AMENDMENT #2 TO SOLAR POWER PURCHASE AGREEMENT

This Amendment #2 is entered into this _____ of _____ (the "Effective Date"), between Readington Solar PV LLC (hereinafter referred to as the "Developer") and the Readington Township Board of Education (hereinafter referred to as the "Buyer").

WHEREAS, the Buyer and Developer (hereinafter referred to individually as a "Party" and collectively as "Parties") entered into a Solar Power Purchase Agreement dated September 23, 2016 as amended by Amendment #1 thereto dated as of May 25, 2017 (hereinafter referred to as the "Existing Agreement");

WHEREAS, the Parties desire to further amend the Agreement to reflect the final as-built design;

NOW, THEREFORE, the parties mutually agree as follows:

1. Capitalized terms used in this Amendment #2 and not defined herein have the meanings assigned to them in Existing Agreement. The Recitals are incorporated into this Amendment #2.

2. The Original Agreement is hereby amended as follows:

   a) By striking Exhibit B and replacing it with Exhibit B attached hereto.
   b) By striking Exhibit C and replacing it with Exhibit C attached hereto.
   c) By striking Exhibit K and replacing it with Exhibit K attached hereto.

3. Entire Agreement; Governing Law. This Amendment #2 shall be governed by the laws of the State of New Jersey.

4. Authority. Each Party represents and warrants to the other Party that it has the power, right and authority to enter into this Amendment #2 and to consummate the transactions contemplated hereby.

5. The Parties may execute this Amendment #2 in counterparts, which shall, in the aggregate, when signed by both Parties constitute one and the same instrument; and, thereafter, each counterpart shall be deemed an original instrument as against any Party who has signed it. Delivery of an executed counterpart of this Amendment #2 by facsimile transmission or by other electronic transmission shall be effective as delivery of a manually executed counterpart of this Amendment #2.

6. Except as modified and amended in this Amendment #2, the Existing Agreement remains in full force and effect, and the Parties hereby ratify and re-affirm the Existing Agreement in all respects.

[signatures follow]

IN WITNESS WHEREOF, the Parties have executed this Amendment #2 as of the date first above written.

Buyer:

READINGTON TOWSHIP
BOARD OF EDUCATION

By: _____

Developer

READINGTON SOLAR PV LLC

By: Ameresco, Inc., its sole member

By: _____
James J. Walker, Vice President

EXHIBIT B

PRELIMINARY DESCRIPTION OF FACILITIES

Name: Facility 1:Holland Brook School

Address: 52 Readington Road, Readington, NJ 08889

The final Facilities Description shall be the final As-Built drawings to be provided after Commercial Operation Date. The information below is preliminary and subject to change.

General Facilities Description:

1.	Facilities Size DC:	641.52 kW_DC at STC capacity
2.	Facilities Size AC:	492 kW_AC

Solar PV Panels:

1.	Manufacturer:	Heliene
2.	Model Number:	Heliene – 72M360
3.	Module Wattage:	360W
4.	Panel Count:	1,782
5.	Type:	Monocrystalline 72-cell Modules
6.	Array tilt:	25 degrees
7.	Warranty Information:	Free from defects in materials and workmanship for 10 years, 97.5% minimum production on year 1, and 25 year linear power output with 80% minimum production at year 25.

Inverters:

1.	Manufacturer:	Yaskawa Solectria
2.	Model Number:	PVI-28TL-480, PVI-36TL-480, PVI-60TL-480
3.	Number and size to be installed:	(2) 36 kW inverters (7) 60 kW inverters
4.	String size and Quantity:	18 panels per string with 99 total strings.
5.	Warranty Information:	10 Year standard warranty

Mounting Facilities:

1.	Manufacturer:	Genmounts

2.	Model Number:	Vector 1.0 post-driven
3.	Type:	Ground Mounted -Pole Driven

Data Acquisition Facilities (DAS):

1. Manufacturer: Draker Energy
2. Model: Draker PV 250 Base Station or equivalent

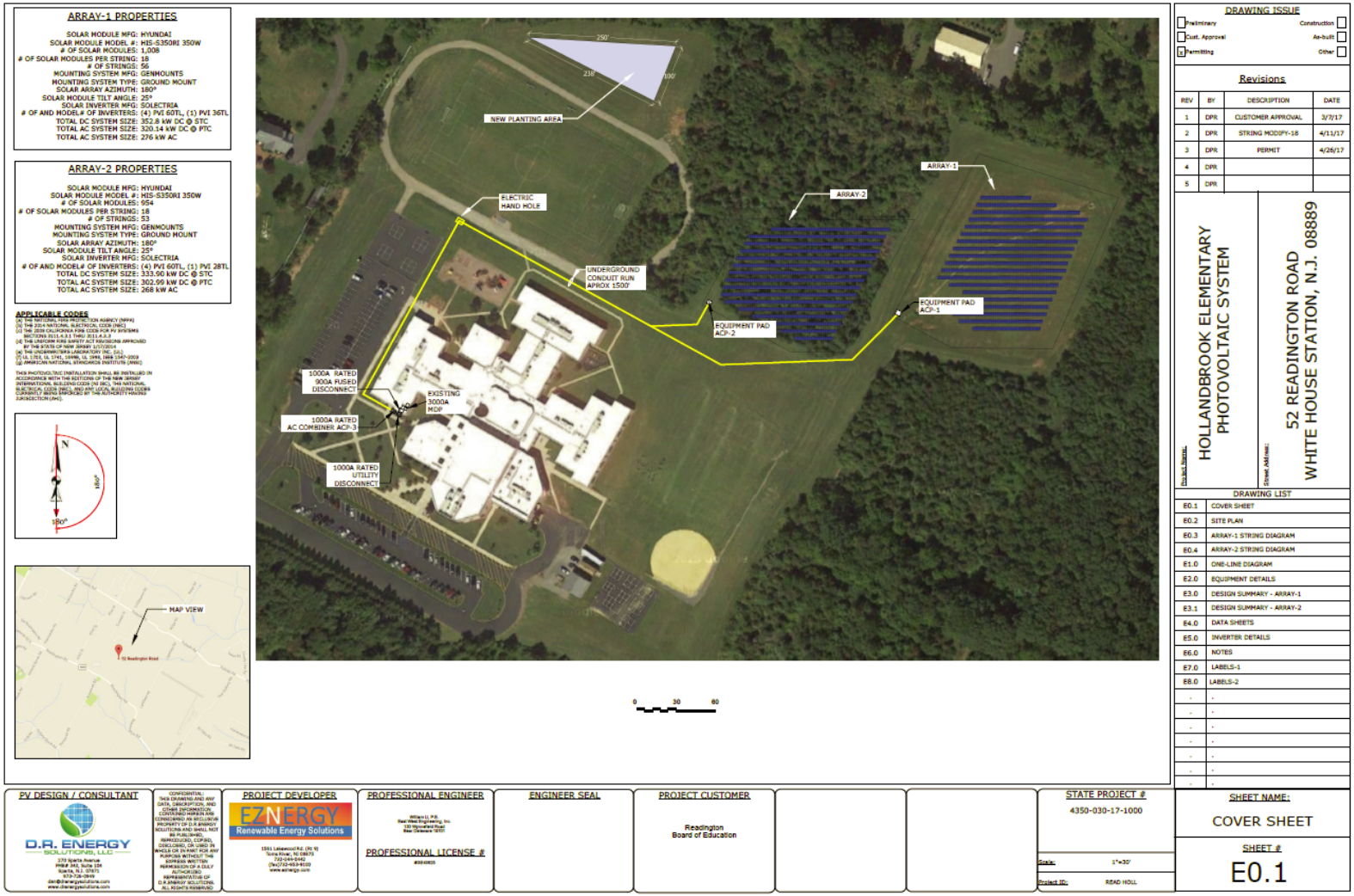
Landscaping:

A specific landscaping layout will be developed for the Holland Brook School that will allocate a portion of the $10,000 landscaping budget to tree replanting in the triangular area north of the track field and as designated in the orange boxes on the Conceptual Layout in Exhibit D. The plan will be a habitat-oriented planting plan developed in consultation with the Buyer. The replanted area will be enclosed by a wildlife resistant fence.

The $10,000 budget includes both Readington Middle School and Holland Brook School. If the Buyer requests landscaping in excess of the landscaping that can be supported by the Developer's $10,000 budget, the Developer shall be entitled to increase the Electricity Price for each $10,000 of additional costs in accordance with the following:

For each increase in landscaping costs of $10,000 in excess of the Developer's $10,000 landscaping budget	Electricity Price Change
For each $10,000 increment	$0.0005/kWh

Solar PV Facilities Layout:



Electrical Facilities Layout:

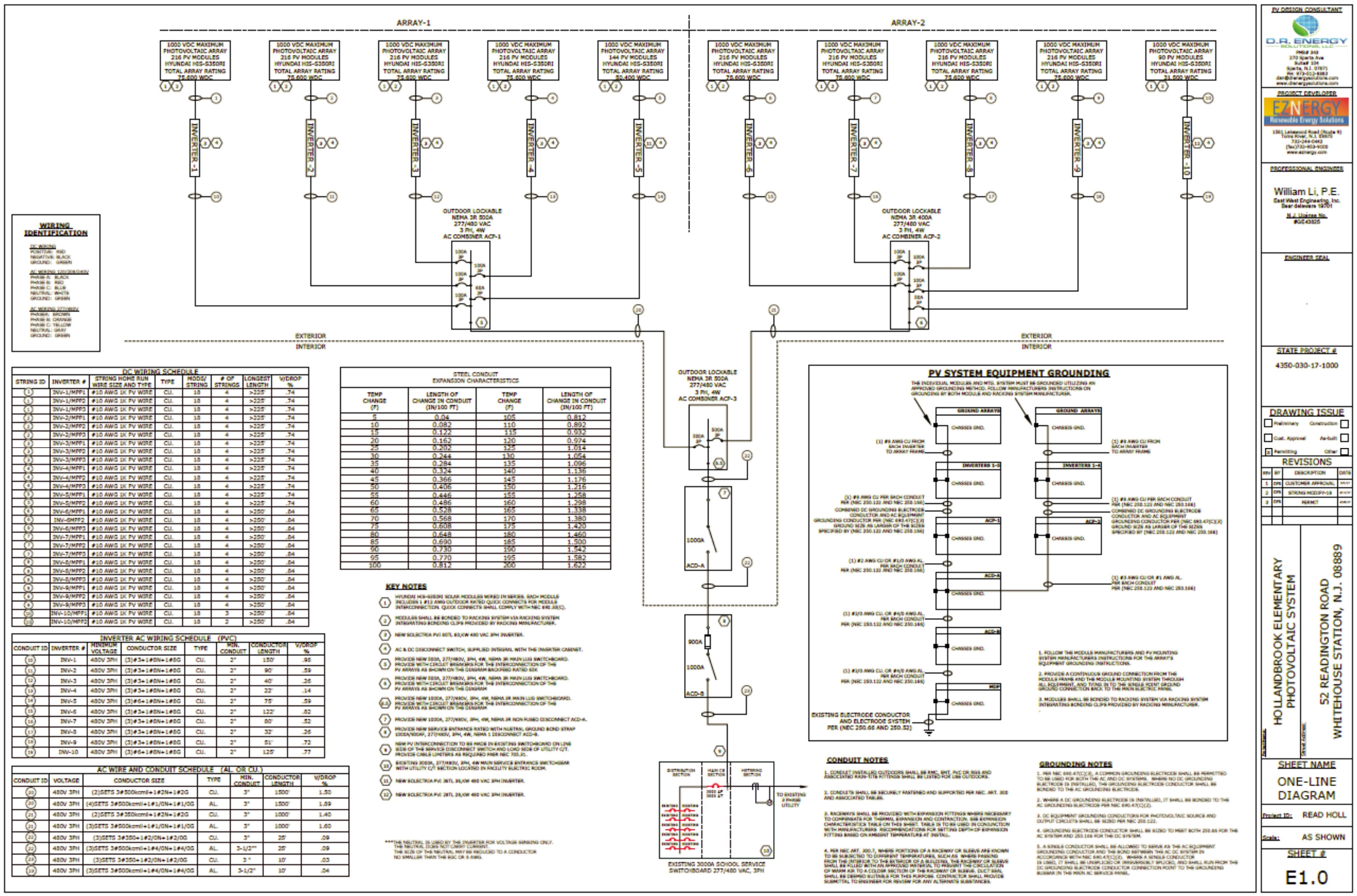


EXHIBIT B

PRELIMINARY DESCRIPTION OF FACILITIES

Name: Facility 2:Readington Middle School

Address: 52 Readington Road, Readington, NJ 08889

The final Facilities Description shall be the final As-Built drawings to be provided after Commercial Operation Date. The information below is preliminary and subject to change.

General Facilities Description (rooftop):

3. Facilities Size DC:	162.0 kW_DC at STC capacity
4. Facilities Size AC:	132 kW_AC

General Facilities Description (ground mount):

5. Facilities Size DC:	129.6 kW_DC at STC capacity
6. Facilities Size AC:	110 kW_AC

(For the purpose of the Guaranteed kWh, the rooftop and the ground mount will be deemed one facility).

Solar PV Panels (rooftop):

8. Manufacturer:	Heliene
9. Model Number:	Heliene – 72M360
10. Module Wattage:	360W
11. Panel Count:	450
12. Type:	Monocrystalline 72-cell Modules
13. Array tilt:	5 degrees
14. Warranty Information:	Free from defects in materials and workmanship for 10 years, 97.5% minimum production on year 1, and 25 year linear power output with 80% minimum production at year 25.

Solar PV Panels (ground mount):

15. Manufacturer:	Heliene
16. Model Number:	Heliene – 72M360

17. Module Wattage:	360W
18. Panel Count:	360
19. Type:	Monocrystalline 72-cell Modules
20. Array tilt:	25 degrees
21. Warranty Information:	Free from defects in materials and workmanship for 10 years, 97.5% minimum production on year 1, and 25 year linear power output with 80% minimum production at year 25.

Inverters (rooftop):

6. Manufacturer:	Yaskawa Solectria
7. Model Number:	PVI-36TL-480, PVI-60TL-480
8. Number and size to be installed:	(2) 36 kW inverters and (1) 60 kW inverter
9. String size and Quantity:	18 and Quantity 25
10. Warranty Information:	10 Year standard warranty

Inverters (ground mount):

11. Manufacturer:	Yaskawa Solectria
12. Model Number:	PVI 50-TL, PVI 60-TL
13. Number and size to be installed:	(1) 50 kW inverter and (1) 60 kW inverters
14. String size and Quantity:	18 and Quantity 20
15. Warranty Information:	10 Year standard warranty

Mounting Facilities (rooftop):

4. Manufacturer:	Genmount
5. Model Number:	Genmounts LT
6. Type:	Ballasted Solar Racking

Mounting Facilities (ground mount):

7. Manufacturer:	Genmounts
8. Model Number:	Vector 1.0 post-driven
9. Type:	Ground Mounted -Pole Driven

Data Acquisition Facilities (DAS):

3. Manufacturer: Draker Energy
4. Model: Draker PV 250 Base Station or equivalent

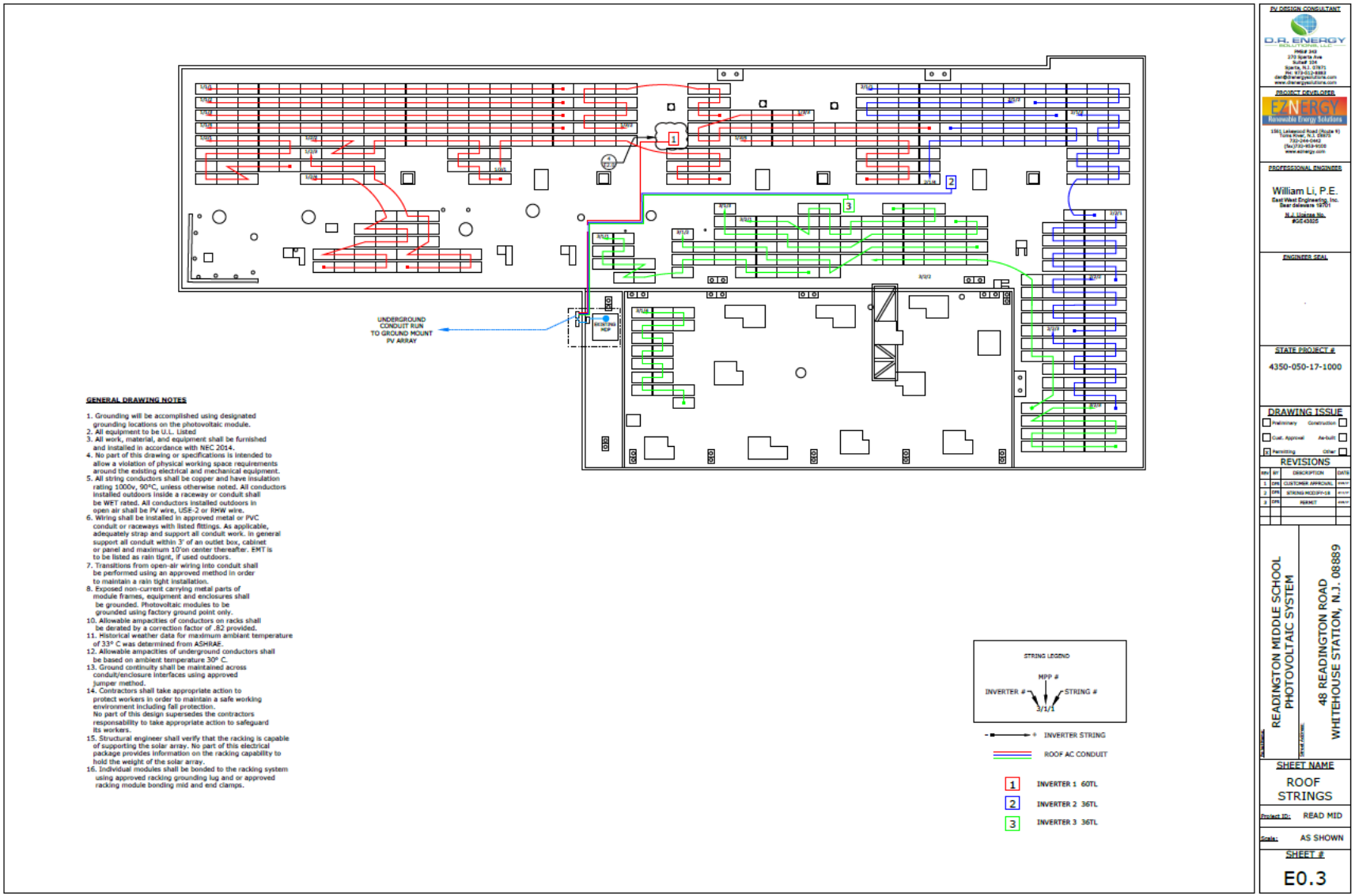
Landscaping:

A landscaping layout will be developed for the Readington Middle School that will allocate a portion of the $10,000 landscaping budget to screen the ground array in the front of the school where the buses currently park, by planting on the East along the driveway and the South along Readington Road, as portrayed in the orange boxes on the Conceptual Layout in Exhibit D. The landscaping will include a diverse mixture of plantings and will not consist of a monotype of a single species of plant.

The $10,000 budget includes both Readington Middle School and Holland Brook School. If the Buyer requests landscaping in excess of the landscaping that can be supported by the Developer's $10,000 budget, the Developer shall be entitled to increase the Electricity Price for each $10,000 of additional costs in accordance with the following:

For each increase in landscaping costs of $10,000 in excess of the Developer's $10,000 landscaping budget	Electricity Price Change
For each $10,000 increment	$0.0005/kWh

Solar PV Facilities Layout (Rooftop):



PV DESIGN CONSULTANT

D.R. ENERGY SOLUTIONS, LLC

PROJECT DEVELOPER

EZNERGY Renewable Energy Solutions

PROFESSIONAL ENGINEER

William Li, P.E.
East West Engineering, Inc.
Bear Delaware 19701
N.J. License No.
#GE45805

ENGINEER SEAL

STATE PROJECT #

4350-050-17-1000

DRAWING ISSUE

Preliminary / Construction
Cust. Approval / As-built
Permitting / Other

REVISIONS

NO	BY	DESCRIPTION	DATE
1	DPR	CUSTOMER APPROVAL	
2	DPR	STRING MODIFY-1A	
3	DPR	PERMIT	

READINGTON MIDDLE SCHOOL
PHOTOVOLTAIC SYSTEM

48 READINGTON ROAD
WHITEHOUSE STATION, N.J. 08889

SHEET NAME

ROOF STRINGS

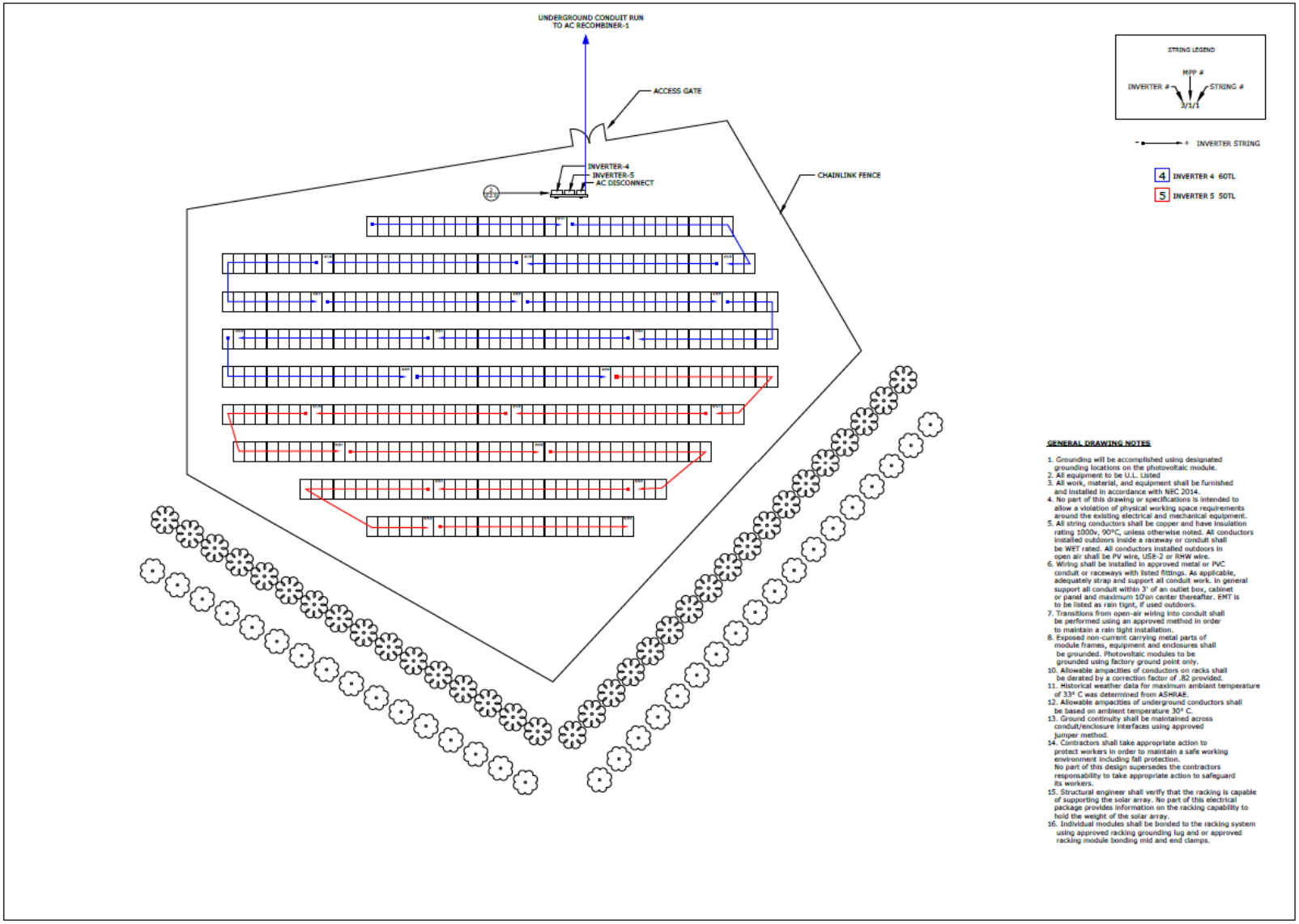
Project ID: READ MID

Scale: AS SHOWN

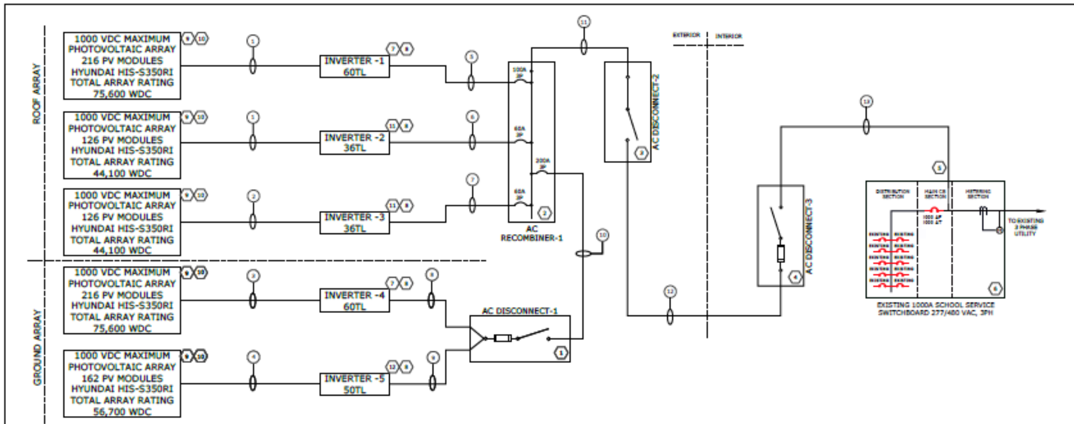
SHEET #

E0.3

Solar Facilities Layout (Ground mount):



Electrical Facilities Layout:



DC WIRING SCHEDULE							
CONDUIT ID	INVERTER #	STRING HOME RUN WIRE SIZE AND TYPE	TYPE	MODS/ STRING	# OF STRINGS	LONGEST LENGTH	V/DROP %
1	INV-1/MPP1	#10 AWG 1K PV WIRE	CU.	18	4	>100'	.34
1	INV-1/MPP2	#10 AWG 1K PV WIRE	CU.	18	4	>100'	.34
1	INV-1/MPP3	#10 AWG 1K PV WIRE	CU.	18	4	>100'	.34
2	INV-2/MPP1	#10 AWG 1K PV WIRE	CU.	18	4	>100'	.34
2	INV-2/MPP2	#10 AWG 1K PV WIRE	CU.	18	3	>100'	.34
3	INV-3/MPP1	#10 AWG 1K PV WIRE	CU.	18	4	>100'	.34
3	INV-3/MPP2	#10 AWG 1K PV WIRE	CU.	18	3	>125'	.34
4	INV-4/MPP1	#10 AWG 1K PV WIRE	CU.	18	4	>125'	.42
4	INV-4/MPP2	#10 AWG 1K PV WIRE	CU.	18	4	>125'	.42
4	INV-4/MPP3	#10 AWG 1K PV WIRE	CU.	18	4	>150'	.42
5	INV-5/MPP1	#10 AWG 1K PV WIRE	CU.	18	3	>150'	.42
5	INV-5/MPP2	#10 AWG 1K PV WIRE	CU.	18	3	>150'	.54
5	INV-5/MPP2	#10 AWG 1K PV WIRE	CU.	18	3	>150'	.54

INVERTER AC WIRING SCHEDULE (EMT)							
CONDUIT ID	INVERTER #	MINIMUM VOLTAGE	CONDUCTOR SIZE AND TYPE	TYPE	MIN. CONDUIT	CONDUCTOR LENGTH	V/DROP %
5	INV-1	480V 3PH	(3)#3+1#8N+1#8G	CU.	2"	100'	.71
6	INV-2	480V 3PH	(3)#6+1#8N+1#8G	CU.	2"	100'	.78
7	INV-3	480V 3PH	(3)#6+1#8N+1#8G	CU.	2"	100'	.78
8	INV-4	480V 3PH	(3)#3+1#8N+1#8G	CU.	2"	25'	.21
9	INV-5	480V 3PH	(3)#4+1#8N+1#8G	CU.	2"	25'	.22

AC WIRE AND CONDUIT SCHEDULE (EMT)						
CONDUIT ID	VOLTAGE	WIRE SIZE AND TYPE	TYPE	MIN. CONDUIT	CONDUCTOR LENGTH	V/DROP %
10	480V 3PH	(1)SET 3#4/0+1#6N+1#6G	CU.	2-1/2"	450'	1.39
10	480V 3PH	(2)SETS 3#3/0+1#4N+1#4G	AL.	2"	450'	1.39
11	480V 3PH	(2)SETS 3#3/0+1#3N+1#3G	CU.	2-1/2"	5'	.02
11	480V 3PH	(2)SETS 3#4/0+1#1/0N+1#1/0G	AL.	2-1/2"	5'	.03
12	480V 3PH	(2)SETS 3#3/0+1#3N+1#3G	CU.	2-1/2"	10'	.04
12	480V 3PH	(2)SETS 3#4/0+1#1/0N+1#1/0G	AL.	2-1/2"	10'	.05
13	480V 3PH	(2)SETS 3#3/0+1#3N+1#3G	CU.	2-1/2"	20'	.09
13	480V 3PH	(2)SETS 3#4/0+1#1/0N+1#1/0G	AL.	2-1/2"	20'	.11

KEY NOTES

1. PROVIDE NEW 200A/200AF, 277/480V, 3PH, 4W, NEMA 3R DISCONNECT.
2. PROVIDE NEW 400A, 277/480V, 3PH, 4W, NEMA 3R MAIN LUG SWITCHBOARD. PROVIDE WITH CIRCUIT BREAKERS FOR THE COMBINED INTERCONNECTION OF THE PV ARRAYS AS SHOWN ON THE DIAGRAM BACKFEED RATED 6SK.

CABLE TRAY NOTES

1. CABLE TRAY AND ALL ASSOCIATED SPLICING/CONNECTION AND MOUNTING HARDWARE INSTALLED OUTDOORS SHALL BE GALVANIZED AND RATED FOR OUTDOOR INSTALLATION.
2. WHERE FIELD CUTS AND BENDS ARE REQUIRED, NO SHARP EDGES OR BURRS SHALL REMAIN AFTER CUTTING. WHERE BENDING RESULTS IN CHAFFING OF WIRE AGAINST EDGES OF TRAY, SUITABLE INSULATING MATERIAL SHALL BE INSTALLED BETWEEN CONDUCTOR AND TRAY TO PREVENT ABRASION.
3. CABLE TRAY SHALL BE GROUNDING AND BONDED PER NEC REQUIREMENTS USING MANUFACTURER APPROVED GROUNDING CONNECTION KIT.
4. CABLE TRAY SHALL PROVIDE INTEGRAL WIRE SUPPORT PER NEC, SUPPORTED EVERY 12" AND SECURED EVERY 4'.

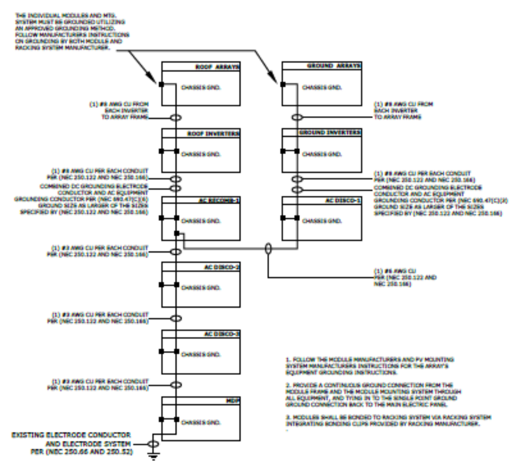
STEEL CONDUIT EXPANSION CHARACTERISTICS			
TEMP CHANGE (F)	LENGTH OF CHANGE IN CONDUIT (IN/100 FT)	TEMP CHANGE (F)	LENGTH OF CHANGE IN CONDUIT (IN/100 FT)
5	0.04	105	0.812
10	0.082	110	0.892
15	0.122	115	0.932
20	0.162	120	0.974
25	0.202	125	1.014
30	0.244	130	1.054
35	0.284	135	1.096
40	0.324	140	1.136
45	0.366	145	1.176
50	0.406	150	1.216
55	0.446	155	1.258
60	0.486	160	1.298
65	0.528	165	1.338
70	0.568	170	1.380
75	0.608	175	1.420
80	0.648	180	1.460
85	0.690	185	1.500
90	0.730	190	1.542
95	0.770	195	1.582
100	0.812	200	1.622

GROUNDING NOTES

CONDUIT NOTES

WIRING IDENTIFICATION

PV SYSTEM EQUIPMENT GROUNDING



PV DESIGN CONSULTANT
D.R. ENERGY SOLUTIONS, LLC

PROJECT DEVELOPER
EZNERGY Renewable Energy Solutions

PROFESSIONAL ENGINEER
William Li, P.E.
East West Engineering, Inc.

ENGINEER SEAL

STATE PROJECT #
4350-050-17-1000

DRAWING ISSUE
Preliminary, Construction, Cust. Approval, As-built, [x] Permitting, Other

REVISIONS

REV	BY	DESCRIPTION	DATE
1	DPS	CUSTOMER APPROVAL	
2	DPS	STRING MODIFY-18	
3	DPS	PERMIT	

READINGTON MIDDLE SCHOOL PHOTOVOLTAIC SYSTEM
48 READINGTON ROAD WHITEHOUSE STATION, N.J. 08889

SHEET NAME
ONE-LINE DIAGRAM

Project ID: READ MID
Scale: AS SHOWN
SHEET #
E1.0

EXHIBIT B

PRELIMINARY DESCRIPTION OF FACILITIES

Name: Three Bridges Elementary School

Address: 480 Main Street, Readington, NJ 08887

The final Facilities Description shall be the final As-Built drawings to be provided after Commercial Operation Date. The information below is preliminary and subject to change.

General Facilities Description:

7. Facilities Size DC:	136.08 kW_DC at STC capacity
8. Facilities Size AC:	108 kW_AC

Solar PV Panels:

22. Manufacturer:	Heliene
23. Model Number:	Heliene – 72M360
24. Module Wattage:	360W
25. Panel Count:	378
26. Type:	Monocrystalline 72-cell Modules
27. Array tilt:	5 degrees (flat roof) and 6.5 degrees (pitched)
28. Warranty Information:	Free from defects in materials and workmanship for 10 years, 97.5% minimum production on year 1, and 25 year linear power output with 80% minimum production at year 25.

Inverters:

16. Manufacturer:	Yaskawa Solectria
17. Model Number:	PVI 36-TL
18. Number and size to be installed:	(3) PVI 36-TL
19. String size and Quantity:	18 and Quantity of 21
20. Warranty Information:	10 Year standard warranty

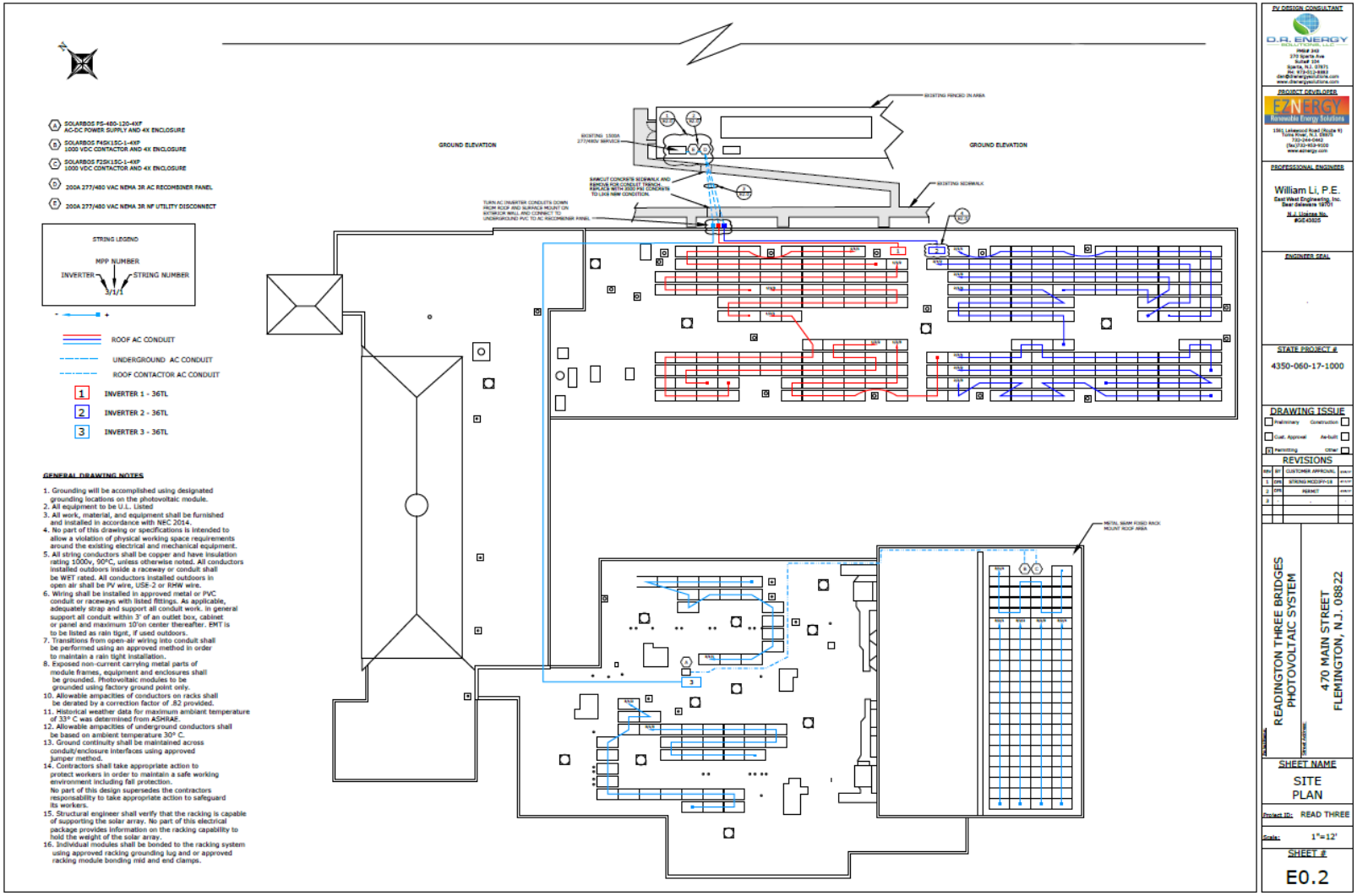
Mounting Facilities:

10. Manufacturer:	Genmounts
11. Model Number:	Gemounts LT , Genmounts FastPitch
12. Type:	Ballasted Rooftop, Pitched Rooftop

Data Acquisition Facilities (DAS):

5. Manufacturer: Draker Energy
6. Model: Draker PV 250 Base Station or equivalent

Solar PV Facilities Layout:



Electrical Facilities Layout:

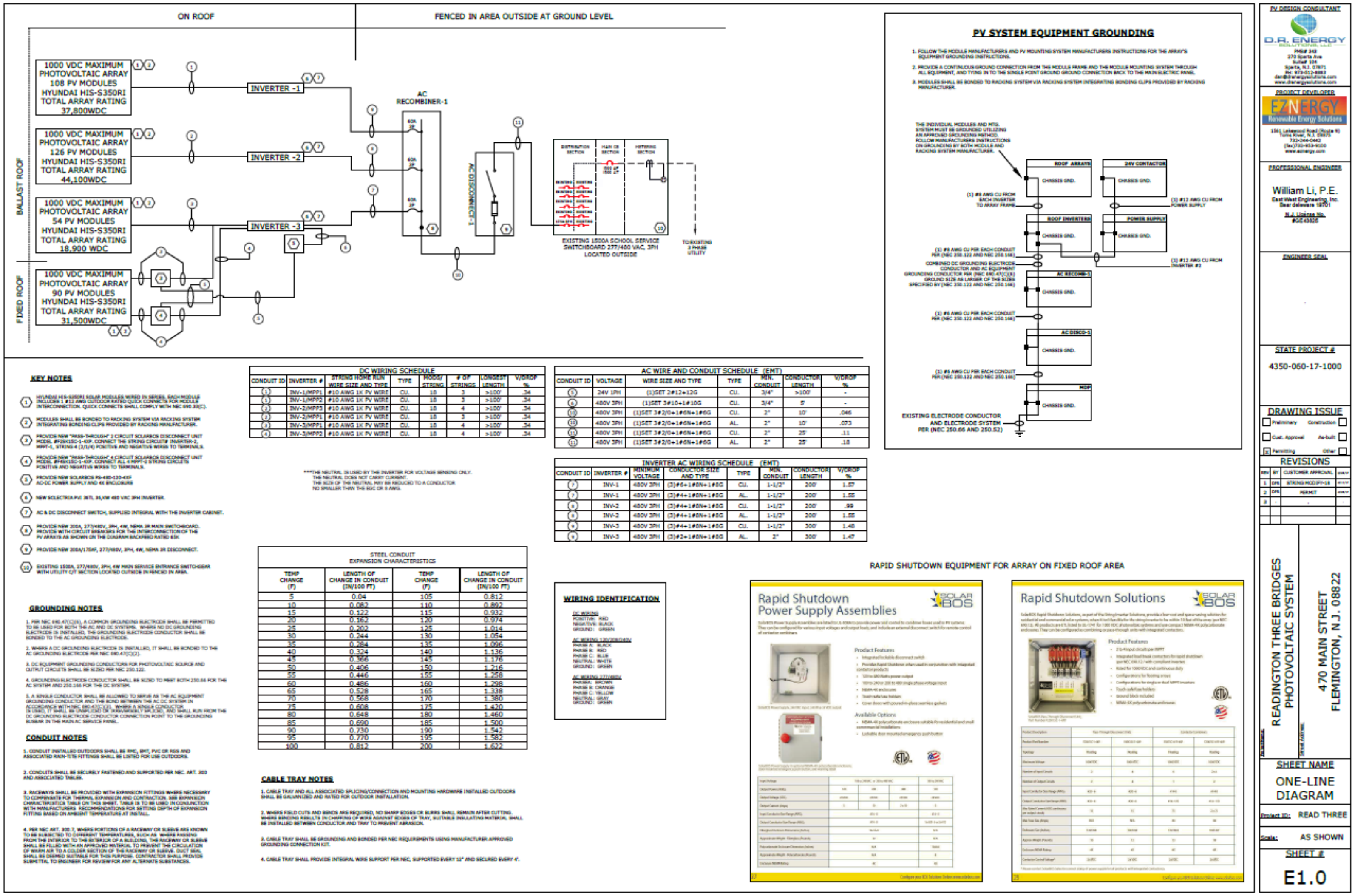


EXHIBIT C

AGREEMENT PROVISIONS

Annual Facilities Degradation Factor	0.5%
EDC	Jersey Central Power and Light
Buyers Representative	***The Buyer's Representative shall be Gabel Associates. Developer shall direct all communications and requests for information to Buyer through the Buyer's Representative at all times until the point of Commercial Operation of all of the Facilities.***

Electricity Price

Readington Board of Education		
Electricity Price		
First Year Rate ($/kWh)	$	0.06799
Annual Rate Escalator		1.99%
Year	Electricity Price	
	($/kWh)	
1		0.06799
2		0.06934
3		0.07072
4		0.07213
5		0.07357
6		0.07503
7		0.07652
8		0.07805
9		0.07960
10		0.08118
11		0.08280
12		0.08445
13		0.08613
14		0.08784
15		0.08959

Guaranteed kWh: [on a per facility basis]

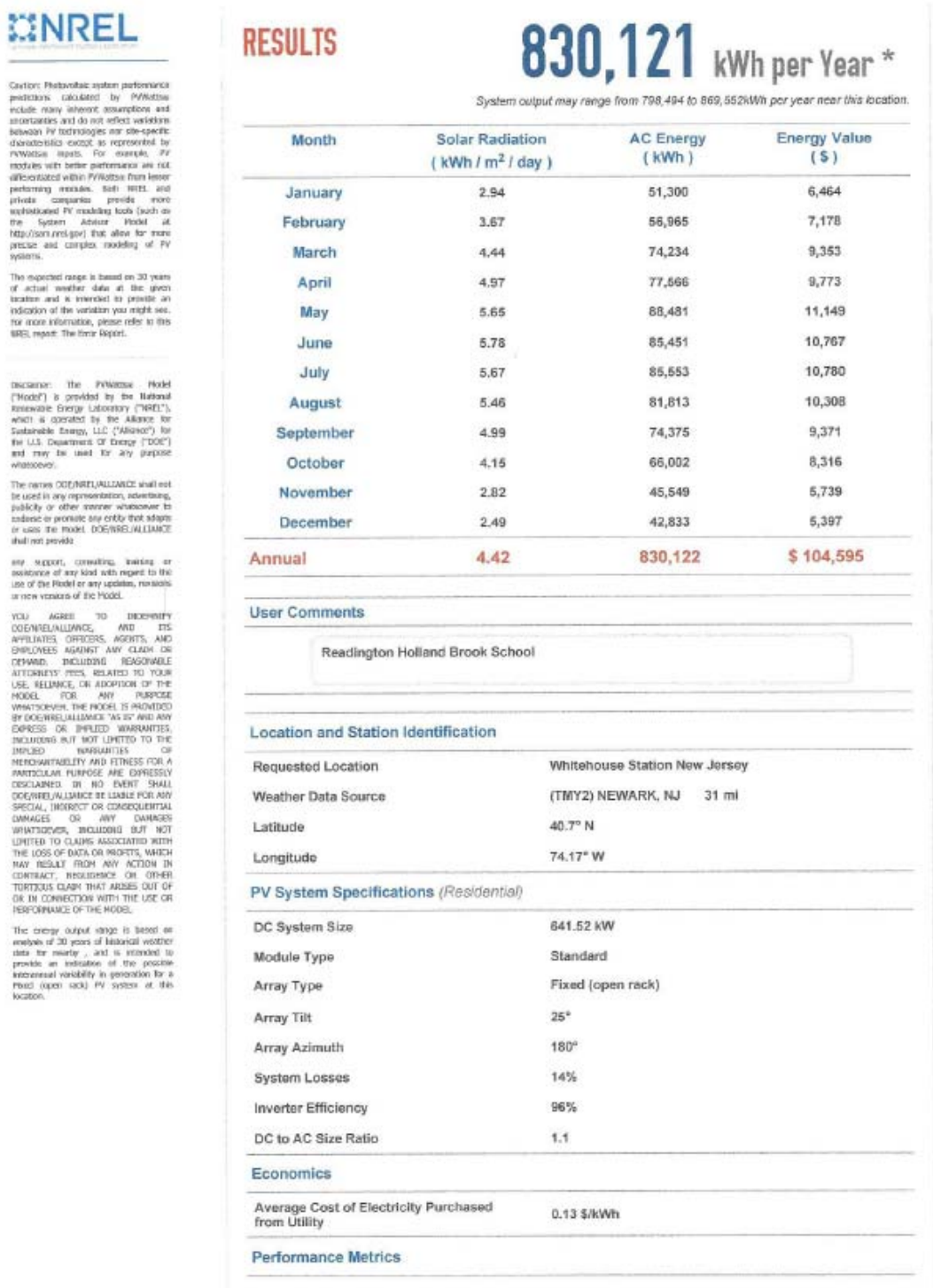
True Up Term Years	*Holland Brook School Guaranteed kWh*
Years 1-5	*3,698,375*
Years 6-10	*3,606,836*
Years 11-15	*3,517,562*

True Up Term Years	*Readington Middle School Guaranteed kWh*
Years 1-5	*1,584,113*
Years 6-10	*1,544,904*
Years 11-15	*1,506,666*

True Up Term Years	***Three Bridges School Guaranteed kWh***
Years 1-5	***705,997***
Years 6-10	***688,523***
Years 11-15	***671,481***

EXHIBIT K

Holland Brook School Ground Mount



NREL

Caution: Photovoltaic system performance predictions calculated by PVWattsv2 include many inherent assumptions and uncertainties and do not reflect variations between PV technologies nor site-specific characteristics except as represented by PVWattsv2 inputs. For example, PV modules with better performance are not differentiated within PVWattsv2 from lesser performing modules. Both NREL and private companies provide more sophisticated PV modeling tools (such as the System Advisor Model at https://sam.nrel.gov) that allow for more precise and complex modeling of PV systems.

The expected range is based on 30 years of actual weather data at the given location and is intended to provide an indication of the variation you might see. For more information, please refer to this NREL report: The Error Report.

Disclaimer: The PVWattsv2 Model ("Model") is provided by the National Renewable Energy Laboratory ("NREL"), which is operated by the Alliance for Sustainable Energy, LLC ("Alliance") for the U.S. Department Of Energy ("DOE") and may be used for any purpose whatsoever.

The names DOE/NREL/ALLIANCE shall not be used in any representation, advertising, publicity or other manner whatsoever to endorse or promote any entity that adopts or uses the Model. DOE/NREL/ALLIANCE shall not provide

any support, consulting, training or assistance of any kind with regard to the use of the Model or any updates, revisions or new versions of the Model.

YOU AGREE TO INDEMNIFY DOE/NREL/ALLIANCE, AND ITS AFFILIATES, OFFICERS, AGENTS, AND EMPLOYEES AGAINST ANY CLAIM OR DEMAND, INCLUDING REASONABLE ATTORNEYS' FEES, RELATED TO YOUR USE, RELIANCE, OR ADOPTION OF THE MODEL FOR ANY PURPOSE WHATSOEVER. THE MODEL IS PROVIDED BY DOE/NREL/ALLIANCE "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED. IN NO EVENT SHALL DOE/NREL/ALLIANCE BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER, INCLUDING BUT NOT LIMITED TO CLAIMS ASSOCIATED WITH THE LOSS OF DATA OR PROFITS, WHICH MAY RESULT FROM ANY ACTION IN CONTRACT, NEGLIGENCE OR OTHER TORTIOUS CLAIM THAT ARISES OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE MODEL.

The energy output range is based on analysis of 30 years of historical weather data for nearby , and is intended to provide an indication of the possible interannual variability in generation for a Fixed (open rack) PV system at this location.

RESULTS

830,121 kWh per Year *

System output may range from 798,494 to 869,552kWh per year near this location.

Month	Solar Radiation (kWh / m² / day)	AC Energy (kWh)	Energy Value ($)
January	2.94	51,300	6,464
February	3.67	56,965	7,178
March	4.44	74,234	9,353
April	4.97	77,566	9,773
May	5.65	88,481	11,149
June	5.78	85,451	10,767
July	5.67	85,553	10,780
August	5.46	81,813	10,308
September	4.99	74,375	9,371
October	4.15	66,002	8,316
November	2.82	45,549	5,739
December	2.49	42,833	5,397
Annual	4.42	830,122	$ 104,595

User Comments

Readington Holland Brook School

Location and Station Identification

Requested Location	Whitehouse Station New Jersey
Weather Data Source	(TMY2) NEWARK, NJ 31 mi
Latitude	40.7° N
Longitude	74.17° W

PV System Specifications *(Residential)*

DC System Size	641.52 kW
Module Type	Standard
Array Type	Fixed (open rack)
Array Tilt	25°
Array Azimuth	180°
System Losses	14%
Inverter Efficiency	96%
DC to AC Size Ratio	1.1

Economics

Average Cost of Electricity Purchased from Utility	0.13 $/kWh

Performance Metrics

Readington Middle School Rooftop

NREL

Caution: Photovoltaic system performance predictions calculated by PVWatts® include many inherent assumptions and uncertainties and do not reflect variations between PV technologies nor site specific characteristics except as represented by PVWatts® inputs. For example, PV modules with better performance are not differentiated within PVWatts® from lesser performing modules. Both NREL and private companies provide more sophisticated PV modeling tools (such as the System Advisor Model at https://sam.nrel.gov) that allow for more precise and complex modeling of PV systems.

The expected range is based on 30 years of actual weather data at the given location and is intended to provide an indication of the variation you might see. For more information, please refer to this NREL report: The Error Report.

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The energy output range is based on analysis of 30 years of historical weather data for nearby , and is intended to provide an indication of the possible interannual variability in generation for a Fixed (open rack) PV system at this location.

RESULTS

187,862 kWh per Year *

System output may range from 180,704 to 196,785kWh per year near this location.

Month	Solar Radiation (kWh / m² / day)	AC Energy (kWh)	Energy Value ($)
January	2.17	9,293	1,171
February	2.96	11,394	1,436
March	3.90	16,338	2,059
April	4.73	18,572	2,340
May	5.65	22,227	2,801
June	5.93	21,966	2,768
July	5.73	21,714	2,736
August	5.29	19,879	2,505
September	4.48	16,755	2,111
October	3.39	13,462	1,696
November	2.17	8,624	1,087
December	1.83	7,637	962
Annual	4.02	187,861	$ 23,672

User Comments

Readington Middle School Roof

Location and Station Identification

Requested Location	Whitehouse Station New Jersey
Weather Data Source	(TMY2) NEWARK, NJ 31 mi
Latitude	40.7° N
Longitude	74.17° W

PV System Specifications *(Residential)*

DC System Size	162 kW
Module Type	Standard
Array Type	Fixed (roof mount)
Array Tilt	5°
Array Azimuth	171°
System Losses	14%
Inverter Efficiency	96%
DC to AC Size Ratio	1.1

Economics

Average Cost of Electricity Purchased from Utility	0.13 $/kWh

Performance Metrics

Readington Middle School Ground Mount

NREL

Caution: Photovoltaic system performance predictions calculated by PVWatts® include many inherent assumptions and uncertainties and do not reflect variations between PV technologies nor site-specific characteristics except as represented by PVWatts® inputs. For example, PV modules with better performance are not differentiated within PVWatts® from lesser performing modules. Both NREL and private companies provide more sophisticated PV modeling tools (such as the System Advisor Model at https://sam.nrel.gov) that allow for more precise and complex modeling of PV systems.

The expected range is based on 30 years of actual weather data at the given location and is intended to provide an indication of the variation you might see. For more information, please refer to the NREL report: The Error Report.

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The energy output range is based on analysis of 30 years of historical weather data for stanby , and is intended to provide an indication of the possible interannual variability in generation for a fixed (open rack) PV system at this location.

RESULTS

167,701 kWh per Year *

System output may range from 161,312 to 175,667kWh per year near this location.

Month	Solar Radiation (kWh / m² / day)	AC Energy (kWh)	Energy Value ($)
January	2.94	10,364	1,306
February	3.67	11,508	1,450
March	4.44	14,997	1,890
April	4.97	15,670	1,974
May	5.65	17,875	2,252
June	5.78	17,263	2,175
July	5.67	17,283	2,178
August	5.46	16,528	2,083
September	4.99	15,025	1,893
October	4.15	13,334	1,680
November	2.82	9,202	1,159
December	2.49	8,653	1,090
Annual	4.42	167,702	$ 21,130

User Comments

Readington Middle School Ground

Location and Station Identification

Requested Location	Whitehouse Station New Jersey
Weather Data Source	(TMY2) NEWARK, NJ 31 mi
Latitude	40.7° N
Longitude	74.17° W

PV System Specifications *(Residential)*

DC System Size	129.6 kW
Module Type	Standard
Array Type	Fixed (open rack)
Array Tilt	25°
Array Azimuth	180°
System Losses	14%
Inverter Efficiency	96%
DC to AC Size Ratio	1.1

Economics

Average Cost of Electricity Purchased from Utility	0.13 $/kWh

Performance Metrics

Three Bridges Elementary School Rooftop

NREL

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The expected range is based on 30 years of actual weather data at the given location and is intended to provide an indication of the variation you might see. For more information, please refer to the NREL report: The Error Report.

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The energy output range is based on analysis of 30 years of historical weather data for nearby , and is intended to provide an indication of the possible interannual variability in generation for a fixed (open rack) PV system at this location.

RESULTS

158,465 kWh per Year *

System output may range from 152,428 to 165,992kWh per year near this location.

Month	Solar Radiation (kWh / m² / day)	AC Energy (kWh)	Energy Value ($)
January	2.20	7,914	997
February	2.98	9,652	1,216
March	3.92	13,793	1,738
April	4.74	15,638	1,970
May	5.66	18,690	2,355
June	5.93	18,451	2,325
July	5.74	18,260	2,301
August	5.30	16,730	2,108
September	4.50	14,135	1,781
October	3.42	11,394	1,436
November	2.19	7,310	921
December	1.85	6,499	819
Annual	4.04	158,466	$ 19,967

User Comments

Readington Three Bridges

Location and Station Identification

Requested Location	Whitehouse Station New Jersey
Weather Data Source	(TMY2) NEWARK, NJ 31 mi
Latitude	40.7° N
Longitude	74.17° W

PV System Specifications *(Residential)*

DC System Size	136.08 kW
Module Type	Standard
Array Type	Fixed (roof mount)
Array Tilt	5.5°
Array Azimuth	181°
System Losses	14%
Inverter Efficiency	96%
DC to AC Size Ratio	1.1

Economics

Average Cost of Electricity Purchased from Utility	0.13 $/kWh

Performance Metrics

For the Weather Adjustment Factor = X/Y, the monthly insolation values for X, from PVWatts, are:

Holland Brook Middle School:

Month	Solar Radiation (kWh / m^2 / day)
January	2.94
February	3.67
March	4.44
April	4.97
May	5.65
June	5.78
July	5.67
August	5.46
September	4.99
October	4.15
November	2.82
December	2.49

Readington Middle School:

Month	Solar Radiation (kWh / m^2 / day)
January	2.17
February	2.96
March	3.90
April	4.73
May	5.65
June	5.93
July	5.73
August	5.29
September	4.48
October	3.39
November	2.17
December	1.83

Three Bridges School:

Month	Solar Radiation (kWh / m^2 / day)
January	2.20
February	2.98
March	3.92
April	4.74
May	5.66
June	5.93
July	5.74
August	5.30
September	4.50
October	3.42
November	2.19
December	1.85

Sample annual Weather Adjustment Factor X/Y calculation for Three Bridges School:

Month	Actual Measured Insolation (X)	Estimated Insolation from PVWatts (Y)	X/Y
January	2.13	2.12	1.00
February	2.6	2.89	0.90
March	3.64	3.84	0.95
April	4.69	4.69	1.00
May	5.6	5.63	0.99
June	5.9	5.9	1.00
July	5.89	5.72	1.03
August	5.3	5.25	1.01
September	4.12	4.42	0.93
October	3.1	3.31	0.94
November	2.09	2.09	1.00
December	1.65	1.77	0.93
		Average Annual Weather Adjustment Factor	0.97