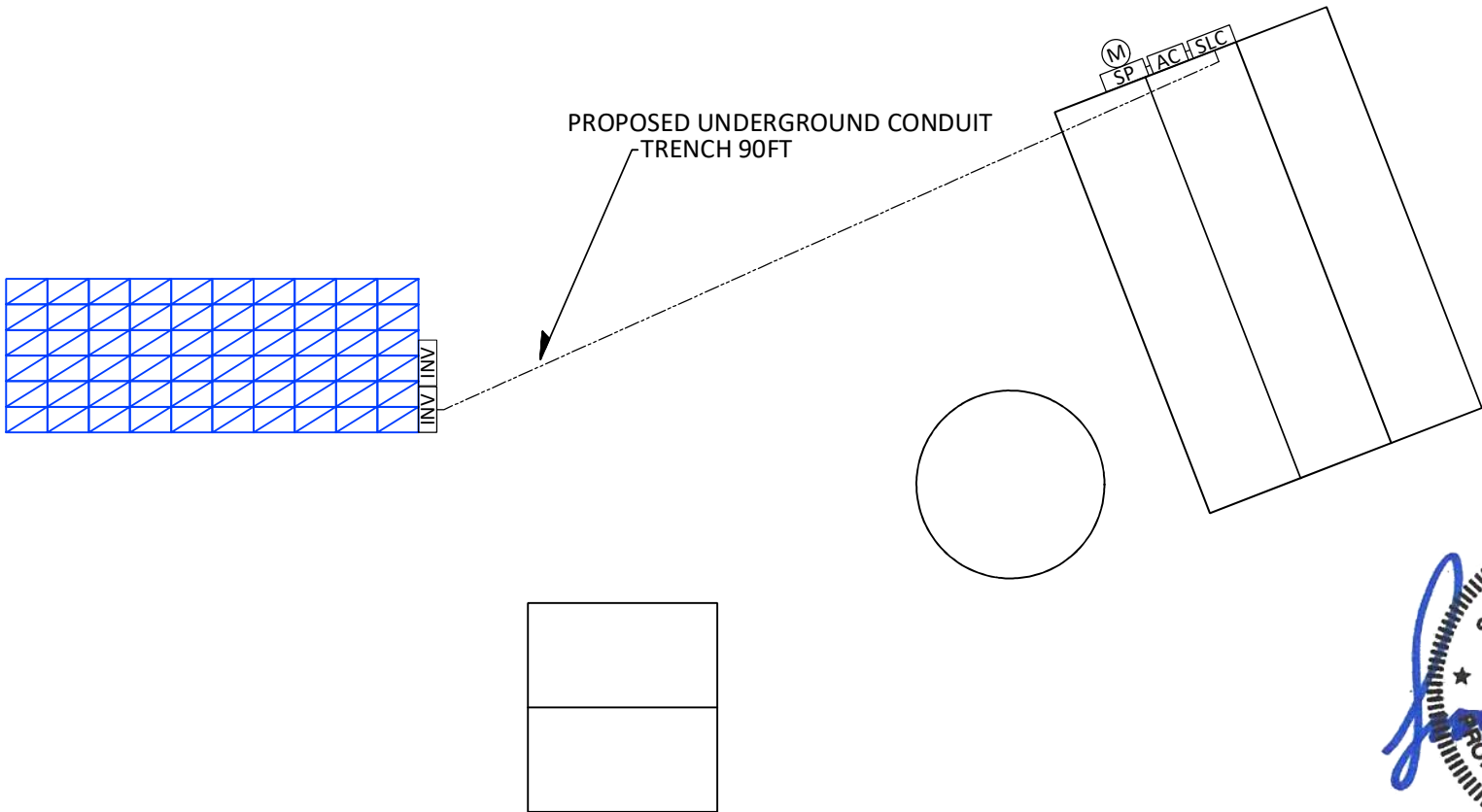
DATE

08/04/2021

SUBMIT FOR PERMIT

E-003

THREE LINE DIAGRAM



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- EQUIPMENT GROUNDING**
1. METAL PV MODULE FRAMES MUST BE CONNECTED TO THE EGC (EQUIPMENT GROUNDING CONDUCTOR).

1.1. WEEBS MAY BE USED IN LIEU OF MODULE GROUND CLAMPS OR LUGS, WITH APPROVAL OF AHJ AND RACKING MFG. WEEBS ARE ONE TIME USE ONLY. SEE "we-lc.com" FOR RACKING SPECIFIC WEEB, INSTALL INSTRUCTIONS, AND UL 2703 CERT.

1.2. FOR "LAY-IN" LUG MODULE GROUNDING; CORRECT HARDWARE OF PROPER METAL MATERIAL TO AVOID CORROSION MUST BE USED. TYPICALLY DIRECT BURIAL RATED, TINNED, OR STAINLESS STEEL. GROUNDING LUGS MUST BE ATTACHED AT MARKED LOCATION ON EACH MODULE.

2. THE EGC (EQUIPMENT GROUNDING CONDUCTOR) IS USED TO BOND ALL NON-CURRENT CARRYING CONDUCTORS AND EXPOSED METAL PARTS THAT MIGHT COME INTO CONTACT WITH CURRENT-CARRYING CONDUCTORS, INCLUDING THE FOLLOWING:

2.1. PV MODULES FRAMES, ARRAY MOUNTING RACKING; THE METAL CHASSIS OF EQUIPMENT SUCH AS INVERTERS, DISCONNECTS, METERS, JUNCTION BOXES AND COMBINER BOXES; AND METAL CONDUIT HOLDING CIRCUITS > 250 VOLTS TO GROUND PER NEC 250.97

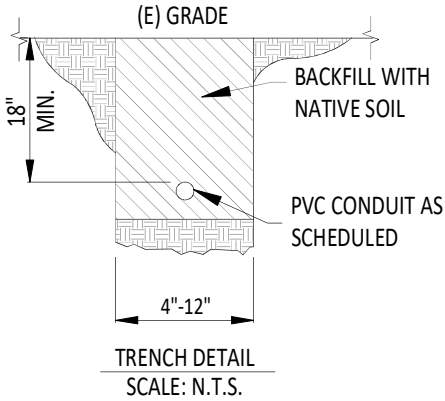
3. THE GEC (GROUNDING ELECTRODE CONDUCTOR) IS THE CONDUCTOR USED TO CONNECT THE GE OR GE SYSTEM TO THE SYSTEM GC, TO THE EGC, OR TO BOTH.

4. THE GE (GROUNDING ELECTRODE) IS A CONDUCTING OBJECT, OFTEN A ROD, RING, OR PLATE ESTABLISHING A DIRECT CONNECTION TO EARTH. THE AC SYSTEM GROUND IS EXISTING, USUALLY AT THE EXISTING MAIN PANEL AND/OR UTILITY METER. THE GROUND CAN ONLY OCCUR IN ONE PLACE AND MUST NOT BE DUPLICATED IN SUB-PANELS OR ANYWHERE ELSE ON AC SIDE.

ELECTRICAL SYMBOL LEGEND

[CB]	DC COMBINER BOX	[ATF]	AUTO TRANSFORMER
[DCB]	DC DISCONNECTING COMBINER BOX	[SLC]	SOLAR LOAD CENTER
[DC]	DC DISCONNECT	[ACC]	AC COMBINER
[INV#]	DC/AC STRING INVERTER	[BATT]	BATTERY
[CLP]	CRITICAL LOADS PANEL	[AC]	AC DISCONNECT
[RSD]	RAPID SHUTDOWN	[SP]	SERVICE PANEL
[SUB]	SUB-PANEL	[P]	PERFORMANCE METER
		[M]	UTILITY METER
[SECTION]	PV ARRAY TAG	[XFMR]	TRANSFORMER
1	SECTION #	[JB]	JUNCTION BOX
	MODULE GROUP	[ATS]	AUTO TRANSFER SWITCH

PV AC DISCONNECT LOCATED ON ACCESSIBLE EXTERIOR WALL WITH EXTERNAL HANDLE VISIBLE, LOCKABLE & LABELED WITHIN 10 FEET OF THE METER.



QTY 60 PEIMAR SM325M (FB) MODULES QTY 2 SolarEdge SE10000H-US (240V) INVERTER

SCALE: 1/24"= 1'0" @ SHEET SIZE A3

 Daybreak Install LLC CVC56966 2100 N Main St Ste. 212 Fort Worth, TX 76164 (817) 995-9572	19.500 kW PHOTOVOLTAIC PLANS		REV	DATE	RELEASE
	NAME King, Daniel			08/04/2021	SUBMIT FOR PERMIT
	ADDRESS 1357 NW Ogden Loop				
	ADDRESS Lake City, FL 32055				
	APN				
			E-100		
		ELECTRICAL LAYOUT			



1	CONDUIT, RACEWAY, J-BOX, AND PULL BOXES	SCALE: 1/2" = 1'-0"	2	J-BOX, DC COMBINER, AND DC DISCONNECT	SCALE: 1/4" = 1'-0"	3	DC COMBINER BOX	SCALE: 1/2" = 1'-0"	SHEET NOTES								
WARNING: PHOTOVOLTAIC POWER SOURCE 1. PLACE ON CONDUIT AND/OR RACEWAYS EVERY 10' (60"), 12" FROM BENDS, 12" ABOVE AND BELOW PENETRATIONS. 2. CODE REFERENCE: NEC 690.31(G)(3) 3. MINIMUM OF 1 1/8" x 5 3/4" 4. FONT: 3/8" AND .8 WIDTH FACTOR. 5. REFLECTIVE WHITE LETTERS ON A RED BACKGROUND.			WARNING: ELECTRIC SHOCK HAZARD. THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED 1. ONLY FOR UNGROUNDED SYSTEMS. 2. PLACED ON ALL ENCLOSURES WITH UNGROUNDED CIRCUITS OR DEVICES WHICH ARE ENERGIZED AND MAY BE EXPOSED DURING SERVICE. 3. MINIMUM OF 3" x 10 1/2" 4. FONT: 3/8" 5. WHITE LETTERS ON A RED BACKGROUND.			DC COMBINER BOX COMBINER # 1 1. USE PLACARD "COMBINER # 1" WHEN MORE THAN 1 DC COMBINER IS USED. NUMBER ACCORDING TO THREE LINE DIAGRAM AND CALCULATIONS. 2. MINIMUM OF 1" x 4" 3. FONT: 3/8" AND .75 TO .8 WIDTH FACTOR 4. WHITE LETTERS ON A RED BACKGROUND.			CODE ABBREVIATIONS: NATIONAL ELECTRICAL CODE (NEC) INTERNATIONAL BUILDING CODE (IBC) INTERNATIONAL RESIDENTIAL CODE (IRC) INTERNATIONAL FIRE CODE (IFC) UNDERWRITERS LABORATORY (UL) 1. COMBINATION PLACARDS MAY BE USED IN PLACE OF MULTIPLE PLACARDS FOR THE SAME DEVICE. ALL INFORMATION FROM THE MULTIPLE PLACARDS MUST BE PRESENT. 2. BLACK LETTERS WITH YELLOW BACKGROUND MAY BE USED IN PLACE OF THE STANDARD WHITE LETTERS WITH RED BACKGROUND WITH AHJ APPROVAL. 3. ALL INTERIOR AND EXTERIOR DC CONDUIT, ENCLOSURES, RACEWAYS, CABLE ASSEMBLIES, JUNCTION BOXES, COMBINER BOXES AND DISCONNECTS ARE MARKED. (NEC 690.31[G], NEC 690.13 & 690.53) 4. THE MARKINGS ON THE CONDUITS, RACEWAYS AND CABLE ASSEMBLIES ARE EVERY 10 FEET, WITHIN ONE FOOT OF ALL TURNS OR BENDS AND WITHIN ONE FOOT ABOVE AND BELOW ALL PENETRATIONS OF ROOF/CEILING ASSEMBLIES, WALLS AND BARRIERS. (IFC 605.11.1.4, NEC 690.31[G][3]) 5. WHERE PV CIRCUITS ARE EMBEDDED IN BUILT-UP, LAMINATE OR MEMBRANE ROOFING MATERIALS IN ROOF AREAS NOT COVERED BY PV MODULES AND ASSOCIATED EQUIPMENT, THE LOCATION OF CIRCUITS SHALL BE CLEARLY MARKED. 6. REQUIRED LABELS SHALL BE PERMANENT AND SUITABLE FOR THE ENVIRONMENT. MATERIALS USED FOR MARKING MUST BE WEATHER RESISTANT. UL STANDARD IS RECOMMENDED TO DETERMINE WEATHER RATING. UL LISTING OF MARKINGS IS NOT REQUIRED. SEE UL LABELING SYSTEM 969 (UL 969) 7. MARKING CONTENT AND FORMAT: 7.1. ARIAL OR SIMILAR FONT, NON-BOLD. 7.2. MINIMUM 3/8" LETTER HEIGHT FOR HEADERS. 7.3. MINIMUM 1/16" LETTER HEIGHT FOR DATA 7.4. CONTRASTING BACKGROUND AND LETTERING. 7.5. ALL CAPITAL LETTERS. 7.6. CONTRASTING SPACE BETWEEN ROWS OF TEXT 7.7. DIMENSIONS OF PLACARDS ARE APPROXIMATE. MAY BE REDUCED AND / OR INCREASED TO UL APPROVED MANUFACTURED PRODUCT				REV	DATE	RELEASE	P-001	STANDARD PLACARDS
	08/04/2021		SUBMIT FOR PERMIT														
4	NON-LOAD BREAK DC COMBINER / J-BOX	SCALE: 1/2" = 1'-0"	5	DC DISCONNECTS	SCALE: 1/4" = 1'-0"	6	INVERTER(S)	SCALE: 1/4" = 1'-0"	19.500 kW PHOTOVOLTAIC PLANS								
DO NOT OPEN UNDER LOAD 1. CODE REFERENCE: NEC 690.13(C) 2. USE ON NON-LOAD BREAK RATED DISCONNECTION. 3. MINIMUM OF 1" x 6" 4. FONT: 3/8" AND .8 WIDTH FACTOR 5. WHITE LETTERS ON A RED BACKGROUND.			WARNING: ELECTRIC SHOCK HAZARD DO NOT TOUCH TERMINALS TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION 1. PLACED ON DC DISCONNECT(S) AND ON ANY EQUIPMENT THAT STAYS ENERGIZED IN THE OFF POSITION FROM THE PV SUPPLY. 2. CODE REFERENCE: NEC 690.13(B) 3. MINIMUM OF 3 1/2" x 10" 4. FONT: 3/8" 5. WHITE LETTERS ON A RED BACKGROUND.			WARNING: ELECTRIC SHOCK HAZARD IF A GROUND FAULT IS INDICATED, NORMALLY GROUNDED CONDUCTORS MAY BE UNGROUNDED AND ENERGIZED 2. MINIMUM OF 3 1/2" x 10 1/2" 3. FONT: 3/8" 4. WHITE LETTERS ON A RED BACKGROUND.											
DO NOT DISCONNECT UNDER LOAD			THIS PLAN HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY SCOTT WYSSLING, PE USING A DIGITAL SIGNATURE AND DATE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES			SCOTT E. WYSSLING LICENSED PROFESSIONAL ENGINEER NO. PE#1558 STATE OF FLORIDA											
7	RAPID SHUTDOWN SWITCH	SCALE: 1/4" = 1'-0"	1. A RAPID SHUTDOWN SWITCH SHALL HAVE A LABEL LOCATED ON OR NO MORE THAN 1M (3 FT) FROM THE SWITCH THAT INCLUDES THE FOLLOWING: RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM 2. THE LABEL SHALL BE REFLECTIVE WITH ALL LETTERS CAPITALIZED AND HAVING A MINIMUM HEIGHT OF 9.5 MM (3/8 IN.), IN WHITE ON RED BACKGROUND.						CVC56966 2100 N Main St Ste. 212 Fort Worth, TX 76164 (817) 995-9572								
8	INVERTER(S)	SCALE: 1/2" = 1'-0"	9	AC AND DC DISCONNECTS	SCALE: 1/4" = 1'-0"	10	SOLAR kWh METER	SCALE: 1/2" = 1'-0"	11	MAIN SERVICE PANEL	SCALE: 1/4" = 1'-0"	Daybreak Install LLC 2100 N Main St Ste. 212 Fort Worth, TX 76164 (817) 995-9572					
INVERTER # 1 1. USE PLACARD "INVERTER # 1" WHEN MORE THAN 1 INVERTER IS USED. NUMBER ACCORDING TO THREE LINE DIAGRAM AND CALCULATIONS. 2. MINIMUM OF 1" x 4" 3. FONT: 3/8" 4. WHITE LETTERS ON A RED BACKGROUND.			AC DISCONNECT # 1 DC DISCONNECT # 1 USE PLACARD "[AC][DC] DISCONNECT # 1" WHEN MORE THAN ONE DISCONNECT IS USED. NUMBER ACCORDING TO THREE LINE DIAGRAM AND CALCULATIONS. PV SYSTEM DISCONNECT 1. PLACE ON ALL AC AND DC DISCONNECTS 2. CODE REFERENCE: NEC 690.13(B) 3. MINIMUM OF 1" x 10 1/2" 4. FONT: 3/8" 5. WHITE LETTERS ON A RED BACKGROUND.			SOLAR PRODUCTION METER CUSTOMER OWNED PHOTOVOLTAIC SYSTEM kWh METER 1. USE PLACARD ON CUSTOMER GENERATION METER. 2. VERIFY WHICH PLACARD IS REQUIRED WITH AHJ. 3. MINIMUM OF 1" x 4" 4. FONT: 3/8" AND .8 WIDTH FACTOR 5. WHITE LETTERS ON A RED BACKGROUND.			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. SOLAR ELECTRIC PV PANELS 2. CODE REFERENCE: NEC 690.56(C)(1)(a) 3. TITLE: MIN. 3/8" BLACK CHARACTERS ON YELLOW BACKGROUND, REMAINING CHARACTERS MIN. 3/16" IN BLACK ON WHITE BACKGROUND.								
QTY 60 PEIMAR SM325M (FB) MODULES												QTY 2 SolarEdge SE10000H-US (240V) INVERTER					



1DC DISCONNECTS & DISCO. COMBINER		SCALE: 1/4" = 1'-0"	2AC DISCONNECT, AC SUB-PANEL		SCALE: 1/4" = 1'-0"	3UTILITY METER, SERVICE PANEL, SUB-PANEL		SCALE: 1/4" = 1'-0"	SHEET NOTES			
PV SYSTEM DC DISCONNECT MAXIMUM CIRCUIT CURRENT30.0 ADC MAXIMUM VOLTAGE480 VDC #1 PV SYSTEM DC DISCONNECT MAXIMUM CIRCUIT CURRENT30.0 ADC MAXIMUM VOLTAGE480 VDC #2 PV SYSTEM DC DISCONNECT MAXIMUM CIRCUIT CURRENTADC MAXIMUM VOLTAGEVDC #3 1. PLACARD PLACED ON EACH DISCONNECT, IF MORE THAN ONE PRESENT. 2. VALUES MUST MATCH EQUIPMENT CALCULATIONS. SEE SHEET "E-001 / DC DISCONNECT [#]" 3. CODE REFERENCE: NEC 690.53 4. MINIMUM OF 2 1/2" x 8" OR 5" x 2 1/2" RESPECTIVELY. 5. FONT: 3/8" HEADER, 3/16" DATA 6. WHITE LETTERS ON A RED BACKGROUND. 7. IN SOME CASES TWO LABELS MAY BE REQUIRED. AN INVERTER WITH INTEGRATED DC DISCONNECT UTILIZING TWO MPPT TRACKERS; IF CONFIGURATION USES DIFFERENT MODULES.			AC DISCONNECT #1 - INDEPENDENT/ SEPARATE PV SYSTEM AC DISCONNECT RATED AC OUTPUT CURRENT84.0 AMPS AC NORMAL OPERATING VOLTAGE240 VOLTS PHOTOVOLTAIC SYSTEM AC DISCONNECT RATED AC OUTPUT CURRENT84.0 AMPS AC NORMAL OPERATING VOLTAGE240 VOLTS STRING INVERTER #1 - INTEGRATED AC DISCONNECT PV SYSTEM AC DISCONNECT RATED AC OUTPUT CURRENT42.0 AMPS AC NORMAL OPERATING VOLTAGE240 VOLTS PHOTOVOLTAIC SYSTEM AC DISCONNECT RATED AC OUTPUT CURRENT42.0 AMPS AC NORMAL OPERATING VOLTAGE240 VOLTS STRING INVERTER #2 - INTEGRATED AC DISCONNECT PV SYSTEM AC DISCONNECT RATED AC OUTPUT CURRENT42.0 AMPS AC NORMAL OPERATING VOLTAGE240 VOLTS PHOTOVOLTAIC SYSTEM AC DISCONNECT RATED AC OUTPUT CURRENT42.0 AMPS AC NORMAL OPERATING VOLTAGE240 VOLTS SOLAR LOAD CENTER PV SYSTEM AC DISCONNECT RATED AC OUTPUT CURRENT84.0 AMPS AC NORMAL OPERATING VOLTAGE240 VOLTS PHOTOVOLTAIC SYSTEM AC DISCONNECT RATED AC OUTPUT CURRENT84.0 AMPS AC NORMAL OPERATING VOLTAGE240 VOLTS 1. PLACARD PLACED ON EACH SOLAR SYSTEM DISCONNECTING COMPONENT. 2. VALUES MUST MATCH EQUIPMENT CALCULATIONS. SEE SHEET "E-001 / AC DISCONNECT [#]" 3. CODE REFERENCE: NEC 690.54 4. MINIMUM OF 1 1/2" x 8 1/2" OR 1 3/4" x 6 1/2" RESPECTIVELY. 5. FONT: 3/8" HEADER, 3/16" DATA 6. WHITE LETTERS ON A RED BACKGROUND.			WARNING DUAL POWER SOURCES RATED AC OUTPUT CURRENT84.0 AMPS AC NORMAL OPERATING VOLTAGE240 VOLTS #1 BUILDING CONTAINS TWO SOURCES OF POWER: UTILITY, SOLAR PV UTILITY SERVICE DISCONNECT LOCATED BELOW. SOLAR PV SYSTEM DISCONNECT LOCATED [N/E/S/W] WALL OF BUILDING #2 BUILDING CONTAINS TWO SOURCES OF POWER: UTILITY, SOLAR PV UTILITY SERVICE DISCONNECT LOCATED BELOW. SOLAR PV SYSTEM DISCONNECT LOCATED [N/E/S/W] WALL OF BUILDING #3 1. (#1) PLACARD PLACED AT MAIN UTILITY SERVICE DISCONNECT/BREAKER AND PV SYSTEM SUPPLY BREAKER AT POINT OF INTERCONNECTION. (#2 & #3) PLACARD(S) REQUIRED WITH #1 PLACARD WHEN UTILITY SERVICE AND PV SYSTEM DISCONNECT(S) ARE NOT LOCATED NEXT TO EACH OTHER. MAP PLACARD REQUIRED AS SPECIFIED. 2. VALUES MUST MATCH EQUIPMENT CALCULATIONS. 2.1. VALUES WILL MATCH LOAD CENTER OR SUB-PANEL VALUES IF INSTALLED AFTER INVERTERS. IF AC CONNECTION TO SERVICE PANEL COMES FROM INVERTERS; SEE SHEET "E-001 / STRING INVERTER[#] SPECIFICATIONS". 2.1.1. INVERTERS ARE PARALLEL CONNECTIONS. 2.1.2. "RATED AC OUTPUT CURRENT" WILL BE THE SUM OF THE INVERTERS 2.1.3. "AC NORMAL OPERATING VOLTAGE" WILL BE THE NAME PLATE RATING OF THE INVERTER 3. CODE REFERENCE: NEC 690.54, NEC 705.12(B)(3) 4. MINIMUM OF 2" x 6 1/2" (#1), VARIES (#2 & #3) 5. FONT: 3/8" HEADER, 3/16" DATA (#1), 1/4" (#2 & #3) 6. WHITE LETTERS ON A RED BACKGROUND.			CODE ABBREVIATIONS: NATIONAL ELECTRICAL CODE (NEC) INTERNATIONAL BUILDING CODE (IBC) INTERNATIONAL RESIDENTIAL CODE (IRC) INTERNATIONAL FIRE CODE (IFC) UNDERWRITERS LABORATORY (UL) 1. COMBINATION PLACARDS MAY BE USED IN PLACE OF MULTIPLE PLACARDS FOR THE SAME DEVE. ALL INFORMATION FROM THE MULTIPLE PLACARDS MUST BE PRESENT. 2. BLACK LETTERS WITH YELLOW BACKGROUND MAY BE USED IN PLACE OF THE STANDARD WHITE LETTERS WITH RED BACKGROUND WITH AHJ APPROVAL. 3. ALL INTERIOR AND EXTERIOR DC CONDUIT, ENCLOSURES, RACEWAYS, CABLE ASSEMBLIES, JUNCTION BOXES, COMBINER BOXES AND DISCONNECTS ARE MARKED. (NEC 690.31[E][3], NEC 690.31[E][4] & 690.53) 4. REQUIRED LABELS SHALL BE PERMANENT AND SUITABLE FOR THE ENVIRONMENT. MATERIALS USED FOR MARKING MUST BE WEATHER RESISTANT. UL STANDARD IS RECOMMENDED TO DETERMINE WEATHER RATING. UL LISTING OF MARKINGS IS NOT REQUIRED. SEE UL LABELING SYSTEM 969 (UL 969) 5. MARKING CONTENT AND FORMAT: 5.1. ARIAL OR SIMILAR FONT, NON-BOLD. 5.2. MINIMUM 3/8" LETTER HEIGHT FOR HEADERS. 5.3. MINIMUM 1/16" LETTER HEIGHT FOR DATA 5.4. CONTRASTING BACKGROUND AND LETTERING. 5.5. ALL CAPITAL LETTERS. 5.6. CONTRASTING SPACE BETWEEN ROWS OF TEXT 5.7. DIMENSIONS OF PLACARDS ARE APPROXIMATE. MAY BE REDUCED AND / OR INCREASED TO UL APPROVED MANUFACTURED PRODUCT 6. ANSI Z535.4 PRODUCT SAFETY SIGNS AND LABELS: THIS INFORMATIONAL NOTE AND ITS REQUIREMENTS FOR PLACARDS MAY BE USED WITH PRIOR APPROVAL OF THE AHJ. MOST NOTABLE DIFFERENCES IS COLOR OF PLACARDS AND USE OF HAND WRITTEN VALUES WITH INDUSTRIAL MARKERS ON STANDARD PLACARDS WHERE THE VALUE MAY CHANGE AT A FUTURE DATE. I.E. ADDING MODULES AT A FUTURE DATE, OR STANDARD PLACARD MANUFACTURER INSTALLED ON ELECTRICAL COMPONENT. AHJ APPROVAL REQUIRED. (SEE NOTE #1 FOR INDIVIDUAL PLACARDS)			
4MAP PLACARD: MAIN SERVICE PANEL AND PV INVERTER (IF NOT SAME LOCATION)		SCALE: 1/2" = 1'-0"	5MAP PLACARD: MAIN SERVICE PANEL AND PV INVERTER (IF NOT SAME LOCATION)		SCALE: 1/2" = 1'-0"							
(WITH COMBINED WARNING PLACARD IF REQUIRED. EXAMPLE: LADWP) CAUTION POWER TO THIS BUILDING IS SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN: UTILITY METER & SERVICE PANEL AC DISCO SOLAR LOAD CENTER SOLAR ARRAY ON ROOF TOP INVERTER W/ DC DISCO WARNING ELECTRIC SHOCK HAZARD - DO NOT TOUCH TERMINALS TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION 1. PLACARD PLACED AT ELECTRICAL SERVICE AND AT THE PV INVERTER AND PV DISCONNECTS IF NOT AT THE SAME LOCATION. 2. MAP PLACARD PROVIDES A DIRECTORY OF THE SERVICE DISCONNECTING MEANS AND PHOTOVOLTAIC SYSTEM DISCONNECTION MEANS. 3. CODE REFERENCE: NEC 690.56(A)(B), 705.10 4. WHITE LETTERS ON A RED BACKGROUND. 5. MINIMUM OF 7 3/4" x 5" 6. FONT: 3/4" "CAUTION", 1/4" "WARNING", 3/16" HEADER, 1/8" DATA AND NOTES 7. PLACARD WILL BE PLACED ADJACENT TO THE MAIN SERVICE DISCONNECT IN A LOCATION CLEARLY VISIBLE FROM WHERE THE DISCONNECT IS OPERATED. (IFC 605.11.1.3)			CAUTION POWER TO THIS BUILDING IS SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN: UTILITY METER & SERVICE PANEL AC DISCO SOLAR LOAD CENTER SOLAR ARRAY ON ROOF TOP INVERTER W/ DC DISCO WARNING ELECTRIC SHOCK HAZARD - DO NOT TOUCH TERMINALS TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION 1. PLACARD PLACED AT ELECTRICAL SERVICE AND AT THE PV INVERTER AND PV DISCONNECTS IF NOT AT THE SAME LOCATION. 2. MAP PLACARD PROVIDES A DIRECTORY OF THE SERVICE DISCONNECTING MEANS AND PHOTOVOLTAIC SYSTEM DISCONNECTION MEANS. 3. CODE REFERENCE: NEC 690.56(A)(B), 705.10 4. WHITE LETTERS ON A RED BACKGROUND. 5. MINIMUM OF 6 1/2" x 6 1/2" 6. FONT: 3/4" "CAUTION", 1/4" HEADER, 1/8" DATA AND NOTES 7. PLACARD WILL BE PLACED ADJACENT TO THE MAIN SERVICE DISCONNECT IN A LOCATION CLEARLY VISIBLE FROM WHERE THE DISCONNECT IS OPERATED. (IFC 605.11.1.3) THIS PLAN HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY SCOTT WYSSLING, PE USING A DIGITAL SIGNATURE AND DATE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES			19.500 kW PHOTOVOLTAIC PLANS NAMEKing, Daniel ADDRESS1357 NW Ogden Loop ADDRESSLake City, FL 32055 APN CVC56966 2100 N Main St Ste. 212 Fort Worth, TX 76164 (817) 995-9572 Daybreak Install LLC RESPONSIBILITY NOTES 1. PRIME CONTRACTOR / PERMIT APPLICANT SIGNER IS RESPONSIBLE FOR THE DESIGN AND SPECIFICATIONS OF THE PHOTOVOLTAIC SYSTEM INSTALLATION. PRIME CONTRACTOR / PERMIT APPLICANT SIGNER WILL BE RESPONSIBLE FOR COLLECTION OF EXISTING ONSITE INFORMATION REQUIREMENTS TO DESIGN, SPECIFY, AND INSTALL THE EXTERIOR MOUNTED PORTION OF THE PHOTOVOLTAIC SYSTEM DETAILED IN THIS DOCUMENT. 2. ADVANCED SOLAR SOLUTIONS, INC IS RESPONSIBLE FOR APPLYING SUPPLIED INFORMATION INTO A SET OF PERMIT DRAWINGS. ANY CHANGES TO DRAWINGS ARE SUBJECT TO CONTRACT CONDITIONS BETWEEN THE CLIENT AND ADVANCED SOLAR SOLUTIONS, INC. IN ACCORDANCE WITH THE REQUIREMENTS OF THE AHJ.						

Single Phase Inverter with HD-Wave Technology

for North America

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



12-25
YEAR
WARRANTY

INVERTERS

Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Extremely small
- Record-breaking efficiency
- Built-in module-level monitoring
- Fixed voltage inverter for longer strings
- Outdoor and indoor installation
- Integrated arc fault protection and rapid shutdown for NEC 2014 and 2017, per article 690.11 and 690.12
- Optional: Revenue grade data, ANSI C12.20 Class 0.5 (0.5% accuracy)
- UL1741 SA certified, for CPUC Rule 21 grid compliance

solaredge.com



Single Phase Inverter with HD-Wave Technology for North America

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

	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
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 [®]							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
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				400			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
ADDITIONAL FEATURES								
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), Cellular (optional)							
Revenue Grade Data, ANSI C12.20	Optional [®]							
Rapid Shutdown - NEC 2014 and 2017 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect							
STANDARD COMPLIANCE								
Safety			UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07					
Grid Connection Standards			IEEE1547, Rule 21, Rule 14 (HI)					
Emissions			FCC Part 15 Class B					
INSTALLATION SPECIFICATIONS								
AC Output Conduit Size / AWG Range	3/4" minimum / 14-6 AWG					3/4" minimum /14-4 AWG		
DC Input Conduit Size / # of Strings / AWG Range	3/4" minimum / 1-2 strings / 14-6 AWG					3/4" minimum / 1-3 strings / 14-6 AWG		
Dimensions with Safety Switch (HxWxD)	17.7 x 14.6 x 6.8 / 450 x 370 x 174					21.3 x 14.6 x 7.3 / 540 x 370 x 185		in / mm
Weight with Safety Switch	22 / 10		25.1 / 11.4		26.2 / 11.9		38.8 / 17.6	lb / kg
Noise	< 25					<50		dBA
Cooling	Natural Convection							
Operating Temperature Range	-40 to +140 / -25 to +60 ⁽⁴⁾ (-40°F / -40°C option) ⁽⁵⁾							
Protection Rating	NEMA 4X (Inverter with Safety Switch)							

⁽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
⁽³⁾ Revenue grade inverter P/N: SExxxxH-US000NNC2
⁽⁴⁾ For power de-rating information refer to: <https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf>
⁽⁵⁾ -40 version P/N: SExxxxH-US000NNU4

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RoHS

Daybreak Install LLC CVC56966 2100 N Main St Ste. 212 Fort Worth, TX 76164 (817) 995-9572	19.500 kW PHOTOVOLTAIC PLANS		REV	DATE	RELEASE	
	NAME	King, Daniel		08/04/2021	SUBMIT FOR PERMIT	
	ADDRESS	1357 NW Ogden Loop				
	ADDRESS	Lake City, FL 32055				
	APN					
			R-101			EQUIP. CUT SHEETS



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

solaredge.com



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 (Voc at lowest temperature)	48		60	80	60	125 ⁽²⁾		83 ⁽²⁾	Vdc
MPPT Operating Range	8 - 48		8 - 60	8 - 80	8-60	12.5 - 105		12.5 - 83	Vdc
Maximum Short Circuit Current (Isc)	11			10.1	11.75	11		14	Adc
Maximum DC Input Current	13.75			12.5	14.65	12.5		17.5	Adc
Maximum Efficiency	99.5								%
Weighted Efficiency	98.8							98.6	%
Overvoltage Category	II								
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREEDGE INVERTER)									
Maximum Output Current	15								Adc
Maximum Output Voltage	60					85			Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREEDGE INVERTER OR SOLAREEDGE INVERTER OFF)									
Safety Output Voltage per Power Optimizer	1 ± 0.1								Vdc
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								Vdc
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		1064 / 2.3	gr / lb
Input Connector	MC4 ⁽³⁾						Single or dual MC4 ⁽³⁾⁽⁴⁾	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 ⁽⁵⁾	-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	
		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 6,500W 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



Daybreak Install LLC

2100 N Main St Ste. 212
Fort Worth, TX 76164
(817) 995-9572

CVC56966

19.500 kW PHOTOVOLTAIC PLANS

NAME King, Daniel

ADDRESS 1357 NW Ogden Loop

ADDRESS Lake City, FL 32055

APN

RELEASE DATE 08/04/2021

REV

FOR PERMIT

R-102

EQUIP. CUT SHEETS



Product data sheet
Characteristics

D224NRB
SWITCH FUSIBLE GD 240V 200A 2P
NEMA3R

Product availability: Stock - Normally stocked in distribution facility



Main	
Product	Single Throw Safety Switch
Line Rated Current	200 A
Certifications	UL listed
Enclosure Rating	NEMA 3R
Disconnect Type	Fusible disconnect
Factory Installed Neutral	Neutral (factory installed)
Short Circuit Current Rating	100 kA maximum depending on fuse H, K or R
Mounting Type	Surface
Number of Poles	2
Electrical Connection	Lugs
Duty Rating	General duty
Width	19 in
Height	29.25 in
Wire Size	8.5 in

Ordering and shipping details

Category	00106 - D & DU SW,NEMA3R, 30-200A
Discount Schedule	DE1A
GTIN	00785901460763
Nbr. of units in pkg.	1
Package weight(Lbs)	42.700000000000003
Returnability	Y
Country of origin	US

Offer Sustainability

California proposition 65	WARNING: This product can expose you to chemicals including:
----- Substance 1	Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm.
----- More information	For more information go to www.p65warnings.ca.gov

Contractual warranty

Warranty period	18 months
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The information provided in this documentation contains general descriptions and/or technical characteristics of the products contained herein. This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications. It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof. Neither Schneider Electric Industries SAS nor any of its affiliates or subsidiaries shall be responsible or liable for misuse of the information contained herein.

Daybreak Install LLC CVC56966 2100 N Main St Ste. 212 Fort Worth, TX 76164 (817) 995-9572	19.500 kW PHOTOVOLTAIC PLANS		REV	DATE	RELEASE
	NAME	King, Daniel		08/04/2021	SUBMIT FOR PERMIT
	ADDRESS	1357 NW Ogden Loop			
	ADDRESS	Lake City, FL 32055			
	APN				
		R-103	EQUIP. CUT SHEETS		



Datasheet



Ground Mount System



Mount on all terrains, in no time.

The IronRidge Ground Mount System combines our XR1000 rails with locally-sourced steel pipes or mechanical tubing, to create a cost-effective structure capable of handling any site or terrain challenge. Installation is simple with only a few structural components and no drilling, welding, or heavy machinery required. In addition, the system works with a variety of foundation options, including concrete piers and driven piles.



Rugged Construction
Engineered steel and aluminum components ensure durability.



UL 2703 Listed System
Meets newest effective UL 2703 standard.



Flexible Architecture
Multiple foundation and array configuration options.



PE Certified
Pre-stamped engineering letters available in most states.



Design Software
Online tool generates engineering values and bill of materials.



20-Year Warranty
Twice the protection offered by competitors.



Substructure

360° Product Tour
Visit ironridge.com

Top Caps



Connect vertical and cross pipes.

Bonded Rail Connectors ☺



Attach and bond Rail Assembly to cross pipes.

Diagonal Braces



Optional Brace provides additional support.

Cross Pipe & Piers



Steel pipes or mechanical tubing for substructure.

Rail Assembly

XR1000 Rails



Curved rails increase spanning capabilities.

UFOs ☺



Universal Fastening Objects bond modules to rails.

Stopper Sleeves ☺



Snap onto the UFO to turn into a bonded end clamp.

Accessories



Wire Clips and End Caps provide a finished look.

Resources



Design Assistant
Go from rough layout to fully engineered system. For free.
Go to ironridge.com/design



NABCEP Certified Training
Earn free continuing education credits, while learning more about our systems.
Go to ironridge.com/training

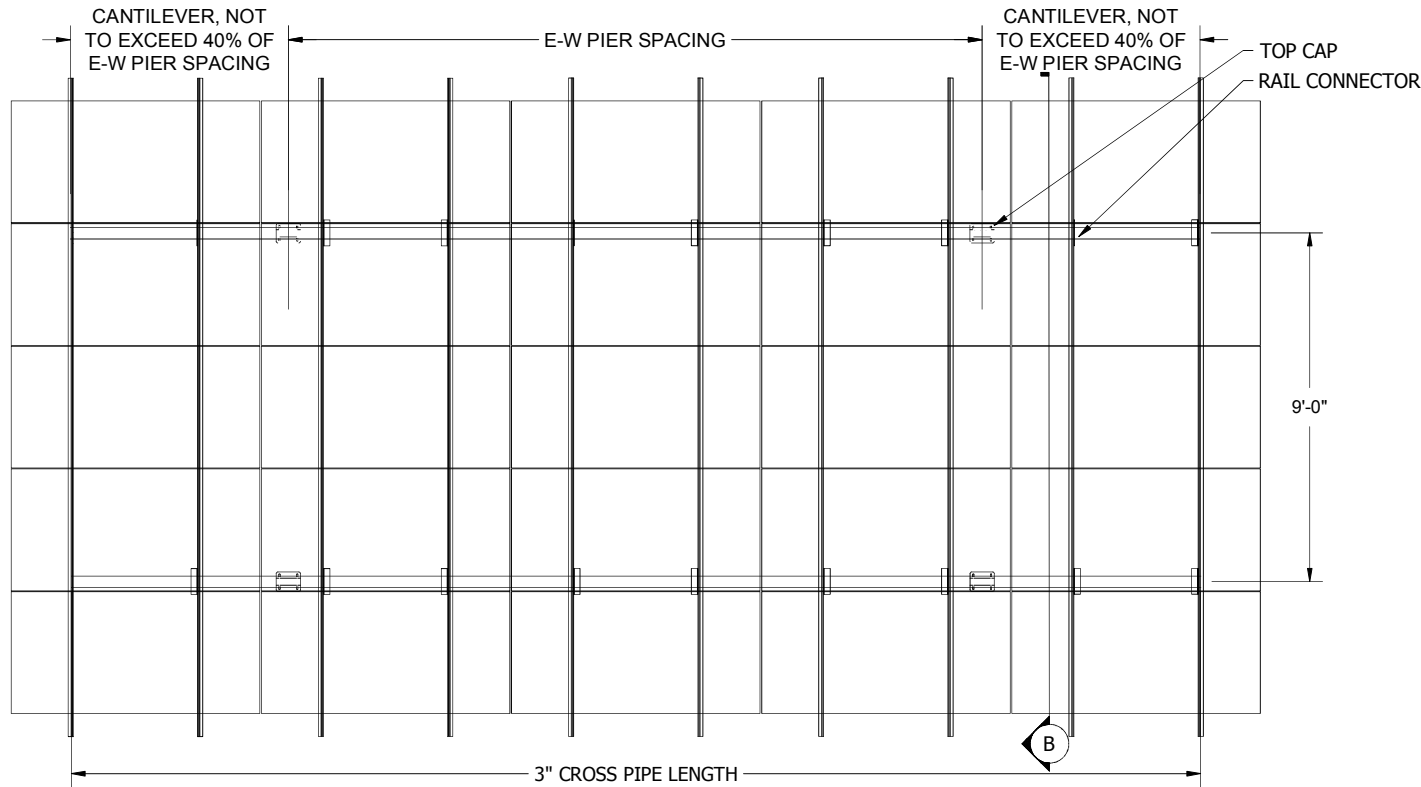


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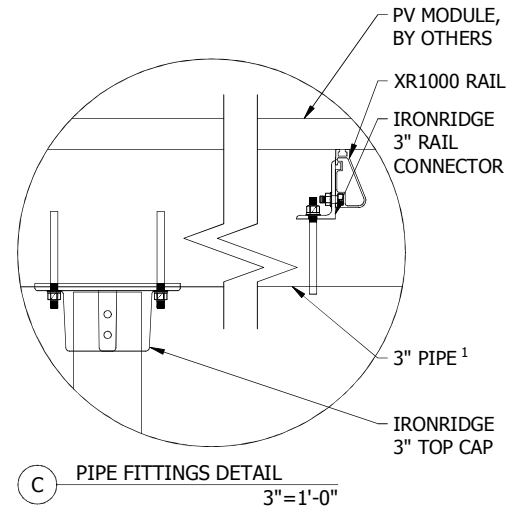
19.500 kW PHOTOVOLTAIC PLANS	CVC56966	Daybreak Install LLC
NAME King, Daniel	2100 N Main St Ste. 212	
ADDRESS 1357 NW Ogden Loop	Fort Worth, TX 76164	
ADDRESS Lake City, FL 32055	(817) 995-9572	
APN		



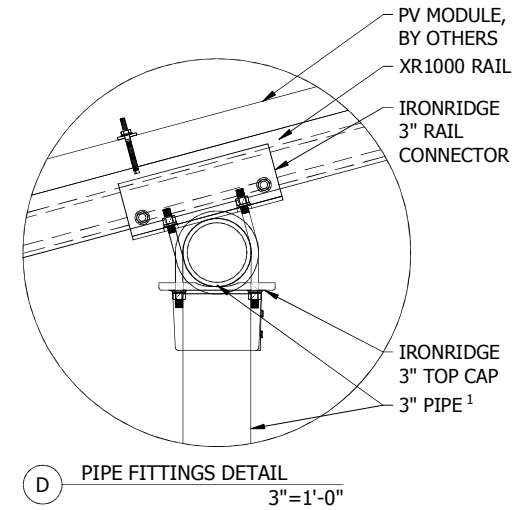
RACKING & RAIL CUT SHEET



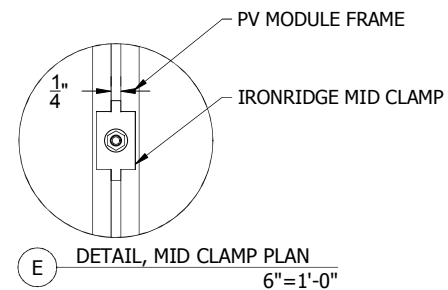
A 5-UP - PV SYSTEM PLAN DETAIL
Scale: 1/2"=1'-0"



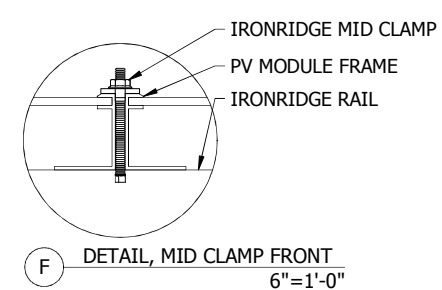
C PIPE FITTINGS DETAIL
3"=1'-0"



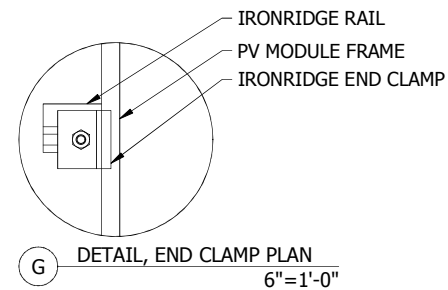
(D) PIPE FITTINGS DETAIL



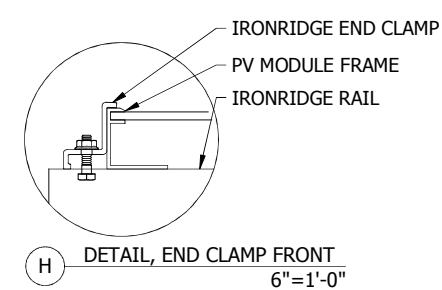
(E) DETAIL, MID CLAMP PLAN
6"=1'-0"



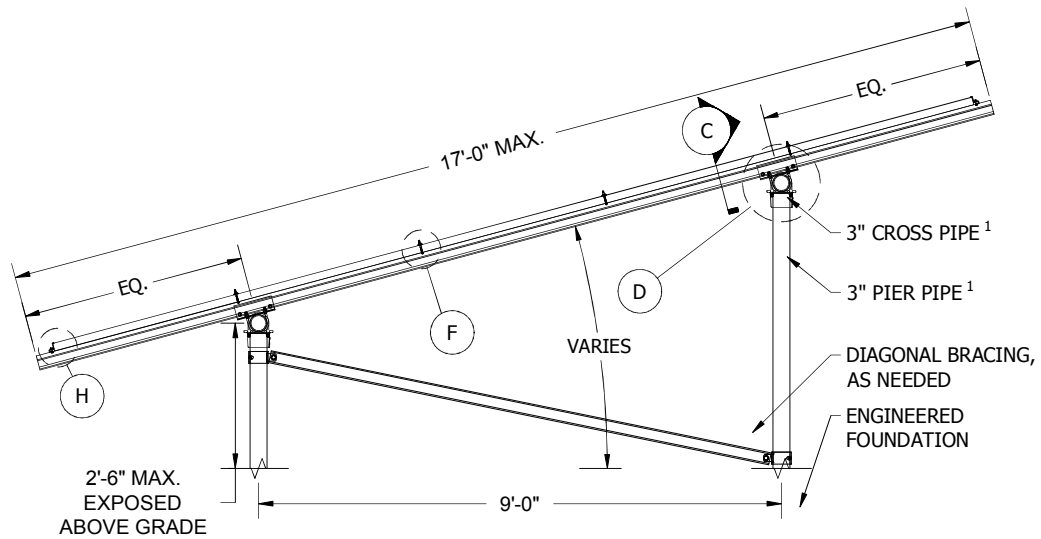
(F) DETAIL, MID CLAMP FRONT
6"=1'-0"



G DETAIL, END CLAMP PLAN
6"=1'-0"

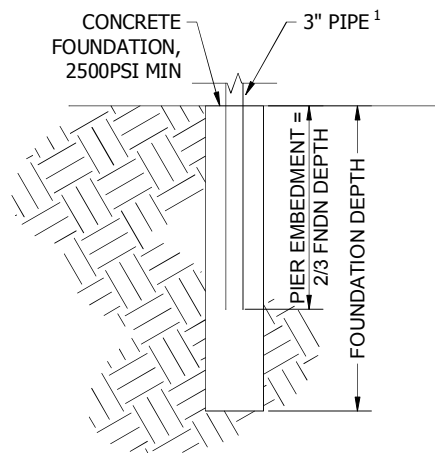


H DETAIL, END CLAMP FRONT
6"=1'-0"

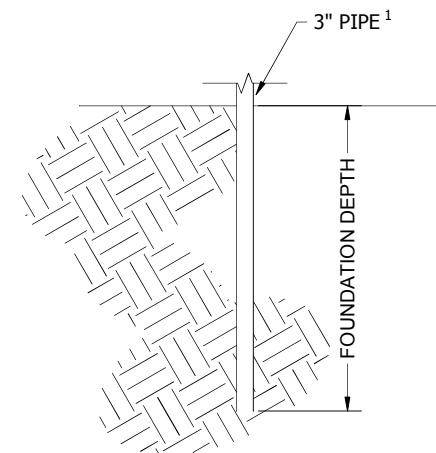


(B) 5-UP - PV SYSTEM SIDE SECTION
Scale: 3/4"=1'-0"

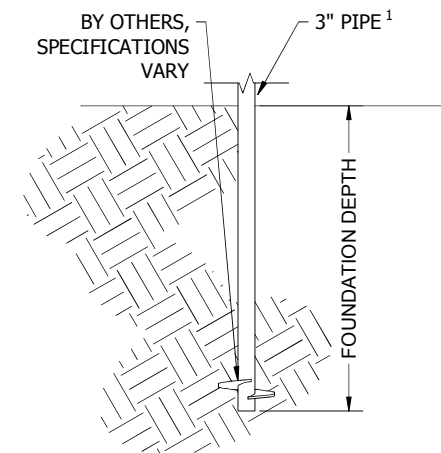
1. SCHEDULE 40 PIPE OR ALLIED MECHANICAL TUBING (8GA WALL THICKNESS)
2. URL: IRONRIDGE GROUND MOUNT INSTALL MANUAL
3. URL: IRONRIDGE GROUND MOUNT ENGINEERING DESIGN GUIDE



J DRILL/POUR FOUNDATION
Scale: 3/4"=1'-0"



*ADDITIONAL ENGINEERING REQUIRED



*ADDITIONAL ENGINEERING REQUIRED



1495 ZEPHYR AVE, HAYWARD, CA 94544
800.227.9523 IRONRIDGE.COM

[illegible]

REVISION HISTORY		
REV	DESCRIPTION	DATE

SHEET NAME	
PV SYSTEM DETAILS 5-UP 3"	
JOB NO.	2.09 GM
ISSUE DATE	XX NOV 2015
SHEET NO.	IR 6
SHEET SIZE	24X36

Daybreak Install LLC

CVC56966

2100 N Main St Ste. 212

Fort Worth, TX 76164

(817) 995-9572

19.500 kW PHOTOVOLTAIC PLANS

NAME	King, Daniel
------	--------------

ADDRESS	1357 NW Ogden Loop
---------	--------------------

ADDRESS	Lake City, FL 32055
---------	---------------------

REV	DATE	RELEASE
	08/04/2024	CLIMATE FOR PERMIT

R-105

EQUIP. CUT SHEETS





Starling Madison Lofquist, Inc.
Consulting Structural and Forensic Engineers

5224 South 39th Street, Phoenix, Arizona 85040
tel: (602) 438-2500 fax: (602) 438-2505 ROC#291316 www.smleng.com

IronRidge
28357 Industrial Boulevard
Hayward, CA 94545

July 1, 2019
Page 1 of 52

Attn: Mr. Corey Geiger, VP New Markets, IronRidge Inc.

Subject: Ground Mounting System – Structural Analysis – 5 Module (XR1000)

Dear Sir:

We have analyzed the subject ground mounted structure and determined that it is in compliance with the applicable sections of the following Reference Documents:

Codes: ASCE/SEI 7-16 Min. Design Loads for Buildings & Other Structures
Florida Building Code, 2020 Edition
Other: AC428, Acceptance Criteria for Modular Framing Systems Used to Support PV
Modules, dated Effective November 1, 2012 by ICC-ES
Aluminum Design Manual, 2015 Edition
IronRidge Exhibit EX-0002

The structure is a simple column (pier) and beam (cross pipe) system. The piers & cross pipes are ASTM A53 Grade B standard weight (schedule 40) steel pipes or Allied Mechanical Tubing. Please refer to Exhibit EX-0002 for approved pipe geometry and material properties. The tops of the piers are connected in the E-W direction by the cross pipes which cantilever over and extend past the end piers. The cross pipes are connected by proprietary IronRidge XR1000 Rails spanning up and down the slope which cantilever over and extend past the top and bottom cross pipes. There are typically two rails per column of modules. The modules are clamped to the rails by the IronRidge Module Mounting Clamps as shown in the attached Exhibit.

Gravity loads are transferred to the piers and foundations by the rails and cross pipes acting as simple beams. For lateral loads the system is either a cantilever structure or, when diagonal braces are provided, a braced frame. The effect of seismic loads (for all design categories A-F) have been determined to be less than the effect due to wind loads in all load conditions and combinations.

The pier spacing in the N-S direction is 9'-0". The pier spacing in the E-W direction is selected from load tables determined by the structural design for the specified slope, wind load, and snow load. The governing criteria for the pier spacing is either the spanning capacity of the cross pipes or the cantilever capacity of the pier. Simplified Load Tables 1A-F & 2A-F are included herein for reference.

More comprehensive information covering all load combinations is available at the IronRidge website, IronRidge.com.

Table 2D - MAXIMUM PIER SPACING (in)

3" Braced Pipe Frame	Snow	Slope (deg)									
Wind Speed & Exposure Category	psf	0	5	10	15	20	25	30	35	40	45
100 mph Exposure B	0	206	206	202	196	187	179	172	172	173	174
	10	182	182	180	178	176	175	172	172	173	174
	20	155	155	155	154	155	157	158	163	170	174
	30	145	146	145	144	146	149	152	158	165	172
	40	133	133	133	132	135	139	142	149	157	166
	50	121	121	122	123	126	130	135	142	150	160
60	111	111	112	113	119	123	128	135	144	154	
105 mph Exposure B	0	206	206	194	189	179	172	165	165	166	166
	10	182	182	176	174	172	170	165	165	166	166
	20	155	155	152	151	152	153	154	159	165	166
	30	145	146	143	142	144	146	148	153	160	166
	40	133	133	131	131	133	136	140	146	153	161
	50	121	121	122	122	125	128	132	139	147	156
60	111	111	112	113	118	122	126	133	141	151	
110 mph Exposure B	0	206	206	187	182	173	165	158	158	159	160
	10	182	182	172	170	167	165	158	158	159	160
	20	155	155	149	148	149	149	150	155	159	160
	30	145	146	141	140	141	143	145	150	156	160
	40	133	133	129	129	131	134	137	142	149	157
	50	121	121	120	120	123	126	130	136	144	152
120 mph Exposure B	0	198	203	174	169	160	153	147	146	147	148
	10	178	180	164	162	158	153	147	146	147	148
	20	153	154	144	143	143	143	143	146	147	148
	30	143	145	136	135	136	137	138	142	147	148
	40	131	132	126	125	127	129	131	136	142	148
	50	121	121	118	117	119	122	125	130	137	144
130 mph Exposure B	0	186	191	163	158	149	143	137	136	137	137
	10	171	174	157	154	149	143	137	136	137	137
	20	148	150	139	138	137	136	135	136	137	137
	30	140	141	132	131	131	131	131	135	137	137
	40	128	130	123	122	123	124	125	130	135	137
	50	119	120	115	114	116	118	120	125	131	137
140 mph Exposure B	0	175	180	153	148	140	133	128	127	128	128
	10	164	167	150	147	140	133	128	127	128	128
	20	144	146	134	133	131	130	128	127	128	128
	30	136	138	128	127	126	126	125	127	128	128
	40	125	127	119	118	119	119	120	124	128	128
	50	117	118	112	111	113	114	115	120	125	128
150 mph Exposure B	0	165	170	144	139	132	125	120	119	120	120
	10	158	161	143	139	132	125	120	119	120	120
	20	140	142	130	128	126	124	120	119	120	120
	30	132	134	124	122	121	120	120	119	120	120
	40	123	124	116	115	115	115	115	118	120	120
160 mph Exposure B	0	157	161	136	131	124	118	113	112	113	113
	10	152	155	136	131	124	118	113	112	113	113
	20	136	138	125	123	121	118	113	112	113	113
	30	129	131	120	118	117	116	113	112	113	113
	40	120	121	113	111	111	111	110	112	113	113

Notes: see page 14

Starling Madison Lofquist, Inc.

Consulting Structural and Forensic Engineers



IronRidge

Mr. Corey Geiger

Ground Mounting System – Structural Analysis – 5 Module (XR1000)

July 1, 2019

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Notes for Tables 1 & 2:

1.

Span

= Indicated region denotes the requirement for (3) three XR1000 rails.

Span

= Indicated region denotes special requirements for XR1000 rails – contact IronRidge.

2. Cross pipe splices not permitted in outer 2/3 of end spans, or the middle 1/3 of interior spans based on the installed attachment spacing (L_{install}). See Figure A

3. End cantilever span of pipe rails (max) = 0.40 x maximum span (L_{max}) from above tables. See Figure A

4. When installations occur on a N-S grade, the design slope of the array shall be determined as the slope relative to level ground. Code required topographic effects have not been considered. Topographic (Wind) Factor = 1.0 (no topographic effects)

5. Dead Load (Weight) = 3 psf

6. Maximum PV Module Dimension = 80”

End Span

Interior Span

End Span

0.4 L_{max}

L_{install} TYP

1/3 L_{install} TYP

Figure A

L_{max} = Maximum pier spacing provided in the tables above for the project design criteria

L_{install} = Actual installed pier spacing

= Indicates region of the pipe rail where splice may be installed

To avoid potential problems from the effects of thermal expansion, a maximum total continuous cross pipe length of 100 ft is recommended.

Notes for CAMO module clamp installation:

1. Single module installation (“orphan modules”) shall not be permitted with the ground mount system when CAMO clamp is used. Reference Figure 1 on following page for “Orphan Module” installation.

2. CAMO clamps will function within a module’s design load ratings. Be sure the specific module being used with the CAMO clamp meets the dimensional requirements shown in Figure 2 on the following page, is a module listed in IronRidge’s installation manual, and that the module selected is suitable for the environmental conditions of a particular project.

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Consulting Structural and Forensic Engineers

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IronRidge

Mr. Corey Geiger

Ground Mounting System – Structural Analysis – 5 Module (XR1000)

July 1, 2019

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Soil Class 2

Table 4D - MINIMUM FOUNDATION DEPTHS (in)

3" Pipe Frame Braced	Pier Dia (in)	Slope (deg)									
		0	5	10	15	20	25	30	35	40	45
100 mph Exposure B	12	36	36	36	36	42	48	48	54	60	60
	16	36	36	36	36	36	42	42	48	54	54
	20	36	36	36	36	36	36	42	42	48	48
	24	36	36	36	36	36	36	36	42	42	48
105 mph Exposure B	12	36	36	36	36	42	48	54	54	60	66
	16	36	36	36	36	36	42	48	48	54	54
	20	36	36	36	36	36	36	42	42	48	48
	24	36	36	36	36	36	36	36	42	42	48
110 mph Exposure B	12	36	36	36	42	42	48	54	54	60	66
	16	36	36	36	36	36	42	48	48	54	60
	20	36	36	36	36	36	36	42	48	48	54
	24	36	36	36	36	36	36	42	42	42	48
120 mph Exposure B	12	36	36	36	42	48	48	54	60	66	66
	16	36	36	36	36	36	42	48	54	54	60
	20	36	36	36	36	36	42	42	48	48	54
	24	36	36	36	36	36	36	42	42	48	48
130 mph Exposure B	12	36	36	36	48	48	54	60	60	66	72
	16	36	36	36	36	42	48	48	54	60	60
	20	36	36	36	36	36	42	48	48	54	54
	24	36	36	36	36	36	36	42	48	48	54
140 mph Exposure B	12	36	42	36	48	54	54	60	66	66	72
	16	36	36	36	42	42	48	54	54	60	66
	20	36	36	36	36	36	42	48	48	54	60
	24	36	36	36	36	36	42	42	48	48	54
150 mph Exposure B	12	36	42	48	54	60	60	60	66	72	78
	16	36	36	36	42	48	48	54	60	60	66
	20	36	36	36	36	42	42	48	54	54	60
	24	36	36	36	36	36	42	48	48	54	54
160 mph Exposure B	12	42	48	48	54	60	60	66	66	72	78
	16	36	36	36	42	48	48	54	60	66	72
	20	36	36	36	36	42	48	48	54	60	60
	24	36	36	36	36	36	42	48	48	54	60

Notes: see page 52

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Consulting Structural and Forensic Engineers

- 25 -

19.500 kW PHOTOVOLTAIC PLANS

CVC56966

2100 N Main St Ste. 212

Fort Worth, TX 76164

(817) 995-9572

Daybreak Install LLC

NAME

King, Daniel

ADDRESS

1357 NW Ogden Loop

ADDRESS

Lake City, FL 32055

APN

RELEASE

DATE

08/04/2021

SUBMIT FOR PERMIT

R-107

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IronRidge
Mr. Corey Geiger
Ground Mounting System – Structural Analysis – 5 Module (XR1000)

July 1, 2019
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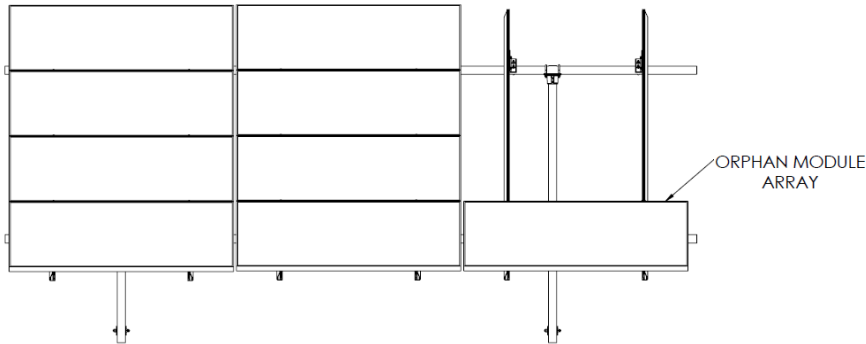


Figure 1: Orphan Module Installation

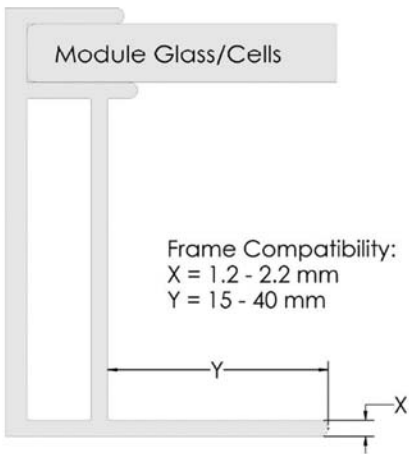


Figure 2: CAMO Clamp Module Frame Dimensional Requirements

Foundation Requirements

The foundation requirements for a cast-in-place drilled concrete pier system and for each soil class 2, 3, & 4 may be obtained from the tables below. The soil class is noted at the top of the tables. For each soil class Tables 3A-3F and 4A-4F are provided for the 2in and 3in systems respectively. These tables are based on the piers being installed at their maximum allowable spacing. For spacing values less than maximum and for loads cases with snow > 0 psf, the requirements can be determined by using the online Design Assistant at IronRidge.com.

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IronRidge
Mr. Corey Geiger
Ground Mounting System – Structural Analysis – 5 Module (XR1000)

July 1, 2019
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- Notes for Tables 3 & 4:
1. Concrete Weight = 145 pcf / f'c = 2500 psi
 2. Provide Air Entraining Admixture for freeze and thaw cycles as required for colder climates.
 3. Skin Friction per 2020 FBC 1810.3.3.1.4 & 5
 4. Top 1'-0" of soil neglected for Skin Friction
 5. Snow Load = 0 psf – tabulated values are conservative for Snow Loads > 0 psf
 6. * indicates special foundation required. Contact IronRidge
 7. Resistance to corrosion and/or sulfate attack, along with possible adverse effects due to expansive soils has not been considered in these foundation recommendations. SML Engineers assumes no liability with regard to these items.
 8. Soil classification is to be determined and verified by the end user of this certification letter.

The analysis assumes that the array, including the connections and associated hardware, are installed in a workmanlike manner in accordance with the IronRidge Ground Mount Installation Manual and generally accepted standards of construction practice. Verification of PV Module capacity to support the loads associated with the given array shall be the responsibility of the Contractor or Owner and not IronRidge or Starling Madison Lofquist.

Please feel free to contact me at your convenience if you have any questions.

Respectfully yours,

Tres Warner, P.E.
Design Division Manager

Tres J
Warner

Digitally signed by Tres
J Warner
DN: c=US, o=Starling
Madison Lofquist Inc,
ou=A01410C00000174
6F7B4222000053B6,
cn=Tres J Warner
Date: 2021.02.25
13:15:45 -07'00'



Starling Madison Lofquist, Inc.

Consulting Structural and Forensic Engineers

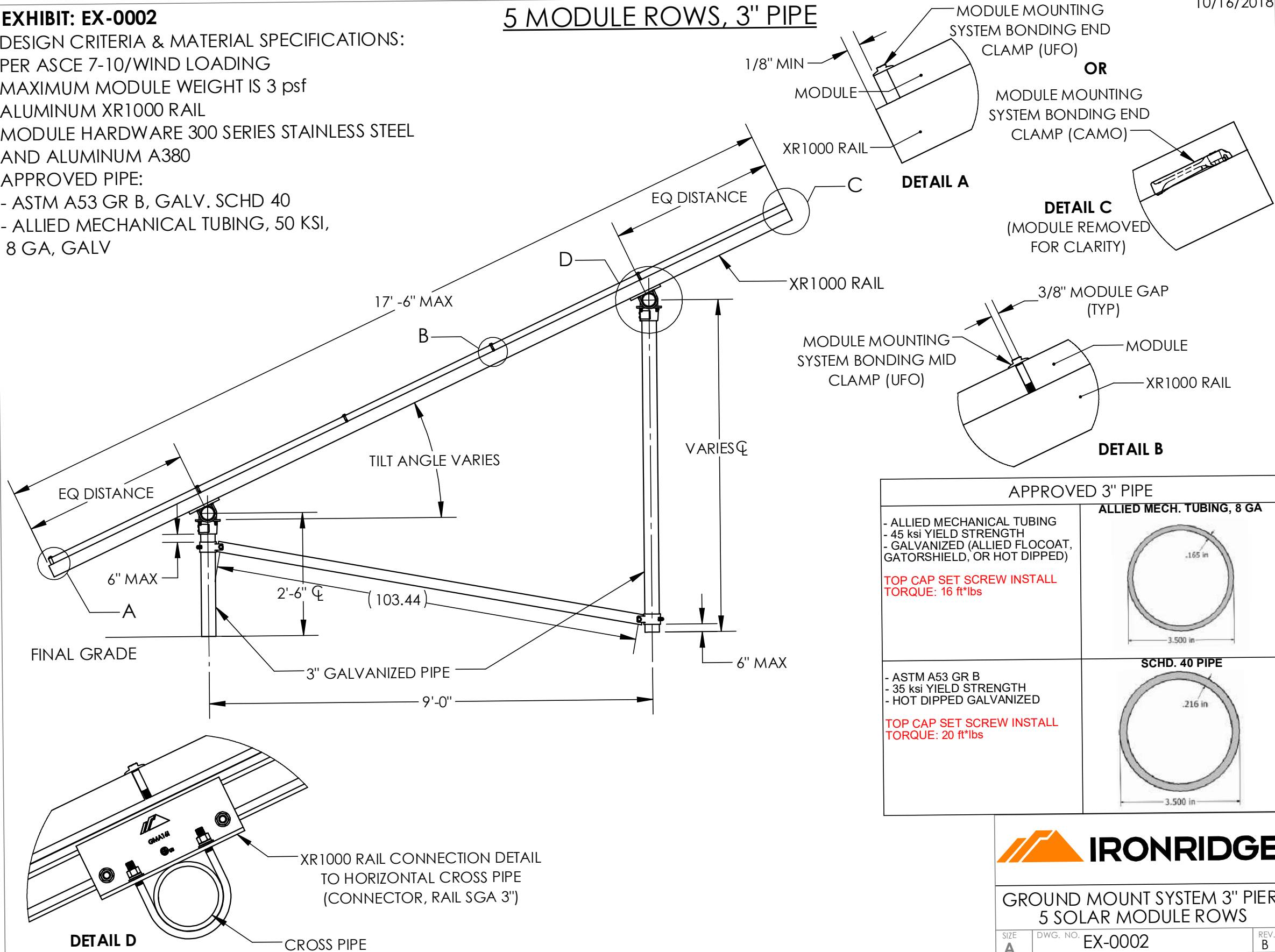
Daybreak Install LLC	19.500 kW PHOTOVOLTAIC PLANS		REV	DATE	RELEASE
	CVC56966	2100 N Main St Ste. 212 Fort Worth, TX 76164		08/04/2021	SUBMIT FOR PERMIT
		NAME King, Daniel			
		ADDRESS 1357 NW Ogden Loop Lake City, FL 32055			
		APN			
					R-108
					EQUIP. CUT SHEETS



EXHIBIT: EX-0002
DESIGN CRITERIA & MATERIAL SPECIFICATIONS:
PER ASCE 7-10/WIND LOADING
MAXIMUM MODULE WEIGHT IS 3 psf
ALUMINUM XR1000 RAIL
MODULE HARDWARE 300 SERIES STAINLESS STEEL
AND ALUMINUM A380
APPROVED PIPE:
- ASTM A53 GR B, GALV. SCHD 40
- ALLIED MECHANICAL TUBING, 50 KSI,
8 GA, GALV

5 MODULE ROWS, 3" PIPE

10/16/2018



APPROVED 3" PIPE	
- ALLIED MECHANICAL TUBING - 45 ksi YIELD STRENGTH - GALVANIZED (ALLIED FLOCOAT, GATORSHIELD, OR HOT DIPPED) TOP CAP SET SCREW INSTALL TORQUE: 16 ft*lbs	ALLIED MECH. TUBING, 8 GA
- ASTM A53 GR B - 35 ksi YIELD STRENGTH - HOT DIPPED GALVANIZED TOP CAP SET SCREW INSTALL TORQUE: 20 ft*lbs	SCHD. 40 PIPE



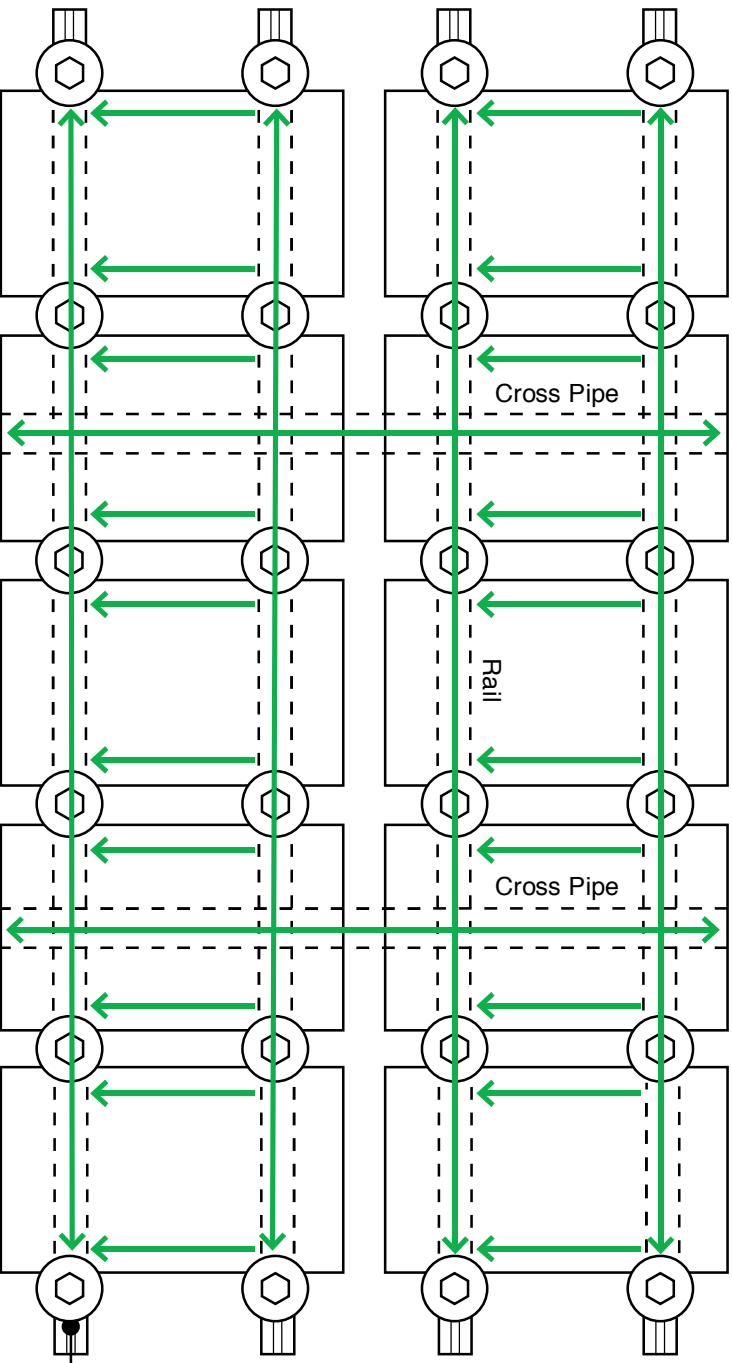
GROUND MOUNT SYSTEM 3" PIER,
5 SOLAR MODULE ROWS

SIZE A	DWG. NO. EX-0002	REV. B
SCALE:1:25	WEIGHT:	SHEET 2 OF 5

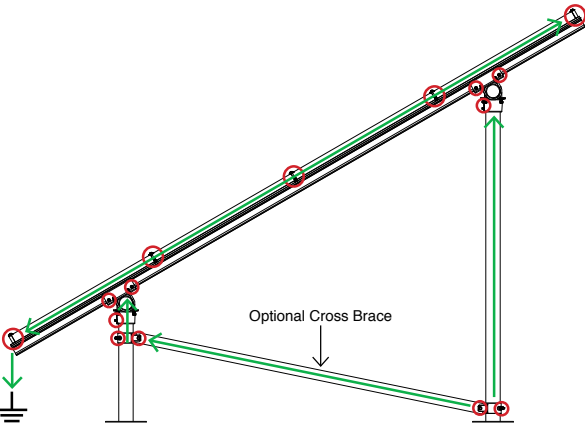
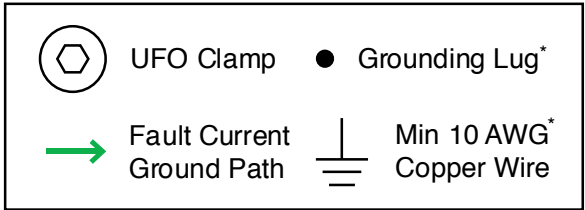
19.500 KW PHOTOVOLTAIC PLANS		REV	DATE	RELEASE
NAME King, Daniel			08/04/2021	SUBMIT FOR PERMIT
ADDRESS 1357 NW Ogden Loop				
ADDRESS Lake City, FL 32055				
APN				
CVC56966 2100 N Main St Ste. 212 Fort Worth, TX 76164 (817) 995-9572				
Daybreak Install LLC				
R-109				
EQUIP. CUT SHEETS				



ELECTRICAL DIAGRAM



*Only one Grounding Lug required per continuous subarray.



○ Bonding Points ← Fault Current Ground Path

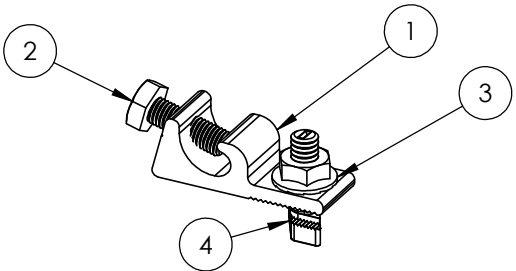
*Grounding Lugs and Wire are not required in systems using certain Enphase microinverters.

Section View



Grounding Lug

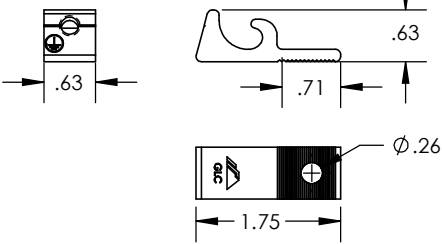
Cut Sheet



ITEM NO.	DESCRIPTION	QTY. IN KIT
1	LUG, GROUNDING, LAY-IN - LOW PROFILE	2
2	BOLT, 1/4-28 X .750" HEX CS SST	2
3	NUT, FLANGE HEX 1/4-20 SST	2
4	BOLT, T CSTM 1/4-20 X 1.188" LOCK SS	2

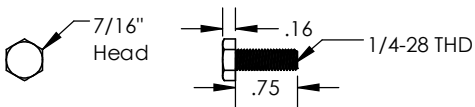
Part Number	Description	Wire Size Range (AWG)
GD-LUG-003	KIT, 2PCS, GROUNDING LUG, LOW PROFILE	4-10

1) Lug, Grounding



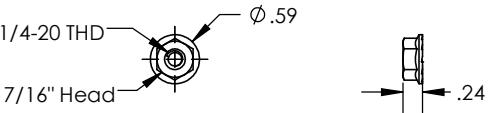
Property	Value
Material	Tin Plated Copper
Finish	Clear Matte

2) Bolt, 1/4-28 x .750 Hex



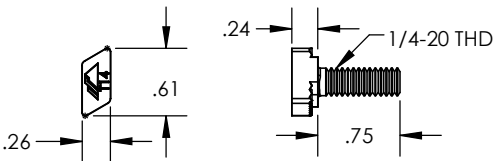
Property	Value
Material	300 Series Stainless Steel
Finish	Clear

3) Nut, Flange Hex 1/4-20



Property	Value
Material	300 Series Stainless Steel
Finish	Clear

4) Bolt, T CSTM 1/4-20 x .750



Property	Value
Material	300 Series Stainless Steel
Finish	Clear

v1.0

