

Exhibit A
File No. #191954
Minor Modification to a Detailed Planned Development known as Concordia Trust Property – Phase II
for the Forest County Potawatomi Community of Wisconsin
3234 West State Street
Minor Modification May 12th, 2020

Previous File History and Project Summary

In 2010, a General Planned Development (GPD) was established for the Concordia Trust Campus as file number 100290. The subject site was rezoned to a Detailed Planned Development (DPD; file number 110446) in 2011 to allow for construction of the data center on the eastern portion of the site. The DPD was modified in 2012 as file number 111611 to allow changes to the building footprint, elevations and parking layout. A minor modification is being requested to allow the western portion of the data center site to be utilized as a solar array on a temporary basis for 5 years until such time that additional development occurs on the site. A new minor modification will be applied for, if the current use of the site as a solar array is to continue past June 16, 2025.

Minor Modification Summary

Forest County Potawatomi Community continues to extend company-wide efforts in reducing their carbon footprint. In pursuit of its long-term energy goal to reduce its carbon footprint to zero, the Forest County Potawatomi Community has assumed a leadership role in creating a sustainable and healthy world. Since adopting its environmental mission statement in November 2008, the Community has made significant strides toward implementing several types of renewable energy to power its tribal facilities.

Continuing the goal and vision to be fully sustainable, FCPC has been awarded more funding and is a grant recipient for the Wisconsin Public Service Commission's Energy Innovation grant. This will allow them to install a 103 Kilowatt solar photovoltaic system and a 300 Kilowatt hour battery storage at the FCPC Data Center on the Wgema Campus. The existing ornamental fence will be extended to secure the solar arrays installed. The fence is 8 feet in height. This fence will be set back 4 feet 10 inches from the property line and 9 foot 10 inches from sidewalk. The property line is 5 feet to the east of the sidewalk. The solar array consists of 4 rows total. Three rows of 12' wide x 75' long and fourth row 12' wide x 50' long. The battery storage, inverters, site controller, panelboard, will be installed inside the electrical yard behind 9 foot decorative brick and 8 foot ornamental fence

List of Attachments

Set of Current Construction Plans attached.

Proposed Changes

Extension of ornamental fence and 103 Kilowatt Solar array installed on property west of Data Center electrical yard.

All other aspects of the DPD zoning will remain unchanged.

ALTA/ACSM LAND TITLE SURVEY

Known as 3209 and 3215 West Highland Boulevard and 3234 West State Street, in the City of Milwaukee, Milwaukee County, Wisconsin.

Lots 1, 2, 3, 4, 5, 6, 7, 8, 9 and the West 3.5 feet of Lot 10 in Block 2, in State Street Subdivision of a part of Block 4, Flynn's Subdivision, a part of Block 5, in the Subdivision of Block 5 and a part of Lots 3 to 9 in Dousman's Subdivision of the Northwest 1/4 of Section 25, Township 7 North, Range 21 East, in the City of Milwaukee, Milwaukee County, Wisconsin, including the vacated South 1/2 of all of the East-West alley lying West of a line 12.00 feet East and parallel to the extended West line of Lot 16 in Block 5 in Subdivision of Block 5 of Subdivision of Lots 10 to 19 inclusive in Dousman's Subdivision, a recorded subdivision in the Northeast 1/4 of Section 25, Township 7 North, Range 21 East, adjoining said premises on the North.

ALSO the West 37 feet of Lot 16, all of Lots 17 and 18 and the East 23 feet of Lot 19 also the West 2 feet of Lot 22 and all of Lot 23, all in Block 5 in Subdivision of Block 5 of Subdivision of Lots 10 to 19 inclusive in Dousman's Subdivision, in the Northeast 1/4 of Section 25, Township 7 North, Range 21 East, in the City of Milwaukee, Milwaukee County, Wisconsin, including the vacated North 1/2 of all of the East-West alley lying West of a line 12.00 feet East and parallel to the extended West line of Lot 16 in Block 5 in Subdivision of Block 5 of Subdivision of Lots 10 to 19 inclusive in Dousman's Subdivision, a recorded subdivision in the Northeast 1/4 of Section 25, Township 7 North, Range 21 East, adjoining said premises on the South.

EXCEPTING from said Lot 16 the following:
Commencing at a point in the South line of said Lot 16, said point lying 12.00 feet East of the Southwest corner of said Lot; running thence East along the South line of Lot 16 aforesaid, 25.00 feet to a point, said point lying 13.00 feet West of the Southeast corner of said Lot 16; thence Northwest, 7.07 feet to a point, said point lying 32.00 feet East of the West line of said Lot; thence North and parallel with the West line of said Lot, 176.65 feet to a point in the North line of said Lot; thence West along the North line of said Lot, 20.00 feet to a point, said point lying 12.00 feet East of the Northwest corner of said Lot; thence South and parallel with the West line of said Lot, 181.65 feet to the point of commencement.

Prepared for: Forest County Potawatomi Community

Survey No. 165207-RMK

A. Basis of Bearings

Bearings are based on the South line of West Highland Boulevard which is assumed to bear North 89°52'59" West.

B. Title Commitment

This survey was prepared based on Chicago Title Insurance Company commitment number 1294157, effective date of August 13, 2012, which lists the following easements and/or restrictions from schedule B-1:

1, 6-8. *Visible evidence shown, if any.*

2-5, 9, 18-19, 21-22. *Not survey related.*

10. Utility Easement granted to Wisconsin Electric Power Company as Document No. 3208982. *Affects site by location - general in nature, cannot be plotted.*

11. Utility Easement granted to Wisconsin Electric Power Company and Wisconsin Telephone Company recorded as Document No. 4026372. *Does not affect site by location - not shown.*

12. Utility Easement granted to Wisconsin Electric Power Company and Wisconsin Telephone Company recorded as Document No. 4365750. *Affects site by location - shown.*

13. Easement granted to the City of Milwaukee recorded as Document No. 4631895. *Does not affect site by location - not shown.*

14. Easement granted to the City of Milwaukee recorded as Document No. 4631897. *Does not affect site by location - not shown.*

15. Resolution designating the Concordia neighborhood a Historic District, (Historic Preservation Commission) recorded November 15, 1998 as Document No. 6227590. *Affects site by location - general in nature, cannot be plotted.*

16. Utility Easement granted to Wisconsin Electric Power Company as Document No. 6276642. *Affects site by location - shown.*

17. Terms, conditions and provisions of Cooperation and Jurisdictional Agreement among the Forest County Potawatomi Community and the Indian School of Milwaukee dated March 30, 1990, as disclosed by Warranty Deed dated July 23, 1990 and recorded August 14, 1990, on Reel 2479, Image 1203, as Document No. 6407116. *Affects site by location - general in nature, cannot be plotted.*

20. Easements, if any, of the public or any school district, utility, municipality or person, as provided in Section 80.32(4) of the Statutes, for the continued use and right of entrance, maintenance, construction and repair of underground or overground structures, improvements or service in that portion of the subject premises which were formerly a part of vacated alley. *Affects site by location - shown.*

E. Flood Note

According to flood insurance rate map of the City of Milwaukee, community panel number 55079C0087E, effective date of September 26, 2008, this site falls in zone X (areas determined to be outside the 0.2% annual chance floodplain)

F. Municipal Zoning

The basic zoning information listed below is taken from municipal codes and does not reflect all regulations that may apply - site is zoned PD Planned Development

Setbacks are approved by the City Plan Commission at the time of construction.

G. Notes

Site is under construction.

To: NCB FSB, its successors and/or assigns
The United States of America in Trust for Forest County Potawatomi Community
Forest County Potawatomi Community
Potawatomi Business Development Corporation
Data Trust, LLC
Chicago Title Insurance Company

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2011 Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys, jointly established and adopted by ALTA and NSPS and includes items 1, 2, 3, 4, 6(a), 6(b), 7(a), 7(b)(1), 8, 9, 10(a), 11(b) and 13 of Table A thereof. The field work was completed on October 17, 2012.

Date of Plat or Map: October 18, 2012

Revision to Map: October 25, 2012

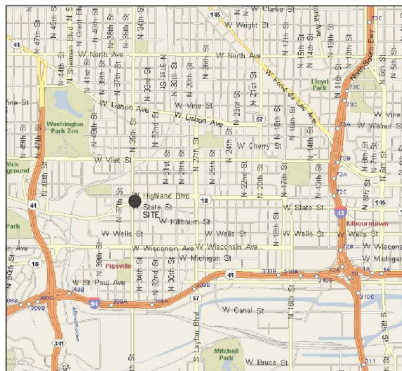
Stephen G. Southwell
Registered Land Surveyor
Registration Number S-1939

R.A. Smith National, Inc.

*Beyond Surveying
and Engineering*

9600 W. Shawano Road, Brookfield, WI 53005
262-781-1000 Fax 262-781-7978, www.raftersnational.com
Appleton, WI Chicago, IL Philadelphia, PA
S:\5165307\dwg\ AS21.DWG\ AS21.DWG\ AS21.DWG

SHEET 1 OF 1



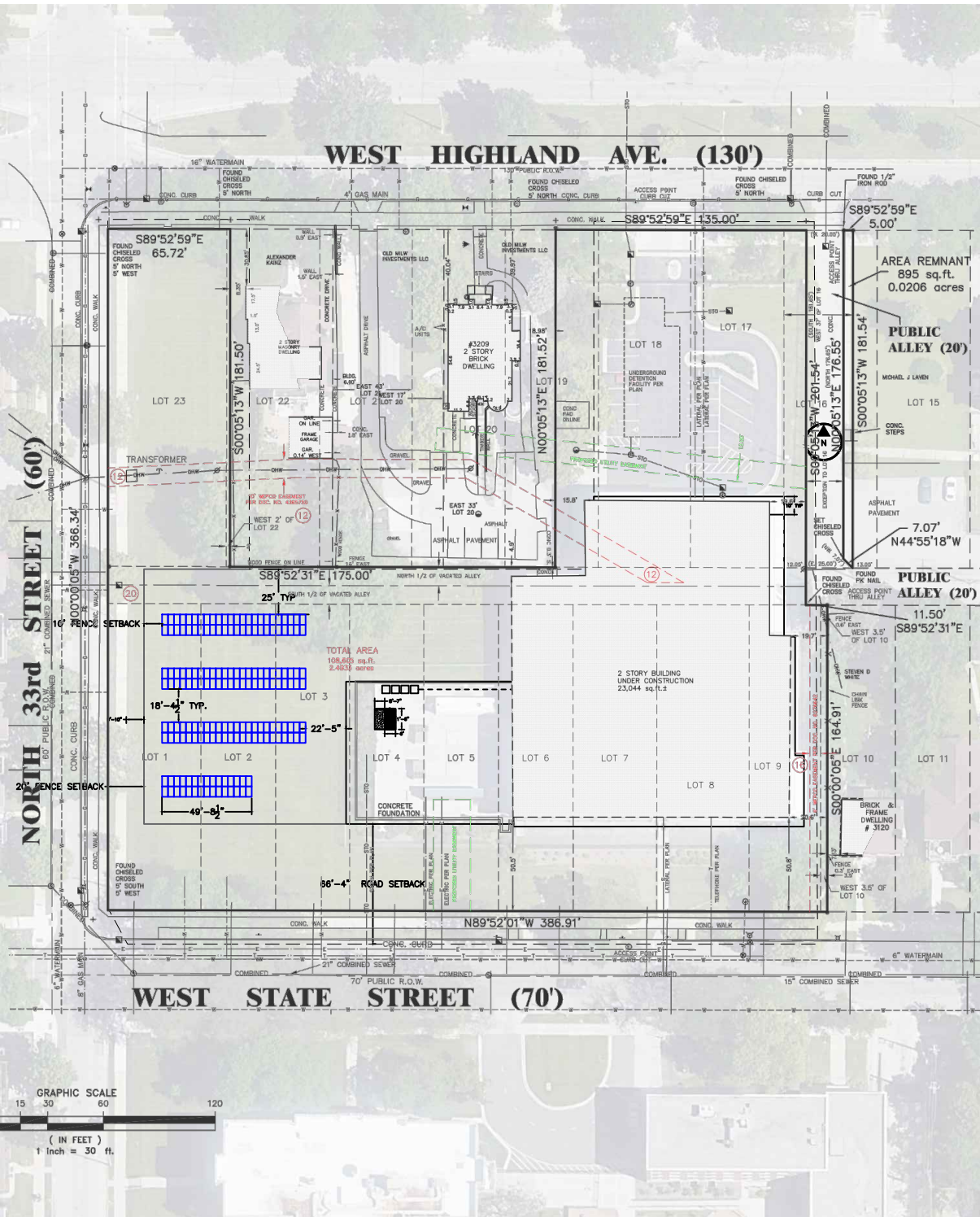
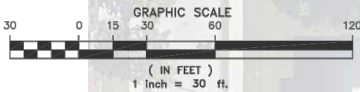
LEGEND

- () INDICATES RECORDED DIMENSION WHERE DIFFERENT FROM ACTUAL MEASUREMENT
- OR SECTION OR 1/4 SECTION CORNER AS DESCRIBED
- 1" DIA. IRON PIPE FOUND (UNLESS OTHERWISE NOTED)
- 1" DIA. IRON PIPE, 18" LONG-SET (UNLESS OTHERWISE NOTED)
- BOLLARD
- SOIL BORING/MONITORING WELL
- FLAGPOLE
- MAILBOX
- SIGN
- BILLBOARD
- CONTROL BOX
- TRAFFIC SIGNAL
- RAILROAD CROSSING SIGNAL
- CABLE PEDESTAL
- POWER POLE
- GUY POLE
- GUY WIRE
- LIGHT POLE
- SPOT/HARD/PEDESTAL LIGHT
- HANDICAPPED PARKING
- ELECTRIC MANHOLE
- ELECTRIC PEDESTAL
- ELECTRIC METER
- TELEPHONE MANHOLE
- TELEPHONE PEDESTAL
- PO MARKED FIBER OPTIC
- GAS VALVE
- GAS METER
- GAS WARNING SIGN
- STORM MANHOLE
- ROUND INLET
- SQUARE INLET
- STORM SEWER END SECTION
- SANITARY MANHOLE
- SANITARY CLEANOUT OR SEPTIC VENT
- SANITARY INTERCEPTOR MANHOLE
- MISCELLANEOUS MANHOLE
- WATER VALVE
- HYDRANT
- WATER SERVICE CURB STOP
- WATER MANHOLE
- WELL
- WATER SURFACE
- WETLANDS FLAG
- MARSH
- CONIFEROUS TREE
- DECIDUOUS TREE
- SHRUB
- EDGE OF TREES
- S-SANITARY SEWER
- SS-STORM SEWER
- W-WATERMAIN
- M-MARKED GAS MAIN
- E-MARKED ELECTRIC
- OH-OVERHEAD WIRE
- B-BUREAU ELEC. SERV.
- T-MARKED TELEPHONE
- TV-MARKED CABLE TV LINE
- FO-MARKED FIBER OPTIC
- INDICATES EXISTING CONTOUR ELEVATION
- SPOT ELEVATION

DIGGERS HOTLINE WAS NOT CALLED FOR THIS SITE.

THE UNDERGROUND UTILITY INFORMATION AS SHOWN HEREON IS BASED, IN PART, UPON INFORMATION FURNISHED BY UTILITY COMPANIES AND THE LOCAL MUNICIPALITY. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, ITS ACCURACY AND COMPLETENESS CANNOT BE GUARANTEED NOR CERTIFIED TO.

(P) INDICATES PIPE SIZES PER RECORD PLANS. OTHER PIPE SIZES ARE ESTIMATED. NO PIPE SIZES SHOULD BE RELIED UPON WITHOUT FURTHER VERIFICATION.



R.A. Smith National, Inc.

PROFESSIONAL ENGINEER STAMP

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the state of WISCONSIN. It should be noted that those plan sheets identified with an (*) have been prepared and certified by others and have been included herein for informational purposes only.

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REV	DATE	DESCRIPTION
DRAWN BY: RS	CHECKED BY:	
SCALE: AS NOTED	JOB NO: 18-0214	

FCPC DATA HOLDINGS

3135 W HIGHLAND BLVD
MILWAUKEE, WI

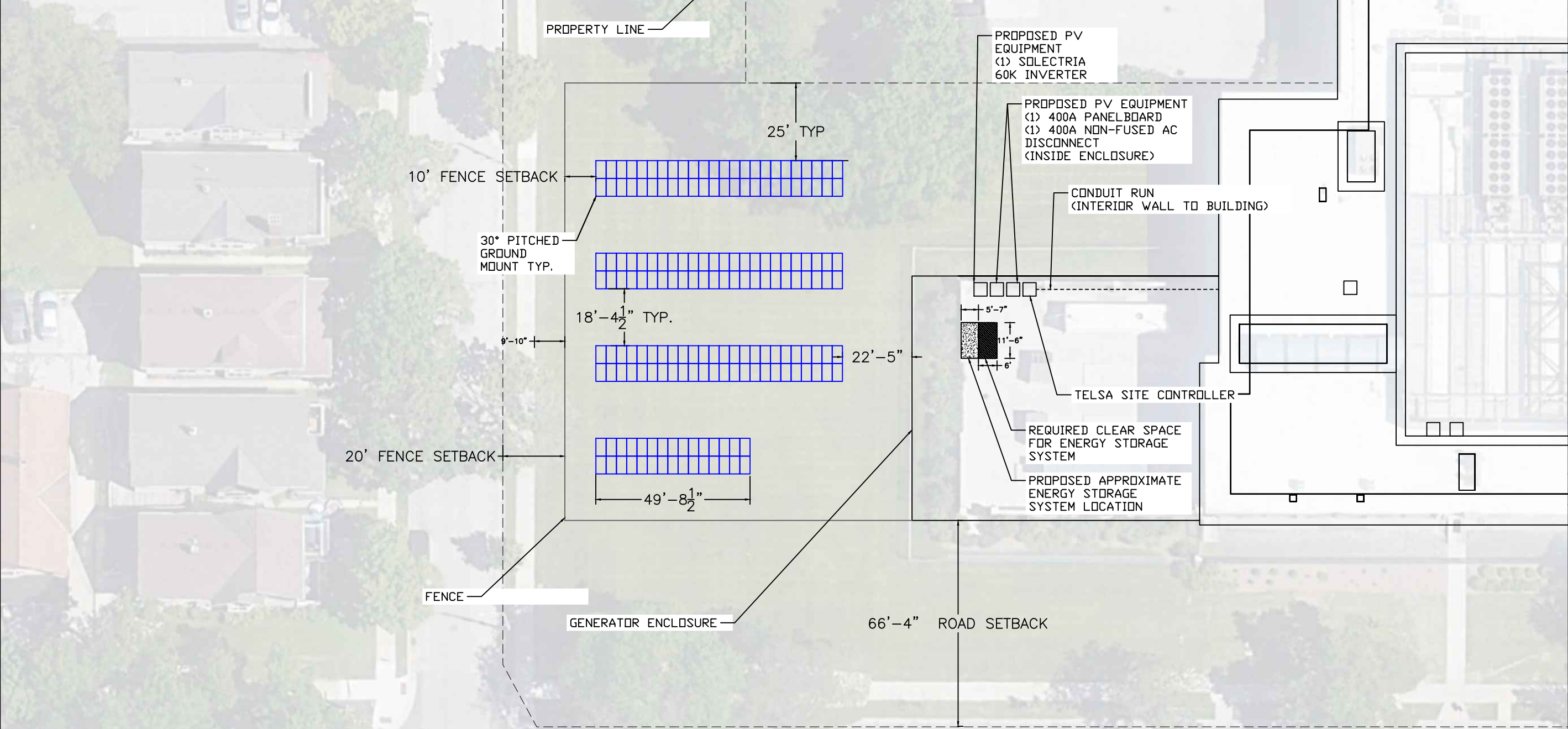
SHEET TITLE
SITE PLAN

DWG. NO.

C-1.00



N27 W24075 PAUL CT.
PEWAUKEE, WI 53072
PHONE: (262)-547-1200
WWW.SUNVEST.COM



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FCPC DATA HOLDINGS

3135 W HIGHLAND BLVD
MILWAUKEE, WI

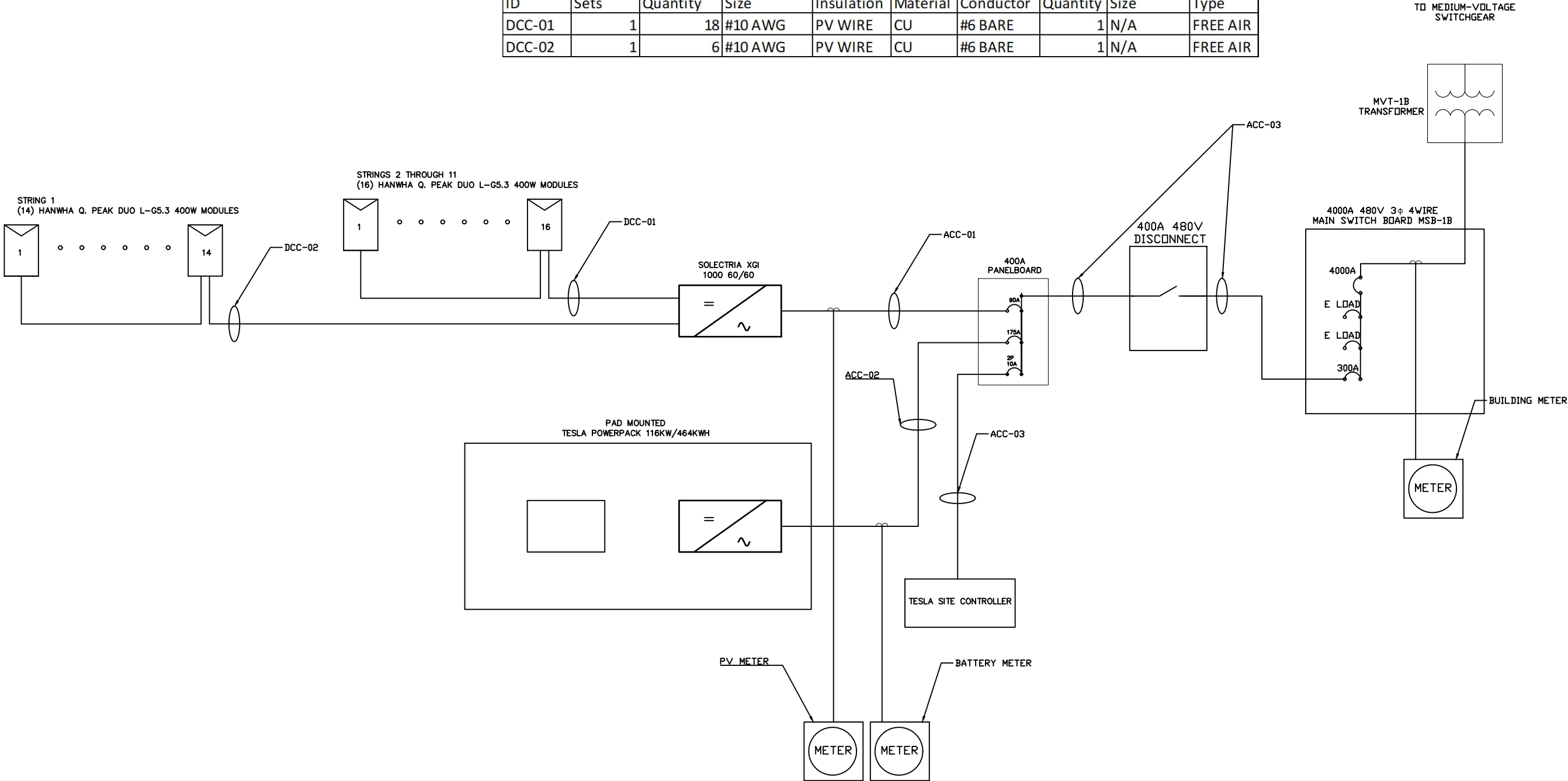
SHEET TITLE
ARRAY LAYOUT

DWG. NO.
PV-1.00

PV SYSTEM DETAILS	
ROOF TYPE:	GROUND MOUNT
DC SYSTEM SIZE:	69.60 KW DC
DC SYSTEM VOLTAGE:	1000 V
AC SYSTEM SIZE:	60 KW AC
MODULES	(174) HANWHA Q. PEAK DUO L-G5.3 400W
INVERTERS:	(1) SOLECTRIA XGI 1000 60/60
OPTIMIZERS:	N/A
RACKING:	UNIRAC
CLAMPS:	N/A
AZIMUTH:	180 DEG
ROOF PITCH:	30 DEG GROUND MOUNTED PV

Conductor Schedule										Conduit Schedule	
ID	Sets	Phase Conductor Quantity	Size	Insulation	Material	Neutral Size	Neutral Quantity	Equipment Grounding Conductor	EGC Quantity	Size	Type
ACC-01	1	3	#3 AWG	THWN-2	CU	#8 AWG	1	#8 AWG	1	1-1/4"	EMT
ACC-02	1	3	#2/0 AWG	THWN-2	CU	#2/0 AWG	1	#6 AWG	1	2"	EMT
ACC-03	1	3	300 kcmil	THWN-2	CU	300 kcmil	1	#4 AWG	1	2-1/2"	EMT
ACC-04	1	2	#12 AWG	THWN-2	CU	#12 AWG	1	#12 AWG	1	3/4"	EMT

Conductor Schedule								Conduit Schedule	
ID	Sets	Phase Conductor Quantity	Size	Insulation	Material	Equipment Grounding Conductor	EGC Quantity	Size	Type
DCC-01	1	18	#10 AWG	PV WIRE	CU	#6 BARE	1	N/A	FREE AIR
DCC-02	1	6	#10 AWG	PV WIRE	CU	#6 BARE	1	N/A	FREE AIR



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FCPC DATA HOLDINGS

3135 W HIGHLAND BLVD
MILWAUKEE, WI

SHEET TITLE

ONE–LINE DIAGRAM

DWG. NO.

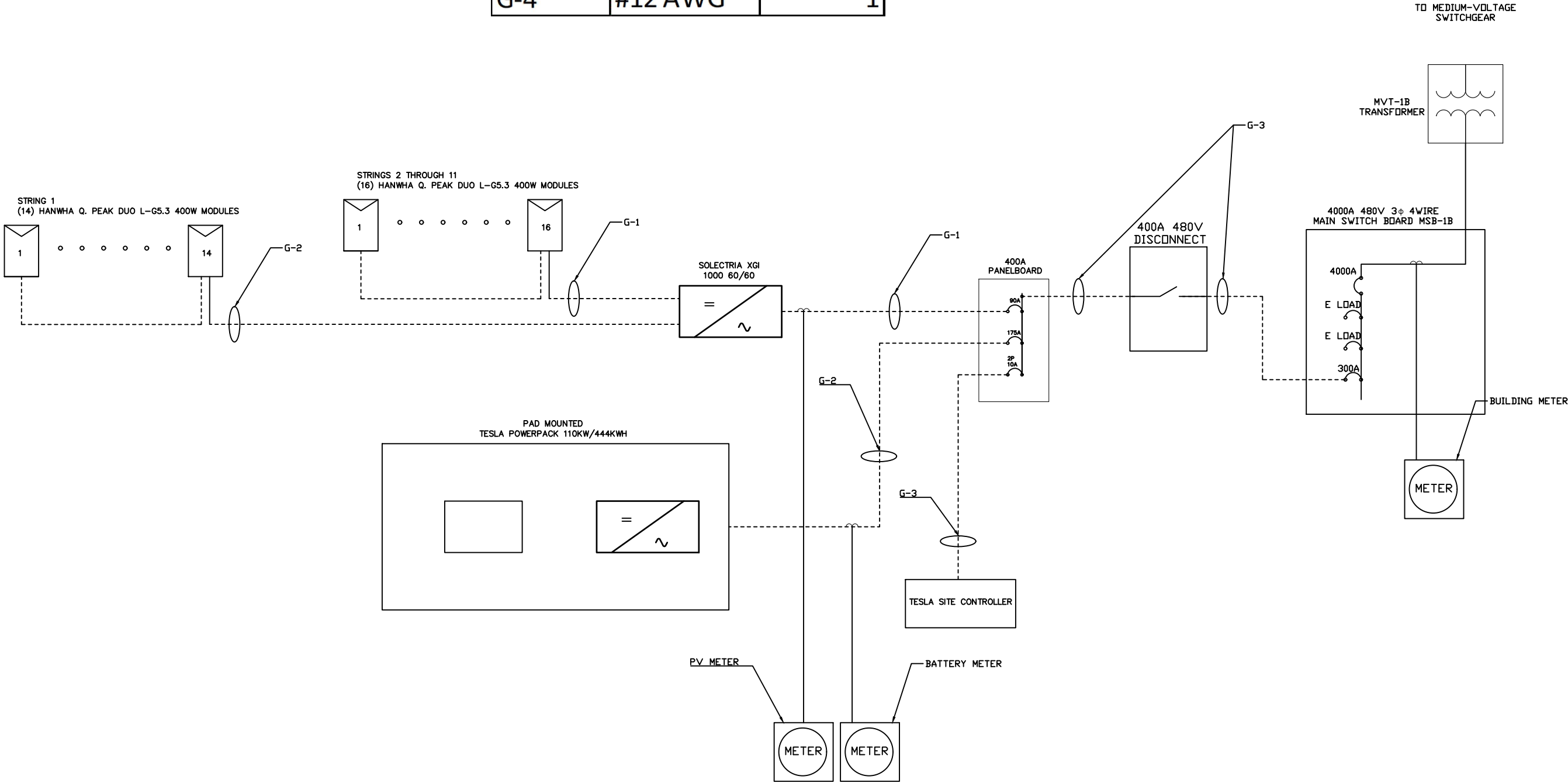
E-1.00

PV SYSTEM DETAILS	
ROOF TYPE:	GROUND MOUNT
DC SYSTEM SIZE:	69.60 KW DC
DC SYSTEM VOLTAGE:	1000 V
AC SYSTEM SIZE:	60 KW AC
MODULES	(174) HANWHA Q. PEAK DUO L–G5.3 400W
INVERTERS:	(1) SOLECTRIA XGI 1000 60/60
OPTIMIZERS:	N/A
RACKING:	UNIRAC
CLAMPS:	N/A
AZIMUTH:	180 DEG
ROOF PITCH:	30 DEG GROUND MOUNTED PV

ID	Equipment Grounding Conductor	EGC Quantity
G-1	#8 AWG	1
G-2	#6 AWG	1
G-3	#4 AWG	1
G-4	#12 AWG	1



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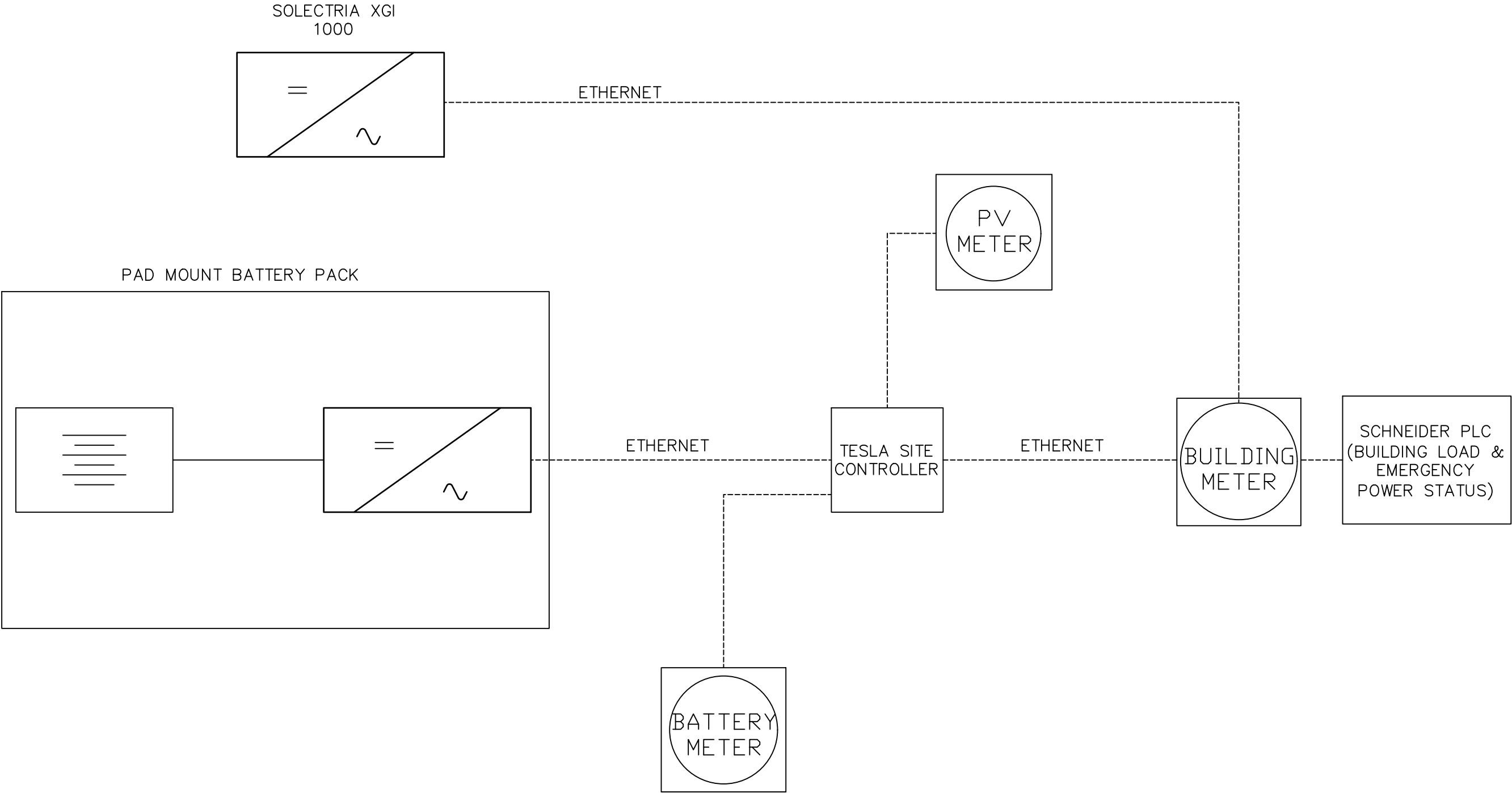
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MILWAUKEE, WI


SHEET TITLE

GROUNDING ONELINE

DWG. NO.

E-1.01





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PEWAUKEE, WI 53072
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FCPC DATA HOLDINGS

3135 W HIGHLAND BLVD
MILWAUKEE, WI

SHEET TITLE
COMMUNICATION
DIAGRAM

DWG. NO.
E-2.00



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PEWAUKEE, WI 53072
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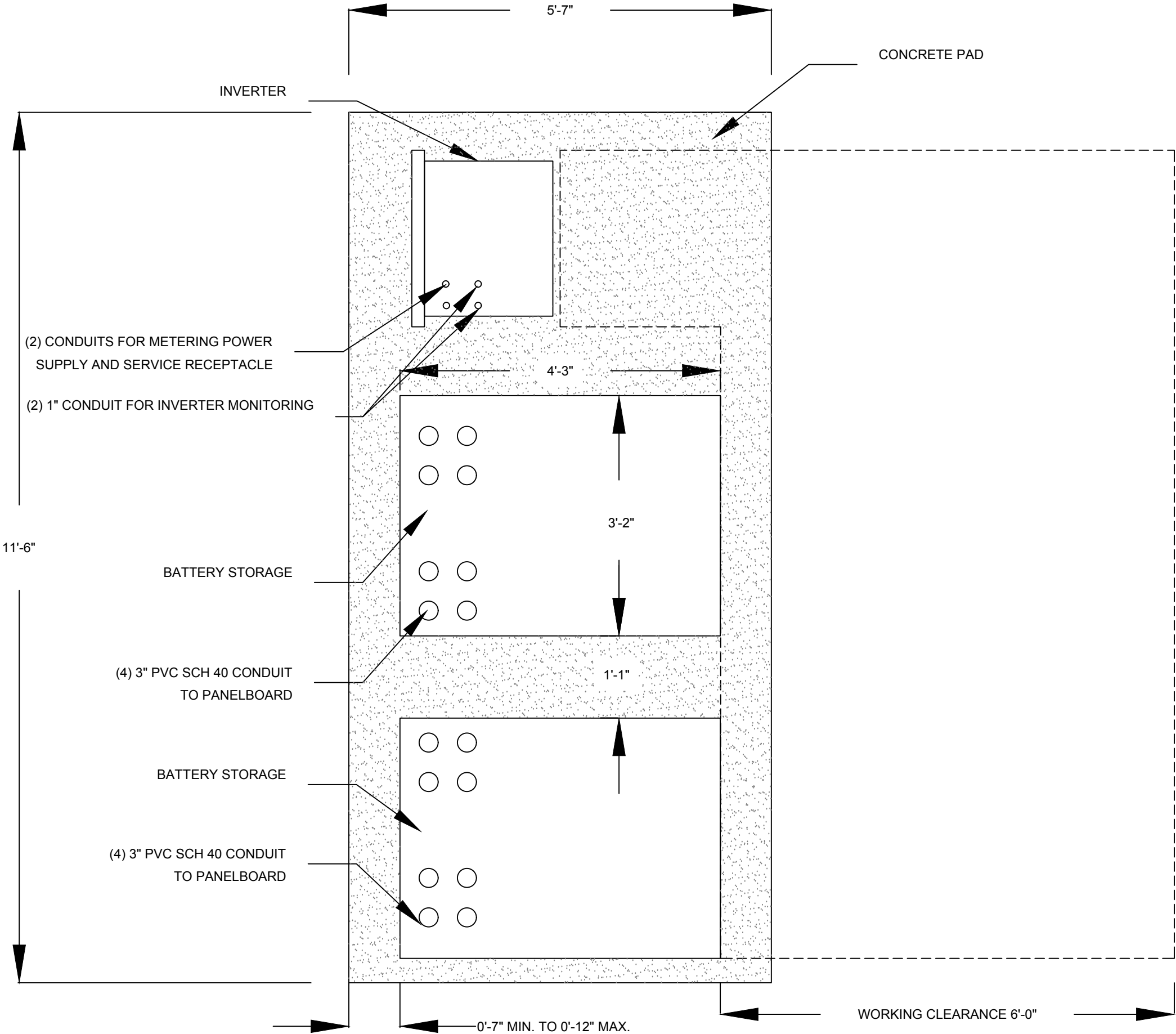
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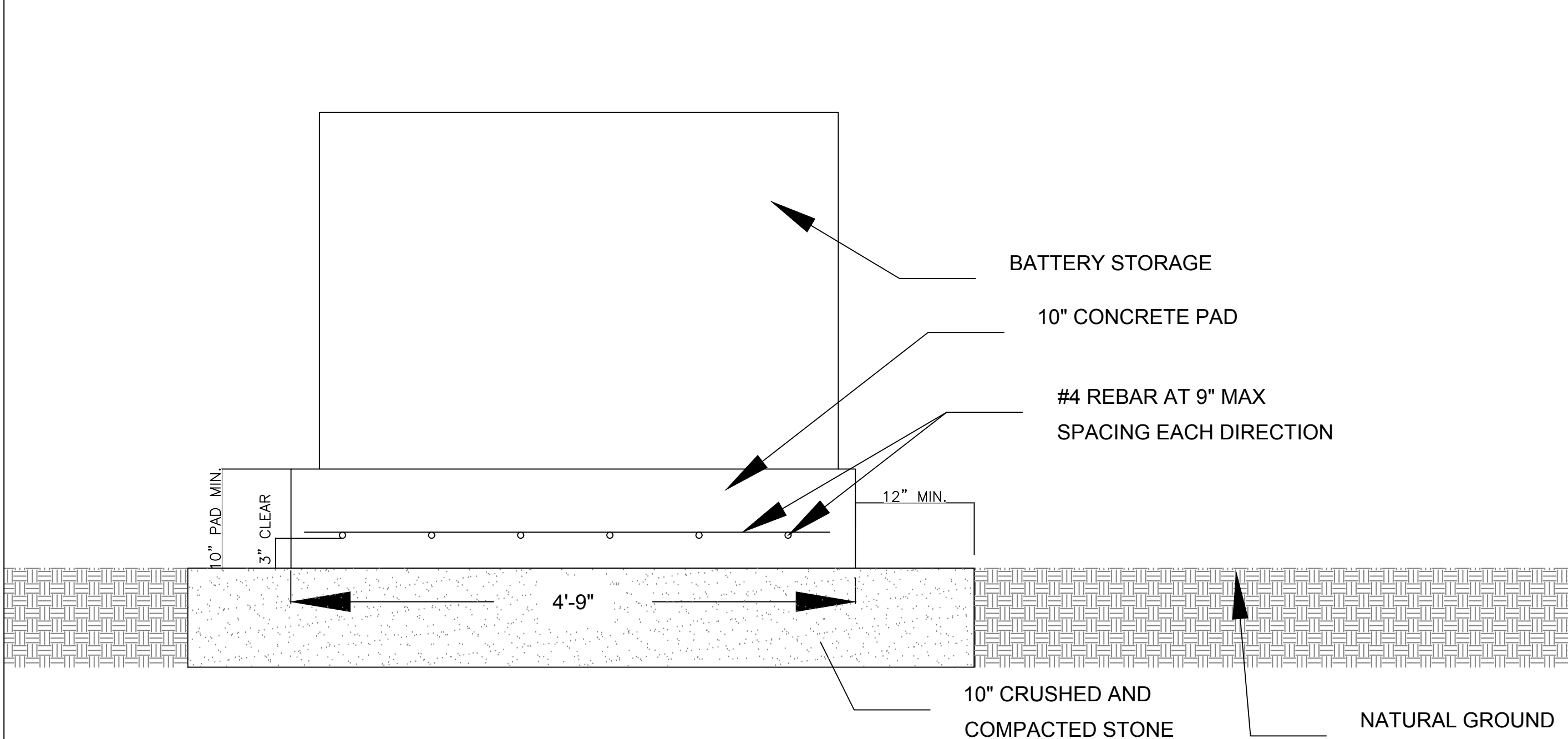
3135 W HIGHLAND BLVD
MILWAUKEE, WI

SHEET TITLE
EQUIPMENT PAD
PLAN VIEW

DWG. NO.

D-1.00





NOTES:

- SEE PAGE G-1.00 FOR CONCRETE SPECS
- PAD SHALL BE FINISHED WITH A CLASS B FINISH
- SLOPE PAD IN ONE PLANE A MIN OF 1% AND A MAX. OF 2% TO ALLOW FOR POSITIVE DRAINAGE
- ENCLOSURES SHALL BE ANCHORED USING 5/8" STAINLESS STEEL HILTI KB-TZ WEDGE ANCHORS OR APPROVED EQUAL



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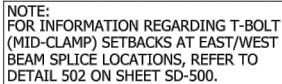
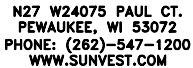
FCPC DATA HOLDINGS

3135 W HIGHLAND BLVD
MILWAUKEE, WI

SHEET TITLE
EQUIPMENT PAD
SIDE VIEW

DWG. NO.

D-2.00



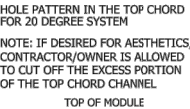
REVISION BLOCK		
MARK	DATE	DESCRIPTION
1	10/19/16	NOTE & BRACE REVISIONS
2	1/06/2017	ADDED SD-200
3	2/02/2017	REVED NOTES
4	2/13/2017	REVED NOTES & SD-300
5	3/10/2017	UPDATED LINE TYPES

OWNER/CLIENT:

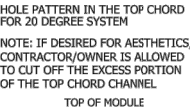
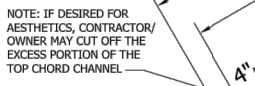
ENGINEERING CONSULTANT:
Design Optimization Technologies
424 Jefferson Street
St. Charles, Mo 63301
Phone: (636) 724-9872
www.DOTecEngineering.com

PROFESSIONAL SEAL

SEE STATE
SPECIFIC STAMPED
& SIGNED GFT
CERTIFICATION
LETTER



GFT PARTS LIST			
REF NUMBER	PART DESCRIPTION	GUAGE/ THICKNESS	FINISH
A	ALUMINUM E-W BEAM	-	MILL
B	TOP CHORD CHANNEL	14	G180
C	FRONT DIAGONAL BRACE	14	G180
D	REAR DIAGONAL BRACE	14	G180
E	DIAGONAL BRACE PLATE	-	G180
F	C-PILE	11	G235



RACKING DIMENSION NOTES:

1. THIS CROSS SECTION AND DIMENSIONS SHOWN ARE SPECIFIC TO A SOLAR WORLD SUNPOWER LX - 72 CELL SOLAR MODULE. ACTUAL DIMENSIONS WILL VARY SLIGHTLY BASED ON THE ACTUAL SOLAR MODULE SELECTED. REFER TO STATE SPECIFIC CERTIFICATION LETTER FOR MORE INFORMATION ON THE LIMITS OF THIS REGION SPECIFIC DGFT RACKING DESIGN. (SEE DIMENSION AND WEIGHT LIMITS.)
2. EAST/WEST BEAM SPACING IS BASED ON A COMBINATION OF CLAMPING RANGES SPECIFIED IN THE INSTALLATION MANUALS FOR THE SOLARWORLD LX 72 CELL SOLAR MODULES. FINE TUNE ADJUSTMENTS IN THE EAST/WEST BEAM TO TOP CHORD CHANNEL CONNECTIONS EXIST. SEE SHEET SD-500 FOR ALL RACKING CONNECTION DETAILS. REFER TO THE DGFT INSTALLATION GUIDE FOR ADDITIONAL INFORMATION.

RACKING DIMENSION NOTES:

1. THIS CROSS SECTION AND DIMENSIONS SHOWN ARE SPECIFIC TO A SOLARWORLD SUNMODULE PLUS - 60 CELL SOLAR MODULE. ACTUAL DIMENSIONS WILL VARY SLIGHTLY BASED ON THE ACTUAL SOLAR MODULE SELECTED. REFER TO STATE SPECIFIC CERTIFICATION LETTER FOR MORE INFORMATION ON THE LIMITS OF THIS REGION SPECIFIC DGT RACKING DESIGN. (SEE DIMENSION AND WEIGHT LIMITS)
2. EASTWEST BEAM SPACING IS BASED ON A COMBINATION OF CLAMPING RANGES SPECIFIED IN THE INSTALLATION MANUALS FOR THE SOLARWORLD SUNMODULE PLUS AND TRINA P050 - 60 CELL SOLAR MODULES. FINE TUNE THE SPACING TO MEET THE EASTWEST CLAMPING REQUIREMENTS. CONNECTIONS EXIST. SEE SHEET SD-500 FOR RACKING CONNECTION DETAILS. REFER TO THE DGTf INSTALLATION GUIDE FOR ADDITIONAL INFORMATION.



1411 Broadway Boulevard NE
Albuquerque, New Mexico 87102
Phone: (505) 242-6411
Fax: (505) 242-6412
www.unirac.com

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PROJECT NUMBER:	DGFT
ENGINEERED BY:	Jon S
DRAFTED BY:	Jeff H
REVIEWED BY:	Jeff H
ORIGINAL RELEASE DATE:	9/30/2016
DRAWING SHEET SIZE:	D - 24x36

SHEET TITLE
DGFT TABLE CROSS-
SECTION AND PARTS L
(30 DEGREE TILT)

SHEET NUMBER
SD-300

SHEET
3 of 5

UNIRAC'S DGFT
DISTRIBUTION GROUND FIXED TILT
STRUCTURAL RACKING DRAWINGS

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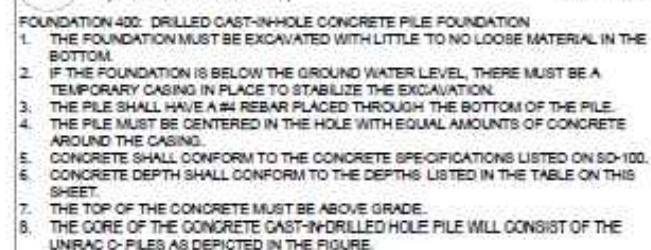
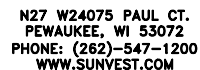
FCPC DATA HOLDINGS

3135 W HIGHLAND BLVD
MILWAUKEE, WI

SHEET TITLE
SPEC SHEETS

DWG. NO.

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FOUNDATION 403: FULLY DRIVEN PILE

1. DRIVE PILE FOUNDATIONS MAY ONLY BE USE IN SOILS THAT ARE NOT FROST SUSCEPTIBLE OR WHERE GROUND WATER IS NOT WITHIN 12 FEET OF THE SURFACE UNLESS APPROVED BY A GEOTECHNICAL ENGINEER. FROST SUSCEPTIBLE SOILS CONSIST OF ANY SOIL THAT IS NOT MEDIUM TO COARSE GRAIN SAND OR GRAVEL. DRIVEN PILE FOUNDATIONS ABSOLUTELY MAY NOT BE USED IN SOILS THAT CONTAIN SILT OR CLAY OR GROUNDWATER WITHIN 12 FEET OF THE SURFACE UNLESS APPROVED BY A GEOTECHNICAL ENGINEER.
2. PILES MUST BE INSTALLED TO THE FULL DEPTH. PILES NOT DRIVEN TO FULL DEPTH ARE CONSIDERED FAILED PILES AND A DIFFERENT FOUNDATION MUST BE UTILIZED.
3. FOUNDATIONS MUST NOT BE INSTALLED IN ORGANIC SOILS OR IN AREAS WITH GROUNDWATER NEAR THE SURFACE.

FOUNDATION 404: CONCRETE BALLAST BLOCK OPTION

1. EXISTING GRADE MAY BE CLEARED/GRADED OR LEFT AS-IS. BLOCK DIMENSIONS SHOWN ABOVE ARE MINIMUM REQUIREMENTS.
2. THE FILE SHALL HAVE A #4 REBAR PLACED THROUGH THE BOTTOM OF THE FILE.
3. CONCRETE SHALL CONFORM TO THE CONCRETE SPECIFICATIONS LISTED ON SD-100.
4. UTILIZING THIS OPTION WILL RESULT IN AN INCREASED FRONT EDGE HEIGHT:
 - 4.1. 20 DEGREE TABLES: WILL NOW HAVE A FRONT EDGE HEIGHT OF APPROX. 4 FT ABOVE GRADE.
 - 4.2. 30 DEGREE TABLES: WILL NOW HAVE A FRONT EDGE HEIGHT OF APPROX. 4.5 FT ABOVE GRADE.
5. UNIRAC AND THE ENGINEER OR RECORD ARE NOT RESPONSIBLE FOR DIFFERENTIAL SETTLEMENT OR DIFFERENTIAL FROST HEAVE FROM ONE PILE FOUNDATION TO THE NEXT. PERIODIC MONITORING OF THE INSTALLED FILES AND CONCRETE FOUNDATION IS RECOMMENDED.

NOTE:
FOR PILE QUANTITY AND SPACING (BASED ON TABLE SIZE) SEE TABLE ON THE STATE SPECIFIC CERTIFICATION LETTER.

114

UNIRAC'S DGET
DISTRIBUTION GROUND FIXED TILT
STRUCTURAL RACKING DRAWINGS

UNIBAC®

2010-2011
RECEIVED

**ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED
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DING

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the state of WISCONSIN. It should be noted that those plan sheets identified with an (*) have been prepared and certified by others and have been included herein for informational purposes only.

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FCPC DATA HOLDINGS

3135 W HIGHLAND BLVD
MILWAUKEE, WI


SHEET TITLE	
FOUNDATION EMBEDMENT AND DETAIL	

DWG. NO.

D-3.00

MAIN PHOTOVOLTAIC
SYSTEM
AC DISCONNECT

MAIN PHOTOVOLTAIC
SYSTEM DISCONNECT

 **WARNING**
ELECTRICAL SHOCK HAZARD
DO NOT TOUCH TERMINALS
TERMINALS ON BOTH LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

WARNING PHOTOVOLTAIC POWER SOURCE
WARNING PHOTOVOLTAIC POWER SOURCE
WARNING PHOTOVOLTAIC POWER SOURCE

CAUTION: SOLAR CIRCUIT


 **WARNING**
BIPOLAR PHOTOVOLTAIC ARRAY.
DISCONNECTION OF NEUTRAL
OR GROUNDED CONDUCTORS
MAY RESULT IN OVERVOLTAGE
ON ARRAY OR INVERTER

 **WARNING**
ELECTRICAL SHOCK HAZARD
DO NOT TOUCH TERMINALS
TERMINALS ON BOTH LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION


DC VOLTAGE IS ALWAYS PRESENT
WHEN SOLAR MODULES
ARE EXPOSED TO SUNLIGHT

WARNING: PHOTOVOLTAIC POWER SOURCE
WARNING: PHOTOVOLTAIC POWER SOURCE
WARNING: PHOTOVOLTAIC POWER SOURCE
WARNING: PHOTOVOLTAIC POWER SOURCE
WARNING: PHOTOVOLTAIC POWER SOURCE
WARNING: PHOTOVOLTAIC POWER SOURCE

PHOTOVOLTAIC AC DISCONNECT
MAXIMUM AC OPERATING
CURRENT: 40 A
NOMINAL OPERATING AC
VOLTAGE: 480 A

 **WARNING**

SINGLE 120-VOLT SUPPLY
DO NOT CONNECT
MULTIWIRE BRANCH CIRCUITS

 **WARNING**
ELECTRICAL SHOCK HAZARD
IF A GROUND FAULT IS INDICATED
NORMALLY GROUNDED CONDUCTORS
MAY BE UNGROUNDED AND ENERGIZED


RATED MAX POWER-POINT CURRENT 32 A
RATED MAX POWER-POINT VOLTAGE 480 V
MAXIMUM SYSTEM VOLTAGE 600 V
MAXIMUM CIRCUIT CURRENT 20 A
MAX RATED OUTPUT CURRENT OF
THE CHARGE CONTROLLER IF INSTALLED 15 A

 **WARNING**
INVERTER OUTPUT CONNECTION. DO
NOT
RELOCATE THIS OVERCURRENT DEVICE.

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

 **WARNING:**
TURN OFF PHOTOVOLTAIC
AC DISCONNECT PRIOR TO
WORKING INSIDE PANEL

**WARNING: PHOTOVOLTAIC
POWER SOURCE**

 **WARNING**
ELECTRICAL SHOCK HAZARD
THE DC CONDUCTORS OF THIS
PHOTOVOLTAIC SYSTEM ARE UNGROUNDED
AND MAY BE ENERGIZED

 **CAUTION**
PHOTOVOLTAIC SYSTEM
CIRCUIT IS BACKFED

CAUTION: SOLAR ELECTRIC
SYSTEM CONNECTED

**PHOTOVOLTAIC SYSTEM
EQUIPPED WITH
RAPID SHUTDOWN**



N27 W24075 PAUL CT.
PEWAUKEE, WI 53072
PHONE: (262)–547–1200
WWW.SUNVEST.COM

PROFESSIONAL ENGINEER STAMP

I hereby certify that this plan,specification,or
report was prepared by me or under my
direct supervision and that I am a duly
Licensed Professional Engineer under the laws
of the state of WISCONSIN. It should be noted
that those plan sheets identified with an (*)
have been prepared and certified by others
and have been included herein for
informational purposes only.

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FCPC DATA HOLDINGS

3135 W HIGHLAND BLVD
MILWAUKEE, WI

SHEET TITLE
LABELS

DWG. NO.

E-4.00

1. GENERAL REQUIREMENTS:

- 1.1 THE WORK TO BE DONE UNDER THIS PROJECT INCLUDES PROVIDING ALL EQUIPMENT, MATERIALS, LABOR AND SERVICES NOT INCLUDED IN THE B.O.M. AND PERFORMING ALL OPERATIONS FOR COMPLETE AND OPERATING SYSTEM. ANY WORK NOT SPECIFICALLY COVERED BUT NECESSARY TO COMPLETE THIS INSTALLATION, SHALL BE PROVIDED, ALL EQUIPMENT AND WIRING TO BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS OTHERWISE NOTED.
- 1.2 ENTIRE INSTALLATION, INCLUDING MATERIALS, EQUIPMENT AND WORKMANSHIP, SHALL CONFORM TO THE 2017 EDITION OF THE NATIONAL ELECTRIC CODE (NEC) AS WELL AS ALL APPLICABLE LAWS AND REGULATIONS AND REGULATORY BODIES HAVING JURISDICTION OVER THIS WORK:
- 1.3 THE TERM "FURNISH" SHALL MEAN TO OBTAIN AND SUPPLY TO THE JOB SITE. THE TERM "INSTALL" SHALL MEAN TO FIX IN POSITION AND CONNECT FOR USE. THE TERM "PROVIDE" SHALL MEAN TO FURNISH AND INSTALL. THE TERM "CONTRACTOR" SHALL MEAN ELECTRICAL CONTRACTOR.
- 1.4 ONLY WRITTEN CHANGES AND/OR MODIFICATIONS APPROVED BY THE ENGINEER, CONSULTING ENGINEER OR OWNER'S REPRESENTATIVE WILL BE RECOGNIZED.
- 1.5 THE ELECTRICAL CONTRACTOR SHALL SUBMIT, FOR THE ENGINEER'S APPROVAL, DETAILED SHOP DRAWINGS OF ALL EQUIPMENT SPECIFIED.
- 1.6 CONTRACTOR SHALL COORDINATE WITH SPECIFICATIONS PROVIDED BY OTHER TRADES.
- 1.7 PROVIDE OPERATING AND MAINTENANCE MANUALS, PER SPECIFICATIONS, AND GIVE INSTRUCTIONS TO USER FOR ALL EQUIPMENT AND SYSTEMS PROVIDED UNDER THIS CONTRACT AFTER ALL ARE CLEANED AND OPERATING.
- 1.8 KEEP PREMISES FREE FROM RUBBISH. REMOVE ALL ELECTRICAL RUBBISH FROM SITE.
- 1.9 ALL WORK SHALL BE INSTALLED CONCEALED UNLESS OTHERWISE NOTED.
- 1.10 THE WORK SHALL INCLUDE ALL PANELS, DEVICES, FEEDERS AND BRANCH CIRCUIT WIRING AS REQUIRED FOR THE DISTRIBUTION SYSTEM INDICATED AND CALLED FOR ON THE DRAWINGS, REQUIRED BY SPECIFICATIONS AND AS NECESSARY FOR COMPLETE FUNCTIONAL SYSTEMS PRESENTED AND INTENDED.
- 1.11 THE CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR, TOOLS, EQUIPMENT, CONSUMABLES AND SERVICES REQUIRED FOR OBTAINING, DELIVERY, INSTALLATION, CONNECTION, DISCONNECTION, REMOVAL, RELOCATION, REPAIR, REPLACEMENT, TESTING AND COMMISSIONING OF ALL EQUIPMENT AND DEVICES INCLUDING IN OR NECESSARY FOR THE WORK, AS APPLICABLE. THIS INCLUDES SCAFFOLDING, LADDERS, RIGGING, HOISTING, ETC.
- 1.12 ELECTRICAL WORK SHALL INCLUDE ALL REQUIRED CUTTING, PATCHING AND THE FULL RESTORATION OF WALL AND FLOOR STRUCTURE AND SURFACES. ALL EQUIPMENT, WALLS, FLOORS, ETC., DISTURBED OR DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER, AT THE CONTRACTORS EXPENSE.
- 1.13 BEFORE SUBMITTING HIS BID, THE CONTRACTOR SHALL FULLY ADJUNCT HIMSELF/HERSELF WITH THE JOB CONDITIONS AND DIFFICULTIES THAT WILL PERTAIN TO THE EXECUTION OF THIS WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE. LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED, WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.
- 1.14 THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING UTILITIES.
- 1.15 UPON COMPLETION OF THE ELECTRICAL WORK, THE CONTRACTOR SHALL TEST THE COMPLETE ELECTRICAL SYSTEM FOR SHORTS, GROUNDS, AND PROPER OPERATION, IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE.
- 1.16 UPON COMPLETION OF WORK, THE CONTRACTOR SHALL CLEAN AND ADJUST ALL EQUIPMENT AND LIGHTING AND TEST SYSTEMS TO THE SATISFACTION OF OWNER AND ENGINEER. RESULTS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
- 1.17 THE CONTRACTOR SHALL FIELD VERIFY DIMENSIONS OF FINISHED CONSTRUCTION PRIOR TO FABRICATION AND INSTALLATION OF FIXTURES AND EQUIPMENT.
- 1.18 EXACT ROUTING OF CONDUITS AND "MC" CABLES SHALL BE DETERMINED IN THE FIELD.
- 1.19 IF THE OWNER AND/OR HIS REPRESENTATIVE CONSIDERS ANY WORK TO BE INFERIOR, THE RESPECTIVE CONTRACTOR SHALL REPLACE SAME WITH CONTRACT STANDARD WORK WITHOUT ADDITIONAL CHARGE. ALL WORK SHALL BE DONE IN A NEAT, WORKMANLIKE MANNER, LEFT CLEAN AND FREE FROM DEFECTS, AND COMPLETELY OPERABLE.
- 1.20 THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AS SHOWN ON THE DRAWINGS AND/OR AS SPECIFIED. ALL MATERIALS SHALL BE NEW, AND BEAR THE UL LABEL. ALL WORK SHALL BE GUARANTEED BY THE CONTRACTOR FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER.
- 1.21 DRAWINGS ARE TO BE CONSIDERED DIAGRAMMATIC, AND SHALL BE FOLLOWED AS CLOSELY AS CONDITIONS ALLOW TO COMPLETE THE INTENT OF THE CONTRACT. THE DRAWINGS AND SPECIFICATIONS COMPLEMENT ONE ANOTHER, AND WHAT IS SHOWN ON THE DRAWINGS AND NOT MENTIONED IN THE SPECIFICATIONS, AND VICE VERSA, IS TO BE INCLUDED IN THE SCOPE OF WORK.
- 1.22 ALL EQUIPMENT CONNECTIONS SHALL BE INSTALLED PER APPLICABLE SEISMIC REQUIREMENTS.
- 1.23 ENGINEER WILL MAKE A FINAL INSPECTION WITH THE OWNER AND CONTRACTOR AND WILL NOTIFY THE CONTRACTOR IN WRITING OF ALL PARTICULARS IN WHICH THIS INSPECTION REVEALS THAT THE WORK IS INCOMPLETE OR DEFECTIVE. THE CONTRACTOR SHALL IMMEDIATELY TAKE SUCH MEASURES AS ARE NECESSARY TO COMPLETE SUCH WORK OR REMEDY SUCH DEFICIENCIES.
- 1.24 THE CONTRACTOR SHALL PERFORM ALL EXCAVATION, TRENCHING AND BACKFILL REQUIRED FOR ELECTRICAL WORK. BACKFILL SHALL BE SUITABLE MATERIAL PROPERLY COMPACTED TO 95% DENSITY IN EACH LAYER OF SIX (6) INCH DEPTH. CONDUIT SHALL BE MINIMUM 3/8" BELOW FINISHED GRADE.

2. PROJECT COORDINATION:

- 2.1 THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS AT THE SITE AND NOTIFY THE OWNER OF ANY DISCREPANCIES, PRIOR TO COMMENCING WITH THE WORK.
- 2.2 THE CONTRACTOR SHALL REVIEW AND COORDINATE WITH THE DOCUMENTS OF ALL TRADES.
- 2.3 THE CONTRACTOR SHALL FURNISH A SCHEDULE INDICATING HIS PORTION OF TIME, WITHIN THE OVERALL SCHEDULE, REQUIRED TO COMPLETE THE WORK, IN CONJUNCTION WITH ALL TRADES. ALL WORK THAT MAY AFFECT OPERATION OF BUILDING SYSTEMS SHALL BE COORDINATED WITH THE OWNER'S REPRESENTATIVE.
- 2.4 REFER TO THE CONSTRUCTION DRAWINGS AND APPROPRIATE VENDORS APPROVED DIMENSIONED LAYOUT DRAWINGS FOR THE LOCATIONS OF ALL ELECTRICAL DEVICES AND EQUIPMENT.
A. EXTERIOR, BUILDING MOUNTED LUMINAIRES
B. SWITCHES
- 2.5 REFER TO THE PLUMBING DRAWINGS (IF APPLICABLE) FOR THE LOCATIONS OF THE FOLLOWING:
A. GENERATOR
- 2.6 SHUT DOWN OF POWER SHALL BE COORDINATED WITH THE OWNER, ARCHITECT AND PROJECT MANAGER AT LEAST 14 WORKING DAYS PRIOR TO SHUT DOWN. SHUT DOWNS LONGER THAN 2 DAYS SHALL BE COORDINATED WITH THE ABOVE PERSONNEL AT LEAST ONE MONTH IN ADVANCE. TEMPORARY POWER FOR CONSTRUCTION SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR FOR SHUT DOWNS OVER 2 DAYS.
- 2.7 ALL CONDUITS AND DEVICE BOXES SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR, INCLUDING ALL TECHNOLOGY CONDUITS AND BOXES.
- 2.8 EXACT LOCATIONS OF OUTLETS AND EQUIPMENT SHALL BE COORDINATED WITH ARCHITECTURAL AND MILLWORK PLANS. ALL OUTLET AND EQUIPMENT LAYOUTS SHALL BE VERIFIED AND COORDINATED WITH WORK OF OTHER TRADES.
- 2.9 PROVIDE TEMPORARY LIGHTING AND POWER IN ACCORDANCE WITH ARTICLE 305 OF THE NEC. TEMPORARY LIGHTING FIXTURES IN UNFINISHED AREAS SHALL REMAIN CONNECTED UNTIL REMOVAL IS REQUESTED BY THE CONTRACTOR.
- 2.10 COLORS AND FINISHES OF ALL LIGHTING FIXTURES SHALL BE AS DETERMINED BY THE PROPERTY OWNER WHO SHALL SELECT SAME FROM THOSE AVAILABLE AS STANDARD OF THE EQUIPMENT SPECIFIED. PROVIDE CUSTOM ENGRAVING FOR ALL DIMMER SWITCHES.
- 2.11 THE CONTRACTOR SHALL CONTACT THE BUILDING MANAGER TO OBTAIN A COPY OF THE GENERAL REQUIREMENTS AND/OR CONDITIONS TO BE USED FOR THIS PROJECT.
- 2.12 INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES. ALARM AND EMERGENCY SYSTEMS SHALL NOT BE INTERRUPTED. TEMPORARY SHUT DOWNS OF ANY SYSTEM SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER AND ARCHITECT.
- 2.13 CONTRACTOR SHALL VERIFY ALL EQUIPMENT POWER REQUIREMENTS AND REQUIRED OUTLET TYPES WITH EQUIPMENT MANUFACTURER AND OWNER PRIOR TO POWER DISTRIBUTION AND RECEPTACLE INSTALLATION.

3. PROTECTION OF WORK:

- 3.1 EFFECTIVELY PROTECT ALL MATERIALS AND EQUIPMENT FROM ENVIRONMENTAL AND PHYSICAL DAMAGE UNTIL FINAL ACCEPTANCE. CLOSE AND PROTECT ALL OPENINGS DURING CONSTRUCTION. PROVIDE NEW MATERIALS AND EQUIPMENT TO REPLACE ITEMS DAMAGED.

4. WARRANTIES:

- 4.1 ALL MATERIALS AND EQUIPMENT SHALL BE GUARANTEED IN WRITING FOR A MINIMUM OF ONE YEAR AFTER FINAL ACCEPTANCE BY OWNER.
- 4.2 WORKMANSHIP SHALL BE GUARANTEED IN WRITING FOR A MINIMUM OF 5 YEARS AFTER FINAL ACCEPTANCE BY OWNER
- 4.2 OBTAIN AND DELIVER TO THE OWNER'S REPRESENTATIVE ALL GUARANTEES AND CERTIFICATES OF COMPLIANCE.

5. PERMITS:

- 5.1 CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTION FEES FOR ELECTRICAL WORK.

6. RACEWAYS:

- 6.1 ALL CONDUIT SHALL BE MINIMUM SIZE OF 3/4" FOR POWER CIRCUITS AND CONTROL CIRCUITS EXCEPT WHERE FLEXIBLE CONDUIT IS CALLED FOR ON PROJECT DOCUMENTS. ALL EXTERIOR EXPOSED CONDUIT SHALL BE ORC (GALVANIZED RIGID METAL CONDUIT). ALL UNDERGROUND, IN SLAB OR UNDER SLAB SHALL BE RNC (RIGID NONMETALLIC CONDUIT). CHANGE TO RIGID METALLIC CONDUIT OR INTERMEDIATE METALLIC CONDUIT BEFORE EXITING OUT OF CONCRETE OR PENETRATING A WALL, FLOOR OR ROOF. EMT IS ALLOWED IN INTERIOR DRY LOCATIONS WHERE NOT SUBJECT TO DAMAGE.
- 6.2 ALL FLEXIBLE CONDUIT IN WET OR DRY AREAS SHALL BE LIQUID TIGHT CONDUIT. NONMETALLIC FLEXIBLE CONDUIT IS SPECIFICALLY PROHIBITED.
- 6.3 CONDUIT SHALL BE RUN AT RIGHT ANGLES AND PARALLEL TO BUILDING LINES, SHALL BE NEATLY RACKED AND SECURELY FASTENED. JUNCTION BOXES SHALL BE PROVIDED WHERE REQUIRED TO FACILITATE INSTALLATION OF WIRES.
- 6.4 ALL CONDUIT AND ELECTRICAL EQUIPMENT SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE IN AN APPROVED MANNER.
- 6.5 ALL EMPTY RACEWAYS SHALL BE FURNISHED WITH A 200 LB. TEST NYLON DRAG LINE.
- 6.6 ARRANGEMENT OF CONDUIT AND EQUIPMENT SHALL BE AS INDICATED, UNLESS MODIFICATION IS REQUIRED TO AVOID INTERFERENCES.
- 6.7 ALL RACEWAY AND WIRING SHALL BE CONCEALED IN FINISHED AREAS. RACEWAY IN MECHANICAL ROOMS, BASEMENTS AND CRAWL SPACES MAY BE SURFACE MOUNTED.
- 6.8 FOR CONDUITS CROSSING EXPANSION JOINTS, PROVIDE EXPANSION FITTINGS FOR SIZE 1-1/4", AND LARGER. PROVIDE SECTIONS OF FLEXIBLE CONDUIT WITH GROUNDING JUMPERS FOR SIZES 1" AND SMALLER.
- 6.9 THE CONTRACTOR SHALL SEAL ALL PENETRATIONS THROUGH FIRE RATED WALLS AND FLOORS WITH APPROVED FIRE RATED SEALANT. ALL PENETRATIONS THROUGH ALL WALLS AND FLOORS SHALL BE SEALED. FOR ALL SLAB PENETRATIONS THE METHOD, DEPTHS AND LOCATIONS SHALL BE PRE-APPROVED BY THE BUILDING ENGINEER PRIOR TO THE START OF WORK.
- 6.10 THE CONTRACTOR SHALL INSTALL DETECTABLE UNDERGROUND TAPES FOR THE PROTECTION, LOCATION AND IDENTIFICATION OF UNDERGROUND CONDUIT INSTALLATION.
- 6.11 EXACT ROUTING OF CONDUITS AND CABLES SHALL BE DETERMINED IN FIELD.
- 6.12 ALL PENETRATIONS THROUGH FLOORS SHALL BE FIRE STOPPED AND SEALED WITH APPROVED SEALANT.
- 6.13 ELECTRICAL RACEWAY CONNECTIONS TO VIBRATING EQUIPMENT AND MACHINERY SUCH AS MOTORS, TRANSFORMERS, ETC., SHALL BE MADE WITH FLEXIBLE LIQUID TIGHT METALLIC CONDUIT.
- 6.14 SECURE ALL SUPPORTS TO BUILDING STRUCTURE UTILIZING TOGGLE BOLTS IN HOLLOW MASONRY, EXPANSION SHIELDS OR INSERTS IN CONCRETE AND BRICK. MACHINE SCREWS IN METAL, BEAM CLAMPS IN FRAMEWORK AND WOOD SCREWS IN WOOD. NAILS, RAWL PLUGS AND WOOD PLUGS ARE NOT PERMITTED. WHERE REQUIRED BY STRUCTURE, PROVIDE THRU BOLTS AND FISH PLATES. SUPPORT RACEWAY RISERS AT EACH FLOOR LEVEL. RUN EXPOSED RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO BUILDING LINES.
- 6.15 DO NOT RUN RACEWAYS CLOSER THAN 6 INCHES WHEN PARALLEL TO HOT WATER OR STEAM PIPES. WHEN CROSSING WATER OR STEAM PIPES CROSS A MINIMUM OF 3 INCHES ABOVE. IF CROSSING BELOW IS UNAVOIDABLE, PROVIDE DRIP SHIELDS EXTENDING 6 INCHES BEYOND THE WATER OR STEAMPIPE. BOXES INSTALLED IN PROXIMITY TO WATER OR STEAM PIPE SHALL BE RATED NEMA 4X.

7. BOXES:

- 7.1 INTERIOR OUTLET BOXES SHALL BE METALLIC, EXCEPT AS NOTED. FAN MOUNTING BOXES SHALL BE RATED FOR THE APPLICATION AND FOR THE WEIGHT OF THE FAN. EXTERIOR OUTLET BOXES SHALL BE CAST ALUMINUM AND SHALL BE MADE WEATHERTIGHT.
- 7.2 INTERIOR JUNCTION BOXES SHALL BE SHEET STEEL. EXTERIOR JUNCTION BOXES SHALL BE NONMETALLIC, WITH SCREW COVERS. BOXES SHALL BE SUPPORTED INDEPENDENTLY OF CONDUITS.
- 7.3 MOUNTING HEIGHTS OF EQUIPMENT AND DEVICES SHALL BE AS FOLLOWS:
A. RECEPTACLES (WALL MOUNTED) - 18" A.F.F.
B. RECEPTACLES (COUNTER HEIGHT) - 9" ABOVE COUNTER
C. RECEPTACLES (EXTERIOR) - 24" ABOVE FINISHED GRADE
D. COMMUNICATION OUTLETS - SAME AS RECEPTACLES
E. LIGHTING SWITCHES AND CONTROLS - 44" A.F.F.
F. PANELBOARDS AND CABINETS - 78" TO TOP OF ENCLOSURE
- 7.4 WHERE MULTIPLE SWITCHES AND RECEPTACLES ARE INDICATED AT THE SAME LOCATION, THEY SHALL BE MOUNTED BEHIND A COMMON FACEPLATE. TECHNOLOGY OUTLETS SHALL BE SEPARATED FROM AND BE PROVIDED WITH SEPARATE FACEPLATES FROM THE ASSOCIATED POWER RECEPTACLES.
- 7.5 RECEPTACLES SHALL BE ACCESSIBLE EXCEPT A DEDICATED RECEPTACLE MAY BE OBSTRUCTED BY THE REMOVABLE EQUIPMENT IT SERVES.
- 7.6 OUTLET BOXES IN EXISTING CONCRETE FLOORS WITH ACCESS FROM BELOW SHALL BE FIRE RATED, POKE-THROUGH TYPE FOR POWER AND LOW TENSION SERVICE. SERVICE FITTING HEADS SHALL BE ANODIZED ALUMINUM AND SHALL CONTAIN DEVICES AS SHOWN ON THE DRAWINGS. BOXES SHALL BE AS MANUFACTURED BY STEEL CITY OR HUBBELL.
- 7.7 SET BOXES SQUARE AND TRUE WITH BUILDING FINISH. INSTALL RECEPTACLE AND SWITCH OUTLETS IN ADVANCE OF FURRING AND FIREPROOFING. SECURE TO BUILDING STRUCTURE IN ACCORDANCE WITH NEC REQUIREMENTS.
- 7.8 FURNISH OUTLET BOXES WITH RAISED COVERS AND FIXTURE STUDS WHERE REQUIRED. WHERE NO FIXTURE OR DEVICE IS INSTALLED, PROVIDE OUTLET BOX WITH BLANK COVER. OFFSET BACK-TO-BACK OUTLETS WITH MINIMUM 6 INCH HORIZONTAL SEPARATION.

8. WIRING:

- 8.1 ALL WIRE SHALL BE COPPER WITH TYPE THHN/THWN 600 VOLT INSULATION, MINIMUM #10 AWG FOR POWER AND LIGHTING CIRCUITS AND #18 AWG FOR CONTROL CIRCUITS.
- 8.2 UNDER NO CIRCUMSTANCES SHALL FEEDERS BE SPLICED.
- 8.3 ALL COMPUTER CIRCUITS SHALL HAVE SEPARATE NEUTRAL CONDUCTORS. ALL OTHER CIRCUITS MAY SHARE GROUND AND NEUTRAL CONDUCTORS.
- 8.4 WHERE EQUIPMENT, LIGHTING FIXTURES AND WIRING DEVICES ARE SHOWN WITH CIRCUIT NUMBERS ONLY, THE MINIMUM BRANCH CIRCUITTING REQUIREMENTS SHALL BE AS FOLLOWS:
A. LIGHTING FIXTURES - (2)#12 & #12 GND.
B. RECEPTACLES - (2)#12 & #12 GND.
C. BRANCH CIRCUIT BREAKERS (120 VOLT) - 1P, 20A
D. HOMERUNS TO PANEL BOARDS SHALL CONTAIN NO MORE THAN THREE CIRCUITS.
E. WHERE LIGHTING SWITCH INDICATIONS ARE NOT SHOWN SWITCHES SHALL BE CONNECTED TO CONTROL ALL SWITCHED FIXTURES WITHIN THE CORRESPONDING SPACE.
- 8.5 ALL ELECTRICAL TERMINAL TEMPERATURE RATINGS ASSUMED TO BE 75° C UNLESS SITE CONDITIONS REQUIRE OTHERWISE.
- 8.6 WIRE SIZES SHALL BE INCREASED WHERE NECESSARY TO LIMIT VOLTAGE DROP AS FOLLOWS:
A. 1% TOTAL AND 2% FOR ANY INDIVIDUAL RUN, FROM MODULE TO INVERTER.
B. 1% TOTAL AND 2% FOR ANY INDIVIDUAL RUN, FROM INVERTER TO POINT OF INTERCONNECTION.

9. GROUNDING:

- 9.1 PROVIDE A COMPLETE EQUIPMENT GROUND SYSTEM FOR THE ELECTRICAL SYSTEM AS REQUIRED BY ARTICLE 250, OF THE NEC, AND AS SPECIFIED HEREIN.
- 9.2 ALL BRANCH CIRCUITS FOR POWER WIRING SHALL CONTAIN A COPPER GROUND WIRE. NO FLEXIBLE METAL CONDUIT OF ANY KIND OR LENGTH SHALL BE USED AS THE EQUIPMENT GROUNDING CONDUCTOR.

10. MECHANICAL SYSTEMS POWER:

- 10.1 EXCEPT AS OTHERWISE NOTED, EQUIPMENT FURNISHED UNDER THE MECHANICAL TRADE WILL INCLUDE MOTORS, STARTERS, CONTROL EQUIPMENT, INTERLOCK AND CONTROL WIRING. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL POWER WIRING FROM SOURCE THROUGH INTERVENING EQUIPMENT TO MOTOR TERMINALS. STARTERS SHALL BE INSTALLED BY ELECTRICAL CONTRACTOR.
- 10.2 DISCONNECT SWITCHES SHALL BE HEAVY DUTY, HORSEPOWER RATED, QUICK MAKE, QUICK BREAK TYPE, ENCLOSED IN A HEAVY SHEET METAL ENCLOSURE WITH HINGED INTERLOCKING COVER, IN PROPER NEMA RATED ENCLOSURES. FUSED OR NON-FUSED AS REQUIRED. DISCONNECT SWITCHES SHALL BE PROVIDED BY CONTRACTOR, EXCEPT AS NOTED ON DRAWINGS.
- 10.3 THE RATING FOR DISCONNECT SWITCHES SHALL BE THE SAME AS, OR GREATER THAN, THE PROTECTIVE DEVICE SERVING THE EQUIPMENT.
- 10.4 COORDINATE ALL RECEPTACLES, PLUGS, WIRING AND LOCATIONS WITH THE EQUIPMENT PROVIDED PRIOR TO ROUGH IN.
- 10.5 A STRUT FRAME SHALL BE PROVIDED AT ALL LOCATIONS WHERE STRUCTURE WILL NOT ADEQUATELY SUPPORT EQUIPMENT, OR FOR FREESTANDING EQUIPMENT.
- 10.6 THE CONTRACTOR SHALL WIRE ALL MECHANICAL AND FIRE PROTECTION EQUIPMENT SHOWN ON THE DRAWINGS. COORDINATE WITH MECHANICAL, PLUMBING AND FIRE PROTECTION DRAWINGS.
- 10.7 ELECTRICAL EQUIPMENT SHIPPED LOOSE BY THE MANUFACTURER SHALL BE INSTALLED AND WIRED BY THE CONTRACTOR. EQUIPMENT MOUNTED IN THE DUCTWORK WILL BE MOUNTED BY THE MECHANICAL CONTRACTOR AND WIRED BY THE CONTRACTOR.
- 10.8 THE CONTRACTOR SHALL PROVIDE REMOTE INDICATORS FOR ALL DUCT DETECTORS LOCATED ABOVE REMOVABLE CEILINGS. DUCT DETECTORS SHALL BE INSTALLED FOR ALL VENTILATION UNITS WITH 200 CFM OR GREATER SUPPLY AIR. REMOTE INDICATORS SHALL BE WALL MOUNTED 12" BELOW CEILING IN CLOSE PROXIMITY TO CONCEALED DUCT DETECTOR, UOI.

11. DEVICES:

- 11.1 THE CONTRACTOR SHALL VERIFY COLOR, LOCATION AND MOUNTING HEIGHT OF ALL DEVICES WITH ARCHITECT PRIOR TO INSTALLATION.
- 11.2 RECEPTACLES SHALL BE DUPLEX TYPE, 20 AMP, 125 VOLT RATING, WITH SIDE AND BACK WIRING. HUBBELL 5382 OR APPROVED EQUAL.
- 11.3 GROUND FAULT INTERRUPTERS SHALL BE SPECIFICATION GRADE. HUBBELL GF5362 OR APPROVED EQUAL.
- 11.4 SWITCHES SHALL BE SPECIFICATION GRADE, 20 AMP AT 120/277 VOLTS, QUIET, AC, SINGLE OR DOUBLE POLE, THREE OR FOUR WAY AS REQUIRED, ROCKER STYLE WITH BACK AND SIDE WIRING.
- 11.5 ALL RECEPTACLES MARKED WP SHALL BE GROUND FAULT PROTECTED AND WEATHER TIGHT WHILE IN USE.
- 11.6 THE COLOR OF FACEPLATES SHALL MATCH COLOR OF DEVICE WHICH IT COVERS. ALL PLATES SHALL BE METALLIC.

12. PANEL BOARDS:

- 12.1 PANELBOARDS: SWITCHING UNITS SHALL BE 3 PHASE, 4 WIRE CIRCUIT BREAKER TYPE UNLESS OTHERWISE NOTED ON PANEL SCHEDULES. BUS BARS SHALL BE HARD DRAWN COPPER, MINIMUM 98% CONDUCTIVITY, AND SILVER OR TIN-PLATED. JOINTS, CABINETS SHALL BE GALVANIZED SHEET STEEL BACK BOX, WITH DOOR AND TRIM AND LAPPED AND WELDED CORNERS. HARDWARE SHALL BE CHROME-PLATED WITH FLUSH LOCK/LATCH HANDLE ASSEMBLY (UP TO 48 IN. HIGH DOORS) OR VAULT HANDLE, LOCK AND 3-POINT CATCH (LARGER THAN 48 IN. HIGH DOORS). HINGES SHALL BE SEMI-CONCEALED, 5-KNUCKLE STEEL WITH NONFERROUS PINS, 180-DEG OPENING. LOCATED A MAXIMUM 28 IN. ON CENTERS. PROVIDE DOOR-IN-DOOR CONSTRUCTION. MINIMUM GUTTER SPACES FOR LIGHTING PANELS SHALL BE 5" BOTTOM. DIRECTORY HOLDER SHALL BE METAL FRAME WITH CLEAR PLASTIC, TRANSPARENT COVER.
- 12.2 PROVIDE A NEW TYPE WRITTEN CIRCUIT DIRECTORY FOR EACH PANEL AFFECTED BY THIS PROJECT.
- 12.3 WHEREVER POSSIBLE, PANELBOARDS SHALL BE RECESSED IN WALL. SURFACE MOUNTED PANELBOARDS SHALL BE MOUNTED ON A PLYWOOD BACKBOARD. PLYWOOD SHALL BE MOUNTED ON TOP OF GYPSUM BOARD. PLYWOOD SHALL BE PAINTED ON ALL SIDES AND EDGES. COORDINATE WITH OWNER FOR COLOR.
- 12.4 PROVIDE LIGHTNING SURGE PROTECTION FOR MAIN SWITCHBOARD OR MAIN SERVICE PANEL BOARD. PROVIDE GROUNDING OF SURGE DEVICE PER THE NEC.
- 12.5 CIRCUIT NUMBERS SHOWN SHALL BE GENERALLY FOLLOWED. HOWEVER, CONTRACTOR IS RESPONSIBLE FOR BALANCING LOADS ON ALL PHASES AND MAY ALTER ASSIGNMENT OF CIRCUITS FOR BALANCING PHASES.
- 12.6 CIRCUIT SCHEDULES ARE INTENDED TO REPRESENT THE GENERAL WIRING NEEDS OF THE EQUIPMENT SERVICED FROM THE PANEL. THE EXACT CIRCUIT ARRANGEMENT WILL BE DETERMINED BY PANEL SHOP DRAWING AND ARRANGEMENT WILL BE DETERMINED BY PANEL SHOP DRAWING AND PANELS ACTUALLY FURNISHED.

13. LIGHTING:

- 13.4 PROVIDE LIGHTING FIXTURES AS SHOWN ON THE CONSTRUCTION DRAWINGS, COMPLETE WITH ALL STEMS, RODS, SUPPORTS, PLASTER FRAMES, ETC., NECESSARY FOR AN INSTALLATION IN OR ON THE MATERIAL FINISHES PROVIDED. PROVIDE ALL LAMPS FOR LIGHTING FIXTURES. FIXTURES SHALL HAVE ENERGY SAVING LAMPS, AND WHERE APPLICABLE, ENERGY SAVING BALLASTS WITH HIGH POWER FACTOR.
- 13.5 SEE DRAWINGS AND SPECIFICATIONS FOR FIXTURE REQUIREMENTS.

14. IDENTIFICATION:

- 14.1 PROVIDE BLACK PHENOLIC IDENTIFICATION PLATES, WITH WHITE LETTERS ON ALL ELECTRICAL EQUIPMENT FURNISHED IN THIS CONTRACT. ATTACH WITH SUITABLE ADHESIVE.
- 14.2 INSTALL NAMEPLATES ON ALL MAJOR EQUIPMENT, INCLUDE STARTERS, TRANSFORMERS, PANELBOARDS, DISCONNECT SWITCHES AND OTHER ELECTRICAL BOXES AND CABINETS INSTALLED UNDER THIS CONTRACT.
- 14.3 APPLY CABLE/CONDUCTOR IDENTIFICATION MARKERS ON EACH CABLE AND CONDUCTOR IN EACH BOX, ENCLOSURE OR CABINET.

15. RECORD DRAWINGS:

- 15.1 THE CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF SHOP DRAWINGS. THE APPROVAL OF SHOP DRAWINGS SHALL ONLY BE CONSTRUED TO APPLY TO THE GENERAL LAYOUT AND CONFORMANCE TO THE DESIGN CONCEPT OF THE PROJECT AND FOR THE COMPLIANCE WITH THE GENERAL REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL RETAIN THE RESPONSIBILITY FOR ANY DEVIATIONS FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
- 15.2 PROVIDE SHOP DRAWINGS FOR THE LIGHTING FIXTURES, PANEL BOARDS, CIRCUIT BREAKERS, WIRING DEVICES, FIRE ALARM DEVICES AND SEALS FOR FIRE AND WATER STOPPING.
- 15.3 DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN A RECORD SET OF INSTALLATION PRINTS. HE SHALL NEATLY AND CLEARLY RECORD ON THESE PRINTS ALL DEVIATIONS FROM THE CONTRACT DRAWINGS IN SIZES, LOCATIONS AND DETAILS.
- 15.4 UPON PROJECT COMPLETION, THE CONTRACTOR SHALL COMPLETE THE MARK UP OF ALL PROJECT DRAWINGS TO RECORD INSTALLED CONDITIONS.
- 15.5 REPRODUCIBLE "RECORD" DRAWINGS PREPARED IN CAD (AUTOCAD 2002) FORMAT SHALL BE PROVIDED TO SPRINT INDICATING THE AS INSTALLED CONDITIONS OF THE WORK. A FULL SIZE PRINT OUT OF THE "RECORD" DRAWING FILE SHALL BE PROVIDED TO SPRINT AFTER COMPLETION OF THE INSTALLATION.
- 15.6 UPON COMPLETION AND ACCEPTANCE OF WORK, THE CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS AND EQUIPMENT MANUALS AND DEMONSTRATE TO SPRINT THE PROPER OPERATIONS AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.

16. CONCRETE SPECS:

- 16.1 CONCRETE FOR EQUIPMENT PADS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS AND BE AIR-ENTRAINED. AIR CONTENT SHALL BE 6 PERCENT. (+/- 1 ½ PERCENT).
- 16.2 ALUMINUM CONDUITS SHALL NOT BE PLACED IN CONCRETE.
- 16.3 CHAMFER ALL EXPOSED CONCRETE CORNERS.
- 16.4 PROPER CURING PROCEDURES SHALL BE USED FOR SLABS ON GRADE TO PREVENT CURLING.
- 16.5 CALCIUM CHLORIDE SHALL NOT BE USED IN CONCRETE MIXES.
- 16.6 REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60.



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PROFESSIONAL ENGINEER STAMP

I hereby certify that this plan,specification,or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the state of WISCONSIN. It should be noted that those plan sheets identified with an (*) have been prepared and certified by others and have been included herein for informational purposes only.

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FCPC DATA HOLDINGS

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SHEET TITLE
GENERAL NOTES

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