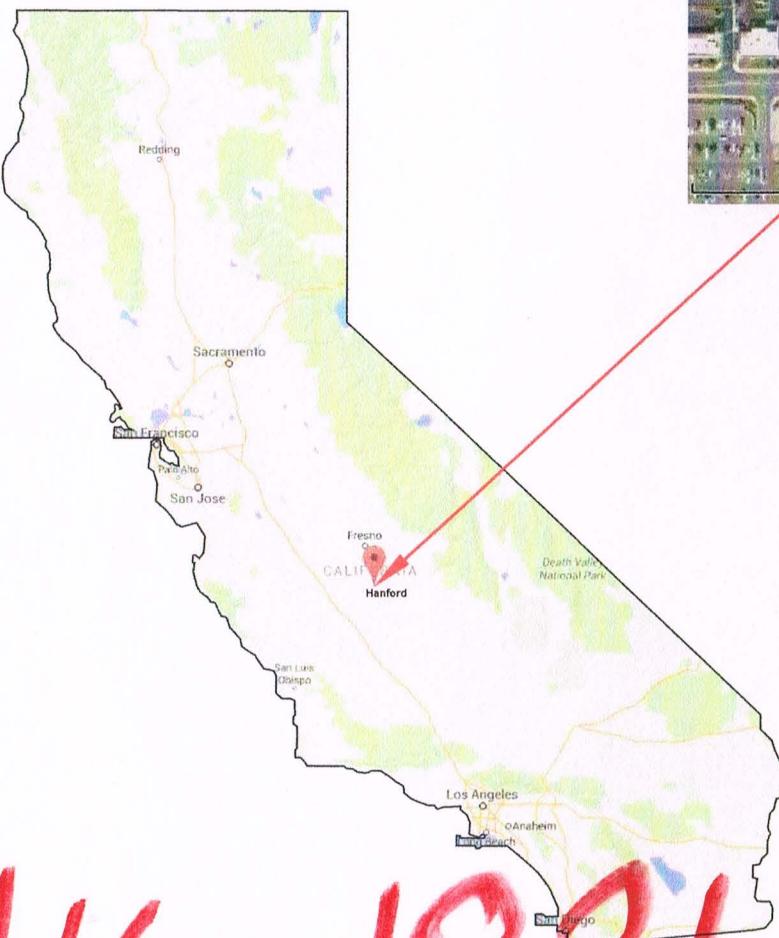


JOB SET**SOLAR PHOTOVOLTAIC SYSTEM****HANFORD MALL - ARRAY 1
HANFORD, CA**CITY OF HANFORD
BUILDING DEPARTMENT
APPROVED

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 7-27-16 BY *JJR* Building Inspector

**SITE INFORMATION**

Site Latitude	36° 20' N
Occupancy Group	II
Zoning District	C-2
Flood Zone	X
Exposure Category	1 C
Seismic Design Category	D

SYSTEM SPECIFICATIONS

Cold Design Temperature	23° F
Max Operating Temperature	131° F
Total # of Inverters	20
Total # of Modules	2706
TOTAL DC SYSTEM SIZE	784.74 kW DC
Nominal AC Output Power	665 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

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

IG**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***Colm*
INTERWEST CONSULTING**SHEET INDEX**

PVO	TITLE SHEET
PVO.1	PROJECT DETAILS
PVO.2	PARCEL MAP
PVO.3	ARRAY BREAKDOWN
PVO.4A	EXISTING SITE CONDITIONS
PVO.4B	EXISTING SITE CONDITIONS
PVO.5A	MODULE LAYOUT OVERVIEW
PVO.5B	MODULE LAYOUT OVERVIEW
PVO.6A	JC PENNEY'S ARRAY DIMENSIONS & INVERTER FOOTPRINT
PVO.6B	CINEMAS ARRAY DIMENSIONS & INVERTER FOOTPRINT
PVO.6C	MID ROOF ARRAY DIMENSIONS & INVERTER FOOTPRINT
PVO.7A	JC PENNEY'S - ROOF ATTACHMENT LAYOUT
PVO.7B	CINEMAS - ROOF ATTACHMENT LAYOUT
PVO.7C	MID ROOF - ROOF ATTACHMENT LAYOUT
PV1.0A	PHOTOVOLTAIC KEY PLAN
PV1.0B	PHOTOVOLTAIC SITE PLAN
PV1.1	ROOF-ARRAY PV PLAN
PV1.2	ROOF-ARRAY PV PLAN
PV1.3	ROOF-ARRAY PV PLAN
PV1.4	ROOF-ARRAY PV PLAN
PV1.5	METER-AREA PLAN
PV2.1A	SINGLE-LINE DIAGRAM
PV2.1B	SINGLE-LINE DIAGRAM
PV2.1C	SINGLE-LINE DIAGRAM
PV3.1	PV DETAILS
PV4.1	PV SIGNAGE
S1.0	RACKING DETAILS

PASSCO DIVERSIFIED II HM LC - HANFORD MALL	1675 W. LACEY BLVD HANFORD, CA 93230		APN: 011-060-038		REV. NO. 011-060-038
 1 6/20/16 2 7/7/16 Updated code ref., deleted "prelim. approval" Added sheets to sheet index					
BY <i>[Signature]</i>					
FO INT FO INT					
INTERWEST CONSULTING					
PVO TITLE SHEET					
DATE: 5-25-16 BY: JB					
STATE OF CALIFORNIA 					
JOB NO.: C15-710					

GENERAL NOTES

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.
2. BEFORE INITIATING ANY WORK, THE CONTRACTOR SHALL NOTIFY ENGINEER OF RECORDS OF ANY DISCREPANCIES IDENTIFIED ON EXISTING CONDITIONS, STRUCTURE, ELECTRICAL, ETC.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS, OSHA REQUIREMENTS AND SAFETY MEASUREMENTS ON SITE.
4. CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL EQUIPMENT AND FOLLOWING ALL MANUFACTURER'S OR ENGINEER'S DIRECTIONS AND INSTRUCTIONS.
5. 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.
6. CONTRACTOR IS RESPONSIBLE FOR SELECTING AND PURCHASING EQUIPMENT THAT WILL LAST THE LIFETIME OF THE PV SYSTEM; ALL ENCLOSURES, CONDUITS, STRAPS, PAINTED METAL SURFACES, CONCRETE, GROUNDING EQUIPMENT AND OTHER EQUIPMENT AND OTHER PRODUCTS SHALL BE SELECTED TO LAST THE LIFECYCLE OF THE PHOTOVOLTAIC SYSTEM.
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.

PV MODULE INFO	MFG Model STC Rating Vmp Imp Voc Isc Voc temp. coeff. Isc temp. coeff.
	ET Solar ET-M660290WB/WW 290W 290 W 32.12 V 9.03 A 39.68 V 9.59 A -0.31%/°C 0.02%/°C

8. REFILL AND RESTORE THE WORK AS DIRECTED, DURING CONSTRUCTION AND PRIOR TO PROJECT COMPLETION, TO MAINTAIN ACCEPTABLE SURFACE CONDITIONS.

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).

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.

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.

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.

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.

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.

17. ALL SCE-REQUIRED EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH CURRENT SCE STANDARDS.

17. ALL CONSTRUCTION AND MATERIAL DELIVERY VEHICLES SHALL USE THE SITE CLEARING NOTES (IF APPLICABLE)

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.

18. CONDUCT OPERATION ENTIRELY WITHIN THE PROJECT AREAS INDICATED IN THESE DRAWINGS.

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.

20. DO NOT DISPOSE OF CHLORINATED OR OTHER CHEMICALLY TREATED OR POLLUTED WATER INTO ANY DRAINAGE SYSTEM OR TO AREA SOILS.

ELECTRICAL NOTES

1. SOLAR MODULES ARE ENERGIZED WHEN EXPOSED TO LIGHT. THE LINE AND LOAD TERMINALS ON THE DC DISCONNECTS MAY BE ENERGIZED IN THE OPEN POSITION. SWITCH IS TO BE LABELED TO COMPLY WITH ARTICLE 690.17 OF THE NEC.

2. PHOTOVOLTAIC SYSTEM SHALL BE CLEARLY MARKED IN ACCORDANCE WITH THE NEC LABELING REQUIREMENTS ARTICLE 690.

3. CONTRACTOR SHALL PERFORM INITIAL HARDWARE CHECKS AND PV/WIRING CONDUCTIVITY CHECKS PRIOR TO TERMINATING ANY WIRES.

4. GROUNDING OF THE PV SYSTEM SHALL COMPLY WITH NEC 690.45 AND 690.47.

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.

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. 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.

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.

3. FILL DEPRESSIONS CAUSED BY CLEARING AND GRUBBING OPERATIONS WITH SOIL MATERIAL APPROVED BY OWNER, UNLESS FURTHER EXCAVATION OR EARTHWORK IS INDICATED.

4. STRIP TOPSOIL WHERE REQUIRED. STOCKPILE IN AREA APPROVED BY OWNER.

5. WITH OWNER'S APPROVAL, REMOVE EXISTING ABOVE AND BELOW GRADE IMPROVEMENTS AS INDICATED AND AS NECESSARY TO FACILITATE NEW CONSTRUCTION.

6. DISPOSE OF REMOVED TREES, BRUSH, STUMPS, ROOTS AND ORGANIC DEBRIS IN A LEGAL MANNER OFF THE SITE.

RECORD DRAWINGS

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.

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.

JB	BY	Updated code references	6/20/16	1	REV. NO	REV. DATE

PASSCO DIVERSIFIED II HM LC - HANFORD MALL

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

ARRAY 1

PVO.1
PROJECT DETAILS

DATE: 5-25-16

BY: JB

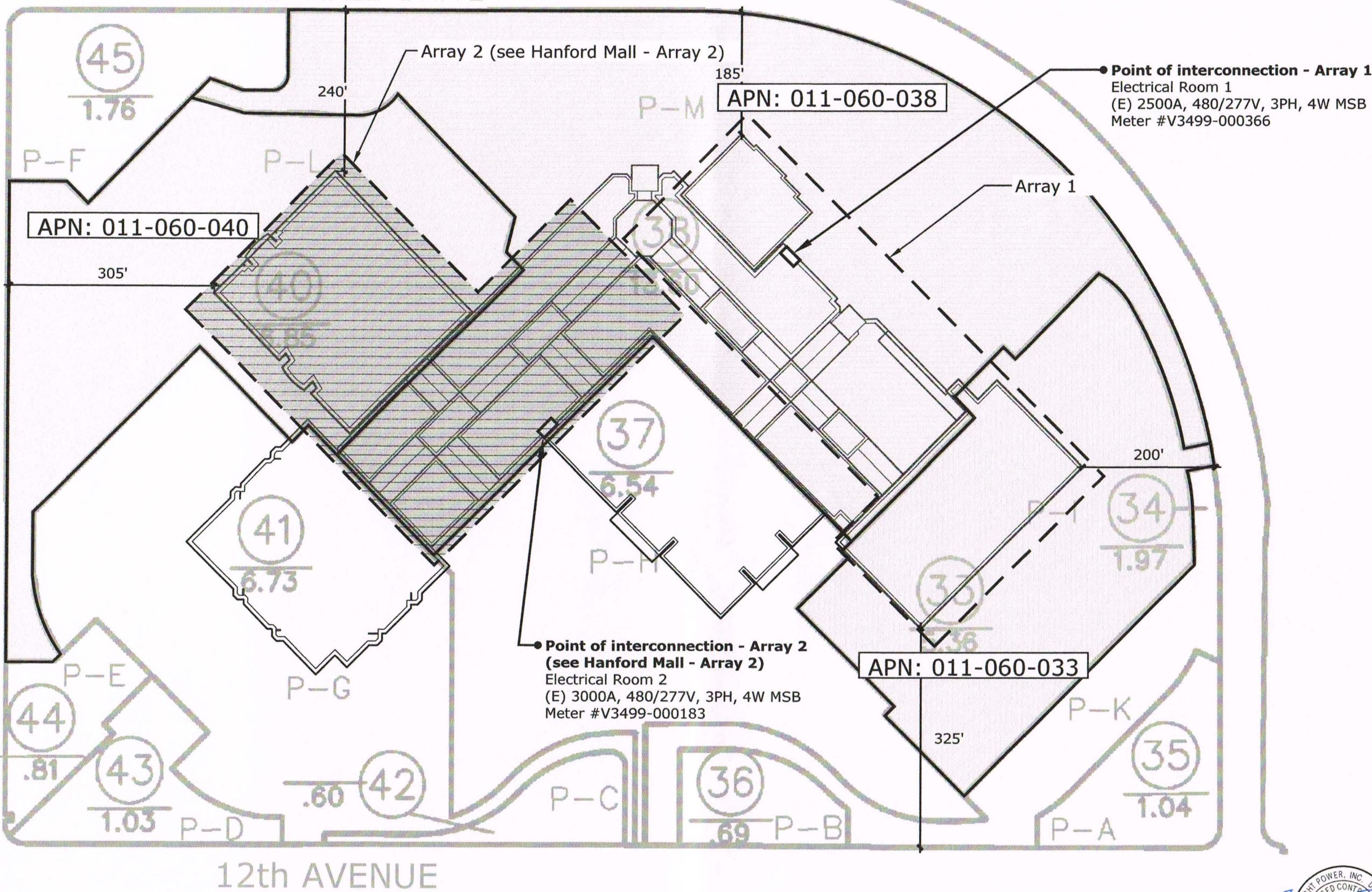
JOB NO.: C15-710



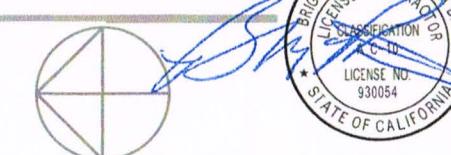
Inverters	Inverter #1-#10	Inverter #11-#13	Inverter #14	Inverter #15	Inverter #16	Inverter #17	Inverter #18-#19	Inverter #20
Manufacturer Model	Solectria PVI-36TL	Solectria PVI-36TL	Solectria PVI-23TL	Solectria PVI-28TL	Solectria PVI-23TL	Solectria PVI-28TL	Solectria PVI-36TL	Solectria PVI-23TL
Voltage AC	480	480	480	480	480	480	480	480
Nominal AC Output Power	36 kW	36 kW	23 kW	28 kW	23 kW	28 kW	36 kW	23 kW
CEC efficiency	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
Number of Strings/inverter	7	6	4	5	4	5	7	3
Number of Panels/string	22	22	22	22	22	22	22	22
Number of Panels/inverter	154	132	88	110	88	110	154	66
STC DC subsystem size	446.60 kW	114.84 kW	25.52 kW	31.90 kW	25.52 kW	31.90 kW	89.32 kW	19.14 kW
PV Module Azimuth	227°	227°	137°	227°	227°	227°	227°	137°
PV Module Tilt	10°	10°	30°	10°	10°	30°	30°	30°
Racking MFG	Renusol							
Array Location	JC Penney's	Cinemas	Metal 6	Mid 5	Mid 6	Metal 7 Metal 8	Mid 7	Metal 9

LACEY BLVD.

HANFORD MALL DRIVE



Scale: 1" = 15'



PASSCO DIVERSIFIED II HM LC - HANFORD MALL
1675 W. LACEY BLVD
HANFORD, CA 93230
APN: 011-060-038
ARRAY 1

PV0.2
PARCEL MAP

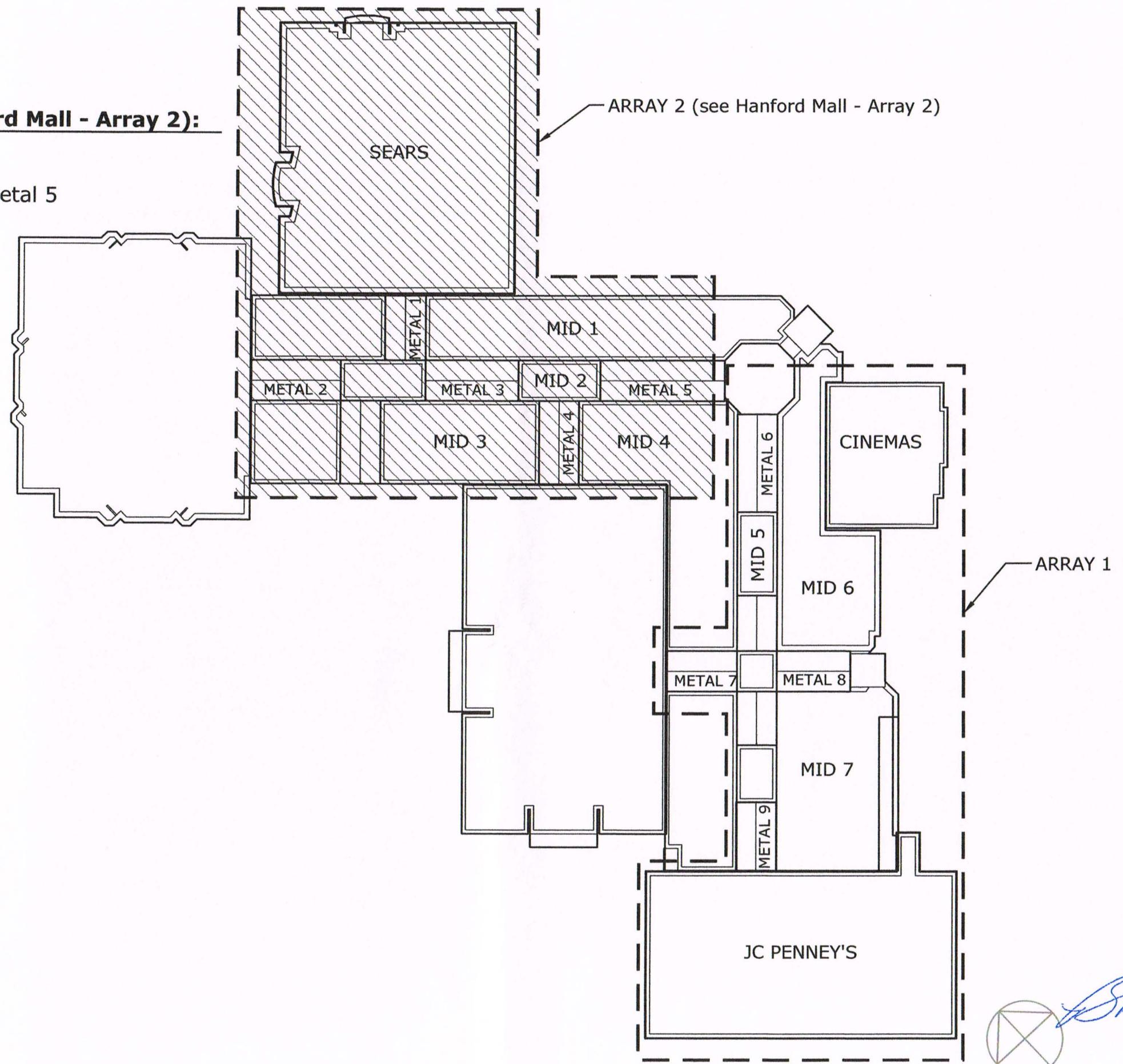
DATE: 5-25-16
BY: JB
JOB NO. G15-712

ELECTRICAL ROOM 1:

JC Penney's
Cinemas
Mid 5, Mid 6, Mid 7
Metal 6, Metal 7, Metal 8, Metal 9

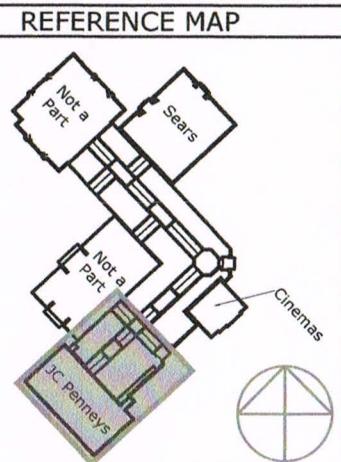
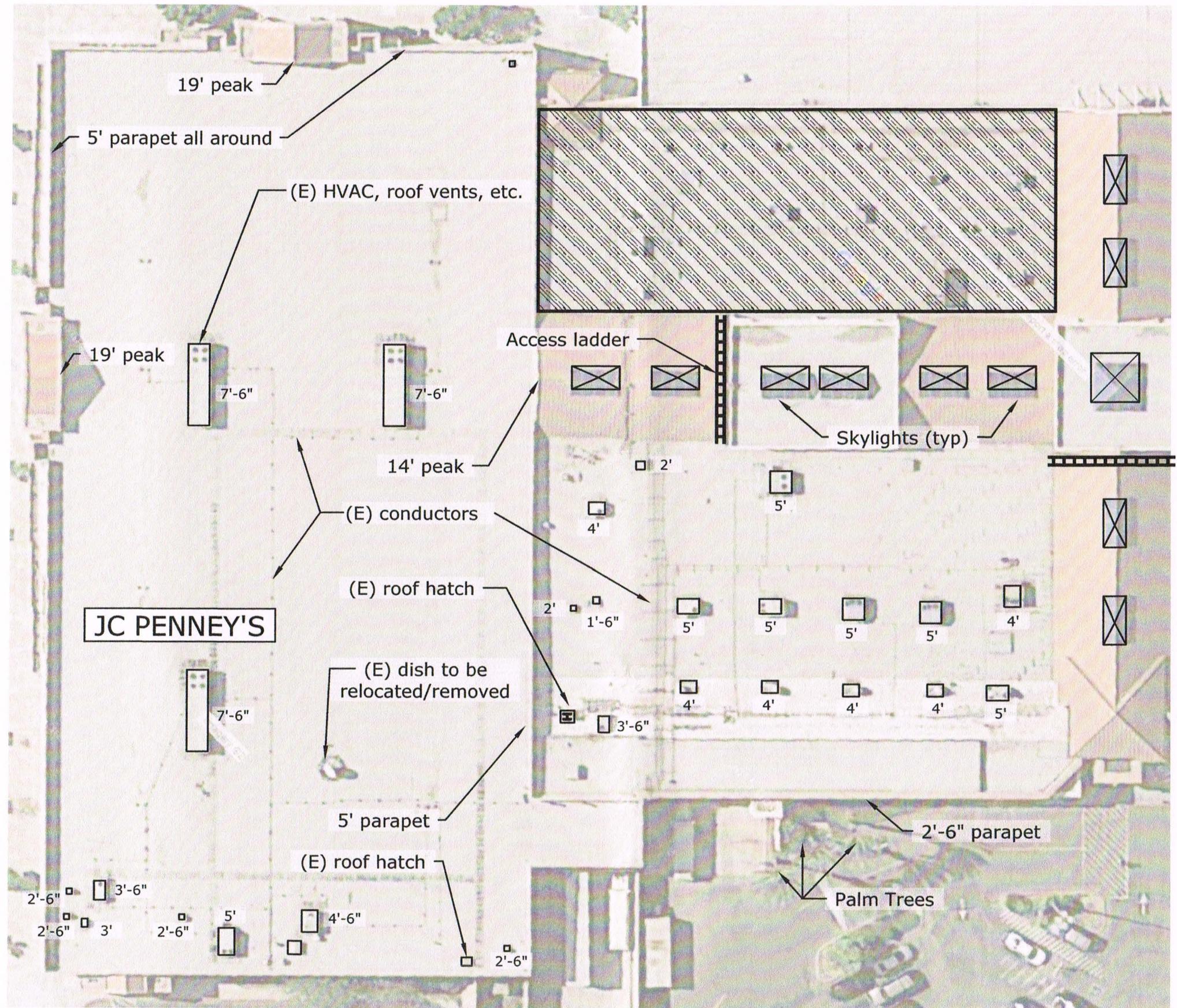
ELECTRICAL ROOM 2 (see Hanford Mall - Array 2):

Sears
Mid 1, Mid 2, Mid 3, Mid 4
Metal 1, Metal 2, Metal 3, Metal 4, Metal 5



PASSCO DIVERSIFIED II HM LC - HANFORD MALL	1675 W. LACEY BLVD	HANFORD, CA 93230	APN: 011-060-038
ARRAY 1	PO BOX 10637	NAPA, CA 94581	PH: (707)-252-9990
PVO.3	ARRAY BREAKDOWN		
DATE: 5-25-16			
BY: JB			
JOB NO.: C15-710			

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



Scale: 1" = 40'

00 40 80



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

ARRAY 1

PVO.4A
EXISTING SITE CONDITIONS

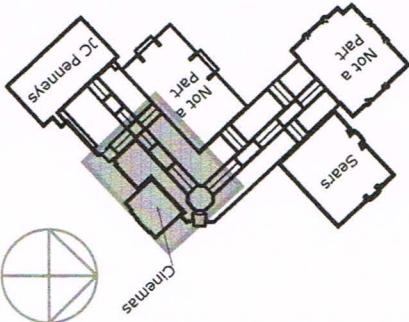
DATE: 5-25-16

BY: JB

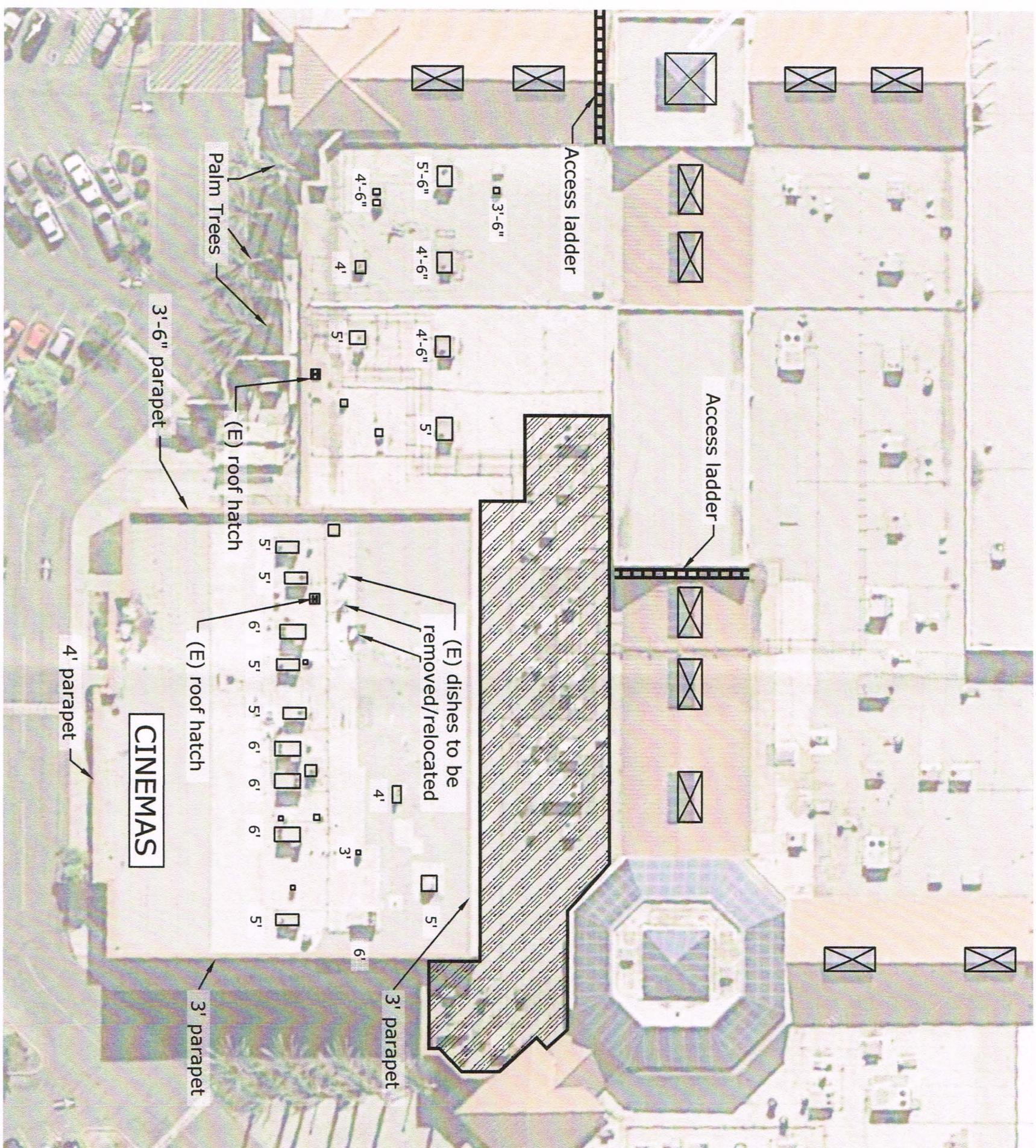
JOB NO.: C15-710

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

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



REFERENCE MAP



Scale: 1" = 40'

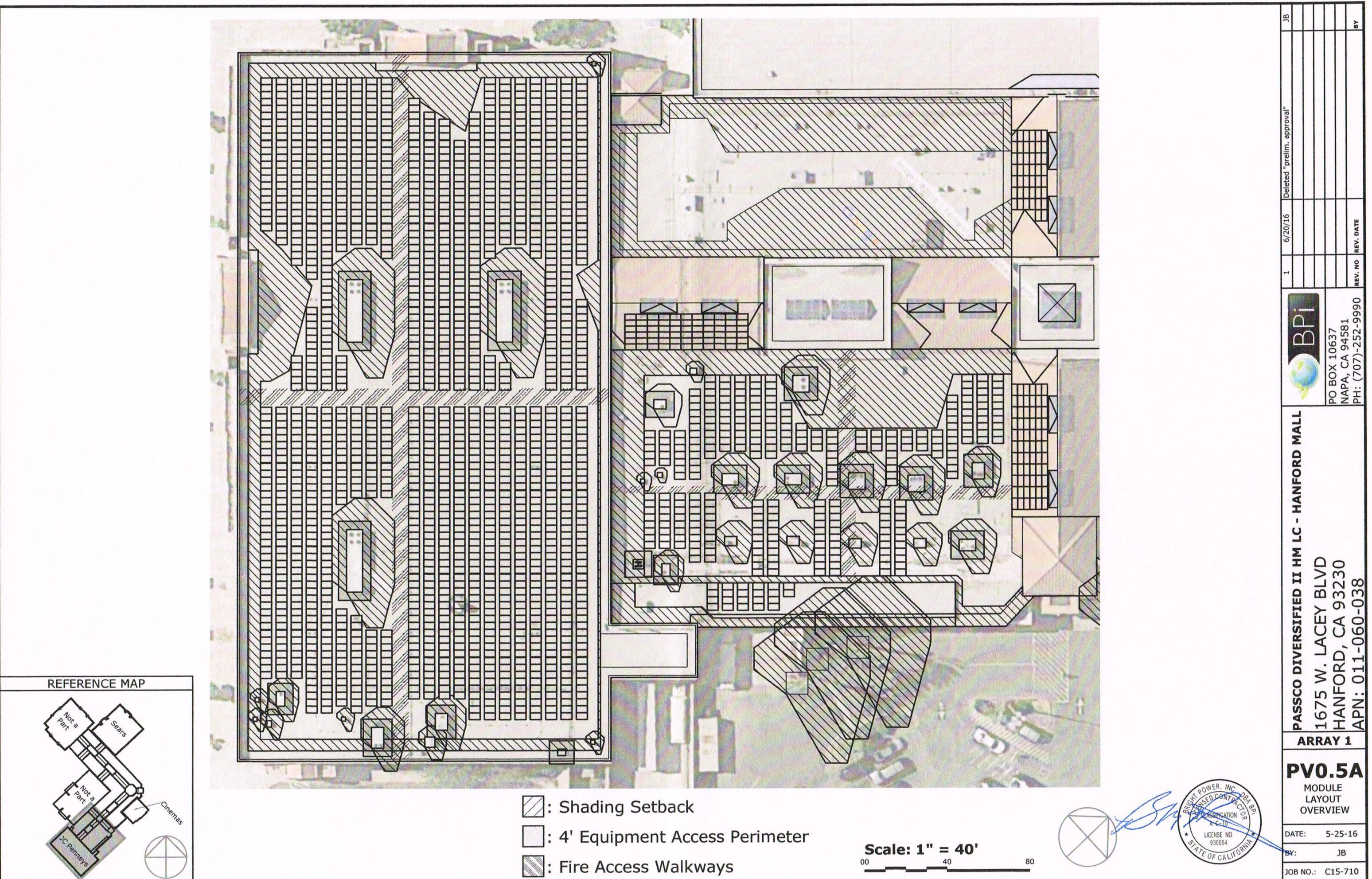


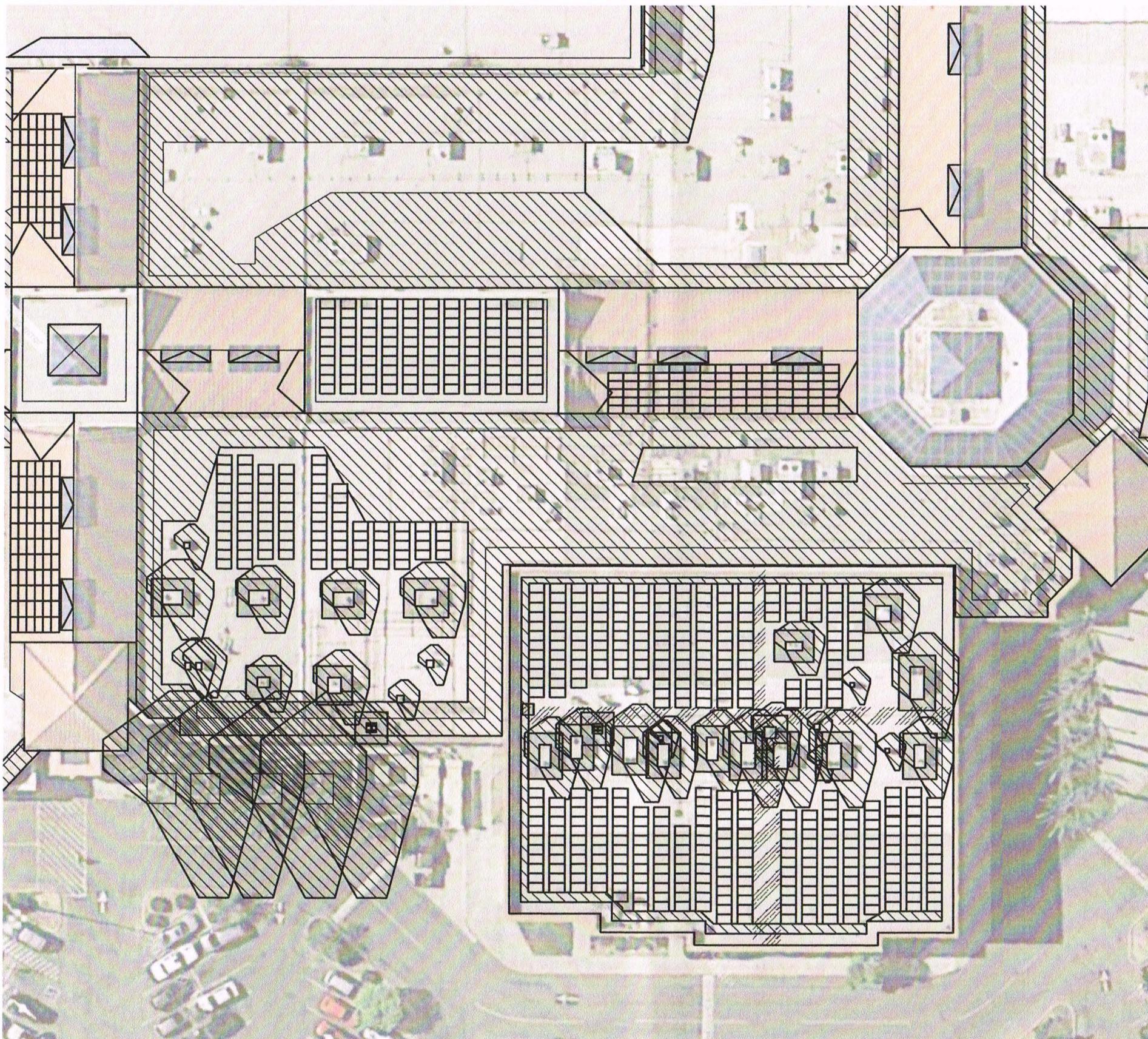
PASSCO DIVERSIFIED II HM LC - HANFORD MALL
1675 W. LACEY BLVD
HANFORD, CA 93230
APN: 011-060-038



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

1	6/20/16	Deleted "prelim. approval"	JB
REV. NO	REV. DATE		BY





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

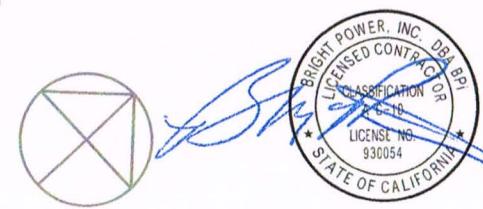
ARRAY 1
PV0.5B
MODULE
LAYOUT
OVERVIEW
DATE: 5-25-16
BY: JB
JOB NO.: C15-710



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

JB

BY

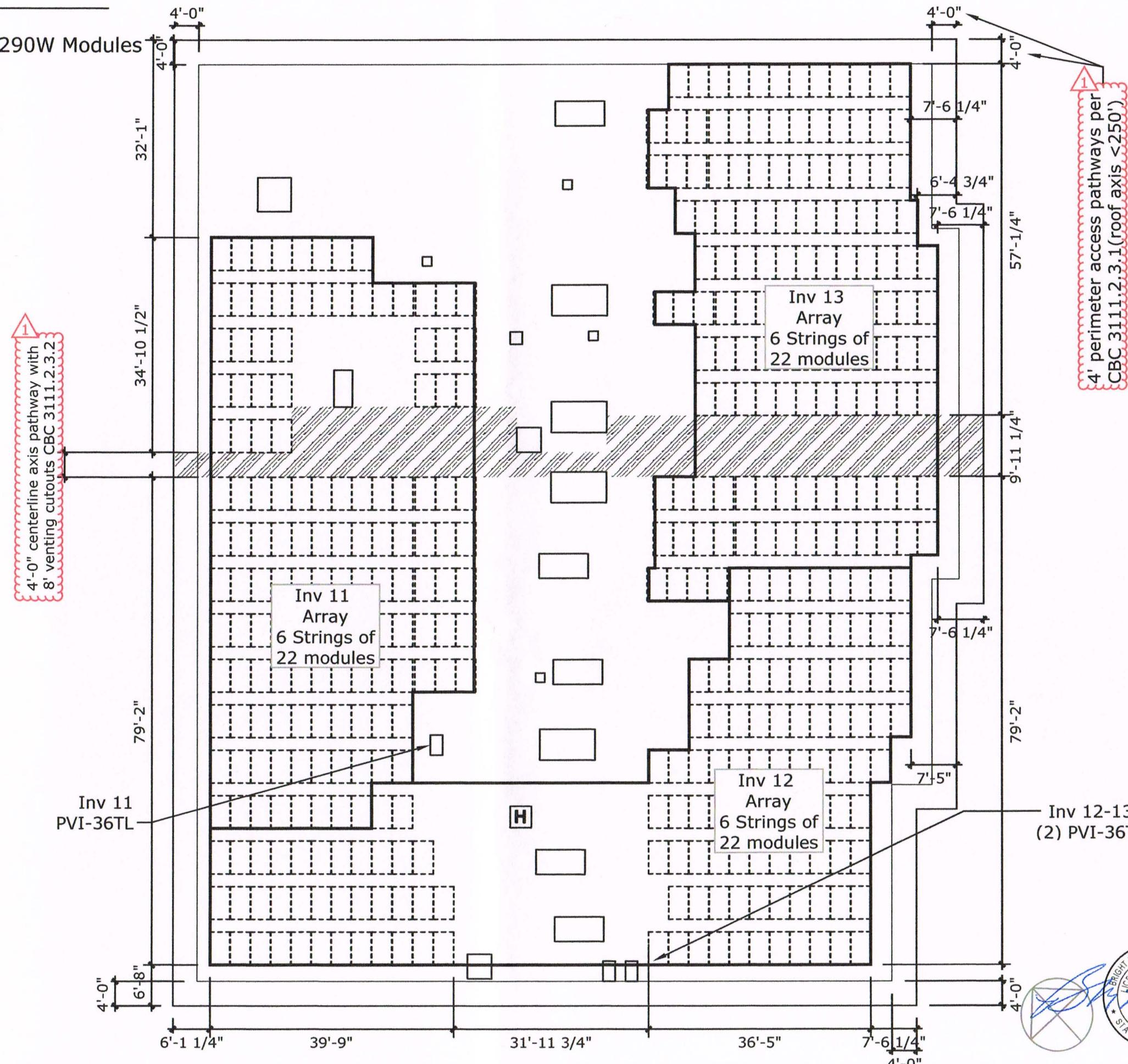


Roof Array Configuration:

3 Solectria PVI-36TL Inverter

396 ET Solar ET-M660290WB/WW 290W Modules

114.84 kW DC Subsystem Size

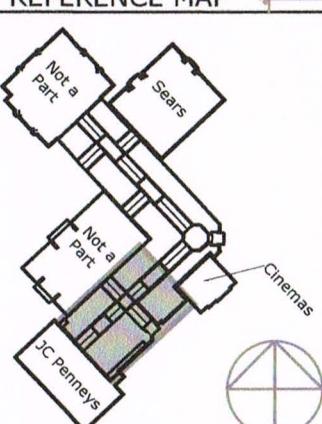
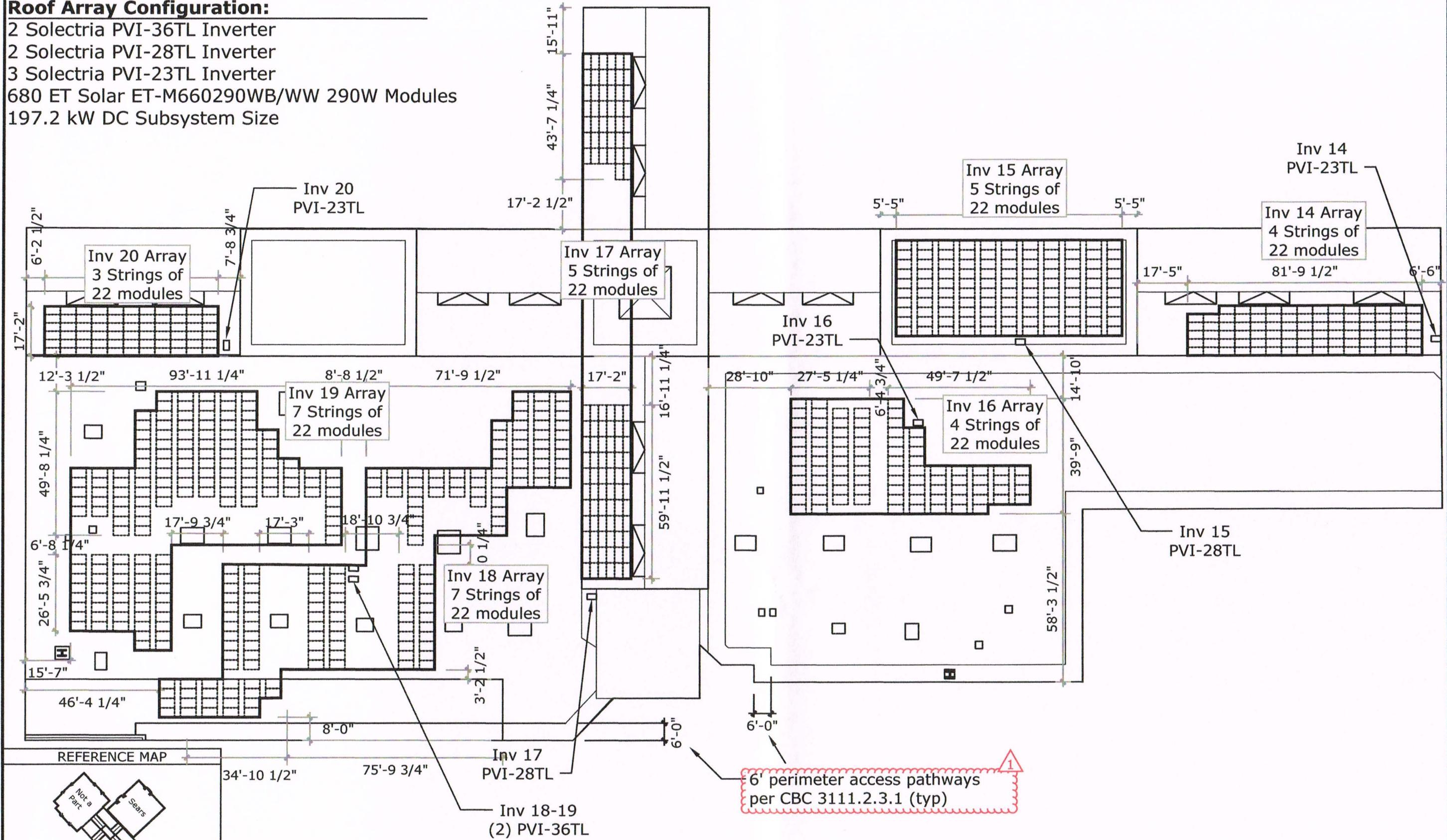


PASSCO DIVERSIFIED II HM LC - HANFORD MALL	BPi	1	6/20/16	Del. "prelim. approval", add access pathways
1675 W. LACEY BLVD				
HANFORD, CA 93230				
APN: 011-060-038				
ARRAY 1				
PVO.6B				
CINEMAS ARRAY				
DIMENSIONS &				
INVERTER				
FOOTPRINT				
DATE: 5-25-16				
BY: JB				
JOB NO.: C15-710				



Roof Array Configuration:

2 Solecatria PVI-36TL Inverter
2 Solecatria PVI-28TL Inverter
3 Solecatria PVI-23TL Inverter
680 ET Solar ET-M660290WB/WW 290W Modules
197.2 kW DC Subsystem Size



— 6' perimeter access pathways per CBC 3111.2.3.1 (typ)



PASSCO DIVERSIFIED II HM LC - HANFORD MALL
1675 W. LACEY BLVD
HANFORD, CA 93230
APN: 011-060-038
ARRAY 1

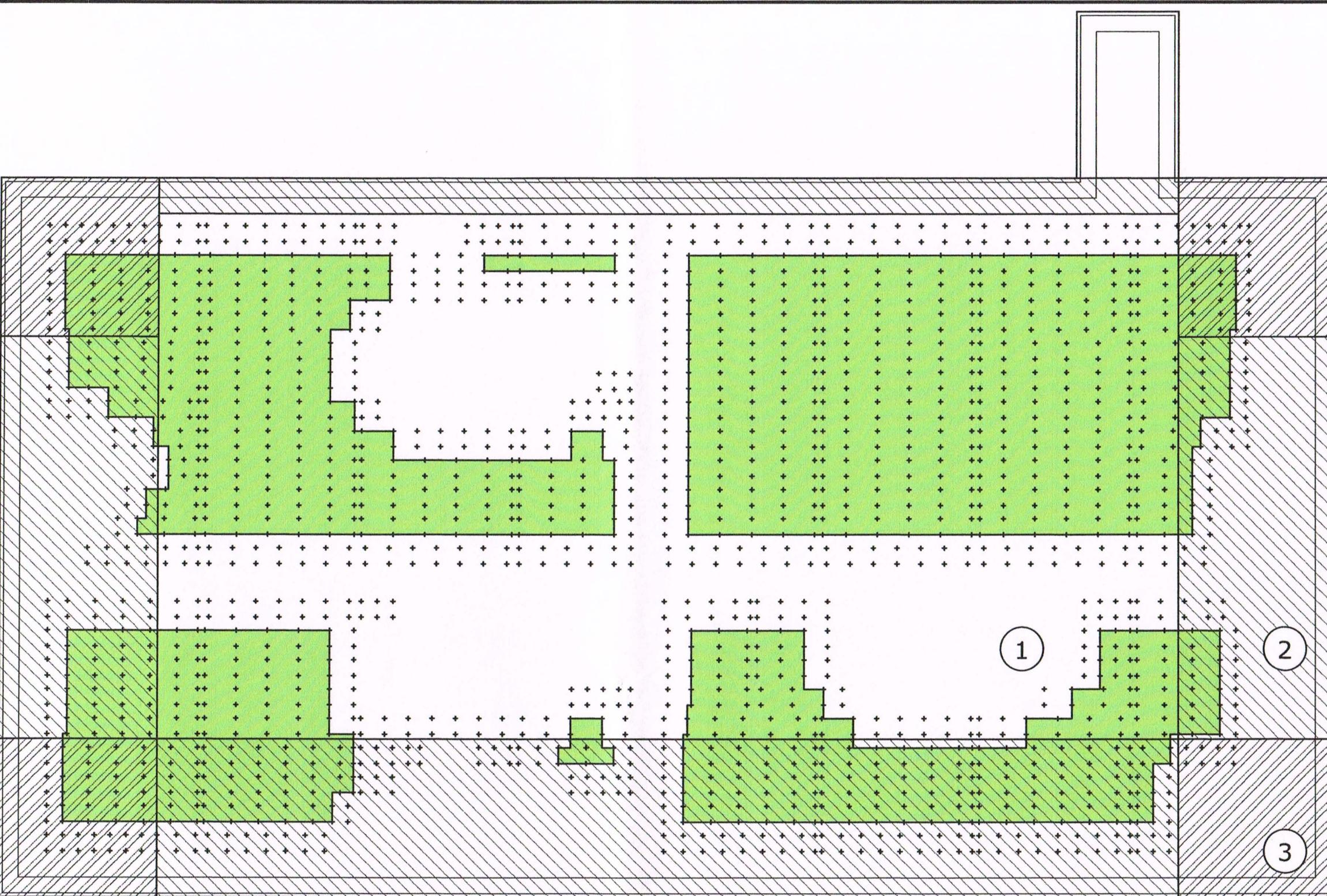
PV0.6C MID ROOF ARRAY DIMENSIONS & INVERTER FOOTPRINT

MID ROOF ARRAY
DIMENSIONS &
INVERTER
FOOTPRINT

DATE: 5-25-16

JB

JOB NO : G1E-710



+ = Roof Attachment

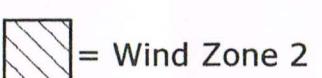
Wind Zone	Edge	Sheltered
Zone 3	4 ft	7 ft
Zone 2	5 ft	7 ft
Zone 1	6 ft	8 ft
Zone 0	7 ft	10 ft



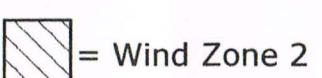
= Wind Zone 3



= Wind Zone 2



= Wind Zone 1



= Sheltered Zone



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

ARRAY 1

PVO.7A

JC PENNEY'S -
ROOF
ATTACHMENT
LAYOUT

DATE: 7-7-16

BY: JB

JOB NO.: C15-710

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



+ = Roof Attachment

= Wind Zone 3

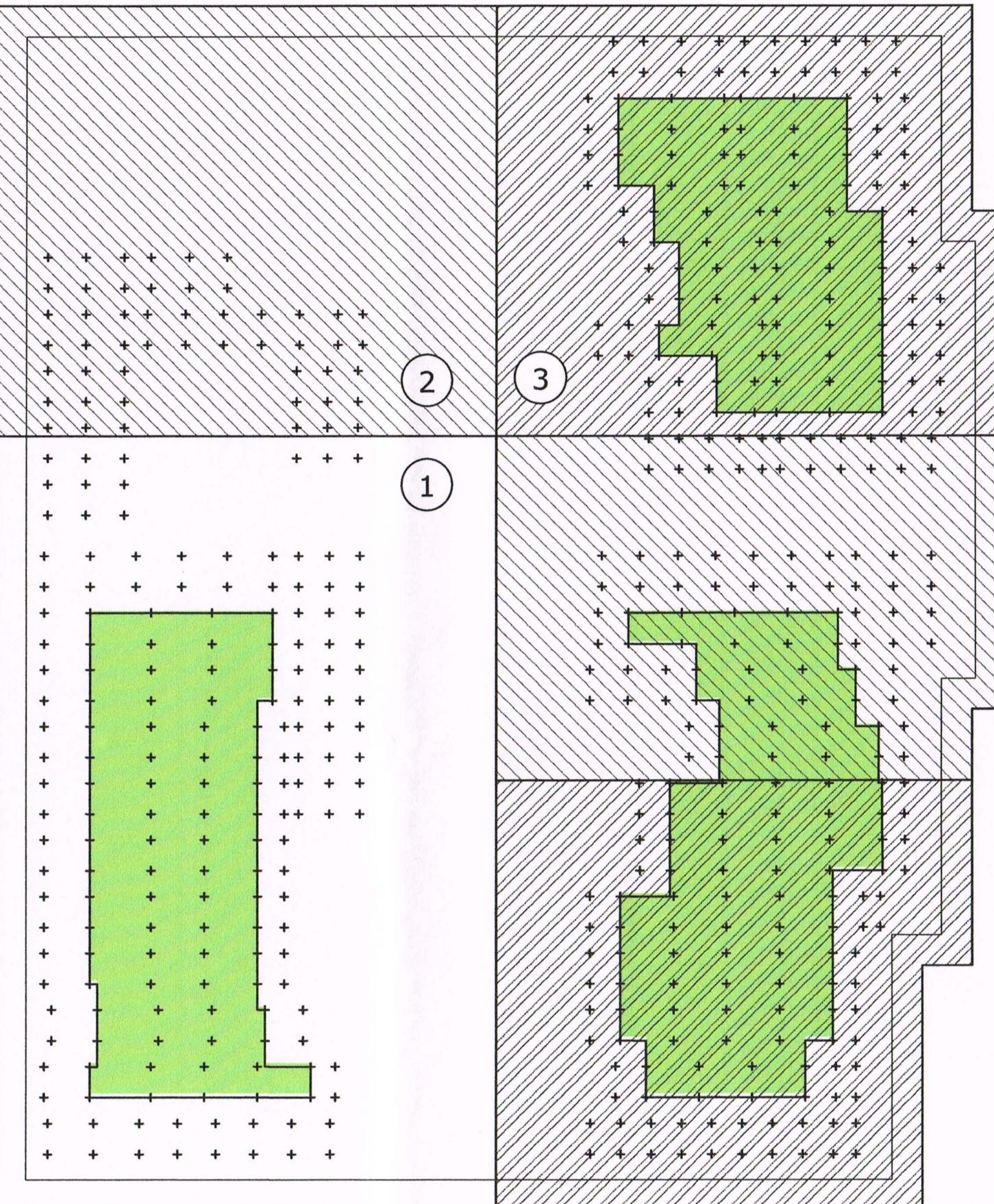
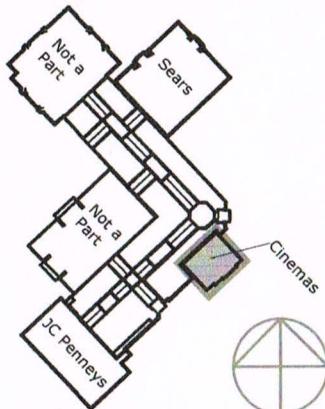
= Wind Zone 2

= 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

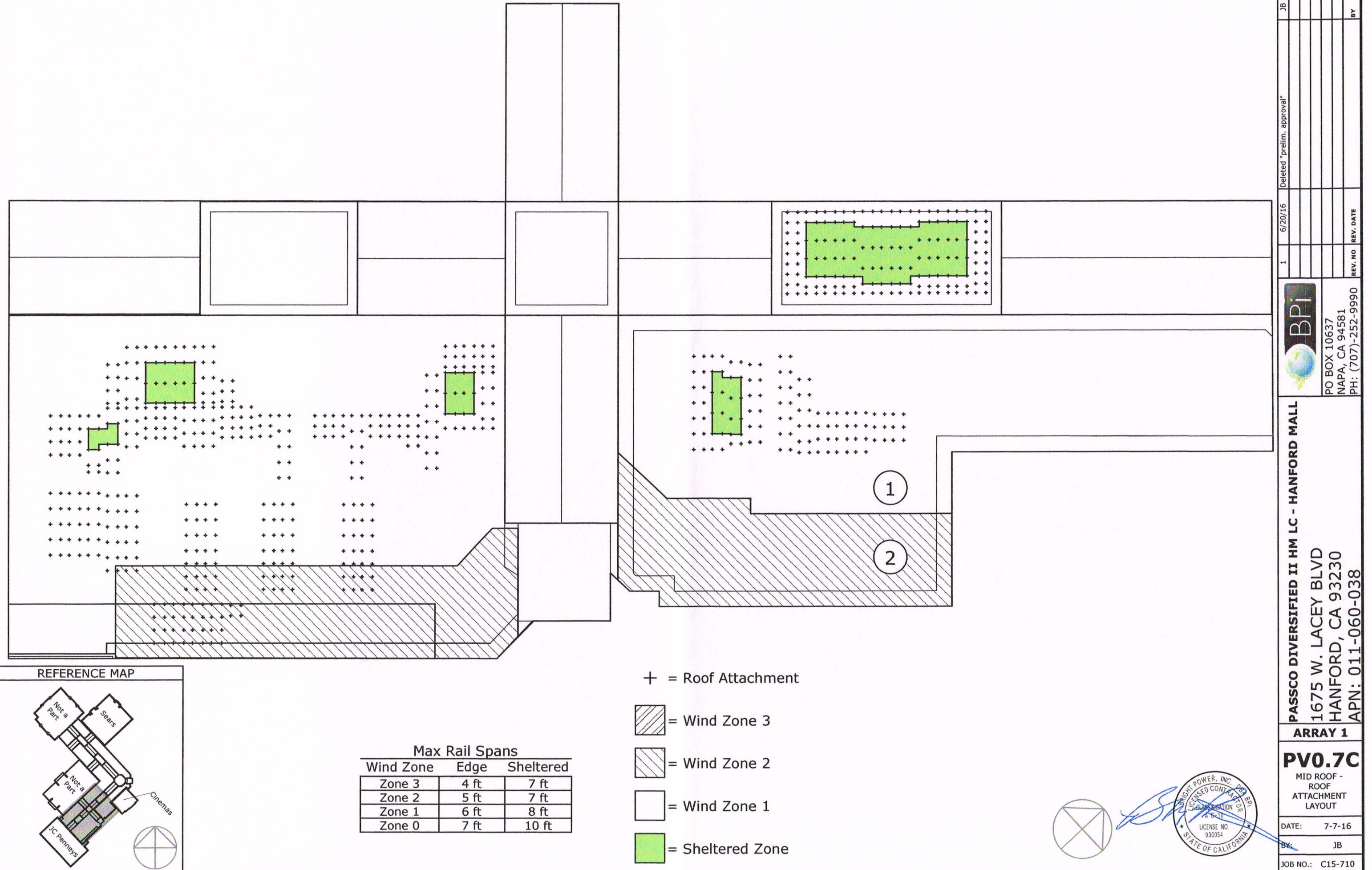
REFERENCE MAP



PASSCO DIVERSIFIED II HM LC - HANFORD MALL
1675 W. LACEY BLVD
HANFORD, CA 93230
APN: 011-060-038
ARRAY 1
PV0.7B

CINEMAS - ROOF
ATTACHMENT
LAYOUT
DATE: 7-7-16
BY: JB
JOB NO.: C15-710

BRIGHT POWER, INC.
LICENSED CONTRACTOR
CLASSIFICATION
DRA/DRB
LIC # 030054
STATE OF CALIFORNIA
PH: (707)-252-9990
REV. NO. REV. DATE
BY





PHOTOVOLTAIC KEY PLAN

SCALE: 1'-60'-0"

PV1.0A

1
PV1.0A



PASSCO DIVERSIFIED II HM LLC
- HANFORD MALL - ARRAY 1
1675 W. Lacey Blvd, Hanford, CA 93230
APN: 011-060-038

PHOTOVOLTAIC
KEY
PLAN

PV1.0A

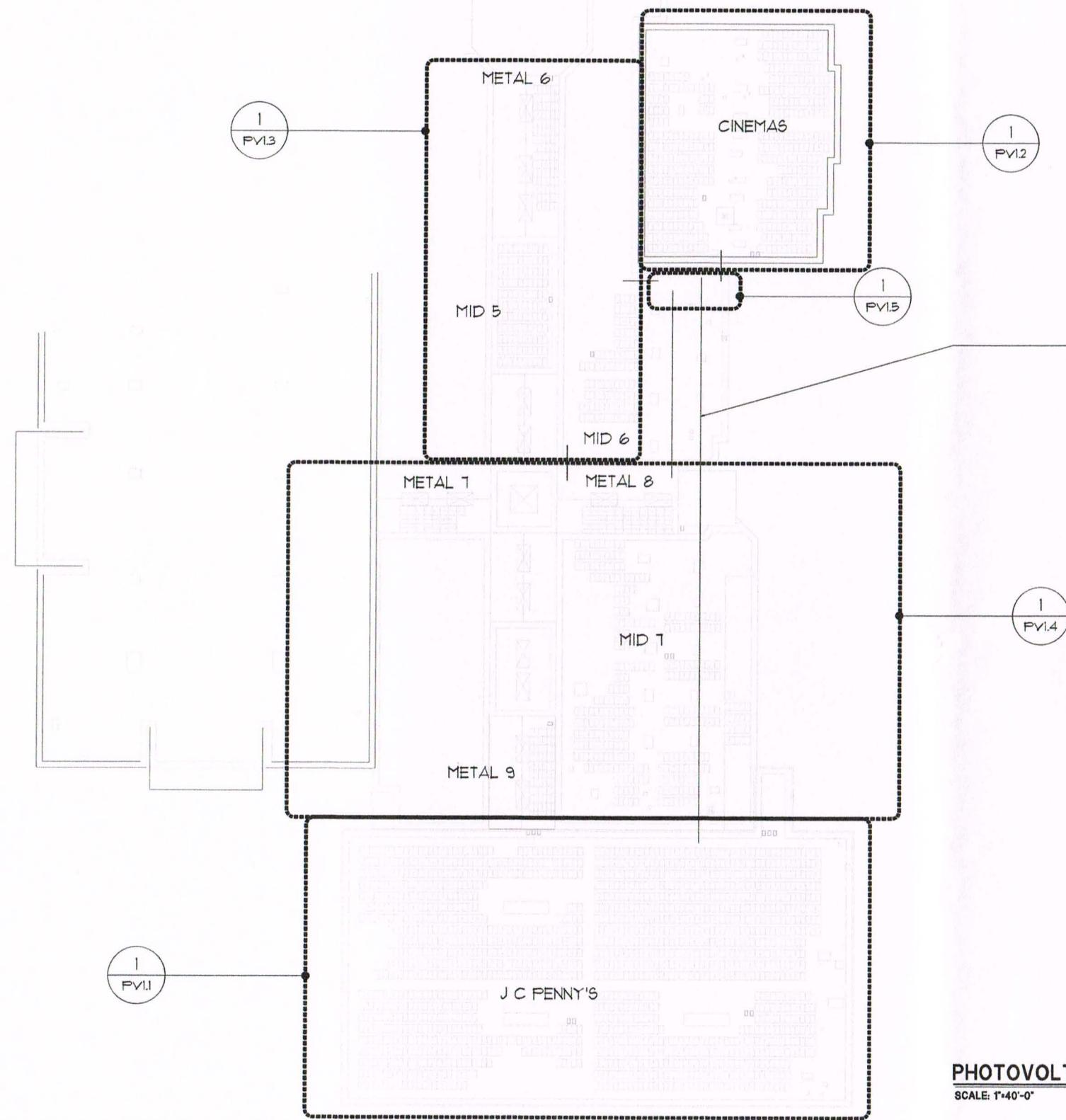
DATE: NOV 2015

JOB NO.: 15922

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

BY

PASSCO DIVERSIFIED II HM LLC	BPI
- HANFORD MALL - ARRAY 1	PO BOX 10637 NAPA, CA 94581 PH: (707) 252-9990
1675 W. Lacey Blvd, Hanford, CA 93230	REV. NO. _____ REV. DATE _____
APN: 011-060-038	
PHOTOVOLTAIC SITE PLAN	
PV1.0B	
DATE: NOV 2015	
JOB NO.: 15922	



PHOTOVOLTAIC SITE PLAN
SCALE: 1'=40'-0"

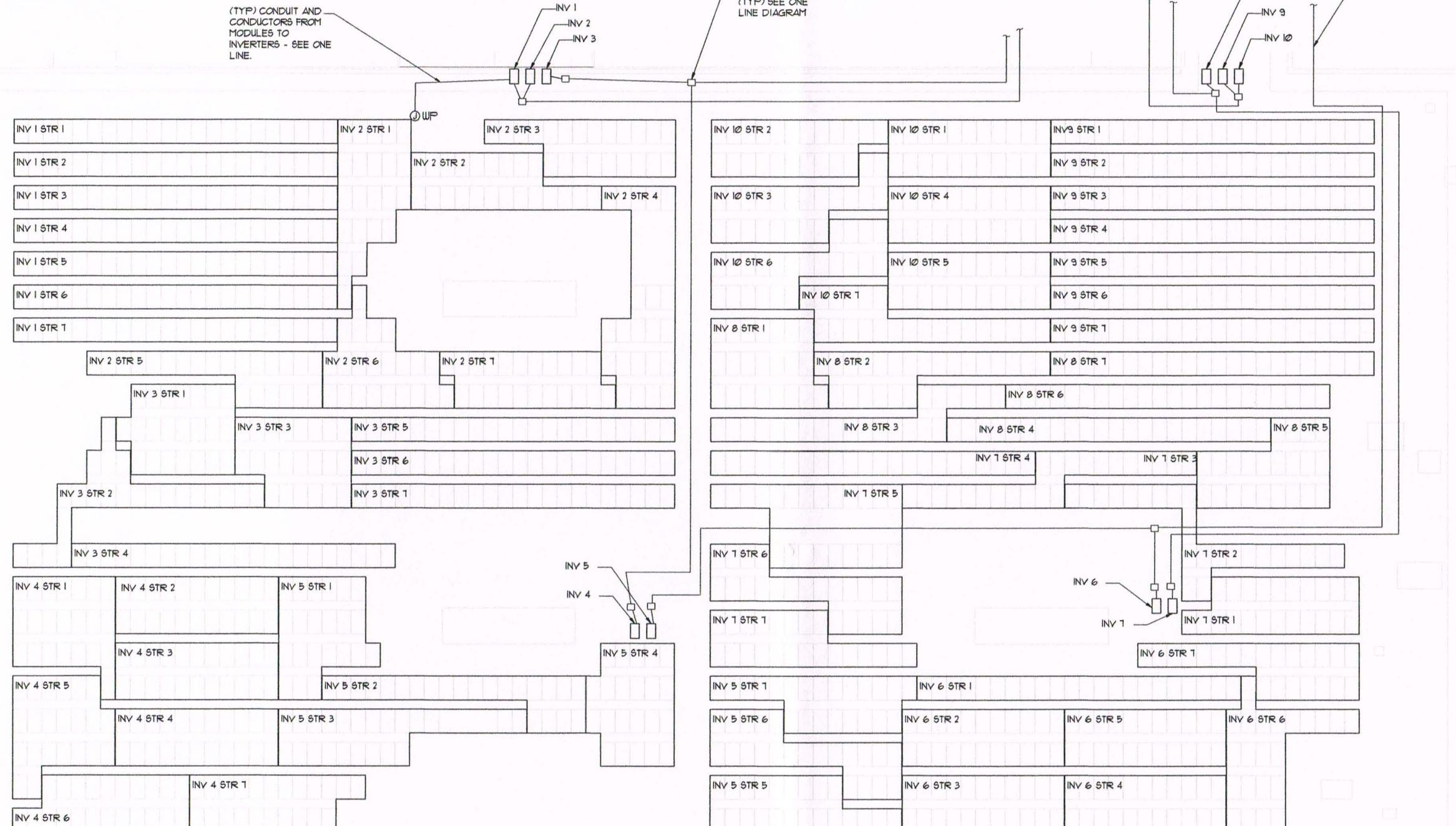
1
PV1.0B
N



1540 ROOF MOUNTED SOLAR PHOTOVOLTAIC PANELS. SEE STRUCTURAL SUBMITTALS FOR MOUNTING. SEE PV2.J FOR ELECTRICAL CONNECTIONS.

BASIS OF DESIGN:
ET SOLAR ET-M600290WUW 290W MODULES
(22) MODULES PER STRING
(10) STRINGS
(1540) TOTAL PANELS

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



ROOF ARRAY PHOTOVOLTAIC PLAN J C PENNY'S

SCALE: 1'-0"

1
PV1.1

N



PASSCO DIVERSIFIED II HMLLC
- HANFORD MALL - ARRAY 1
1675 W. Lacey Blvd, Hanford, CA 93230
APN: 011-060-038

ROOF-ARRAY
PV
PLAN

PV1.1

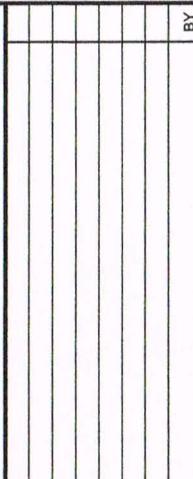
DATE: NOV 2015

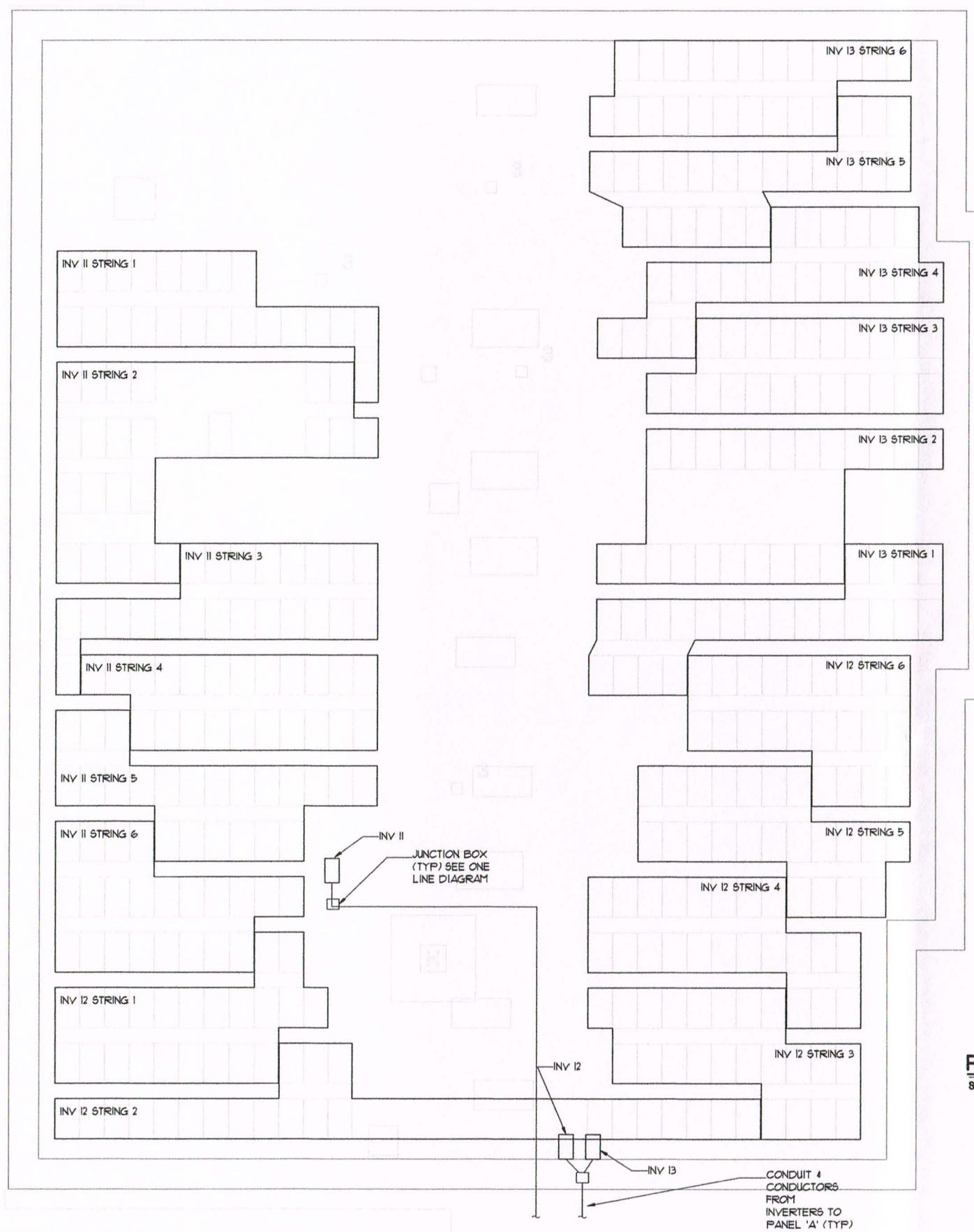
JOB NO.: 15922



REV. NO. / REV. DATE

BY





ROOF ARRAY PHOTOVOLTAIC PLAN CINEMAS

SCALE: 1/8' = 1'-0"

396 ROOF MOUNTED SOLAR PHOTOVOLTAIC PANELS. SEE STRUCTURAL SUBMITTALS FOR MOUNTING. SEE PV2.I FOR ELECTRICAL CONNECTIONS.

BASIS OF DESIGN:
ET SOLAR ET-M60290WU/UB 290W MODULES
(22) MODULES PER STRING
(18) STRINGS
(396) TOTAL PANELS

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

PASSCO DIVERSIFIED II HM LLC
- HANFORD MALL - ARRAY 1
1675 W. Lacey Blvd, Hanford, CA 93230
APN: 011-060-038

ROOF-ARRAY
PV
PLAN

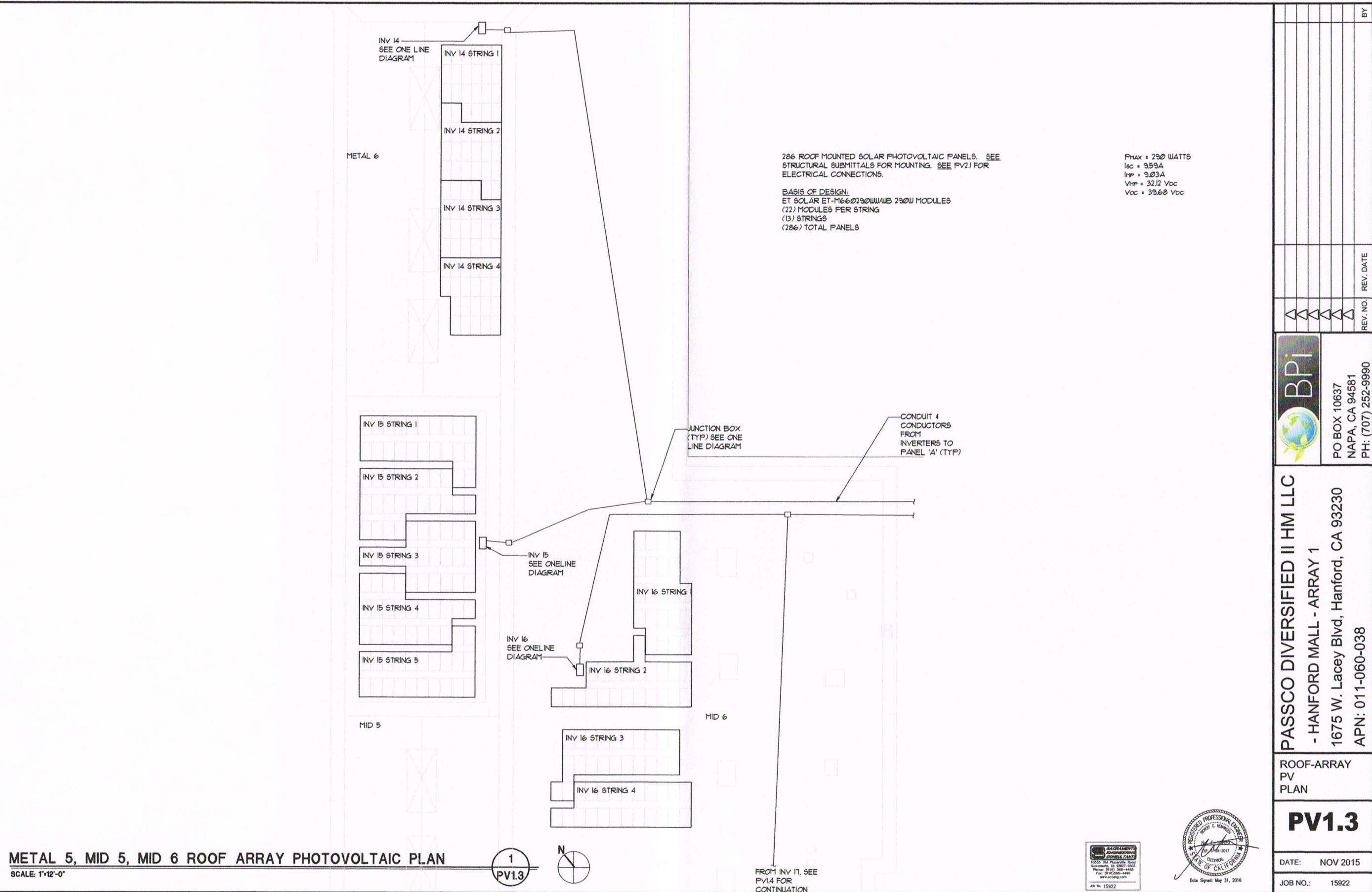
PV1.2

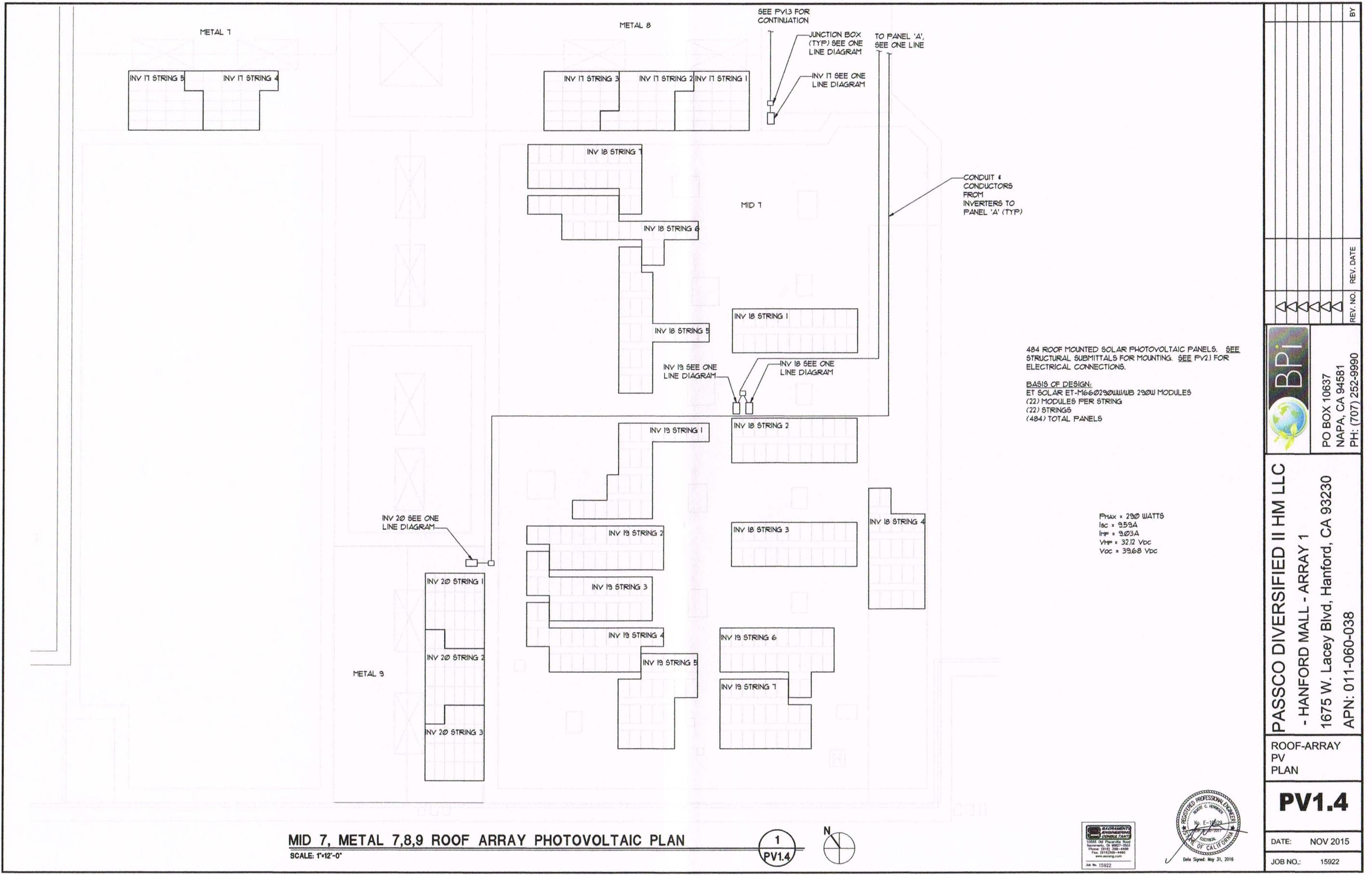
DATE: NOV 2015

JOB NO.: 15922



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

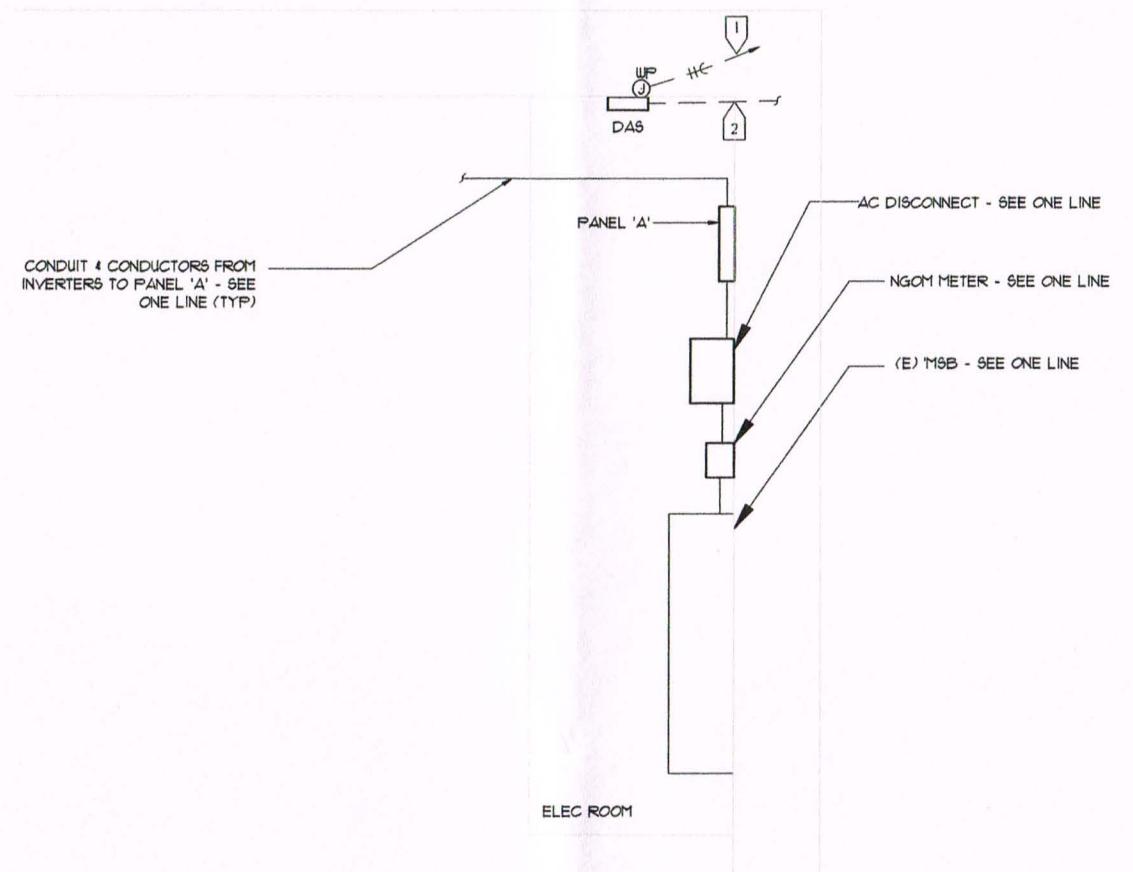




NUMBERED NOTES

- 1**) (2) #0, #0 G IN 3°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.



METER AREA PLAN

SCALE: 1/4"=1'-0"

1
PV15



**SACRAMENTO
ENGINEERING
CONSULTANTS**

15655 Old Placerville Road
Sacramento, CA 95827-2503
Phone: (916) 368-4468
Fax: (916)368-4490
www.aeceng.com



PV1.5

Array Configuration:
 3 SOLECTRIA PVI 23TL INVERTERS, 2 PVI 28TL INVERTERS
 15 SOLECTRIA PVI 36TL INVERTERS
 123 Strings
 2706 Modules Total
 22 ET SOLAR ET-M660290WW/WB 290W MODULES per String

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.

AC Disconnect is accessible, and lockable.

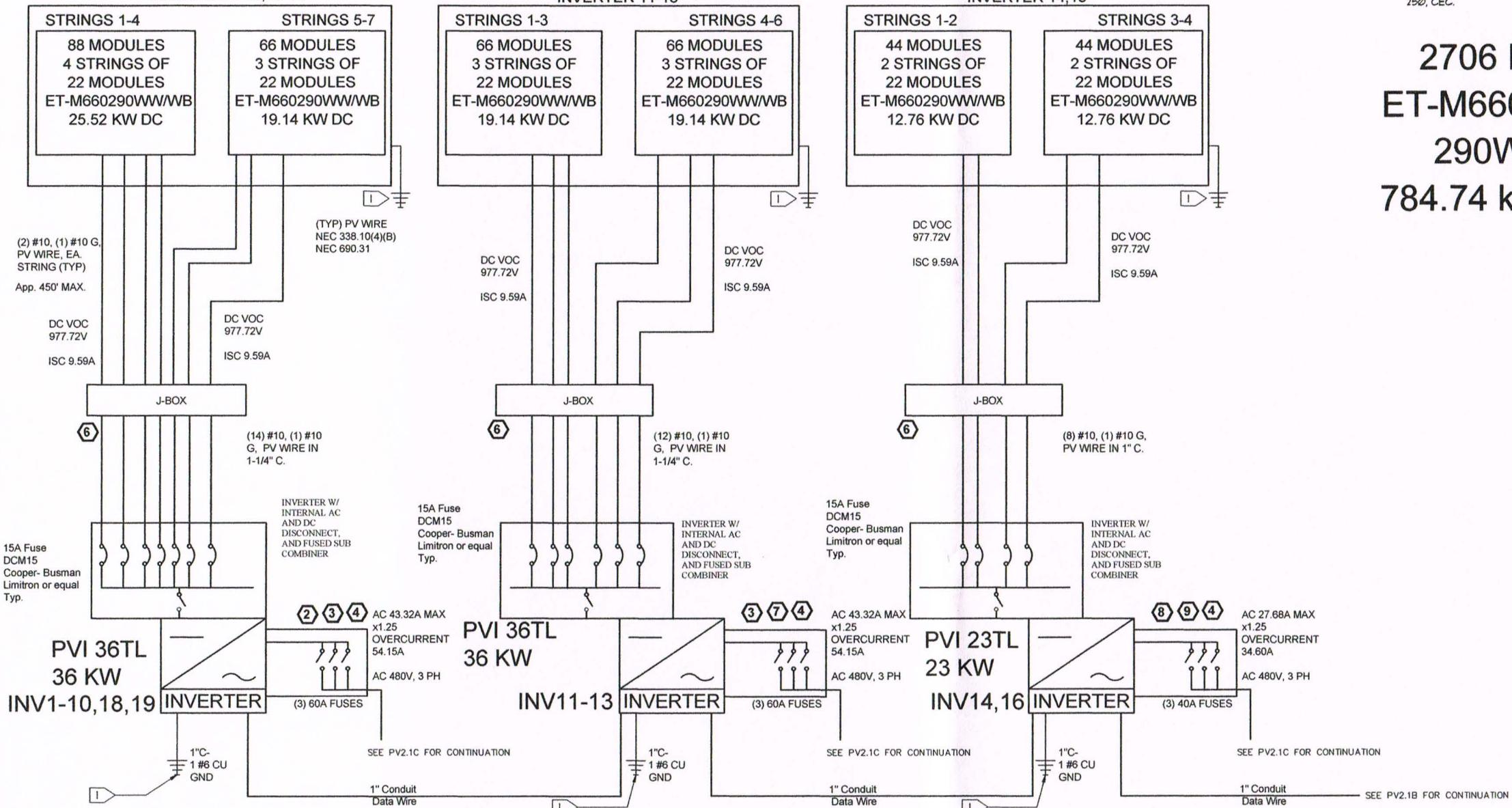
Refer to both documents for details of these Recommendations and test procedures.

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

NUMBERED NOTES

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

**2706 ET SOLAR
 ET-M660290WW/WB
 290W Modules
 784.74 kW DC Power**



- ② PHOTOVOLTAIC ARRAY DC DISCONNECT OPERATING CURRENT: 83.21 A OPERATING VOLTAGE: 791.44 V MAX. SYSTEM VOLTAGE: 977.72 V SHORT-CIRCUIT CURRENT: 67.13A
- ③ PHOTOVOLTAIC ARRAY AC DISCONNECT OPERATING CURRENT: 43.32 A OPERATING VOLTAGE: 480 V
- ④ WARNING! ELECTRIC SHOCK HAZARD. THE DIRECT CIRCUIT CONDUCTORS OF THIS PV SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED WITH RESPECT TO GROUND DUE TO LEAKAGE PATHS AND OR GROUND FAULTS.
- ⑥ CAUTION: SOLAR CIRCUIT
- ⑦ PHOTOVOLTAIC ARRAY DC DISCONNECT OPERATING CURRENT: 54.18 A OPERATING VOLTAGE: 791.44 V MAX. SYSTEM VOLTAGE: 977.72 V SHORT-CIRCUIT CURRENT: 57.54A
- ⑧ PHOTOVOLTAIC ARRAY AC DISCONNECT OPERATING CURRENT: 27.68 A OPERATING VOLTAGE: 480 V
- ⑨ PHOTOVOLTAIC ARRAY DC DISCONNECT OPERATING CURRENT: 36.12 A OPERATING VOLTAGE: 791.44 V MAX. SYSTEM VOLTAGE: 977.72 V SHORT-CIRCUIT CURRENT: 38.38A

PASSCO DIVERSIFIED II HM LLC
- HANFORD MALL - ARRAY 1
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**SINGLE-LINE
 DIAGRAM**
PV2.1A



DATE: NOV 2015
 JOB NO.: 15922



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

Module Model	ET-M660290WW/WB	Modules per string	22	Voltage Correction Factor	1.12 (Table A)
Module Max Power	290 W	String output		Corrected String Output	
Maximum Power Voltage (VPMAX)	32.12 V		706.64 V		791.44 V
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)
Short-circuit current (ISC)	9.59 A		9.59 A		9.59 A
Fuse Size	15 A				

22 panel STRING Output			
# of Strings	1	Factored	1.25
Max Voltage	791.44 V	791.44 V	1.5825
Max Current	9.03 A	11.29	14.11 A
Open Circuit Voltage	977.7152 V	977.72 V	977.72 V
Short Circuit Current	9.59 A	11.99	14.98 A

INV #1-10,18,19 CALCULATIONS			
MPPT#	# OF STRINGS	# OF PANELS	KW
1	4	88	25.52
2	3	66	19.14
TOTAL	7	154	44.66

INV #11-13 CALCULATIONS			
MPPT#	# OF STRINGS	# OF PANELS	KW
1	3	66	19.14
2	3	66	19.14
TOTAL	6	132	38.28

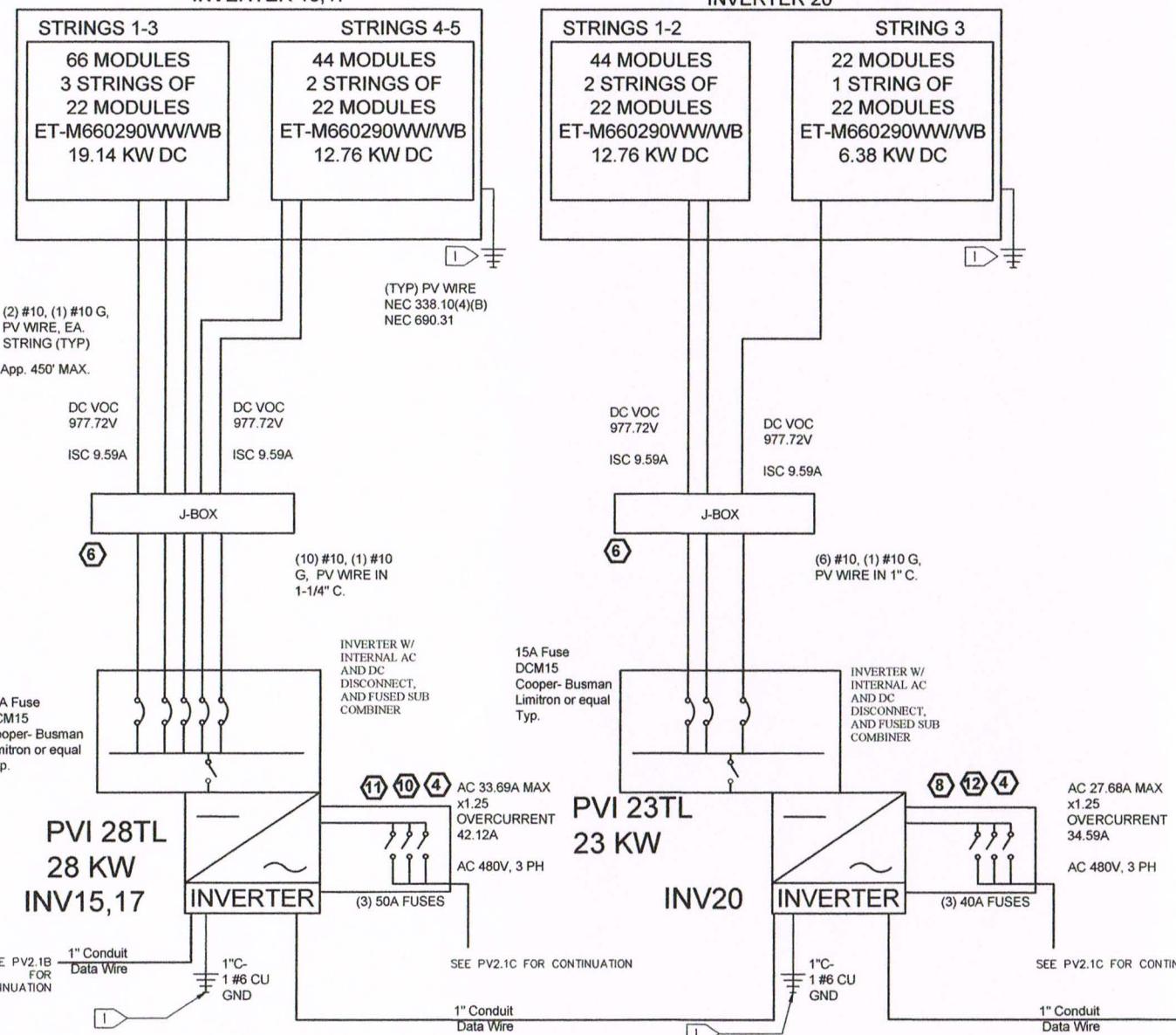
Table A (NEC 690.7)		
Celsius	Fahrenheit	Factor
14 to 10	58 to 50	1.06
9 to 5	49 to 41	1.08
4 to 0	40 to 32	1.1
(-1 to -5)	31 to 23	1.12
(-6 to -10)	22 to 14	1.14



Array Configuration:
3 SOLECTRIA PVI 23TL INVERTERS, 2 PVI 28TL INVERTERS
15 SOLECTRIA PVI 36TL INVERTERS
123 Strings
2706 Modules Total
22 ET SOLAR ET-M660290WW/WB 290W MODULES per String

Note: For specifications of solar equipment see attached cut sheets

INVERTER 15,1



INTERCONNECTION STANDARDS COMPLIANCE

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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

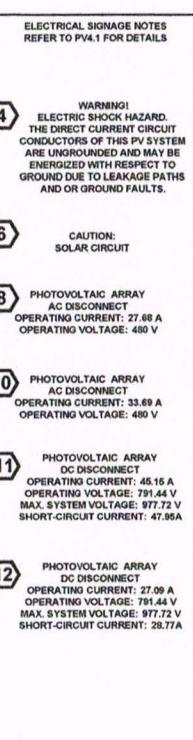
 PROVIDE #6 CU GROUNDING ELECTRODE CONDUCTOR TO BUILDING GROUND, PER ARTICLE 250 CEC

**2706 ET SOLAR
ET-M660290WW/WB
290W Modules
784.74 kW DC Power**

INV #15,17 CALCULATIONS			
MPPPT#	# OF STRINGS	# OF PANELS	KW
1		3 66	19.14
2		2 44	12.76
TOTAL		5 110	31.90

INV #20 CALCULATIONS			
PTH#	# OF STRINGS	# OF PANELS	KW
1		2 44	12.76
2		1 22	6.38
TAL		3 66	19.14

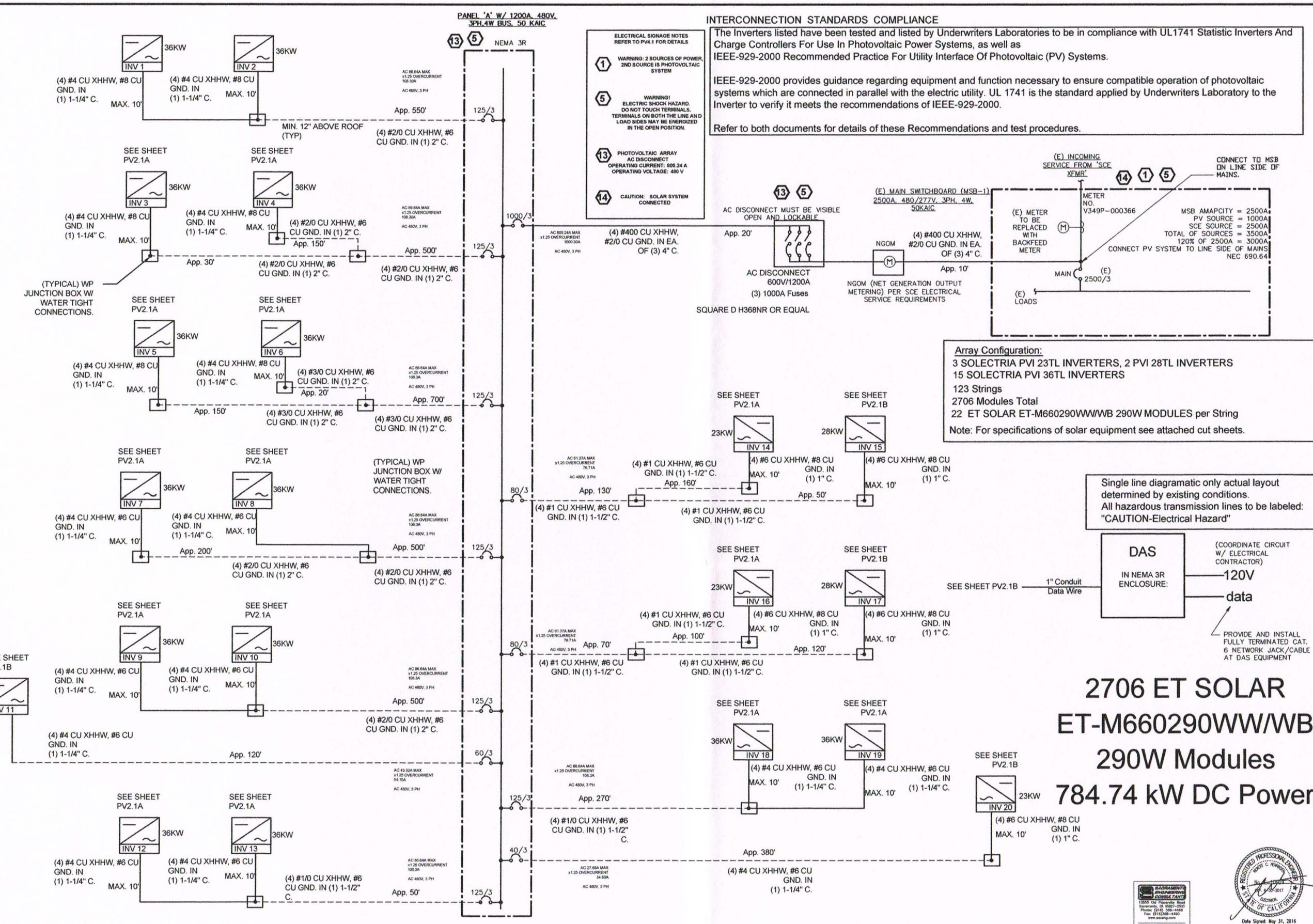
SYSTEM 1 CALCULATIONS			
INV#	# OF STRINGS	# OF PANELS	KW
1	7	154	44.66
2	7	154	44.66
3	7	154	44.66
4	7	154	44.66
5	7	154	44.66
6	7	154	44.66
7	7	154	44.66
8	7	154	44.66
9	7	154	44.66
10	7	154	44.66
11	6	132	38.28
12	6	132	38.28
13	6	132	38.28
14	4	88	25.52
15	5	110	31.90
16	4	88	25.52
17	5	110	31.90
18	7	154	44.66
19	7	154	44.66
20	3	66	19.14
TOTAL		123	784.74



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APN: 011-060-038	
SINGLE-LINE DIAGRAM	
PV2.1C	
DATE: NOV 2015	
JOB NO.: 15922	



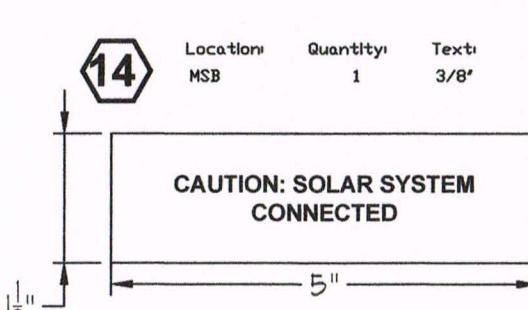
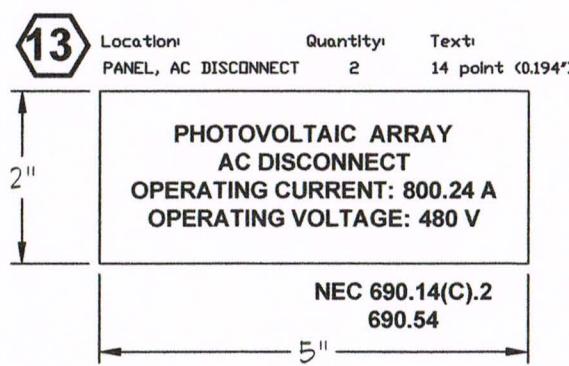
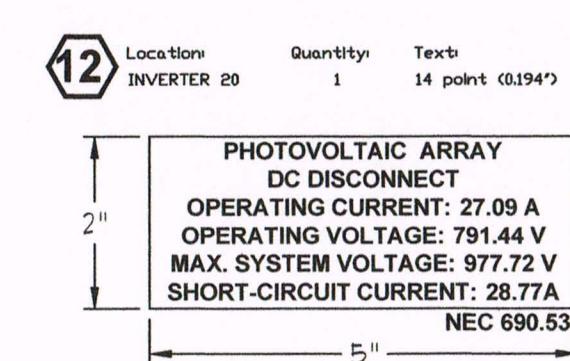
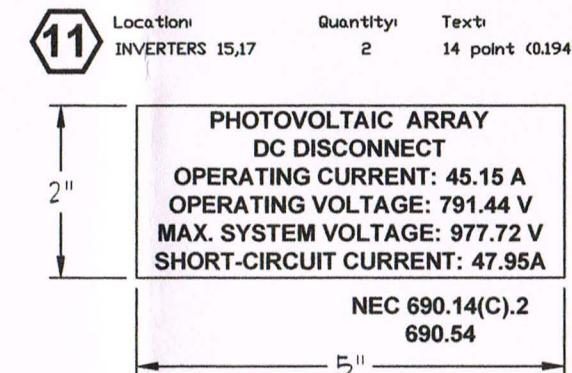
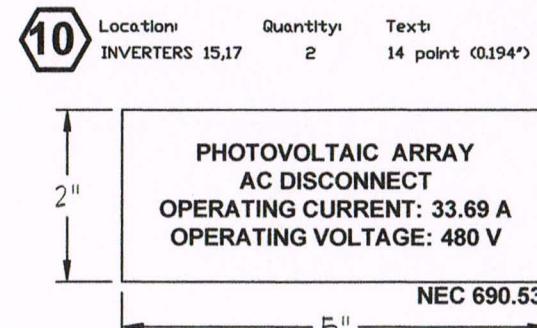
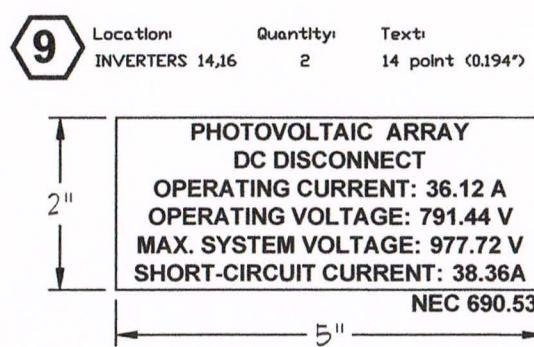
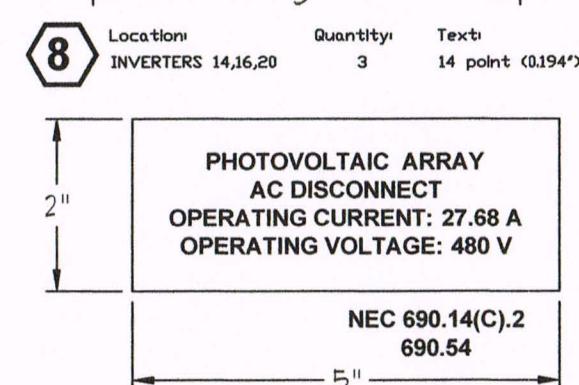
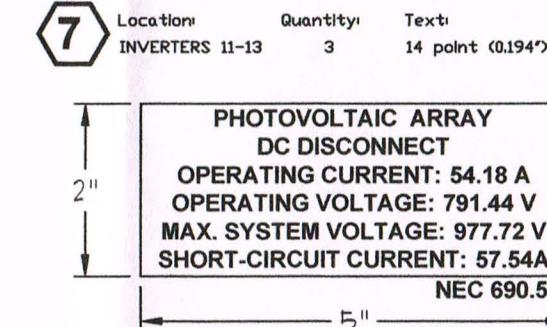
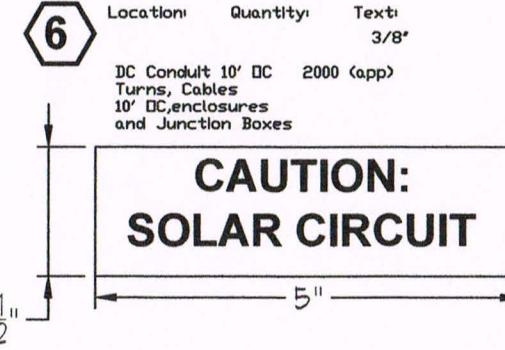
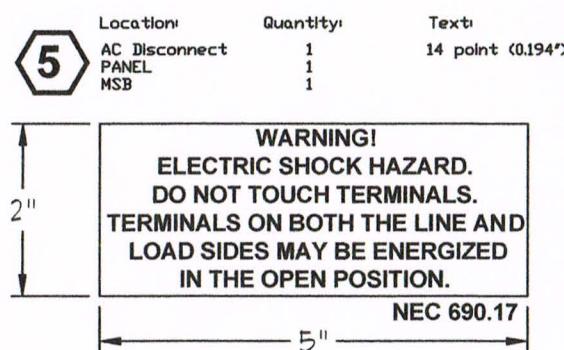
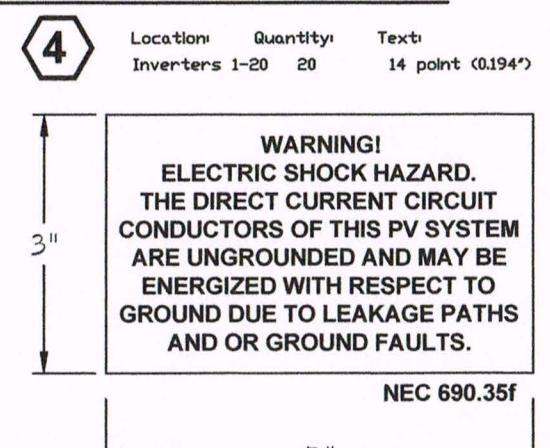
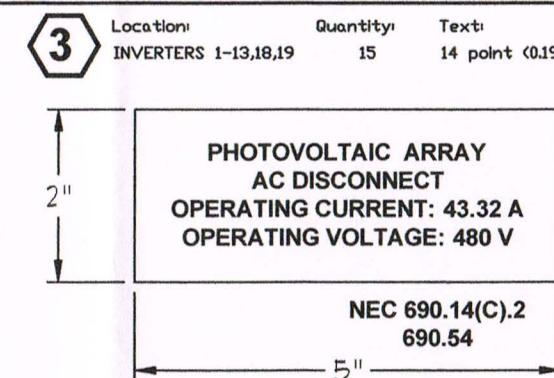
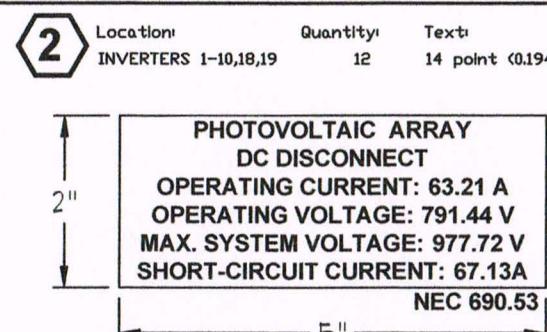
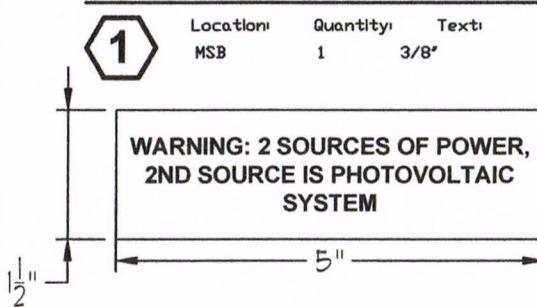
ARRAY	RUNS	CU WIRE	CU CABLE AMPACITY	LOAD (AMPS)	FACTOR	REQUIRED CABLE AMPACITY	MAX. PERMISSIBLE OCP	OCP PROVIDED	ALUMINUM OPTION		
									RUNS	AL WIRE	
TYP STR 22 MOD	1	#10	35.00	9.59	1.5625	14.98	15.00	15.00	1	#8	40.00
INV 1-13, 18-19 (36 KW)	1	#4	85.00	43.32	1.25	54.15	60.00	60.00	1	#2	90.00
INV 14, 16, 20 (23 KW)	1	#6	65.00	27.68	1.25	34.60	40.00	40.00	1	#4	65.00
INV 15, 17 (28 KW)	1	#6	65.00	33.69	1.25	42.12	50.00	50.00	1	#4	65.00
INV 1, 2	1	#20	175.00	86.64	1.25	108.30	125.00	125.00	1	#40	180.00
INV 3	1	#20	175.00	43.32	1.25	54.15	60.00	60.00	1	#40	180.00
INV 4	1	#20	175.00	43.32	1.25	54.15	60.00	60.00	1	#40	180.00
INV 3, 4	1	#20	175.00	86.64	1.25	108.30	125.00	125.00	1	#40	180.00
INV 5, 6	1	#30	200.00	86.64	1.25	108.30	125.00	125.00	1	#250	205.00
INV 7	1	#20	200.00	43.32	1.25	54.15	60.00	60.00	1	#40	180.00
INV 7, 8	1	#20	200.00	86.64	1.25	108.30	125.00	125.00	1	#40	180.00
INV 9, 10	1	#20	200.00	86.64	1.25	108.30	125.00	125.00	1	#40	180.00
INV 11	1	#4	85.00	43.32	1.25	54.15	60.00	60.00	1	#2	90.00
INV 12, 13	1	#10	150.00	86.64	1.25	108.30	125.00	125.00	1	#30	155.00
INV 14	1	#1	130.00	27.68	1.25	34.60	40.00	40.00	1	#20	135.00
INV 15	1	#1	130.00	33.69	1.25	42.12	50.00	50.00	1	#20	135.00
INV 14, 15	1	#1	130.00	61.37	1.25	76.71	80.00	80.00	1	#20	135.00
INV 16	1	#1	130.00	27.68	1.25	34.60	40.00	40.00	1	#20	135.00
INV 17	1	#1	130.00	33.69	1.25	42.12	50.00	50.00	1	#20	135.00
INV 16, 17	1	#1	130.00	61.37	1.25	76.71	80.00	80.00	1	#20	135.00
INV 18, 19	1	#10	150.00	86.64	1.25	108.30	125.00	125.00	1	#30	155.00
INV 20	1	#4	85.00	27.68	1.25	34.60	40.00	40.00	1	#2	90.00
PANEL 'A'	3	#400	1005	800.24	1.25	1000.30	1000.00	1000	3	#600	1020.00
DISC	3	#400	1005	800.24	1.25	1000.30	1000.00	1000	3	#600	1020.00

VOLTAGE DROP CALCULATOR																	
JOB NAME: JOB #:	HANFORD MALL METER 1 15922			ENTER 1 2 3 4 5	NOTES: P.F. = POWER FACTOR %V.D. = VOLTAGE DROP % CB = COMBINER BOX	ALUMINUM OPTION											
	CONSTANT	DISTANCE	RUNS	WIRE		I	R	VOLTS	PHASE	VD	% V.D.	CONSTANT	RUNS	WIRE	R	VD	% V.D.
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 1-13, 18-19 (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 14, 16, 20 (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 15, 17 (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	550	1	#20	86.64	0.1	480	3	8.24	1.72		6	1	#40	0.1	8.24	1.72
INV 3	3	30	1	#20	43.32	0.1	480	3	0.22	0.05		6	1	#40	0.1	0.22	0.05
INV 4	3	150	1	#20	43.32	0.1	480	3	1.12	0.23		6	1	#40	0.1	1.12	0.23
INV 3, 4	3	500	1	#20	86.64	0.1	480	3	7.49	1.56		6	1	#40	0.1	7.49	1.56
INV 5	3	150	1	#30	43.32	0.073	480	3	0.89	0.19		6	1	#250	0.006	0.97	0.20
INV 6	3	20	1	#30	43.32	0.073	480	3	0.12	0.02		6	1	#250	0.006	0.13	0.03
INV 5, 6	3	700	1	#30	86.64	0.073	480	3	0.29	0.73		6	1	#250	0.006	9.02	1.88
INV 7	3	200	1	#20	43.32	0.1	480	3	1.50	0.31		6	1	#40	0.1	1.50	0.31
INV 7, 8	3	500	1	#20	86.64	0.1	480	3	7.49	1.56		6	1	#40	0.1	7.49	1.56
INV 9, 10	3	500	1	#20	86.64	0.1	480	3	7.49	1.56		6	1	#40	0.1	7.49	1.56
INV 11	3	120	1	#4	43.32	0.31	480	3	2.79	0.58		6	1	#2	0.32	2.68	0.60
INV 12, 13	3	50	1	#10	86.64	0.12	480	3	0.90	0.19		6	1	#30	0.13	0.97	0.20
INV 14	3	160	1	#1	27.68	0.16	480	3	1.23	0.26		6	1	#20	0.16	1.23	0.26
INV 15	3	50	1	#1	33.69	0.16	480	3	0.47	0.10		6	1	#20	0.16	0.47	0.10
INV 14, 15	3	130	1	#1	61.37	0.16	480	3	2.21	0.46		6	1	#20	0.16	2.21	0.46
INV 16	3	100	1	#1	27.68	0.16	480	3	0.77	0.16		6	1	#20	0.16	0.77	0.16
INV 17	3	120	1	#1	33.69	0.16	480	3	1.12	0.23		6	1	#20	0.16	1.12	0.23
INV 16, 17	3	70	1	#1	61.37	0.16	480	3	1.19	0.25		6	1	#20	0.16	1.19	0.25
INV 18, 19	3	270	1	#10	86.64	0.12	480	3	4.86	1.01		6	1	#30	0.13	5.26	1.10
INV 20	3	360	1	#4	27.68	0.31	480	3	5.64	1.18		6	1	#2	0.32	5.82	1.21
PANEL 'A'	3	20	3	#4													

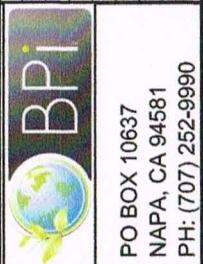
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Red Background

Material: ABS UV
Font: Arial

Scale 1:1



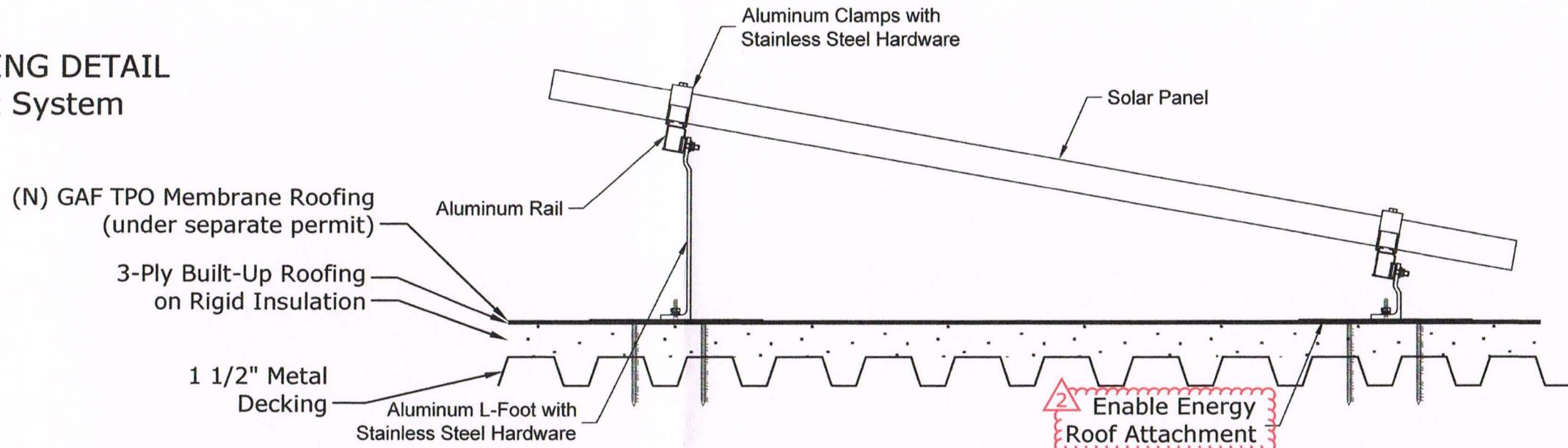
PV SIGNAGE	DATE: NOV 2015
PV4.1	JOB NO.: 15922



PASSCO DIVERSIFIED II HM LLC
- HANFORD MALL - ARRAY 1
1675 W. Lacey Blvd, Hanford, CA 93230
APN: 011-060-038

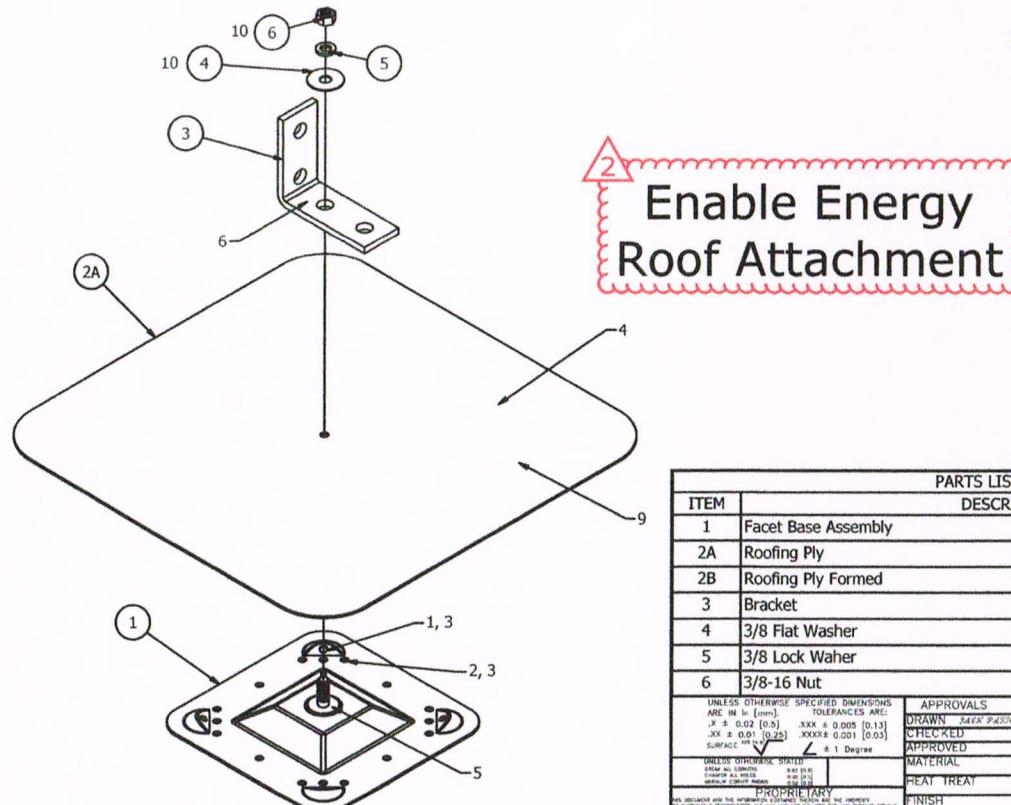
FLAT ROOF RACKING DETAIL

Renusol VS Tilt System

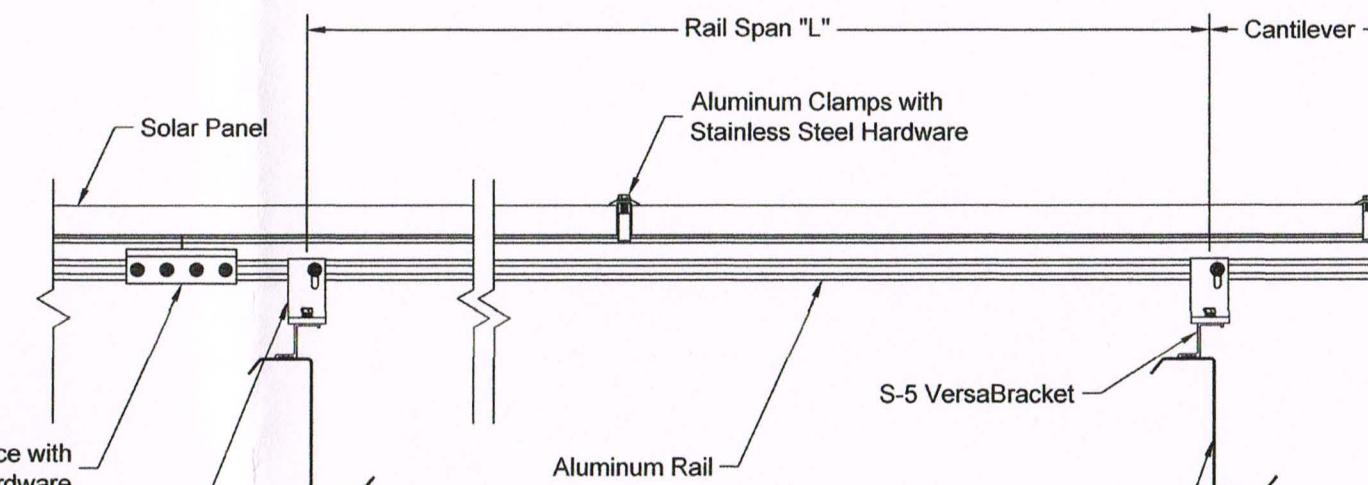


METAL ROOF RACKING DETAIL

Renusol VS Flush Mount

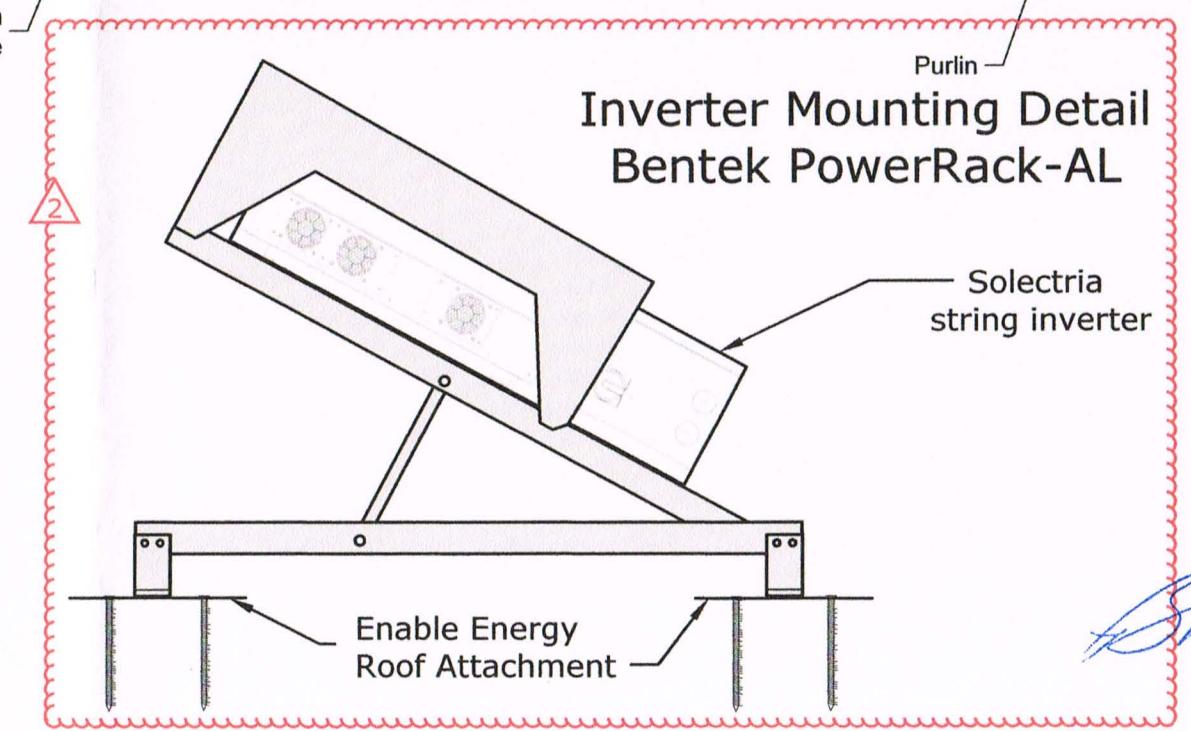


PARTS LIST	
ITEM	DESCRIPTION
1	Facet Base Assembly
2A	Roofing Ply
2B	Roofing Ply Formed
3	Bracket
4	3/8 Flat Washer
5	3/8 Lock Waher
6	3/8-16 Nut
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN [mm]. TOLERANCES ARE:	
.02 ± 0.005 [0.5] XXX ± 0.000 [0.13] .005 ± 0.001 [0.25] XXXX ± 0.000 [0.05]	
SURFACE FINISH ± 1 Degree	
DRAWN 2425 2d2004 1/29/16	
APPROVALS DATE	
CHECKED APPROVED	
MATERIAL	
HEAT TREAT	
FINISH	
PROPRIETARY	
DWG. NO. IN0001-01	
SCALE: N.T.S.	
SHEET 1 OF	



Inverter Mounting Detail

Bentek PowerRack-AL



PASSCO DIVERSIFIED II HM LC - HANFORD MALL
1675 W. LACEY BLVD
HANFORD, CA 93230
APN: 011-060-038
ARRAY 1

S1.0
RACKING

DETAILS

1B

JOB NO : C15-710