

JOB SET

SOLAR PHOTOVOLTAIC SYSTEM

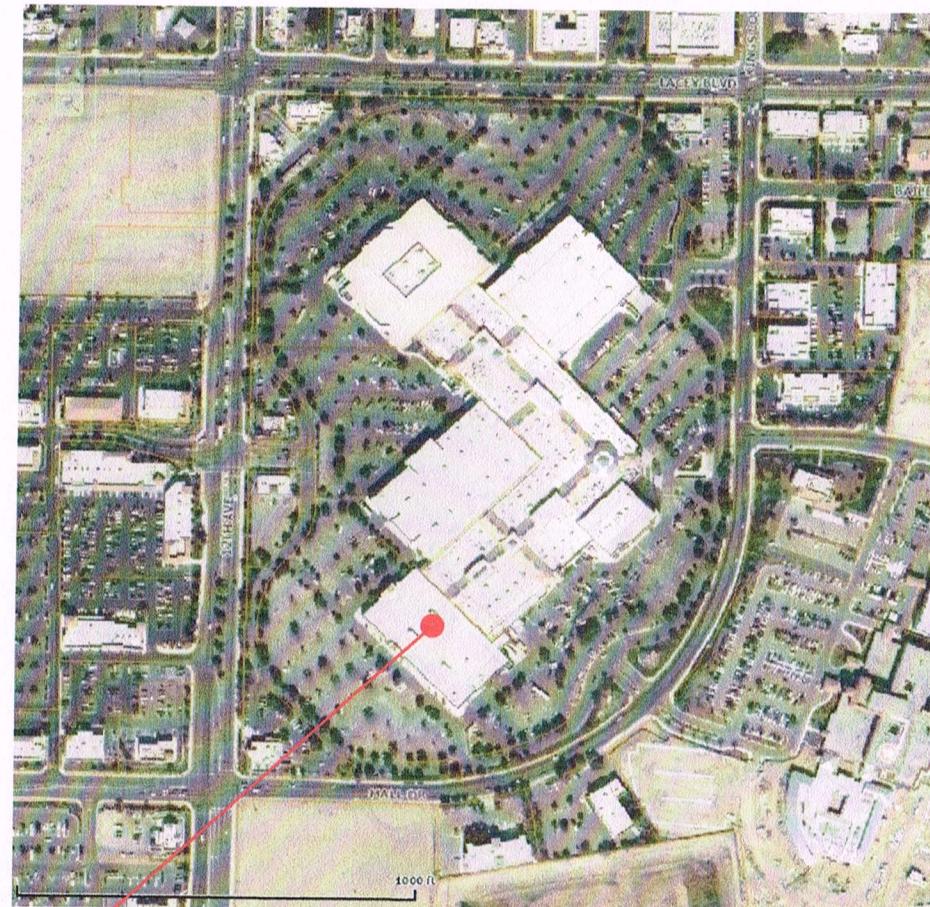
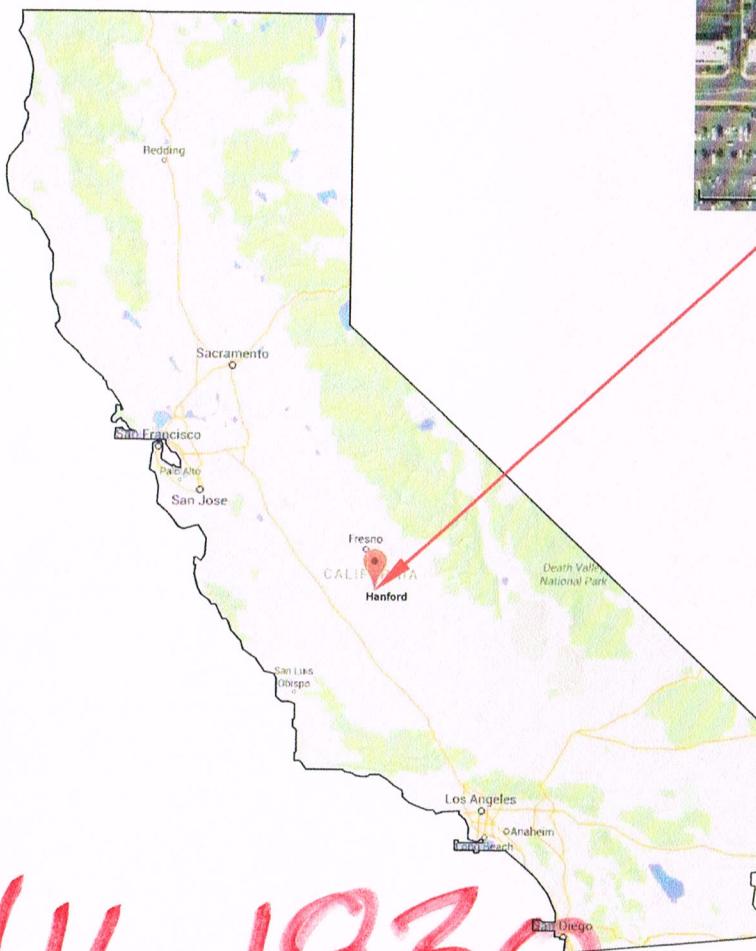
HANFORD MALL - ARRAY 2
HANFORD, CA

CITY OF HANFORD
BUILDING DEPARTMENT
APPROVED

THIS SET OF PLANS AND SPECIFICATIONS MUST BE KEPT ON
THE JOB AT ALL TIMES AND NO CHANGES OR ALTERATIONS
SHALL BE MADE EXCEPT BY THE BUILDING DEPARTMENT.

THE STAMPING OF THIS PLAN AND SPECIFICATIONS SHALL
NOT BE HELD TO PERMIT OR TO BE AN APPROVAL OF THE
VIOLATION OF ANY PROVISIONS OF ANY CITY ORDINANCE
OR STATE LAW.

DATE 7-26-15 BY *JJR*
Building Inspector



SITE INFORMATION

Site Latitude	36° 20' N
Occupancy Group	II
Zoning District	C-2
Flood Zone	X
Exposure Category	C
Seismic Design Category	D

SYSTEM SPECIFICATIONS

Cold Design Temperature	23° F
Max Operating Temperature	131° F
Total # of Inverters	20
Total # of Modules	2,768
TOTAL DC SYSTEM SIZE	802.72 kW DC
Nominal AC Output Power	662 kW AC

GENERAL CONTRACTOR

BRIGHT POWER INC
DBA BPI
PO BOX 10637
NAPA, CA 94581
info@bpi-power.com
PHONE: (707) 252-9990
FAX: (707) 252-9992
WWW.BPI-POWER.COM
LICENSE NUMBER 930054
LICENSE CLASSIFICATION: A, C10

PROPERTY OWNER

PASSCO DIVERSIFIED II HM LC
1675 WEST LACEY BLVD
HANFORD, CA 93230
PHONE: (559)-583-1200 x 203

'CE

ELECTRICAL ENGINEER

HIMANSHU BHARTIYA, ME, EE, FPE, LEED AP
SACRAMENTO ENGINEERING CONSULTANTS
10555 OLD PLACERVILLE ROAD
SACRAMENTO, CA 95827
himanshu@saceng.com
PHONE: (916) 368-4468 ext. 105
FAX: (916) 368-4490

STRUCTURAL ENGINEER

JESSYCA COCHRAN, PE
JVC ENGINEERING
303 POST ST
NAPA, CA 94559
jvcstructural@yahoo.com
PHONE: (805) 801-9915

1

SCOPE OF WORK

THE PROJECT IS TO INSTALL A NEW PHOTOVOLTAIC SYSTEM.
ALL CONSTRUCTION SHALL COMPLY WITH THE CODES ADOPTED BY THE CITY
OF HANFORD, CA AS DESCRIBED IN
<http://www.ci.hanford.ca.us/depts/cd/building/codes/default.asp> INCLUDING
BUT NOT LIMITED TO 2013 CEC & 2013 CBC.

THE SYSTEM CONSISTS OF FLAT ROOF FIXED TILT SOLAR ARRAYS, PITCHED
METAL ROOF FLUSH MOUNT SOLAR ARRAYS, AND ASSOCIATED POWER
CONDITIONING EQUIPMENT.

THE SYSTEM WILL BE INTERCONNECTED TO AND WILL BE OPERATING IN
PARALLEL WITH THE ELECTRICAL UTILITY GRID PER THE REQUIREMENTS OF
SCE AND THE 2013 CEC.

REVIEWED
FOR CODE COMPLIANCE

JUL 20 2016
Colby
INTERWEST CONSULTING

JOB SET

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PV4.1	PV SIGNAGE
S1.0	RACKING DETAILS



1	6/20/16	Updated code ref., deleted "prelim. approval"
2	7/7/16	Added sheets to sheet index
BY		
JB		
F		
FOR		
FOR		
INTER		
INTER		
APN: (707)-252-9990 REV. NO. REV. DATE		
 PO BOX 10637 NAPA, CA 94581 PH: (707)-252-9990		
PASSCO DIVERSIFIED II HM LC - HANFORD MALL 1675 W. LACEY BLVD HANFORD, CA 93230 APN: 011-060-038		
PVO TITLE SHEET DATE: 5-25-16 BY: JB JOB NO.: C15-710		

GENERAL NOTES		8.	REFILL AND RESTORE THE WORK AS DIRECTED, DURING CONSTRUCTION AND PRIOR TO PROJECT COMPLETION, TO MAINTAIN ACCEPTABLE SURFACE CONDITIONS.	17.	ALL CONSTRUCTION AND MATERIAL DELIVERY VEHICLES SHALL USE THE DESIGNATED ACCESS AND HAUL ROUTE(S) TO THE CONSTRUCTION SITE. ANY DEVIATION IN ROUTE(S) SHALL BE SUBJECT TO OWNER'S APPROVAL. THE ROUTE(S) SHALL BE MONITORED DURING THE PROJECT FOR ANY DAMAGE AND DEBRIS ATTRIBUTABLE TO THE PROJECT VEHICLES. ALL DAMAGE AND DEBRIS AS A RESULT OF THE PROJECT SHALL BE REPAIRED TO EXISTING STANDARDS.	1.	PROTECT FROM DAMAGE AND PRESERVE TREES, SHRUBS, AND OTHER PLANTS OUTSIDE THE LIMITS OF WORK AND WITHIN THE LIMIT OF THE WORK WHICH ARE DESIGNATED TO REMAIN UNDISTURBED.	JB	BY
1.	ALL CONSTRUCTION SHALL COMPLY WITH THE CODES ADOPTED BY THE CITY OF HANFORD, CA AS DESCRIBED IN http://www.ci.hanford.ca.us/depts/cd/building/codes/default.asp INCLUDING BUT NOT LIMITED TO 2013 CEC & 2013 CBC.	9.	ALL ADDITIONAL MATERIALS REQUIRED SHALL BE FURNISHED WITHOUT ADDITIONAL COST TO THE OWNER.	10.	UNLESS SHOWN OR SPECIFIED OTHERWISE, ALL CONSTRUCTION AND MATERIALS SHALL COMPLY WITH THE LATEST EDITION OF THE IBC, AND ANY OTHER CODES, REQUIREMENTS OR STANDARDS REQUIRED BY THE INSPECTING AGENCY AND AUTHORITIES HAVING JURISDICTION (AHJ).	18.	CONDUCT OPERATION ENTIRELY WITHIN THE PROJECT AREAS INDICATED IN THESE DRAWINGS.	2.	REMOVE OBSTRUCTIONS, TREES, SHRUBS, GRASS AND OTHER VEGETATION TO PERMIT INSTALLATION OF NEW CONSTRUCTION. REMOVAL INCLUDES DIGGING OUT STUMPS AND OBSTRUCTIONS AND GRUBBING ROOTS.
2.	BEFORE INITIATING ANY WORK, THE CONTRACTOR SHALL NOTIFY ENGINEER OF RECORDS OF ANY DISCREPANCIES IDENTIFIED ON EXISTING CONDITIONS, STRUCTURE, ELECTRICAL, ETC.	11.	ANY WORK BEGUN PRIOR TO ATTAINING APPROVAL AND SIGNATURES OF AHJ WILL BE AT CONTRACTOR'S RISK, AND WILL ONLY BE ALLOWED IF PRE-APPROVED BY PROJECT OWNER.	19.	WHERE ANY WORK IS BEING DONE IN AN OFF-SITE EASEMENT, NOTIFY THE PROPERTY OWNER TWO WORKING DAYS PRIOR TO COMMENCING WORK WITHIN SAID EASEMENT.	3.	FILL DEPRESSIONS CAUSED BY CLEARING AND GRUBBING OPERATIONS WITH SOIL MATERIAL APPROVED BY OWNER, UNLESS FURTHER EXCAVATION OR EARTHWORK IS INDICATED.		
4.	CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS, OSHA REQUIREMENTS AND SAFETY MEASUREMENTS ON SITE.	12.	COORDINATE OPERATIONS WITH ALL REQUIRED MATERIALS TESTING SERVICES AS REQUIRED BY THESE DRAWINGS. EACH PHASE OF CONSTRUCTION SHALL BE TESTED AND APPROVED BY AHJ AS REQUIRED PRIOR TO PROCEEDING TO SUBSEQUENT PHASES.	20.	DO NOT DISPOSE OF CHLORINATED OR OTHER CHEMICALLY TREATED OR POLLUTED WATER INTO ANY DRAINAGE SYSTEM OR TO AREA SOILS.	4.	STRIP TOPSOIL WHERE REQUIRED. STOCKPILE IN AREA APPROVED BY OWNER.		
5.	CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL EQUIPMENT AND FOLLOWING ALL MANUFACTURER'S OR ENGINEER'S DIRECTIONS AND INSTRUCTIONS.	13.	NOTIFY ALL UTILITY COMPANIES INVOLVED IN THE DEVELOPMENT PRIOR TO BEGINNING OF WORK.	14.	COMPLY WITH ALL CURRENTLY APPLICABLE SAFETY LAWS OF ALL JURISDICTIONAL BODIES. PROVIDE AND MAINTAIN ALL BARRICADES, SAFETY DEVICES, AND CONTROL OF TRAFFIC WITHIN AND AROUND THE CONSTRUCTION AREA. FOR ALL TRENCH EXCAVATION 5 FEET OR MORE IN DEPTH, OBTAIN PERMITS PRIOR TO BEGINNING ANY EXCAVATION.	5.	WITH OWNER'S APPROVAL, REMOVE EXISTING ABOVE AND BELOW GRADE IMPROVEMENTS AS INDICATED AND AS NECESSARY TO FACILITATE NEW CONSTRUCTION.		
6.	CONTRACTOR IS ADVISED THAT ALL DRAWINGS, COMPONENT MANUALS, ESPECIALLY INVERTER MANUALS, ARE TO BE READ AND UNDERSTOOD PRIOR TO INSTALLATION OR ENERGIZING OF ANY EQUIPMENT.	15.	Maintain continuous temporary traffic barricades, with operable flashing devices, spaced at intervals of not to exceed 50 feet whenever the work area is adjacent to an existing traffic lane and there is a pavement cut, trench, or ditch which is over 2 inches in depth, or if the traffic lane used by vehicles is not paved. If the cut, trench or ditch is more than 10 feet from a traffic lane, then the barricade spacing may be greater, provided that it does not exceed 200 feet.	3.	CONTRACTOR SHALL PERFORM INITIAL HARDWARE CHECKS AND PV/WIRING CONDUCTIVITY CHECKS PRIOR TO TERMINATING ANY WIRES.	1.	DISPOSE OF REMOVED TREES, BRUSH, STUMPS, ROOTS AND ORGANIC DEBRIS IN A LEGAL MANNER OFF THE SITE.		
7.	WHENEVER ANY SURFACE IMPROVEMENTS SUCH AS PAVEMENT, CURBING, PEDESTRIAN WALKS, FENCING, OR TURFING HAVE BEEN REMOVED, DAMAGED, OR OTHERWISE DISTURBED BY THE CONTRACTOR'S OPERATIONS; THEY SHALL BE REPAIRED OR REPLACED TO THE PRE-EXISTING CONDITION. THE REPAIRS ARE TO MEET THE OWNER'S SATISFACTION.	16.	CONTRACTOR AGREES THAT, IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONTRACTOR SHALL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF THE CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY.	5.	THE ELECTRICAL CONTRACTOR IS REQUIRED TO USE PERMANENTLY COLOR CODED INSULATION AND PROVIDE A COLOR CODE TO IDENTIFY DC AND AC CIRCUITS AND IN ACCORDANCE WITH NEC.	2.	RECORD DRAWINGS		
PV MODULE INFO	MFG Model	ET Solar ET-M660290WB/WW 290W	17.	ALL SCE-REQUIRED EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH CURRENT SCE STANDARDS.	6.	IN EVERY PULL BOX, TERMINAL BOX, AND AT ALL PLACES WHERE WIRES MAY NOT BE READILY IDENTIFIED BY NAMEPLATE MARKINGS ON THE EQUIPMENT TO WHICH THEY CONNECT, IDENTIFY EACH CIRCUIT WITH A PLASTIC LABEL OR TAG FOR NUMBER, POLARITY, OR PHASE.	1.	KEEP UP-TO-DATE AND ACCURATE A COMPLETE RECORD SET OF PRINTS FOR THE CONTRACT DRAWINGS SHOWING EVERY CHANGE FROM THE ORIGINAL DRAWINGS MADE DURING THE COURSE OF CONSTRUCTION INCLUDING FINAL LOCATION, ELEVATION, SIZES, MATERIALS, AND DESCRIPTION OF ALL WORK.	
	STC Rating	290 W					2.	RECORDS SHALL BE "REDLINED" ON A SET OF CONSTRUCTION PLAN DRAWINGS AT THE SITE. A COMPLETE SET OF CORRECTED AND COMPLETED RECORD DRAWING PRINTS SHALL BE SUBMITTED TO OWNER PRIOR TO SUBSTANTIAL COMPLETION AT SITE.	
	Vmp	32.12 V							
	Imp	9.03 A							
	Voc	39.68 V							
	Isc	9.59 A							
	Voc temp. coeff.	-0.31%/°C							
	Isc temp. coeff.	0.02%/°C							

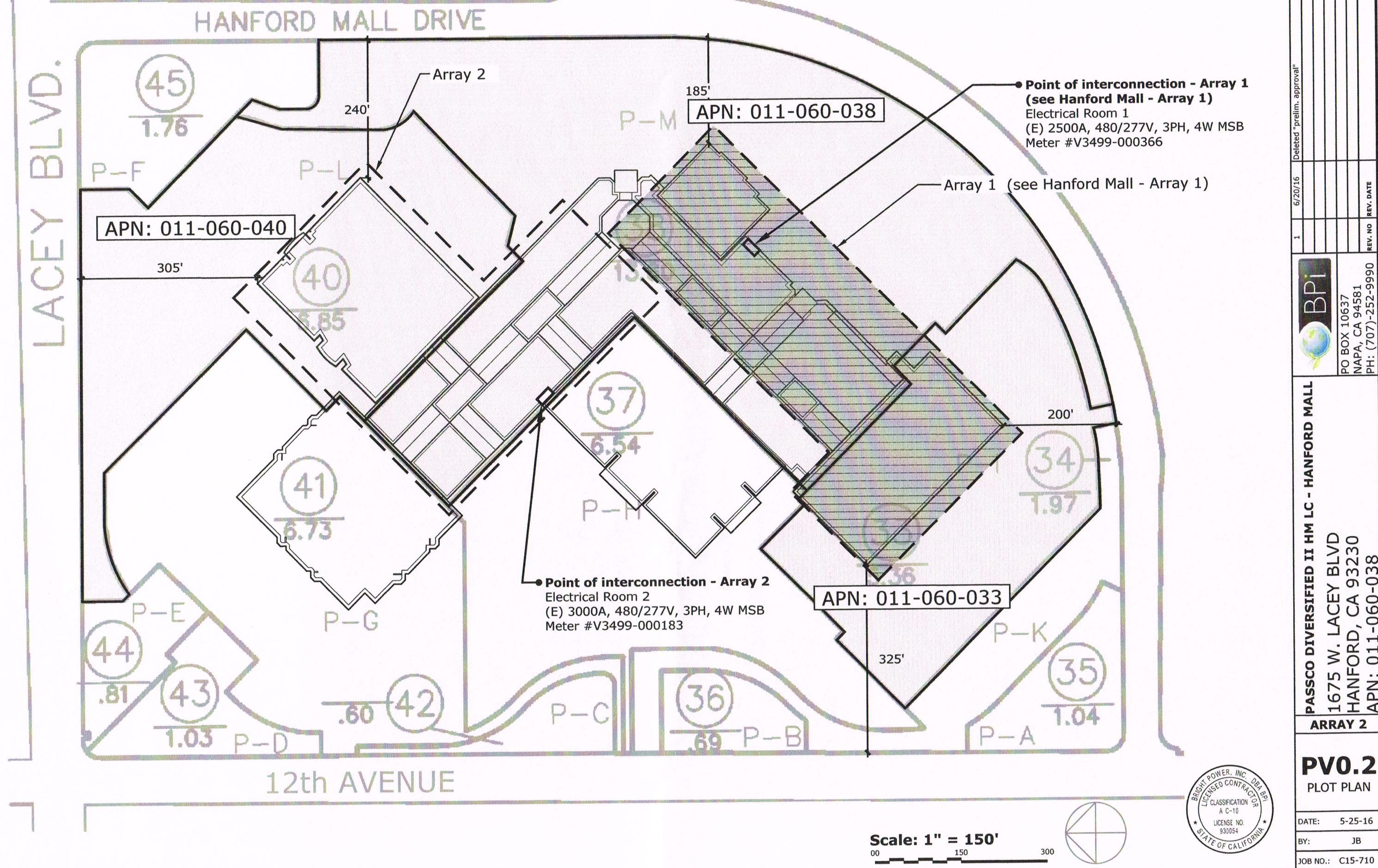
Inverters		Inverter #1-#12	Inverter #13	Inverter #14	Inverter #15	Inverter #16	Inverter #17	Inverter #18	Inverter #19	Inverter #20
Manufacturer	Model	Solectria PVI-36TL	Solectria PVI-23TL	Solectria PVI-36TL	Solectria PVI-36TL	Solectria PVI-28TL	Solectria PVI-28TL	Solectria PVI-23TL	Solectria PVI-28TL	Solectria PVI-28TL
Voltage AC		480	480	480	480	480	480	480	480	480
Nominal AC Output Power		36 kW	23 kW	36 kW	36 kW	28 kW	28 kW	23 kW	28 kW	28 kW
CEC efficiency		98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
Number of Strings/inverter		7	4	4 3	4 3	6	6	3	6	6
Number of Panels/string		22	22	20 20	20 22	20	20	22	20	20
Number of Panels/inverter		154	88	140	146	120	120	66	120	120
STC DC subsystem size		535.92 kW	25.52 kW	40.60 kW	42.34 kW	34.80 kW	34.80 kW	19.14 kW	34.80 kW	34.80 kW
PV Module Azimuth		227°	227°	227° 137°	227° 227°	227°	227°	137°	227°	227°
PV Module Tilt		10°	10°	10° 30°	30° 30°	10°	10°	30°	10°	30°
Racking MFG		Renusol								
Array Location		Sears	Sears	Mid 1 Metal 1	Metal 2 & 3	Mid 2	Mid 3	Metal 4	Mid 4	Metal 5

PASSCO DIVERSIFIED II HM LC - HANFORD MALL
1675 W. LACEY BLVD
HANFORD, CA 93230
APN: 011-060-038
ARRAY 2

PVO.1
PROJECT DETAILS
DATE: 5-25-16
BY: JB
JOB NO.: C15-710



Bright Power, Inc. DBA BPI
CLASSIFICATION A C-10
LICENSE NO. 930054
STATE OF CALIFORNIA
BPI
PO BOX 10637
NAPA, CA 94581
PH: (707)-252-9990



ELECTRICAL ROOM 2:

Sears

Mid 1, Mid 2, Mid 3, Mid 4

Metal 1, Metal 2, Metal 3, Metal 4, Metal 5

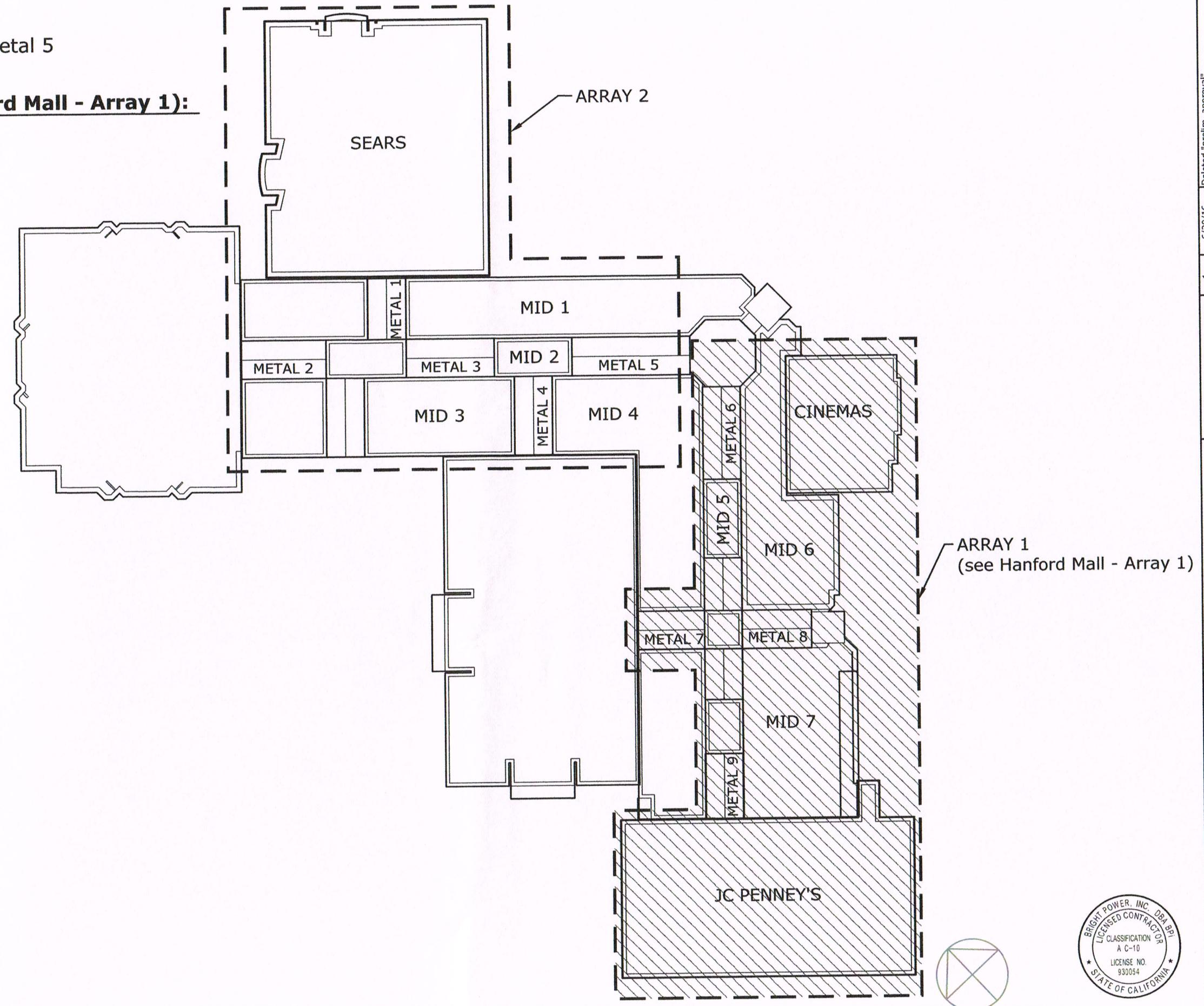
ELECTRICAL ROOM 1 (see Hanford Mall - Array 1):

JC Penney's

Cinemas

Mid 5, Mid 6, Mid 7

Metal 6, Metal 7, Metal 8, Metal 9



PASSCO DIVERSIFIED II HM LC - HANFORD MALL
1675 W. LACEY BLVD
HANFORD, CA 93230
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ARRAY 2

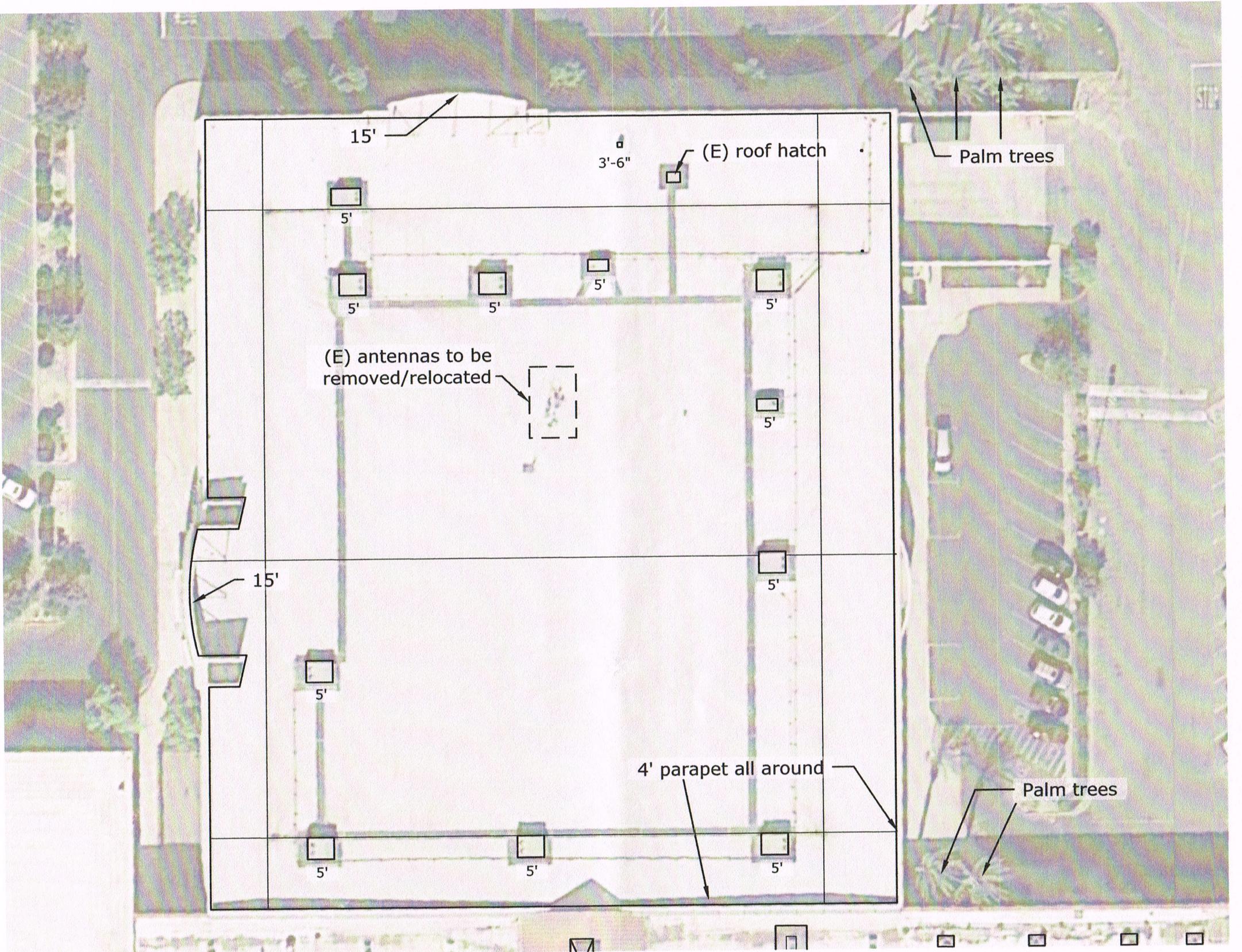
PV0.3

5.25.16

DATE: 5-25-16

BY: JB

JOB NO.: C15-710



Scale: 1" = 40'

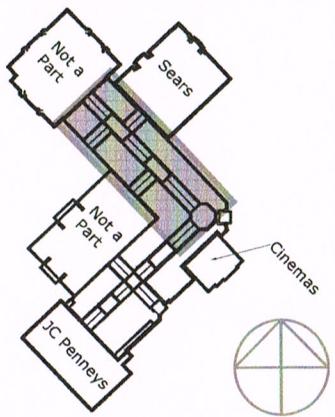
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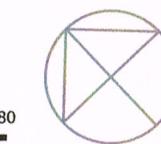
PASSCO DIVERSIFIED II HM LC - HANFORD MALL	BPI	1	6/20/16	Deleted "prelim. approval"	JB
ARRAY 2					
PVO.4A					
EXISTING SITE CONDITIONS					
BRIGHT POWER, INC. DBA BRIGHT POWER	LICENSED CONTRACTOR	A C-10	LICENSE NO.	930054	STATE OF CALIFORNIA
1675 W. LACEY BLVD			*		*
HANFORD, CA 93230					
APN: 011-060-038					
DATE: 5-25-16					
BY: JB					
JOB NO.: C15-710					



REFERENCE MAP



Scale: 1" = 40'
00 40 80



PASSCO DIVERSIFIED II HM LC - HANFORD MALL
1675 W. LACEY BLVD
HANFORD, CA 93230
APN: 011-060-038



Deleted "prelim. approval"

PO BOX 10637
NAPA, CA 94581
PH: (707)-252-9990

REV. NO REV. DATE

ARRAY 2

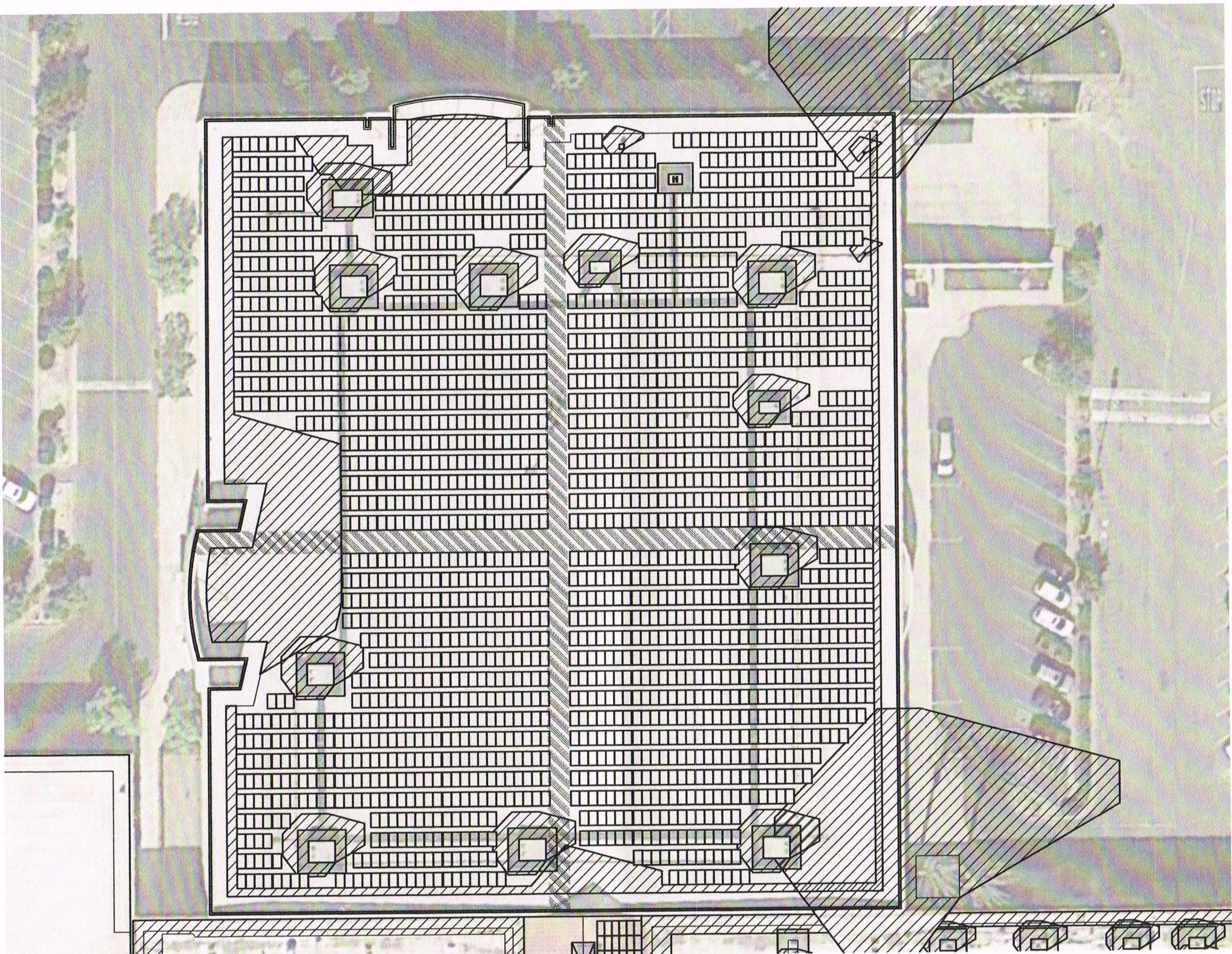
PVO.4B
EXISTING SITE
CONDITIONS



DATE: 5-25-16
BY: JB
JOB NO.: C15-710

JB

BY



 : Shading Setback
 : 4' Equipment Access Perimeter
 : Fire Access Walkways

Scale: 1" = 40'
00 40 80



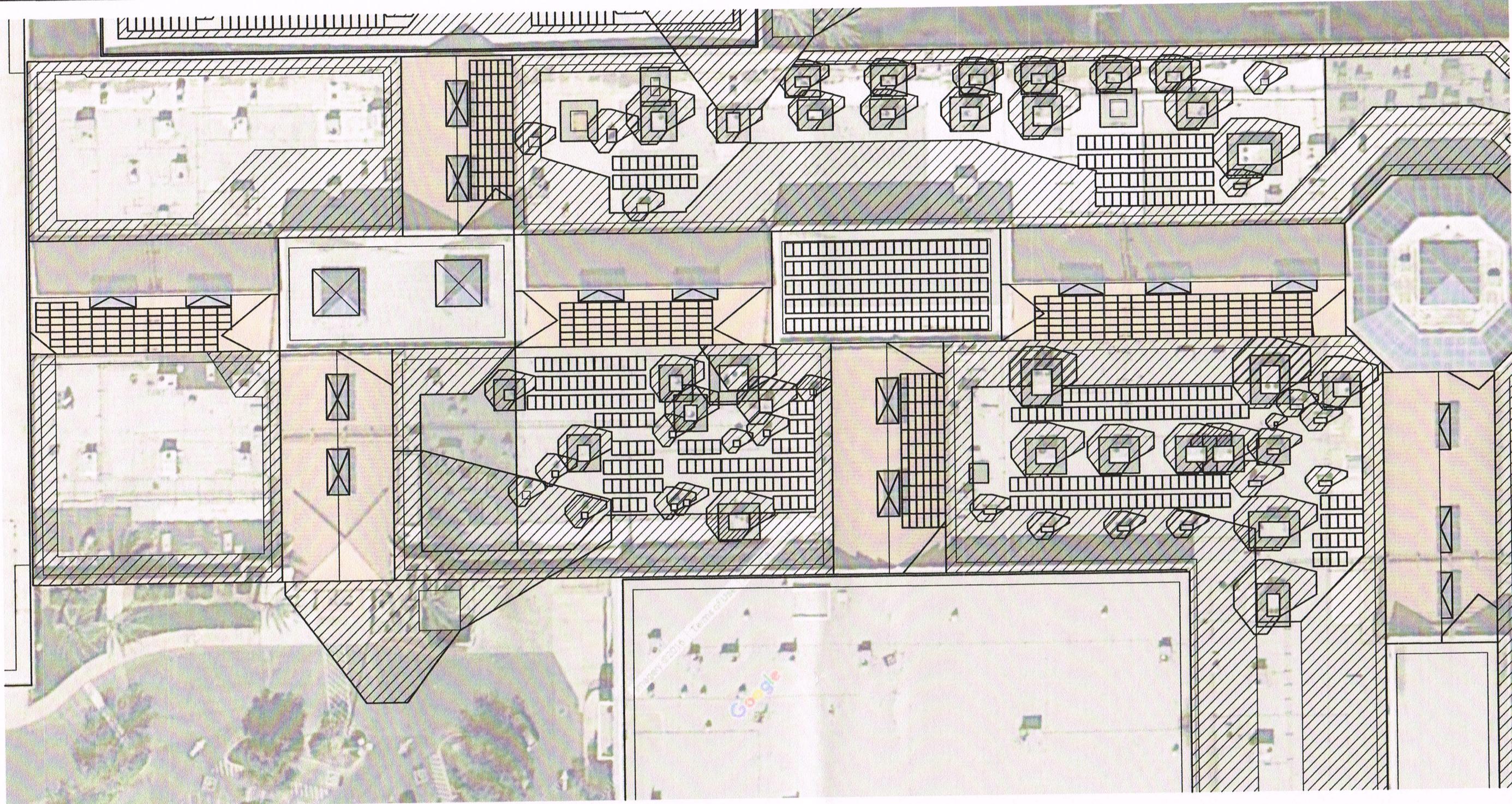
PASSCO DIVERSIFIED II HM LC - HANFORD MALL
ARRAY 2
PV0.5A
 MODULE LAYOUT OVERVIEW
 1675 W. LACEY BLVD
 HANFORD, CA 93230
 APN: 011-060-038

1	6/20/16	Deleted "prelim. approval"
PO BOX 10637		
NAPA, CA 94581		
PH: (707)-252-9990		
REV. NO	REV. DATE	

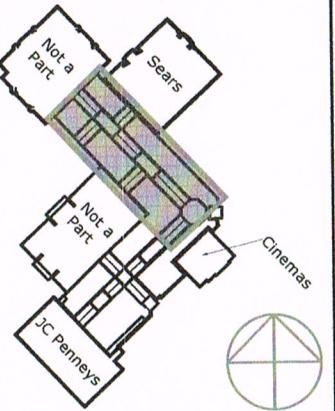
BPI

JB
BY

DATE: 5-25-16
 BY: JB
 JOB NO.: C15-710



REFERENCE MAP



- Shading Setback
- 4' Equipment Access Perimeter
- Fire Access Walkways

Scale: 1" = 40'

00 40 80



PASSCO DIVERSIFIED II HM LC - HANFORD MALL
1675 W. LACEY BLVD
HANFORD, CA 93230
APN: 011-060-038

PV0.5B

MODULE
LAYOUT
OVERVIEW

DATE: 5-25-16

BY: JB

JOB NO.: C15-710

1 6/20/16 Deleted "prelim. approval"

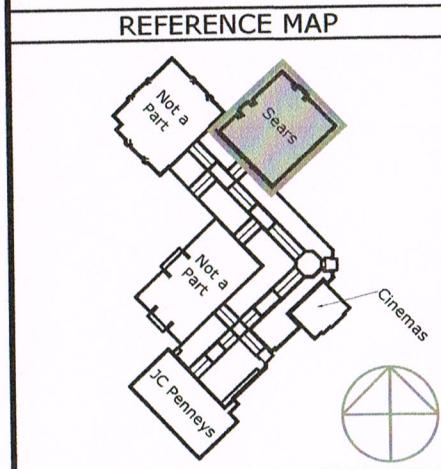
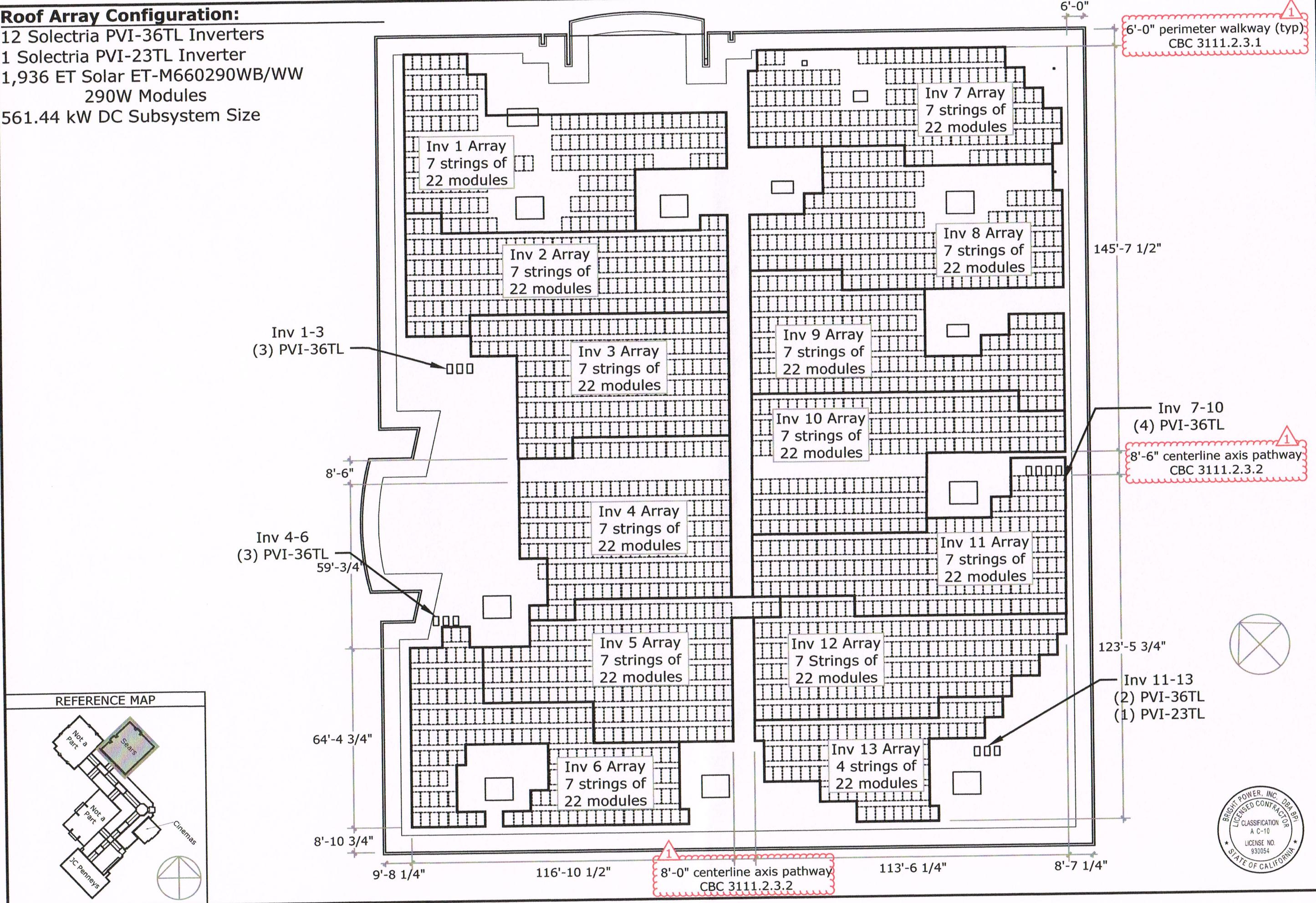


PO BOX 10637
NAPA, CA 94581
PH: (707)-252-9990 REV. NO. REV. DATE

JB BY

Roof Array Configuration:

12 Solectria PVI-36TL Inverters
1 Solectria PVI-23TL Inverter
1,936 ET Solar ET-M660290WB/WW
290W Modules
561.44 kW DC Subsystem Size



PASSCO DIVERSIFIED II HM LC - HANFORD MALL

1675 W. LACEY BLVD
HANFORD, CA 93230
APN: 011-060-038

**0.6A
ARS ARRAY
ENSIONS &
NVERTER**

INVERTER
OTPRINTS

5-25-16

JB

o: C15-710

.. CIS 710



Roof Array Configuration:

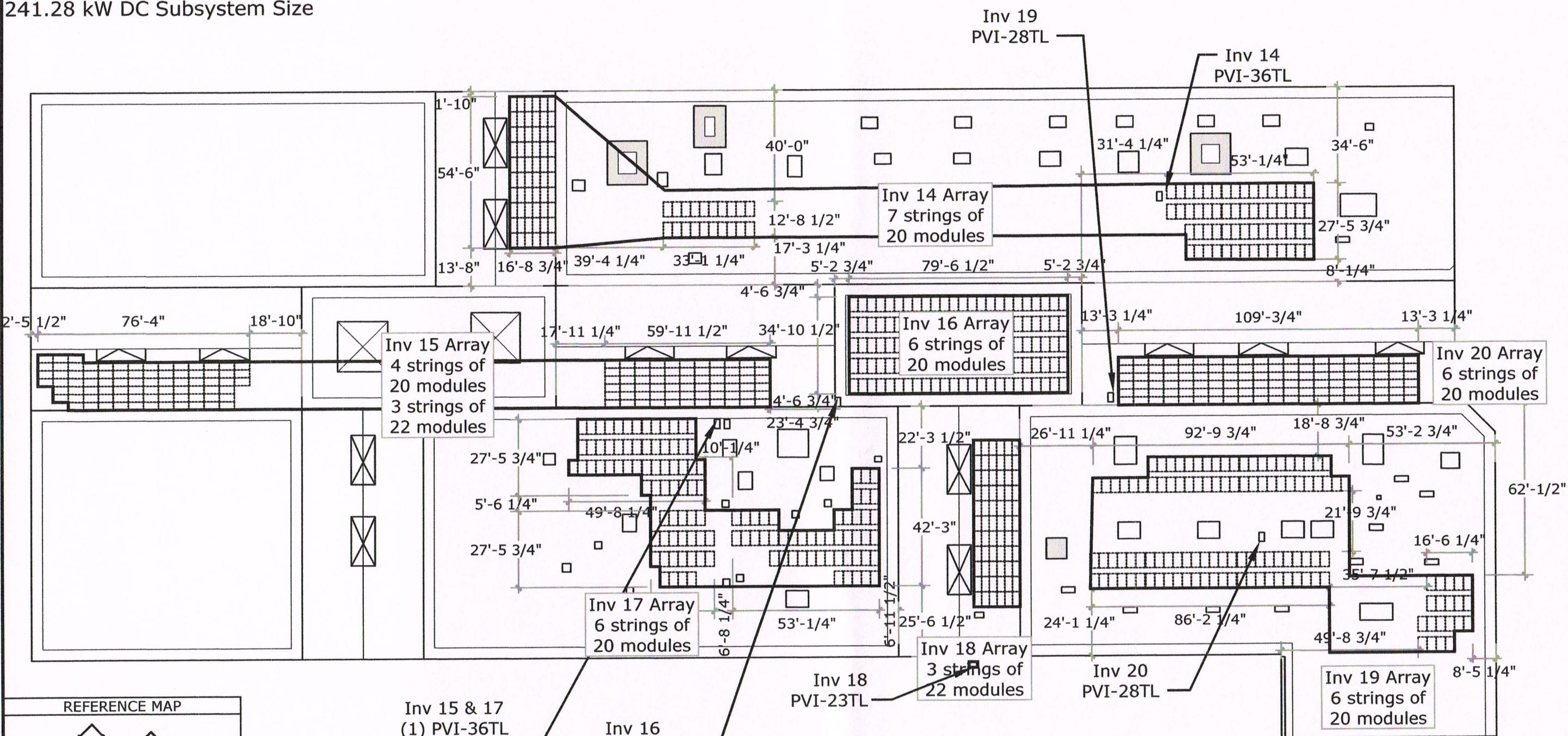
2 Solectria PVI-36TL Inverters

4 Solectria PVI-28TL Inverters

1 Solectria PVI-23TL Inverter

832 ET Solar ET-M660290WB/WW 290W Modules

241.28 kW DC Subsystem Size



1	6/20/16	Deleted "prelim. approval"
2	6/20/16	Deleted "prelim. approval"
3	6/20/16	Deleted "prelim. approval"
4	6/20/16	Deleted "prelim. approval"
5	6/20/16	Deleted "prelim. approval"

PO BOX 10637
NAPA, CA 94581
PH: (707)252-9990

REV. NO

REV. DATE

JB

BY

+ = Roof Attachment

= Wind Zone 3

= Wind Zone 2

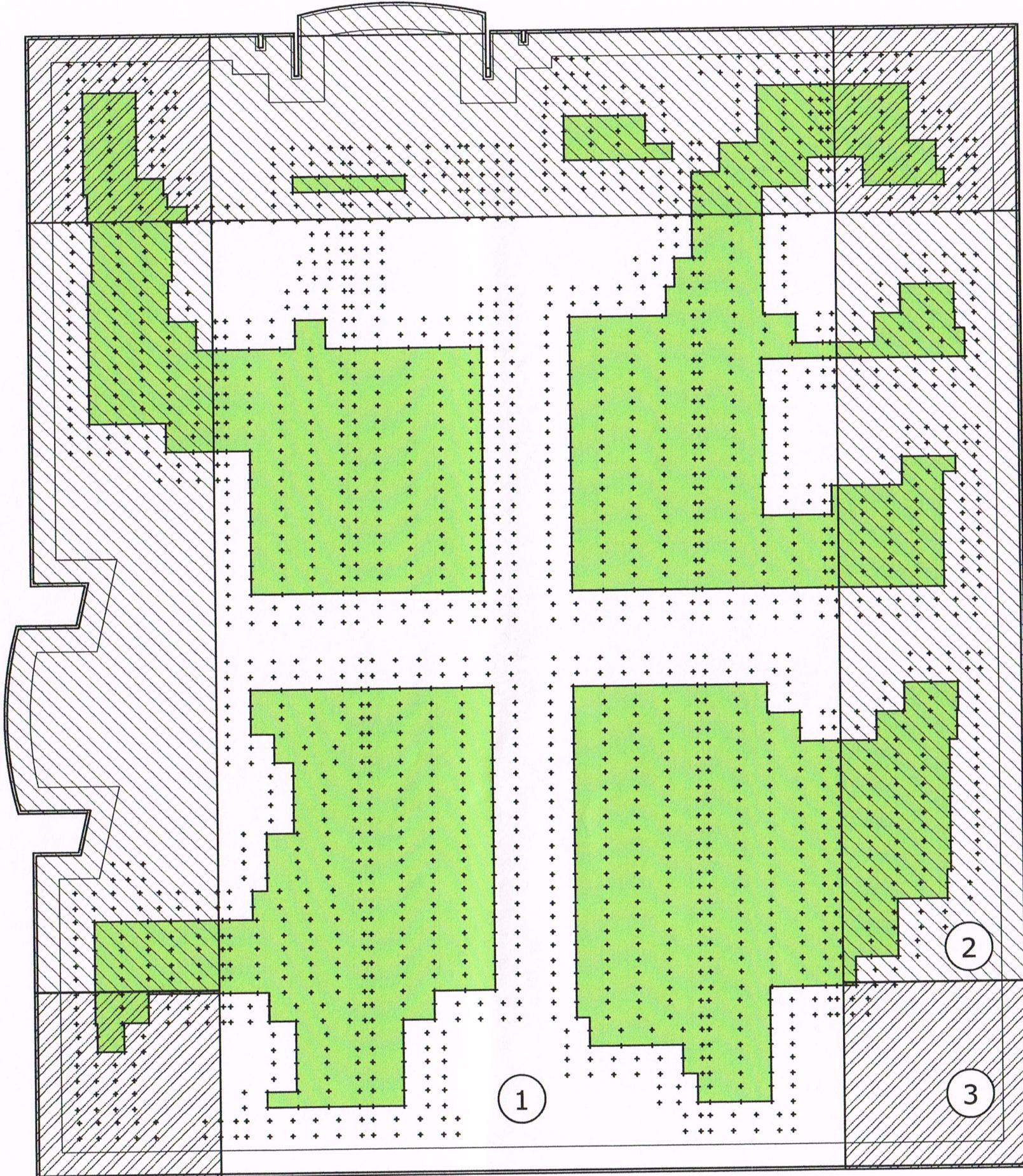
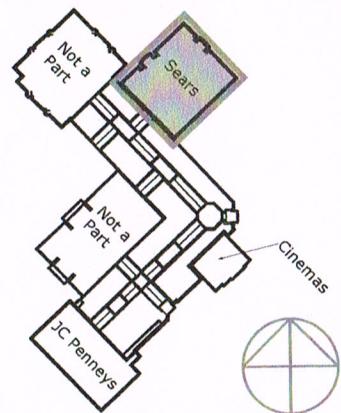
= Wind Zone 1

= Sheltered Zone

Max Rail Spans

Wind Zone	Edge	Sheltered
Zone 3	4 ft	7 ft
Zone 2	5 ft	7 ft
Zone 1	6 ft	8 ft
Zone 0	7 ft	10 ft

REFERENCE MAP



PASSCO DIVERSIFIED II HM LC - HANFORD MALL

1675 W. LACEY BLVD
HANFORD, CA 93230
APN: 011-060-038

BPI



BRIGHT POWER, INC. DBA BPI
LICENSED CONTRACTOR
CLASSIFICATION
A C-10
LICENSE NO.
930054
STATE OF CALIFORNIA

DATE: 7-7-16
BY: JB
JOB NO.: C15-710

PO BOX 10637
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PH: (707) 252-9990
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REV. NO. BY

PASSCO DIVERSIFIED II HM LC - HANFORD MALL
1675 W. LACEY BLVD
HANFORD, CA 93230
APN: 011-060-038

ARRAY 2
PVO.7B
MID ROOF ROOF
ATTACHMENT
LAYOUT

DATE: 7-7-16

BY: JB

JOB NO.: C15-710



+ = Roof Attachment

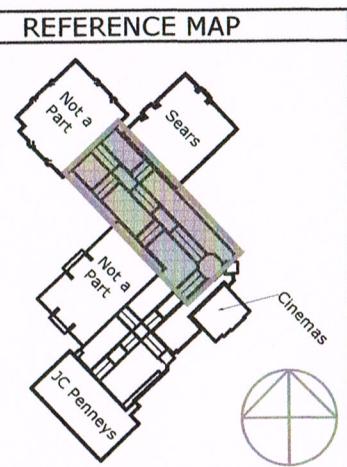
= Wind Zone 3

= Wind Zone 2

= Wind Zone 1

= Sheltered Zone

Wind Zone	Edge	Sheltered
Zone 3	4 ft	7 ft
Zone 2	5 ft	7 ft
Zone 1	6 ft	8 ft
Zone 0	7 ft	10 ft





PHOTOVOLTAIC KEY PLAN

SCALE: 1"=60'-+

1
RV1.0A



PASSCO DIVERSIFIED II HM LLC
- HANFORD MALL - ARRAY 2
1675 W. Lacey Blvd, Hanford, CA 93230
APN: 011-060-038

PHOTOVOLTAIC KEY PLAN

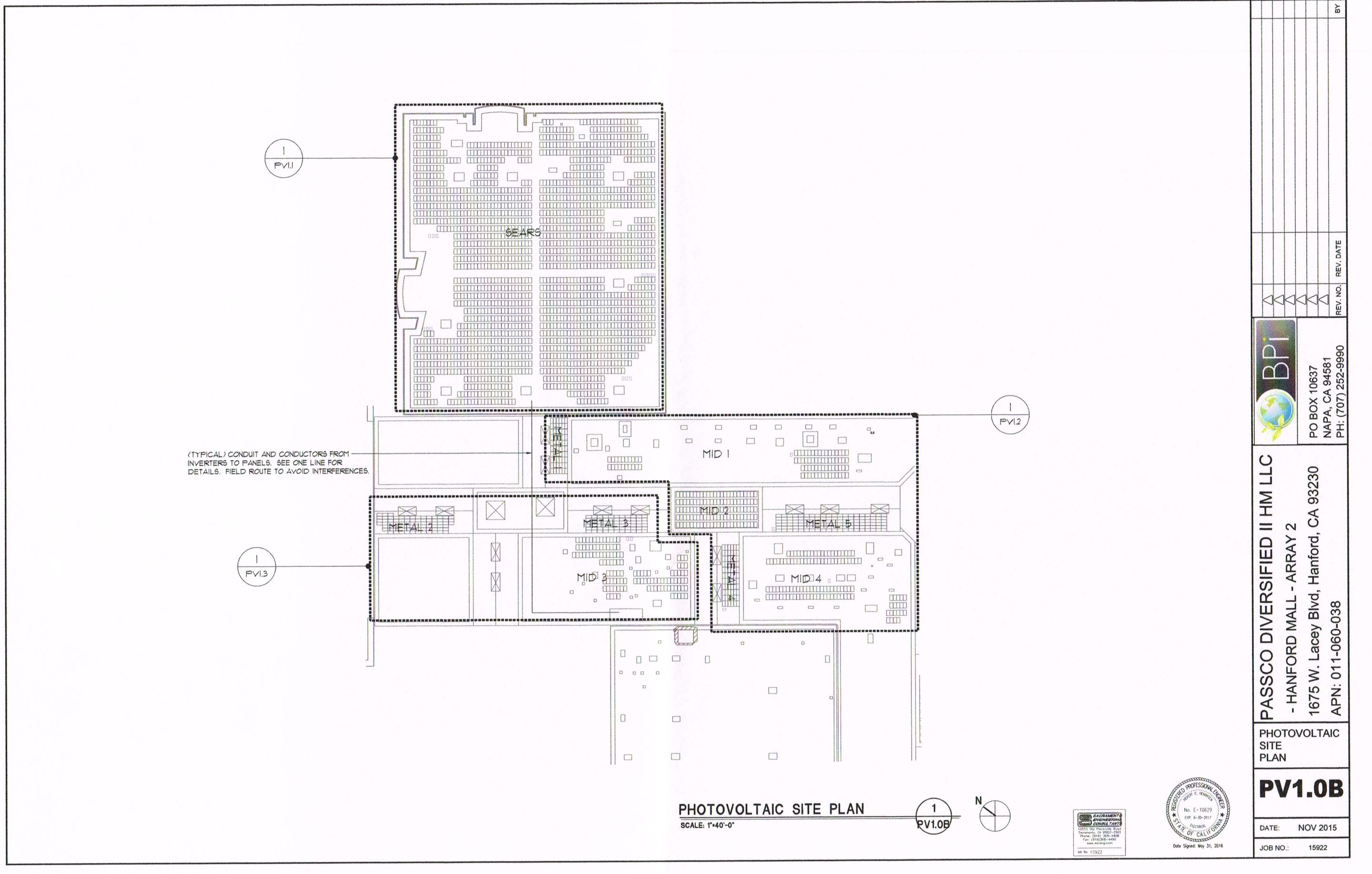
PV1.0A

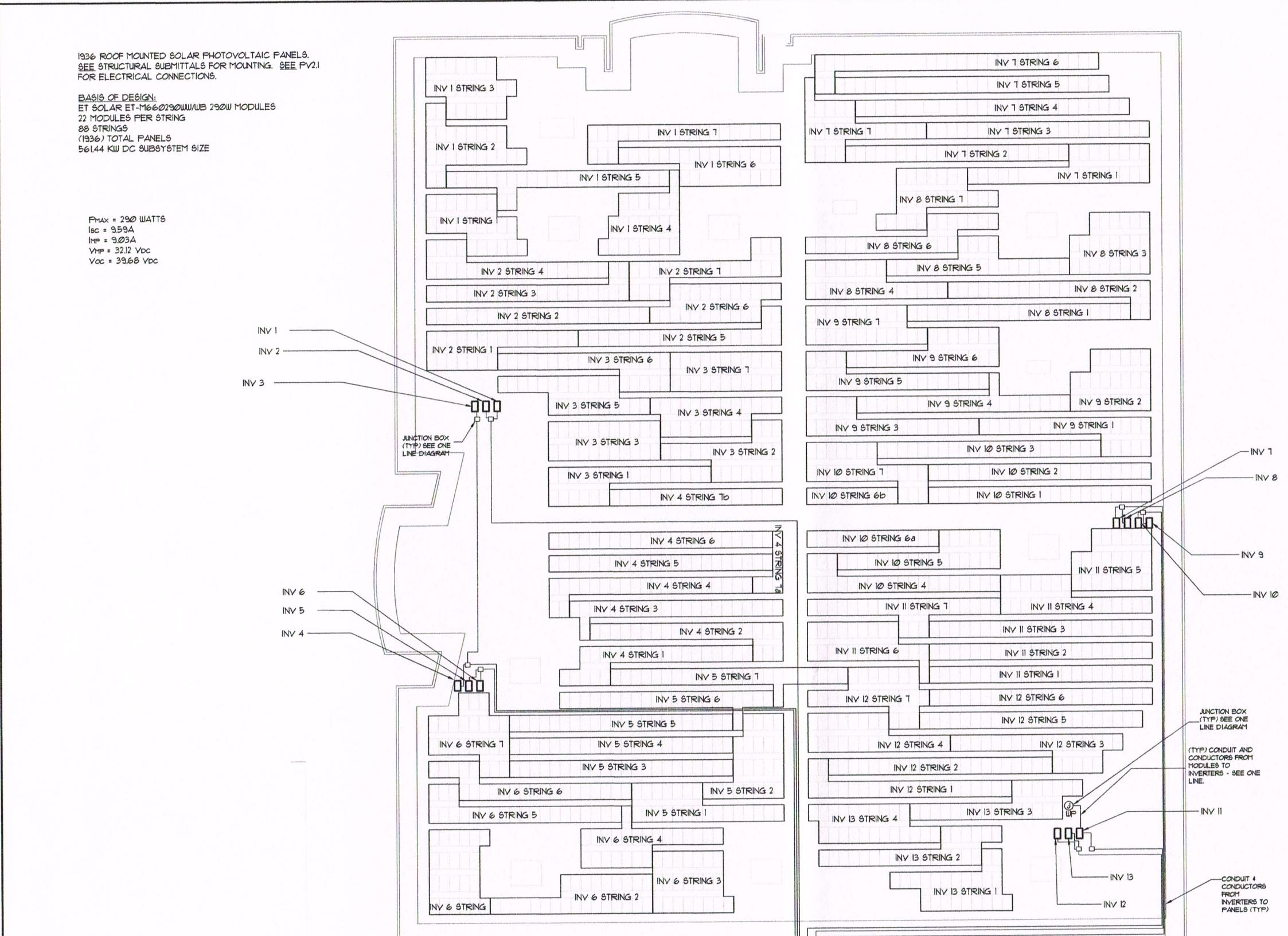


Date Signed: May 31, 2016

DATE: NOV 2015

JOB NO.: 15922





ROOF ARRAY PHOTOVOLTAIC PLAN SEARS

SCALE: 1'x16'-0"

1
PV1.1



PASSCO DIVERSIFIED II HM LLC
- HANFORD MALL - ARRAY 2
1675 W. Lacey Blvd, Hanford, CA 93230
APN: 011-060-038

ROOF-ARRAY
PV
PLAN

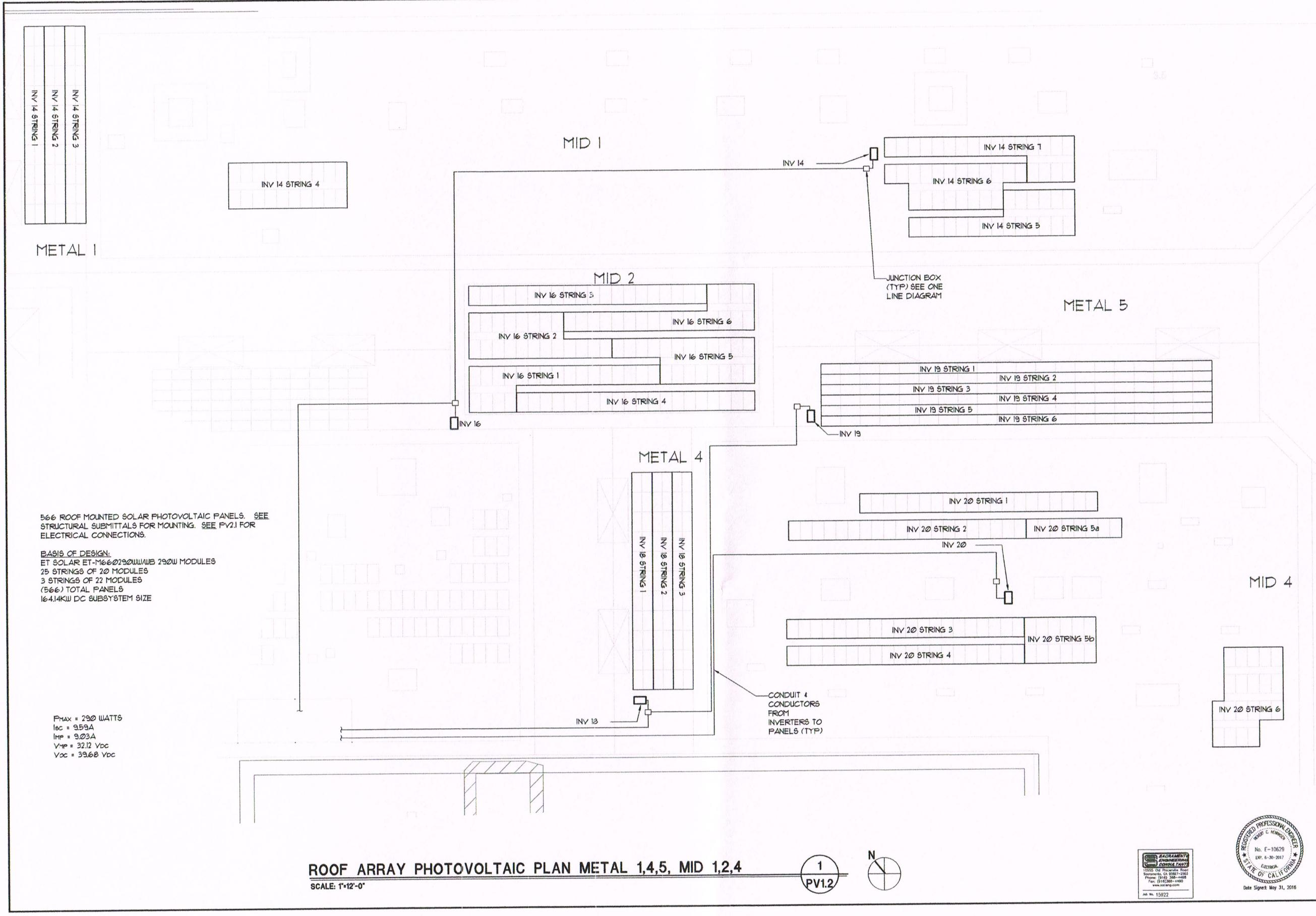
PV1.1

DATE: NOV 2015
JOB NO.: 15922

REV. NO. REV. DATE



BY



PASSCO DIVERSIFIED II HM LLC
- HANFORD MALL - ARRAY 2
1675 W. Lacey Blvd, Hanford, CA 93230
APN: 011-060-038

ROOF-ARRAY
PV
PLAN

PV1.2

DATE: NOV 2015
JOB NO.: 15922

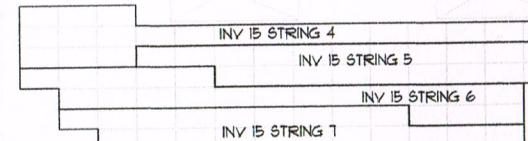
BY _____
REV. NO. _____
REV. DATE _____
PH: (707) 252-9990

266 ROOF MOUNTED SOLAR PHOTOVOLTAIC PANELS. SEE
STRUCTURAL SUBMITTALS FOR MOUNTING. SEE PV2.1 FOR
ELECTRICAL CONNECTIONS.

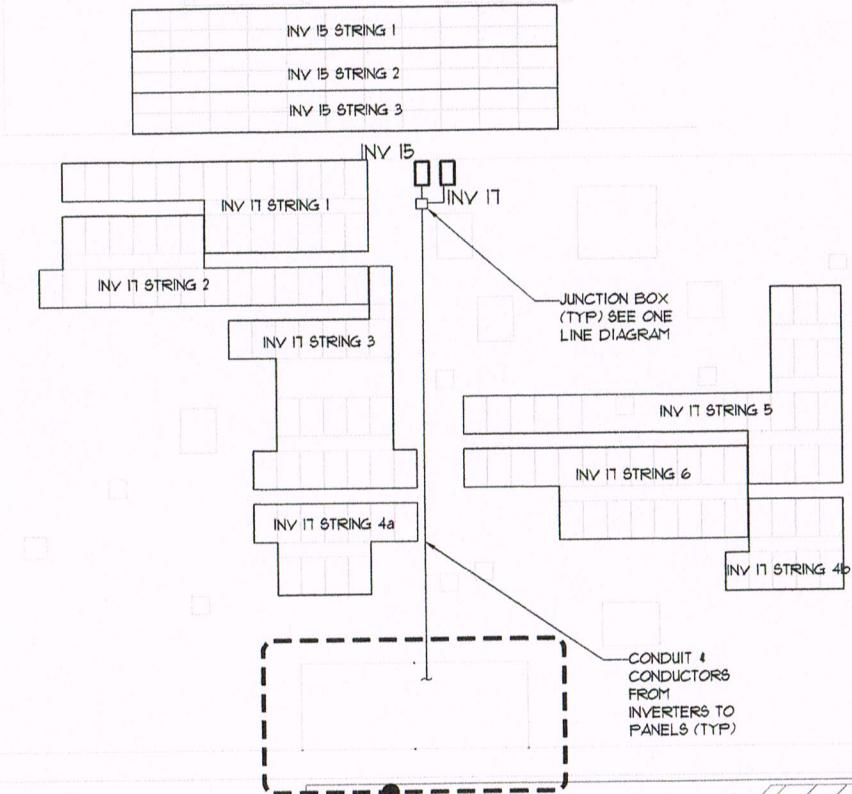
BASIS OF DESIGN:
ET SOLAR ET-M60290WUWB 290W MODULES
10 STRINGS OF 20 MODULES
3 STRINGS OF 22 MODULES
(266) TOTAL PANELS
11.14kW DC SUBSYSTEM SIZE

P_{MAX} = 290 WATTS
I_{SC} = 9.59A
I_{MP} = 9.03A
V_{MP} = 32.12 VDC
V_{OC} = 39.68 VDC

METAL 2



METAL 3



MID 3

ROOF ARRAY PHOTOVOLTAIC PLAN METAL 2,3, MID 3

SCALE: 1'-0"

1
PV1.3

N
1
PV1.4



PASSCO DIVERSIFIED II HM LLC
- HANFORD MALL - ARRAY 2
1675 W. Lacey Blvd, Hanford, CA 93230
APN: 011-060-038

ROOF-ARRAY
PV
PLAN

PV1.3

DATE: NOV 2015
JOB NO.: 15922

BY

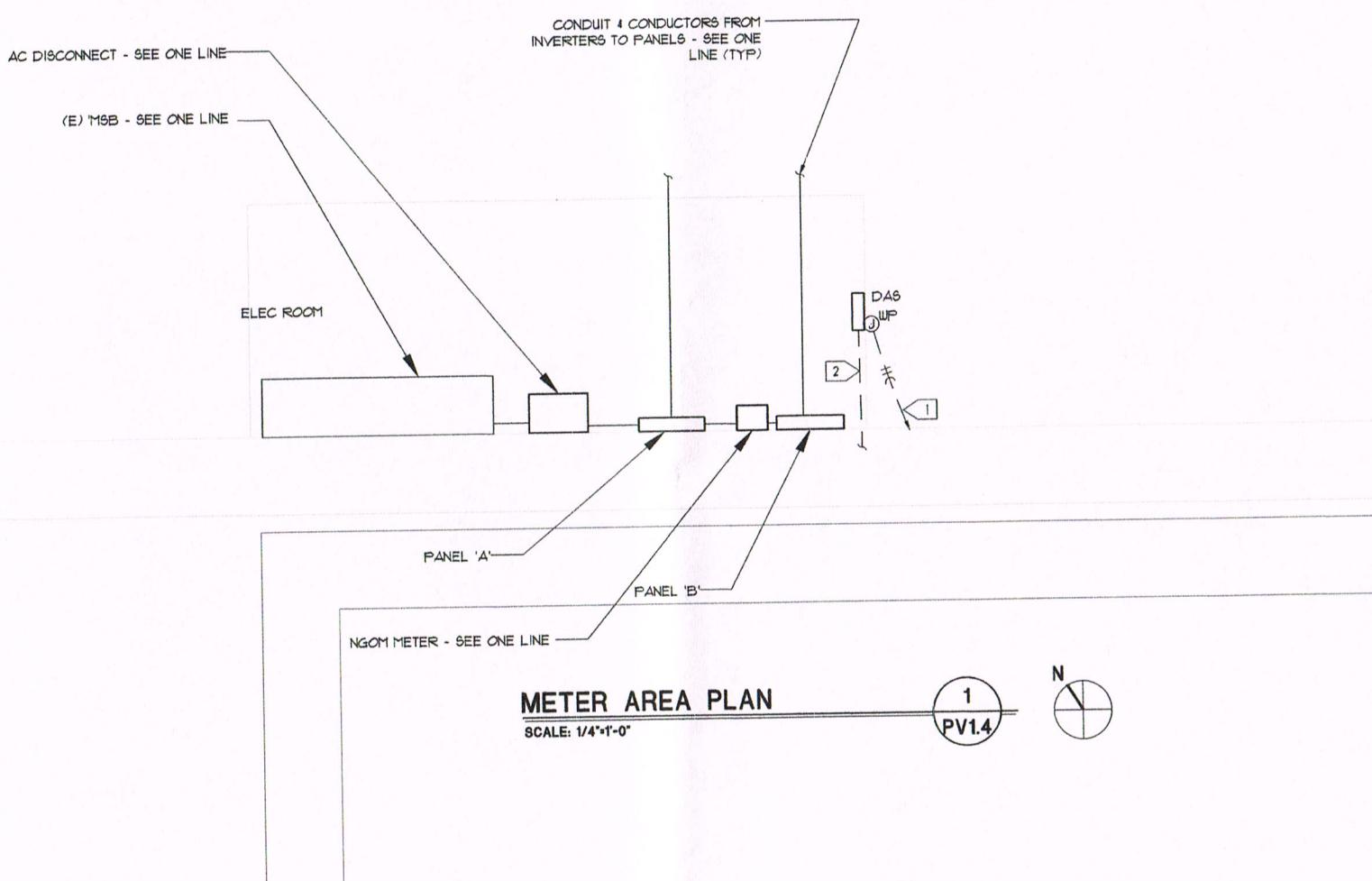


REV. NO. REV. DATE

PO BOX 10637
NAPA, CA 94581
PH: (707) 252-9990

NUMBERED NOTES

- [1] (2) #10, #10 G IN $\frac{3}{4}$ "C. TO NEAREST PANEL. PROVIDE 20A/IP BREAKER IN EXISTING PANEL, AND CONNECT DAS CIRCUIT TO NEW BREAKER.
- [2] (1) 1" DATA CONDUIT TO DATA CONNECTION POINT - SEE ONE LINE. FIELD ROUTE UNDERGROUND OUTSIDE BUILDING, AND SURFACE MOUNT INSIDE. ALTERNATELY, WIRELESS CONNECTION MAY BE PROVIDED.



PASSCO DIVERSIFIED II HM LLC	
- HANFORD MALL - ARRAY 2	
1675 W. Lacey Blvd, Hanford, CA 93230	
APN: 011-060-038	
METER-AREA PLAN	
PV1.4	
DATE:	NOV 2015
JOB NO.:	15922

Array Configuration:
 2 SOLECTRIA PVI 23TL INVERTERS, 4 PVI 28TL INVERTERS
 14 SOLECTRIA PVI 36TL INVERTERS
 129 Strings
 2768 Modules Total
 22 ET SOLAR ET-M660290WW/WB 290W Modules per String for 94 Strings
 20 ET SOLAR ET-M660290WW/WB 290W Modules per String for 35 Strings

Note: For specifications of solar equipment see attached cut sheets.

INTERCONNECTION STANDARDS COMPLIANCE

The Inverters listed have been tested and listed by Underwriters Laboratories to be in compliance with UL1741 Statistic Inverters And Charge Controllers For Use In Photovoltaic Power Systems, as well as IEEE-929-2000 Recommended Practice For Utility Interface Of Photovoltaic (PV) Systems.

AC Disconnect is accessible, and lockable.

IEEE-929-2000 provides guidance regarding equipment and function necessary to ensure compatible operation of photovoltaic systems which are connected in parallel with the electric utility. UL 1741 is the standard applied by Underwriters Laboratory to the Inverter to verify it meets the recommendations of IEEE-929-2000.

Refer to both documents for details of these Recommendations and test procedures.

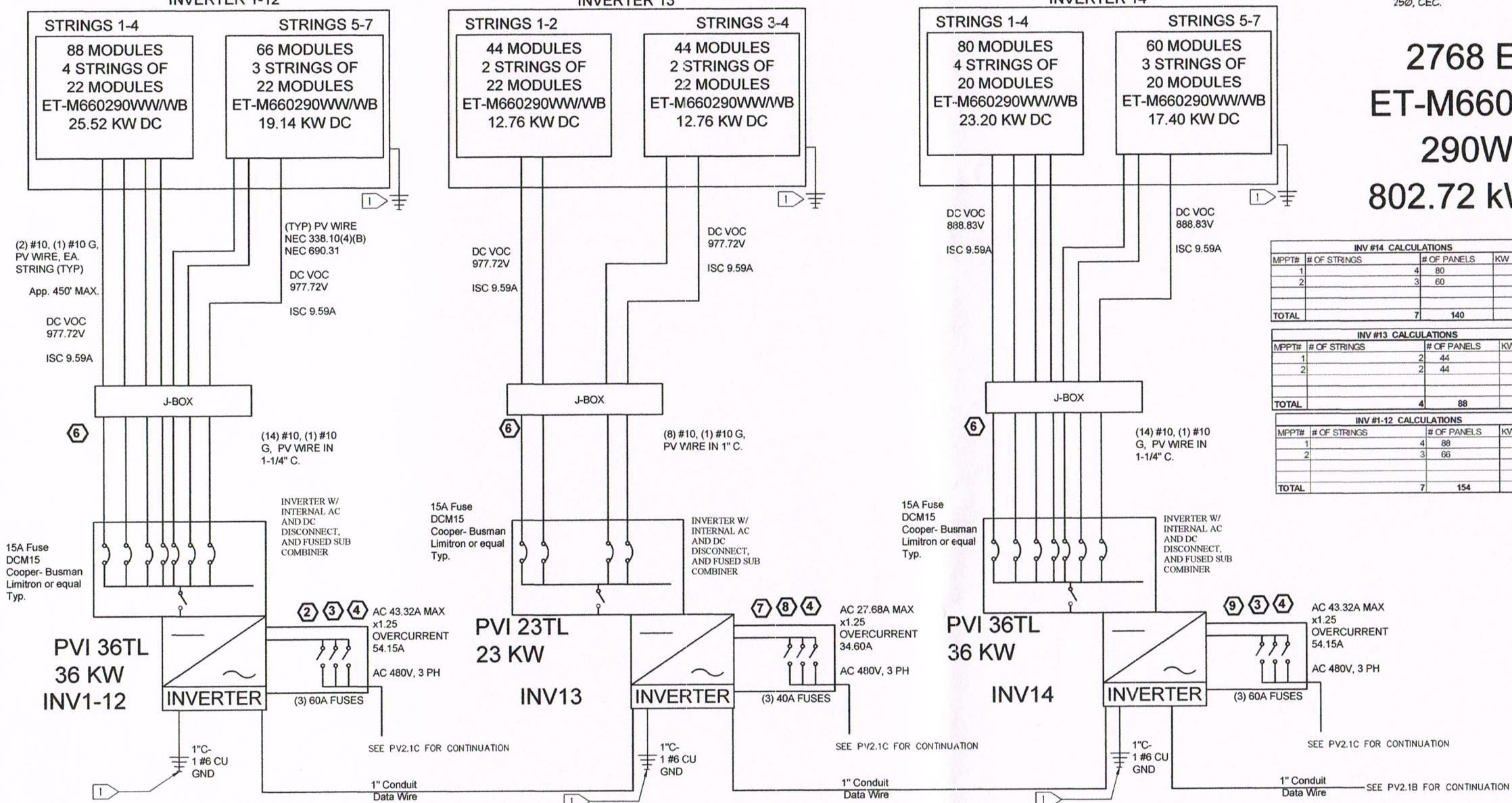
Single line diagrammatic only actual layout determined by existing conditions.
 All hazardous transmission lines to be labeled:
 "CAUTION-Electrical Hazard"

BY

NUMBERED NOTES

① PROVIDE 6 CU GROUNDING ELECTRODE CONDUCTOR TO BUILDING GROUND, PER ARTICLE 250, CEC.

2768 ET SOLAR ET-M660290WW/WB 290W Modules 802.72 kW DC Power



Module Model	ET-M660290WW/WB	Modules per string	22	Voltage Correction Factor	1.12 (Table A)
		String output		Corrected String Output	
Module Max Power	290 W				
Maximum Power Voltage (V _{PMAX})	32.12 V	706.64 V		791.44 V	
Maximum Power Current (I _{PMAX})	9.03 A			9.03 A	
Open-circuit voltage (V _{OCC})	39.68 V	872.96 V		977.72 V (Not to Exceed 1000V)	
Short-circuit current (I _{SC})	9.59 A	9.59 A		9.59 A	
Fuse Size	15 A				

22 panel STRING Output		
# of Strings	1	Factored
Max Voltage	791.44 V	791.44 V
Max Current	9.03 A	11.29
Open Circuit Voltage	977.7152 V	977.72
Short Circuit Current	9.59 A	11.99
		14.98 A

Module Model	ET-M660290WW/WB	Modules per string	20	Voltage Correction Factor	1.12 (Table A)
		String output		Corrected String Output	
Module Max Power	290 W				
Maximum Power Voltage (V _{PMAX})	32.12 V	642.4 V		719.49 V	
Maximum Power Current (I _{PMAX})	9.03 A			9.03 A	
Open-circuit voltage (V _{OCC})	39.68 V	793.6 V		888.83 V (Not to Exceed 1000V)	
Short-circuit current (I _{SC})	9.59 A	9.59 A		9.59 A	
Fuse Size	15 A				

20 panel STRING Output		
# of Strings	1	Factored
Celsius		
14 to 10	58 to 50	1.06
9 to 5	49 to 41	1.08
4 to 0	40 to 32	1.1
(-1 to -5)	31 to 23	1.12
(-6 to -10)	22 to 14	1.14
Fahrenheit		
Max Voltage	719.49 V	719.49 V
Max Current	9.03 A	11.29
Open Circuit Voltage	888.83 V	888.83 V
Short Circuit Current	9.59 A	11.99
		14.98 A
Factor		



No. E-10629
DP. 6-10-2017
1055 Old Processor Road
Sacramento, CA 95823
Phone: (916) 358-4468
Fax: (916) 358-4469
www.saccong.com
Job No. 15922

REGISTERED PROFESSIONAL ENGINEER
ROBERT C. HORNIG

NO. E-10629
DP. 6-10-2017
STATE OF CALIFORNIA
Date Signed: May 31, 2016

DATE: NOV 2015
JOB NO.: 15922

PASSCO DIVERSIFIED II HM LLC
- HANFORD MALL - ARRAY 2
1675 W. Lacey Blvd, Hanford, CA 93230
APN: 011-060-038

SINGLE-LINE
DIAGRAM

PV2.1A

DATE: NOV 2015
JOB NO.: 15922



REV. NO. REV. DATE

Array Configuration:
 2 SOLECTRIA PVI 23TL INVERTERS, 4 PVI 28TL INVERTERS
 14 SOLECTRIA PVI 36TL INVERTERS
 129 Strings
 2768 Modules Total
 22 ET SOLAR ET-M660290WW/WB 290W Modules per String for 94 Strings
 20 ET SOLAR ET-M660290WW/WB 290W Modules per String for 35 Strings

Note: For specifications of solar equipment see attached cut sheets.

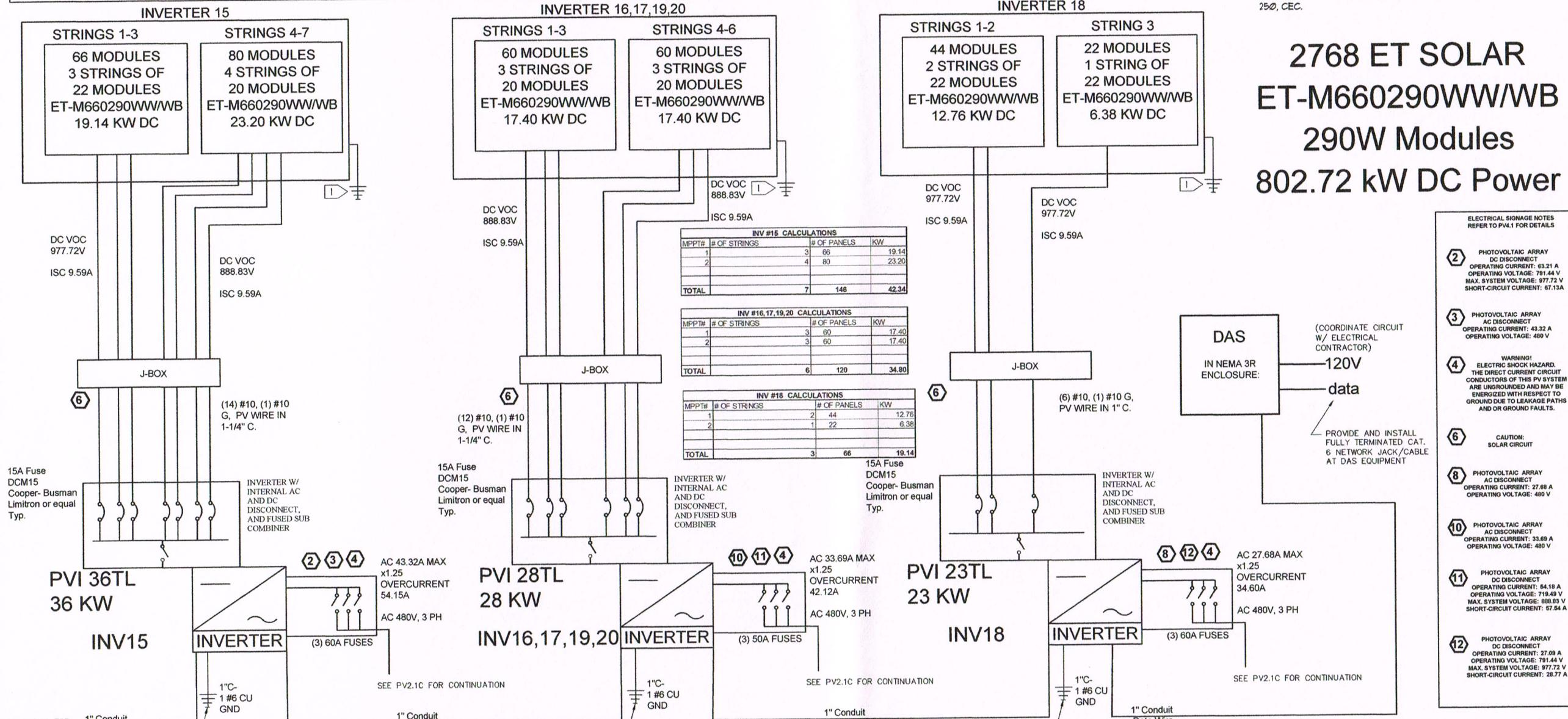
INTERCONNECTION STANDARDS COMPLIANCE
 The Inverters listed have been tested and listed by Underwriters Laboratories to be in compliance with UL1741 Statistic Inverters And Charge Controllers For Use In Photovoltaic Power Systems, as well as IEEE-929-2000 Recommended Practice For Utility Interface Of Photovoltaic (PV) Systems.
 IEEE-929-2000 provides guidance regarding equipment and function necessary to ensure compatible operation of photovoltaic systems which are connected in parallel with the electric utility. UL 1741 is the standard applied by Underwriters Laboratory to the Inverter to verify it meets the recommendations of IEEE-929-2000.
 Refer to both documents for details of these Recommendations and test procedures.

AC Disconnect is accessible, and lockable.
 Single line diagrammatic only actual layout determined by existing conditions.
 All hazardous transmission lines to be labeled: "CAUTION-Electrical Hazard"

NUMBERED NOTES

① PROVIDE #6 CU GROUNDING ELECTRODE CONDUCTOR TO BUILDING GROUND, PER ARTICLE 250, CEC.

2768 ET SOLAR ET-M660290WW/WB 290W Modules 802.72 kW DC Power



Module Model	ET-M660290WW/WB	Modules per string	22	Voltage Correction Factor	1.12 (Table A)	Module Model	ET-M660290WW/WB	Modules per string	20	Voltage Correction Factor	1.12 (Table A)
		String output		Corrected String Output				String output		Corrected String Output	
Module Max Power	290 W					Module Max Power	290 W				
Maximum Power Voltage (VPMAX)	32.12 V	706.64 V		791.44 V		Maximum Power Voltage (VPMAX)	32.12 V	642.4 V		719.49 V	
Maximum Power Current (IPMAX)	9.03 A	9.03 A		9.03 A		Maximum Power Current (IPMAX)	9.03 A	9.03 A		9.03 A	
Open-circuit voltage (Voc)	39.68 V	872.96 V		977.72 V (Not to Exceed 1000V)		Open-circuit voltage (Voc)	39.68 V	793.6 V		888.83 V (Not to Exceed 1000V)	
Short-circuit current (ISC)	9.59 A	9.59 A		9.59 A		Short-circuit current (ISC)	9.59 A	9.59 A		9.59 A	
Fuse Size	15 A					Fuse Size	15 A				

22 panel STRING Output			
# of Strings	1	Factored	1.25
Max Voltage	791.44 V	791.44	791.44 V
Max Current	9.03 A	11.29	14.11 A
Open Circuit Voltage	977.72 V	977.72	977.72 V
Short Circuit Current	9.59 A	11.99	14.98 A

Table A (NEC 690.7)		
Celsius	Fahrenheit	Factor
14 to 10	58 to 50	1.06
9 to 5	49 to 41	1.08
4 to 0	40 to 32	1.1
(-1 to -5)	31 to 23	1.12
(-6 to -10)	22 to 14	1.14

20 panel STRING Output			
# of Strings	1	Factored	1.25
Max Voltage	719.49 V	719.49	719.49 V
Max Current	9.03 A	11.29	14.11 A
Open Circuit Voltage	888.83 V	888.83	888.83 V
Short Circuit Current	9.59 A	11.99	14.98 A



PASSCO DIVERSIFIED II HM LLC
- HANFORD MALL - ARRAY 2
1675 W. Lacey Blvd, Hanford, CA 93230
APN: 011-060-038

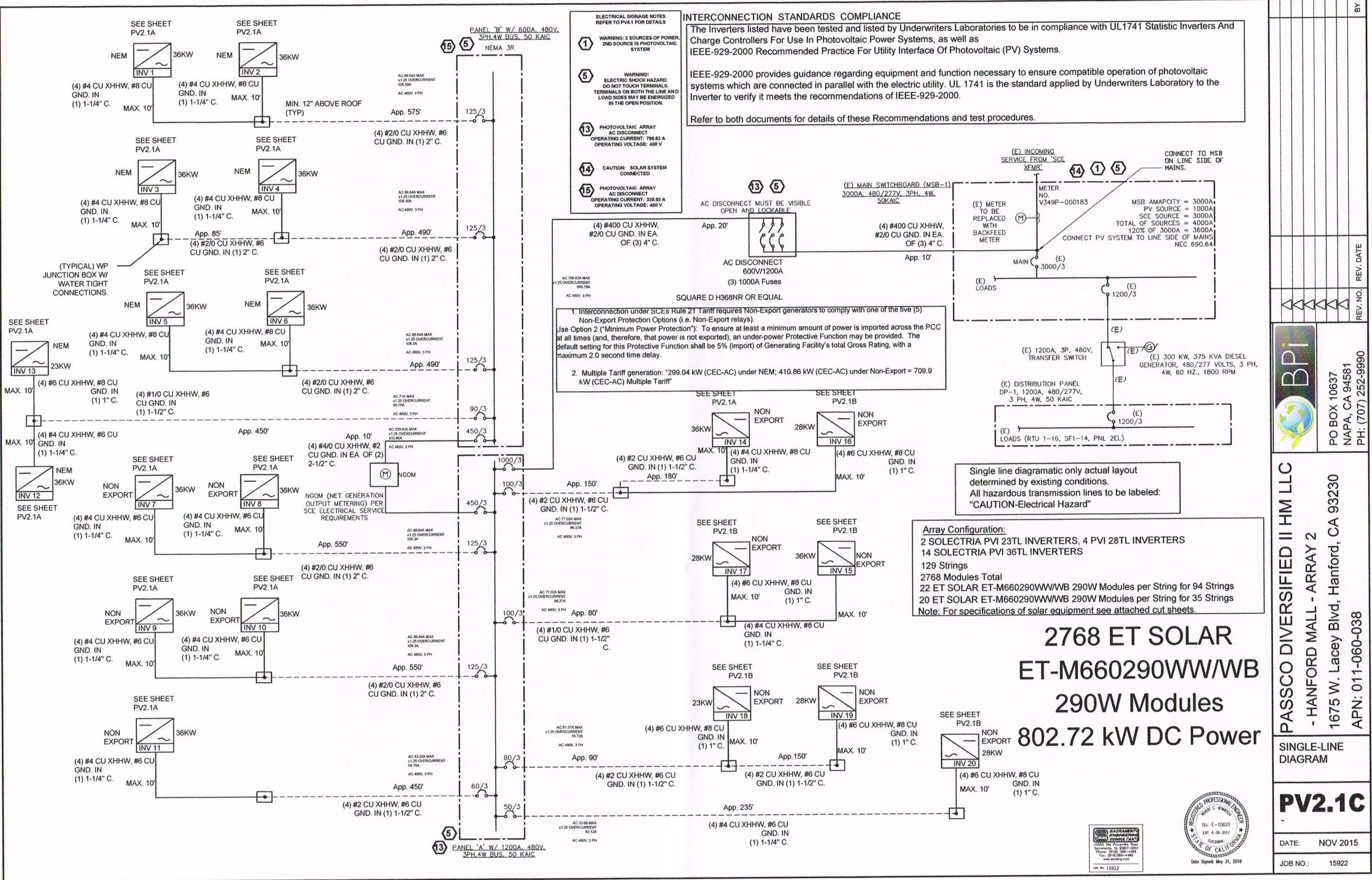
SINGLE-LINE
DIAGRAM
-
PV2.1B
DATE: NOV 2015
JOB NO.: 15922

BY

REV. NO. REV. DATE



PO BOX 10637
NAPA, CA 94581
PH: (707) 252-9990



SYSTEM 2 CALCULATIONS			
INV#	# OF STRINGS	# OF PANELS	KW
1	7	154	44.66
2	7	154	44.66
3	7	154	44.66
4	7	154	44.66
5	7	154	44.66
6	7	154	44.66
7	7	154	44.66
8	7	154	44.66
9	7	154	44.66
10	7	154	44.66
11	7	154	44.66
12	7	154	44.66
13	4	88	25.52
14	7	140	40.60
15	7	146	42.34
16	6	120	34.80
17	6	120	34.80
18	3	66	19.14
19	6	120	34.80
20	6	120	34.80
TOTAL	129	2768	802.72

NGOM CALCULATIONS	
INV#	KW
1	39.50
2	39.50
3	39.50
4	39.50
5	39.50
6	39.50
7	39.50
8	39.50
9	39.50
10	39.50
11	39.50
12	39.50
13	22.57
TOTAL	299.04

NON EXPORT CALCULATIONS	
INV#	KW
7	39.50
8	39.50
9	39.50
10	39.50
11	39.50
14	35.91
15	37.44
16	30.78
17	30.78
18	16.93
19	30.78
20	30.78
TOTAL	410.86

TOTAL AC CALCULATIONS	
TYPE	KW
NGOM	299.04
NON EXI	410.86
TOTAL	709.90

ARRAY	RUNS	CU WIRE	CU CABLE AMPACITY	LOAD (AMPS)	FACTOR	REQUIRED CABLE AMPACITY	MAX. PERMISSIBLE OCP	OCP PROVIDED	ALUMINUM OPTION	
									RUNS	AL CABLE AMPAC ITY
TYP STR 20 MOD	1	#10	35.00	9.03	1.5625	14.11	15.00	15.00	1	#8
TYP STR 22 MOD	1	#10	35.00	9.03	1.5625	14.11	15.00	15.00	1	#8
INV 1-12, 14-15 (36 KW)	1	#4	85.00	43.32	1.25	54.15	60.00	60.00	1	#2
INV 13,18 (23 KW)	1	#6	65.00	27.68	1.25	34.60	40.00	40.00	1	#4
INV 16,17,19,20 (28 KW)	1	#6	65.00	33.69	1.25	42.12	50.00	50.00	1	#4
INV 1,2	1	#2,0	175.00	66.64	1.25	108.30	125.00	125.00	1	#4,0
INV 3	1	#2,0	175.00	43.32	1.25	54.15	60.00	60.00	1	#4,0
INV 3,4	1	#2,0	175.00	86.64	1.25	108.30	125.00	125.00	1	#4,0
INV 5,6	1	#2,0	175.00	86.64	1.25	108.30	125.00	125.00	1	#4,0
INV 7,8	1	#2,0	175.00	86.64	1.25	108.30	125.00	125.00	1	#4,0
INV 9,10	1	#2,0	175.00	86.64	1.25	108.30	125.00	125.00	1	#4,0
INV 12,13	1	#1,0	150.00	71.00	1.25	88.75	90.00	90.00	1	#3,0
INV 11	1	#2	115.00	43.32	1.25	54.15	50.00	50.00	1	#1,0
INV 14	1	#2	115.00	43.32	1.25	54.15	60.00	60.00	1	#1,0
INV 14,16	1	#2	115.00	77.02	1.25	96.27	100.00	100.00	1	#1,0
INV 19	1	#2	115.00	33.69	1.25	42.12	50.00	50.00	1	#1,0
INV 18,19	1	#2	115.00	61.37	1.25	76.71	80.00	80.00	1	#1,0
INV 20	1	#4	85.00	33.69	1.25	42.12	50.00	50.00	1	#2
INV 15,17	1	#1,0	150.00	77.02	1.25	96.27	100.00	100.00	1	#2,0
PANEL 'B'	2	#4,0	460.00	330.93	1.25	413.66	450.00	450.00	2	#300
PANEL 'A'	3	#400	1005	796.63	1.25	995.79	1000.00	1000.00	3	#600
DISC	3	#400	1005	796.63	1.25	995.79	1000.00	1000.00	3	#600

VOLTAGE DROP CALCULATOR																
JOB NAME:		HANFORD MALL METER 2		ENTER		NOTES:										
JOB #:		15922	1	FOR AL IN AIR	P.F. = POWER FACTOR	% V.D. = VOLTAGE DROP %										
ARRAY	CONSTANT	DISTANCE	RUNS	WIRE	I	R	VOLTS	PHASE	VD	% V.D.	ALUMINUM OPTION					
TyP STR 20 MOD	5	450	1	#10	9.03	1.21	719.49	1	9.83	1.37	1	1	#8	1.26	10.24	1.42
TyP STR 22 MOD	5	450	1	#10	9.03	1.21	791.44	1	9.83	1.24	1	1	#8	1.26	10.24	1.29
INV 1-12, 14-15 (36 KW)	3	10	1	#4	43.32	0.31	480	3	0.23	0.05	6	1	#2	0.32	0.24	0.05
INV 13,18 (23 KW)	3	10	1	#6	27.68	0.49	480	3	0.23	0.05	6	1	#4	0.51	0.24	0.05
INV 16,17,19,20 (28 KW)	3	10	1	#6	33.69	0.49	480	3	0.29	0.06	6	1	#4	0.51	0.30	0.06
INV 1,2	3	575	1	#2,0	86.64	0.1	480	3	8.62	1.80	6	1	#4,0	0.1	8.62	1.80
INV 3	3	85	1	#2,0	43.32	0.1	480	3	0.64	0.13	6	1	#4,0	0.1	0.64	0.13
INV 3,4	3	490	1	#2,0	86.64	0.1	480	3	7.34	1.53	6	1	#4,0	0.1	7.34	1.53
INV 5,6	3	490	1	#2,0	86.64	0.1	480	3	7.34	1.53	6	1	#4,0	0.1	7.34	1.53

All Text to Be:
Color: White Tex
Red Background

Material: ABS UV
Font: Arial

Scale 1:1



PASSCO DIVERSIFIED II HM LLC
- HANFORD MALL - ARRAY 2
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APN: 011-060-038

PV
SIGNAGE

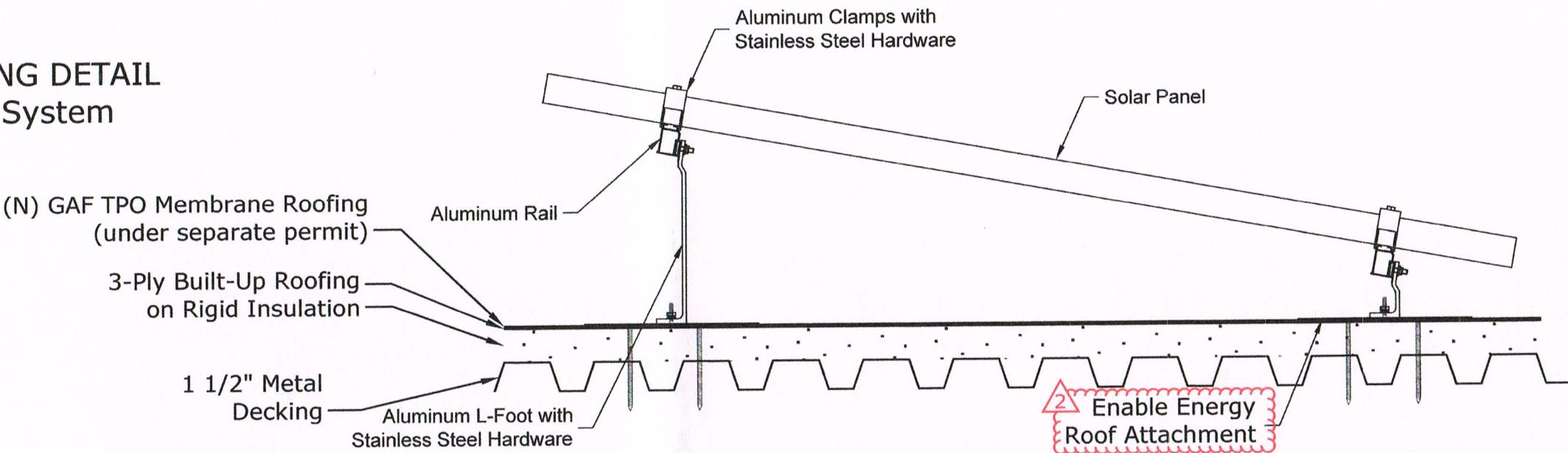
PV4.1

DATE: NOV 2015

JOB NO.: 15922

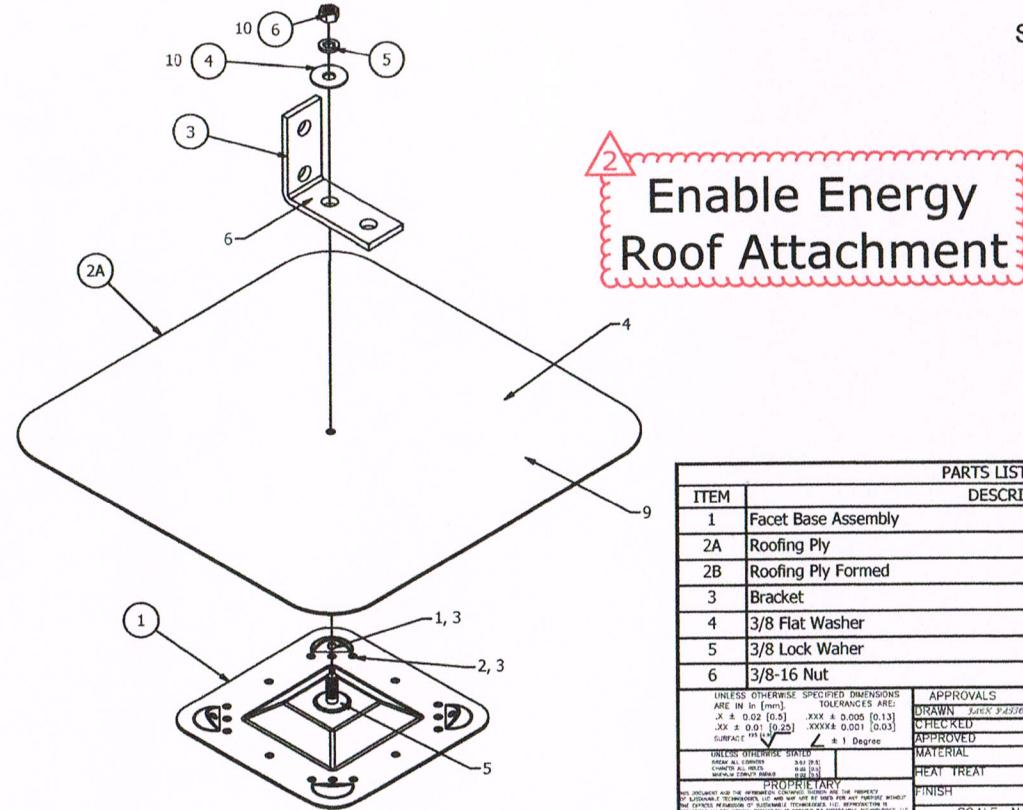
FLAT ROOF RACKING DETAIL

Renusol VS Tilt System

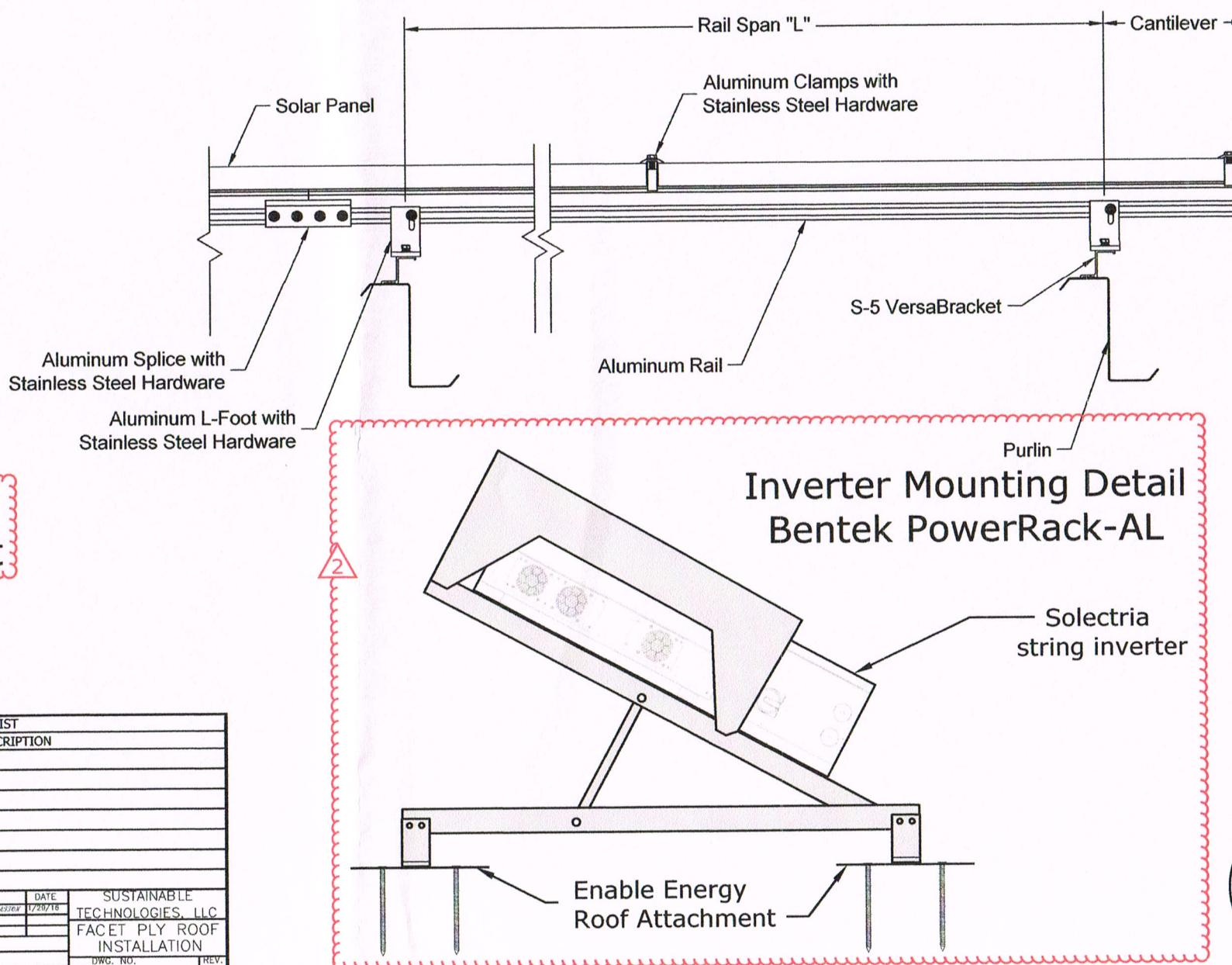


METAL ROOF RACKING DETAIL

Renusol VS Flush Mount



PARTS LIST	
ITEM	DESCRIPTION
1	Facet Base Assembly
2A	Roofing Ply
2B	Roofing Ply Formed
3	Bracket
4	3/8 Flat Washer
5	3/8 Lock Waher
6	3/8-16 Nut
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN [mm] TOLERANCES ARE:	
± 0.02 [0.05] ± 0.03 [0.13]	
± 0.01 [0.25] ± 0.001 [0.03]	
SURFACE 100° ± 1 Degree	
UNLESS OTHERWISE NOTED	
PROPRIETARY	
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APPROVALS	DATE
DRAWN BY <i>JACK PASZTER</i>	1/20/18
CHECKED	
APPROVED	
MATERIAL	
HEAT TREAT	
FINISH	
SCALE: N.T.S	
DWG. NO. IN0001-01	
REV. 0	
SHEET 1 OF 1	



PASSCO DIVERSIFIED II HM LC - HANFORD MALL
1675 W. LACEY BLVD
HANFORD, CA 93230
APN: 011-060-038

S1.0
RACKING
DETAILS