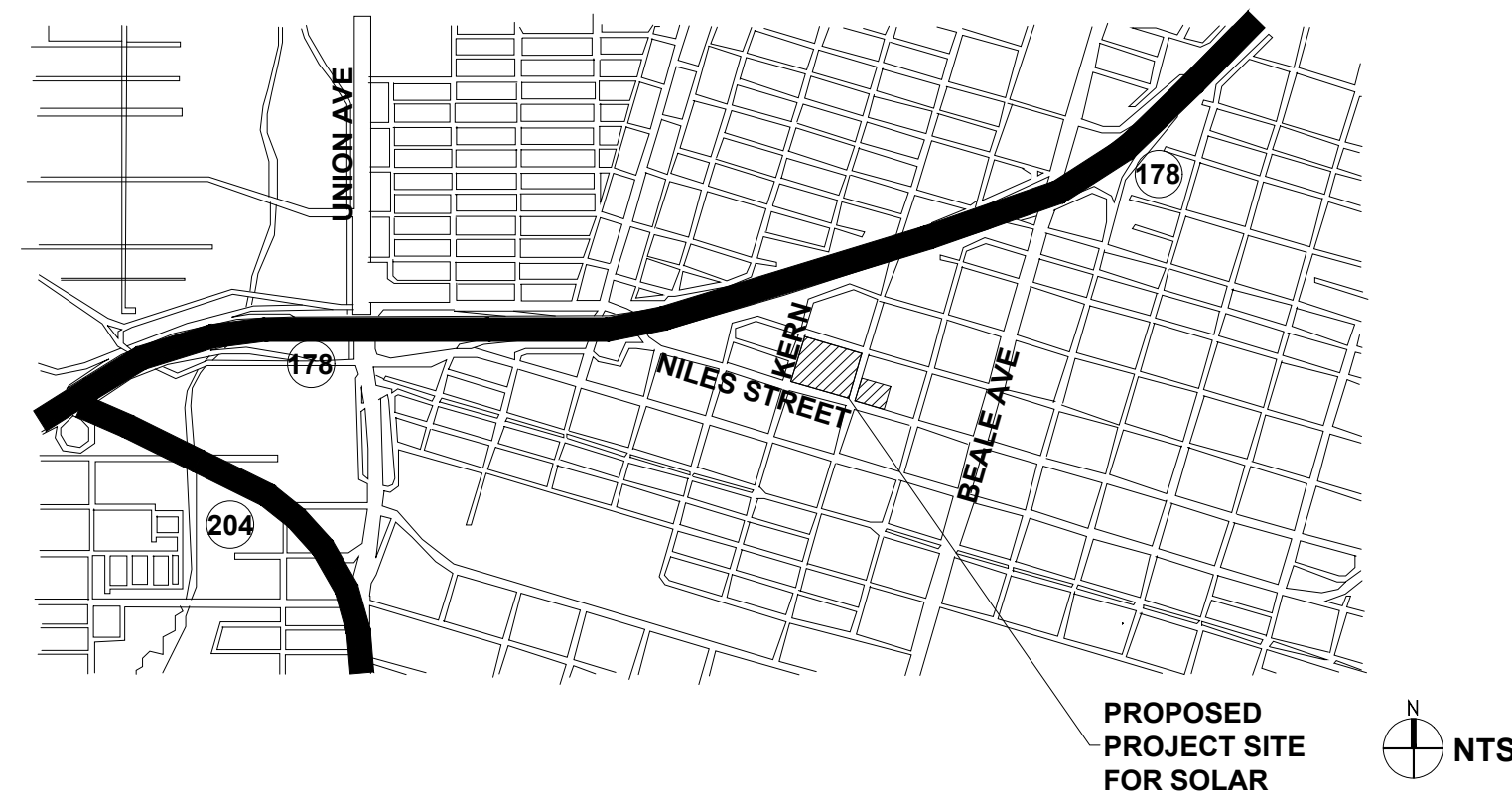


# BAKERSFIELD CITY SCHOOL DISTRICT SOLAR: EDUCATION CENTER

1300 BAKER STREET  
BAKERSFIELD, CA 93305

## VICINITY MAP



## GOVERNING CODES:

CALIFORNIA CODE OF REGULATIONS:  
 2022 CALIFORNIA ADMINISTRATIVE CODE (CAC) ..... (PART 1, TITLE 24, CCR)  
 2022 CALIFORNIA BUILDING CODE (CBC), VOLUMES 1, AND 2 (PART 2, TITLE 24, CCR)  
 (2021 EDITION INTERNATIONAL BUILDING CODE WITH 2022 CALIFORNIA AMENDMENTS)  
 2022 CALIFORNIA ELECTRICAL CODE ..... (PART 3, TITLE 24, CCR)  
 (2020 NFPA 70)  
 2022 CALIFORNIA MECHANICAL CODE (CMC) ..... (PART 4, TITLE 24, CCR)  
 (2021 EDITION IAPMO UNIFORM MECHANICAL CODE WITH 2022 CALIFORNIA AMENDMENTS)  
 2022 CALIFORNIA PLUMBING CODE (CPC) ..... (PART 5, TITLE 24, CCR)  
 (2021 EDITION IAPMO UNIFORM PLUMBING CODE WITH 2022 CALIFORNIA AMENDMENTS)  
 2022 CALIFORNIA ENERGY CODE ..... (PART 6, TITLE 24, CCR)  
 2022 CALIFORNIA FIRE CODE (CFC) ..... (PART 9, TITLE 24, CCR)  
 (2021 EDITION OF INTERNATIONAL FIRE CODE WITH 2022 CALIFORNIA AMENDMENTS)  
 2022 CALIFORNIA GREEN CODE ..... (PART 11, TITLE 24, CCR)  
 2022 CALIFORNIA REFERENCED STANDARDS CODE ..... (PART 12, TITLE 24, CCR)  
 NFPA 13 - 2022  
 NFPA 72 - 2022

## REFERENCE CODE SECTIONS FOR APPLICABLE STANDARDS:

2022 CBC, CHAPTER 35  
 2022 CFC, CHAPTER 80

## INSPECTIONS:

SAFETY DURING CONSTRUCTION TO COMPLY WITH 2022 CFC CHAPTER 33

## PROJECT DIRECTORY

**SYSTEM HOST:**  
**BAKERSFIELD CITY SD**  
 1300 BAKER STREET  
 BAKERSFIELD, CA 93305  
 661-631-4600

**DEVELOPER:**  
**FOREFRONT POWER**  
 100 MONTGOMERY ST #1300  
 SAN FRANCISCO, CA 94101  
 855-204-5083  
 EMILY VIOHL

**ELECTRICAL ENGINEER:**  
**HARDIN**  
 5 MARINE VIEW PLAZA  
 SUITE 301  
 HOBOKEN, NJ 07030  
 201.687.9975  
 EE: LOREN HARDIN

**GENERAL CONTRACTOR:**  
**COLLINS ELECTRICAL COMPANY, INC**  
 1902 CHANNEL DR  
 WEST SACRAMENTO, CA 95691  
 916-567-1100  
 WEN LUU

**ARCHITECT & DESIGN:**  
**PROFESSIONAL IN CHARGE:**  
**MMPV DESIGN, INC.**  
 718 W ARBOR DR  
 SAN DIEGO, CA 92103  
 619.632.2883  
 AOR: MARIANA MONCADA

**STRUCTURAL ENGINEER:**  
**TKJ STRUCTURAL ENGINEERING**  
 9820 WILLOW CREEK RD #490  
 SAN DIEGO, CA 92131  
 858.346.7119  
 YESENIA GRAMAJO

**GEOTECHNICAL ENGINEER:**  
**BSK ASSOCIATES**  
 700 22ND STREET  
 BAKERSFIELD, CA 93301  
 661-327-0671  
 ON MAN LAU

## SCOPE OF WORK

WORK CONSISTS OF INSTALLING 4 PHOTOVOLTAIC (PV) SOLAR POWER ARRAYS OVER EXISTING PARKING LOTS AND 1 SOLAR POWER SYSTEM ON AN EXISTING ROOF. SOLAR POWER SYSTEM CONSISTS OF EQUIPMENT, LIGHTING, PV MONITORING AND METERING COMMUNICATIONS AND POWER INTERCONNECT TO THE UTILITY GRID.

TOTAL MODULE COUNT: 1350 MODULES  
 KILOWATTS DC: 513 kW  
 TOTAL PARKING ARRAYS: 4  
 ROOF TOP SYSTEM: 1

## PROJECT DATA

WIND LOAD : 100 Vmph  
 SNOW LOAD: 0 LBS/ SF  
 FLOOD ZONE DESIGNATION: ZONE X

## NEW PHOTOVOLTAIC ARRAY CODE ANALYSIS

Array Name	Array	Total Modules	kW DC	No. of Cols	Minimum Clear Height	Azimuth	Tilt	Occupancy	Const. Type	Area	Allowable Area				
A	6 x 45	270	101.25	5	14'-0"	197 °	7 °	S-2 NS	II-B	5,902 SF	-				
B	4 x 54	216	81.00	6	14'-0"	197 °	7 °	S-2 NS	II-B	4,720 SF	-				
<b>TOTAL AREA ARRAY 'A+B':</b>											<b>10,622 SF</b>	<b>UNLIMITED</b>			
C	6 x 27	162	60.75	3	14'-0"	107 °	7 °	S-2 NS	II-B	3,541 SF	-				
D	6 x 45	270	101.25	5	14'-0"	107 °	7 °	S-2 NS	II-B	5,902 SF	-				
<b>TOTAL AREA ARRAY 'C+D':</b>											<b>9,443 SF</b>	<b>UNLIMITED</b>			
<b>TOTALS:</b>											<b>918</b>	<b>344.25</b>	<b>19</b>	<b>20,065 SF</b>	<b>-</b>
<b>ROOFTOP</b>			432	162.00	-	-	10 °	S-2 NS	II-B	9,973 SF	-				
<b>TOTALS:</b>											<b>1350</b>	<b>506.25</b>	<b>19</b>	<b>30,038 SF</b>	<b>-</b>

PER CBC 406.5.5 AREA AND HEIGHT INCREASES: OPEN PARKING GARAGES OF TYPE II CONSTRUCTION WITH ALL SIDES OPEN, SHALL BE UNLIMITED IN ALLOWABLE AREA WHERE THE BUILDING HEIGHT DOES NOT EXCEED 75'.

## DRAWING INDEX

**SHEET # SHEET TITLE**  
**ARCHITECTURAL DRAWINGS**  
 ED-A0.0 TITLE SHEET  
 ED-A1.0 SITE & FIRE ACCESS PLAN  
 ED-A1.1 PARKING PLANS - EAST LOT  
 ED-A1.2 PARKING PLANS - WEST LOT  
 ED-A1.3 ACCESSIBLE PARKING STANDARDS  
**5 SHEETS**

**STRUCTURAL DRAWINGS - ROOF**  
 S1.0 PV AT ROOF FRAMING PLAN  
 S2.0 STRUCTURAL NOTES & DETAILS  
**2 SHEETS**

**ELECTRICAL DRAWINGS**  
 E1.0 PV SYSTEM ELECTRICAL SITE PLAN  
 E2.0 PV SYSTEM ELECTRICAL SINGLE LINE DIAGRAM  
 E2.1 PV SYSTEM ELECTRICAL SINGLE LINE DIAGRAM  
 E2.2 PV SYSTEM ELECTRICAL FEEDER SCHEDULE  
 E3.0 PV SYSTEM TYPICAL ELECTRICAL THREE LINE DIAGRAM  
 E4.0 ELECTRICAL DETAILS  
 E5.0 PV SYSTEM TYPICAL ELECTRICAL SOLAR WARNING LABELS  
 E5.1 PV SYSTEM TYPICAL ELECTRICAL SOLAR WARNING LABELS  
 E6.0 ELECTRICAL SOLAR EQUIPMENT CUT SHEETS  
 E6.1 ELECTRICAL SOLAR EQUIPMENT CUT SHEETS  
 E7.0 OUTDOOR LIGHTING TITLE 24 COMPLIANCE REPORT  
 E8.0 PV SYSTEM ARRAY ELECTRICAL STRING CABLING PLAN  
 E8.1 PV SYSTEM ARRAY ELECTRICAL STRING CABLING PLAN  
 E8.2 PV SYSTEM ARRAY ELECTRICAL STRING CABLING PLAN  
 E8.3 PV SYSTEM ARRAY ELECTRICAL STRING CABLING PLAN  
**15 SHEETS**

**STRUCTURAL DRAWINGS - CARPORT**  
 S100 GENERAL STRUCTURAL NOTES  
 S200 FRAMING PLAN & SCHEDULE  
 S210 FRAMING PLAN & SCHEDULE  
 S300 SECTION - 6X  
 S310 SECTION - 4X (UP)  
 S400 FOUNDATION & ANCHORAGE DETAILS  
 S500 STEEL DETAILS  
**7 SHEETS**

**RACKING CONSTRUCTION SET**  
 PC-1 COVER SHEET  
 PC-2 PROJECT SUMMARY  
 PC-3 ARRAY SITE MAP  
 PC-4 TYPICAL ARRAY DIMENSIONS  
 PC-5 ASSEMBLIES  
 PC-6 RACKING COMPONENTS  
 PC-7 BALLAST LEGEND  
 PC-8 TO PC-17 BALLAST LAYOUT - 1 TO 10  
**17 SHEETS**  
**TOTAL 46 SHEETS**

SYSTEM HOST



1300 Baker Street  
 Bakersfield, CA 93305  
 661-631-4600

SYSTEM DEVELOPER



**FOREFRONT POWER**

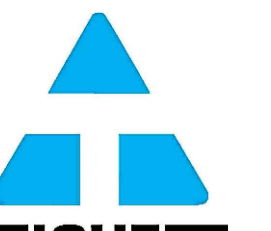
100 Montgomery Street, #1400  
 San Francisco, CA 94104  
 855-204-5083

ELECTRICAL CONSTRUCTORS AND ENGINEERS



1902 Channel Drive  
 West Sacramento, CA 95691  
 916-567-1100

STRUCTURAL ENGINEERING AND STEEL CONSTRUCT



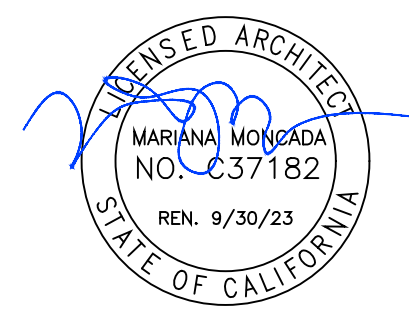
**TEICHERT SOLAR**  
 10820 Treana Street, Ste. 140  
 San Diego, CA 92131  
 562-283-2970

ARCHITECT OF RECORD

M M P V d e s i g n

Mariana Moncada, Architect  
 718 West Arbor Drive  
 San Diego, CA 92103  
 619.632.2883

ARCHITECT / ENGINEER OF RECORD



PROJECT

**BAKERSFIELD CITY SCHOOL DISTRICT**

EDUCATION CENTER  
 1300 BAKER STREET  
 BAKERSFIELD, CA 93305

NO. REVISION DATE  
 PLAN REVISIONS 06.28.23

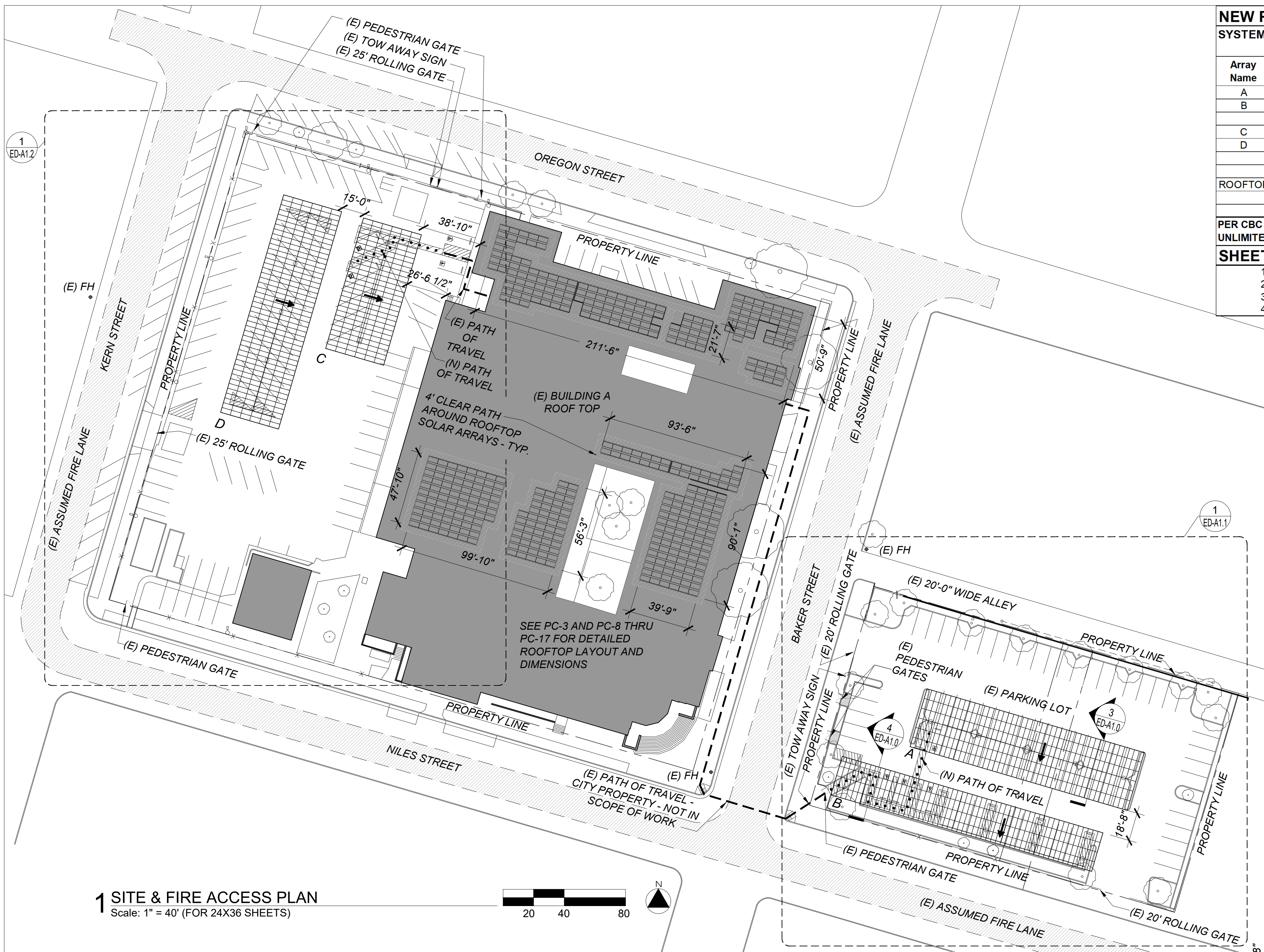
DATE:  
 06.28.23

SHEET TITLE

TITLE SHEET

SHEET NO.:

**ED-A0.0**



### NEW PHOTOVOLTAIC ARRAY CODE ANALYSIS

SYSTEM DESCRIPTION: Module Type Longi LR6-72HPH-375W (2004MM X 996MM X 35MM) 23 kg

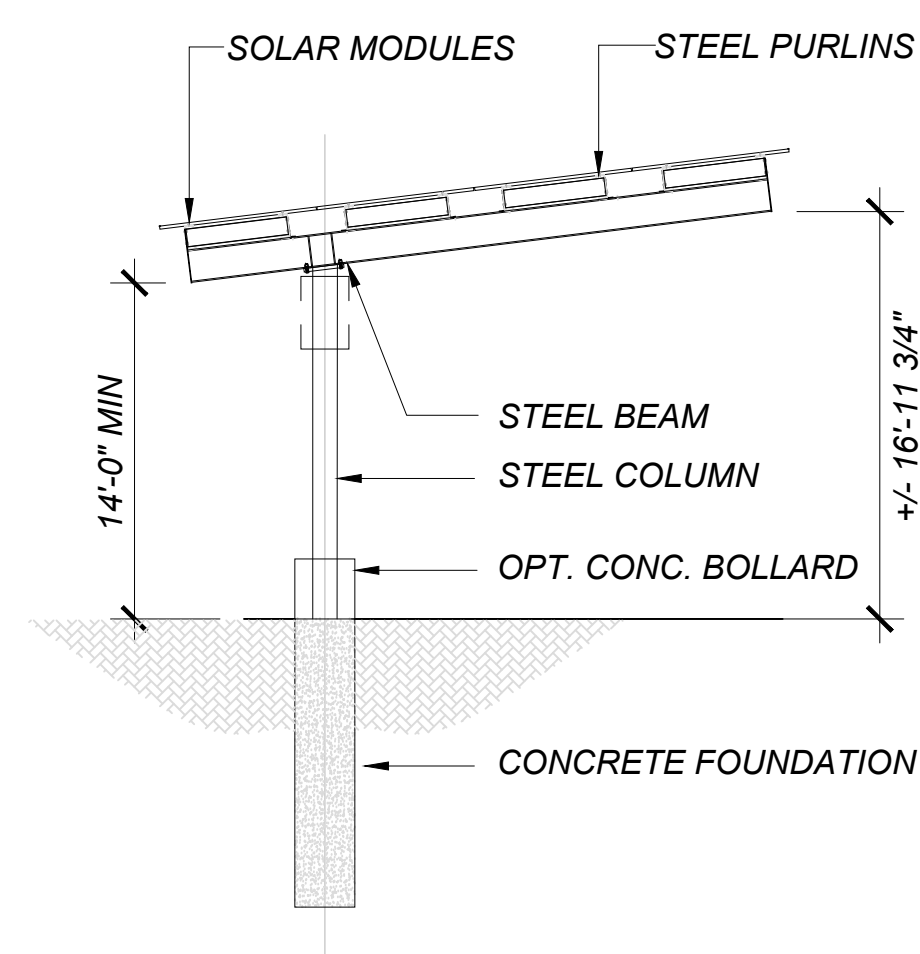
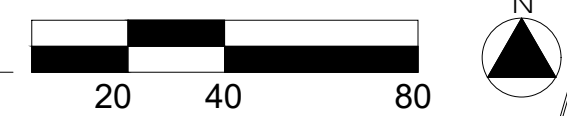
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TOTAL AREA ARRAY 'A+B':										10,622 SF	UNLIMITED				
C	6 x 27	162	60.75	3	14'-0"	107°	7°	S-2 NS	II-B	3,541 SF	-				
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TOTAL AREA ARRAY 'C+D':										9,443 SF	UNLIMITED				
TOTALS:										918	344.25	19	TOTAL PARKING PROJECT AREA: 20,065 SF		
ROOFTOP:										432	162.00	-	197°	TOTAL ROOF TOP PROJECT AREA: 9,973 SF	
TOTALS:										1350	506.25	19	TOTAL PROJECT AREA: 30,038 SF		

PER CBC 405.5.5 AREA AND HEIGHT INCREASES: OPEN PARKING GARAGES OF TYPE II CONSTRUCTION WITH ALL SIDES OPEN, SHALL BE UNLIMITED IN ALLOWABLE AREA WHERE THE BUILDING HEIGHT DOES NOT EXCEED 75'.

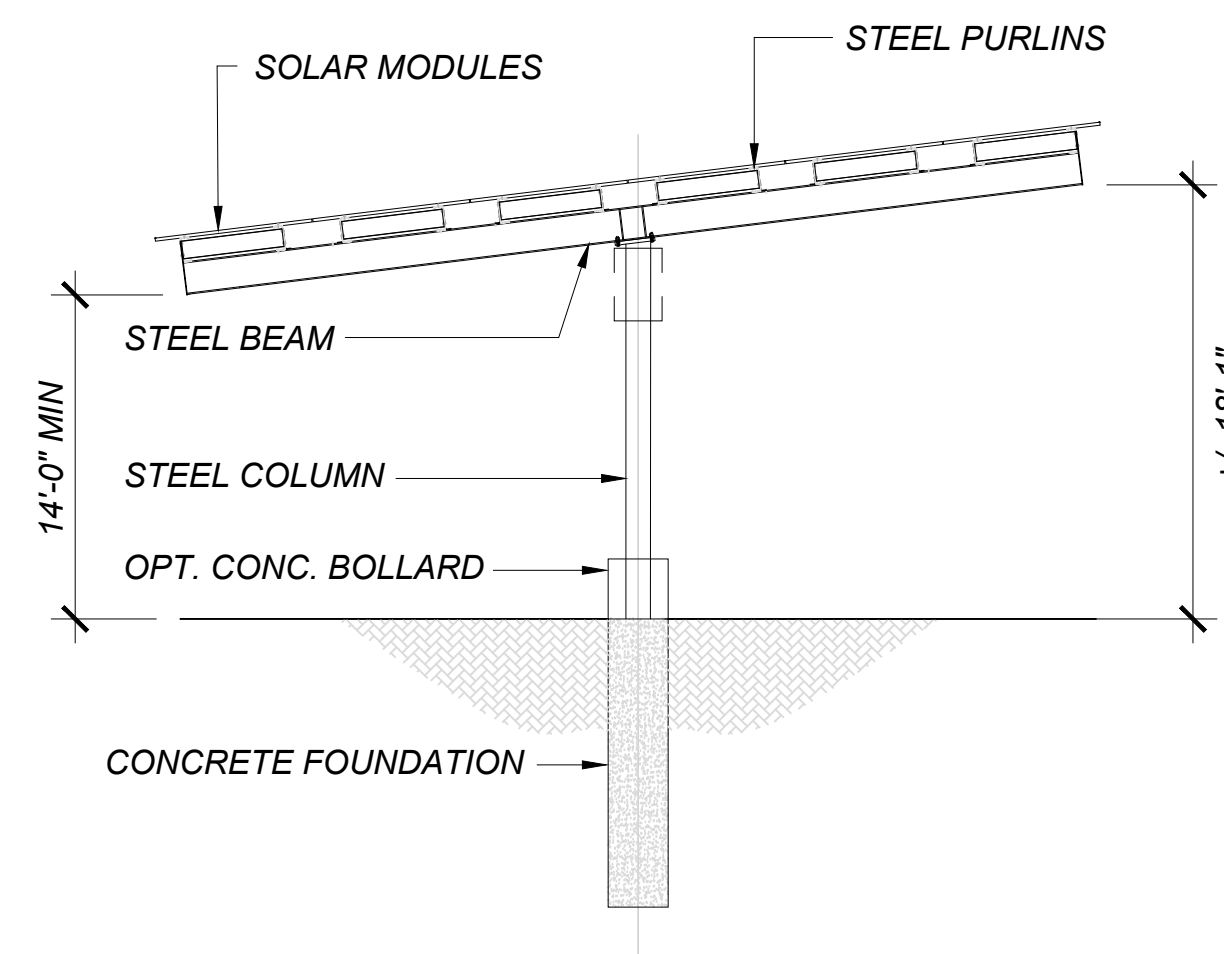
#### SHEET NOTES

- SEE SHEET ED-A1.0 FOR ARRAY DIMENSIONS
- SEE SHEET ED-A1.1 FOR ACCESSIBILITY PLAN
- SEE ELECTRICAL SITE PLAN FOR POC INFORMATION AND LOCATION
- ARROWS ON PLAN POINT TO LOW SIDE OF CANOPY

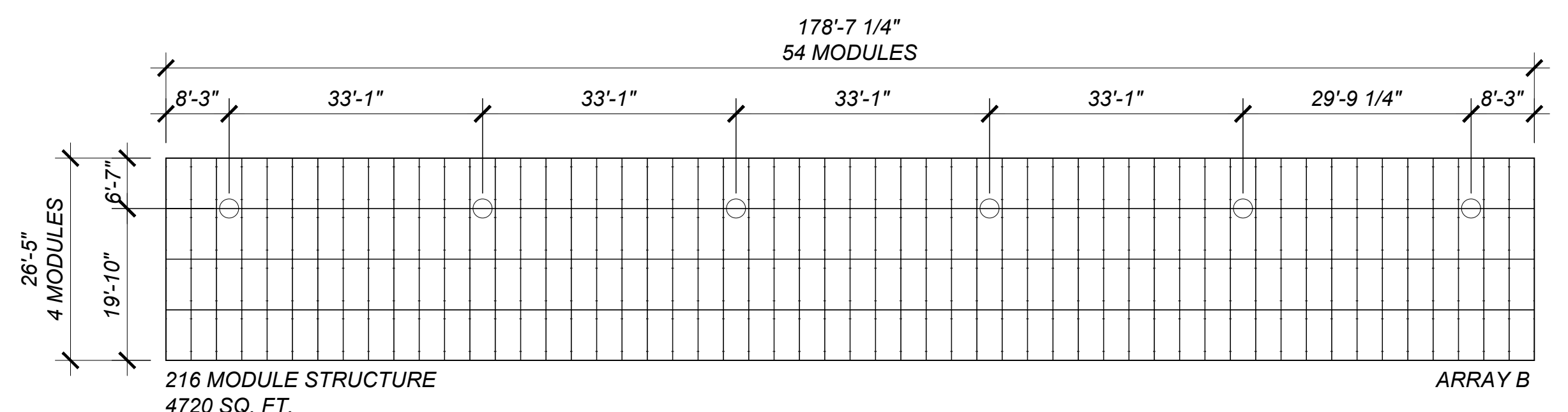
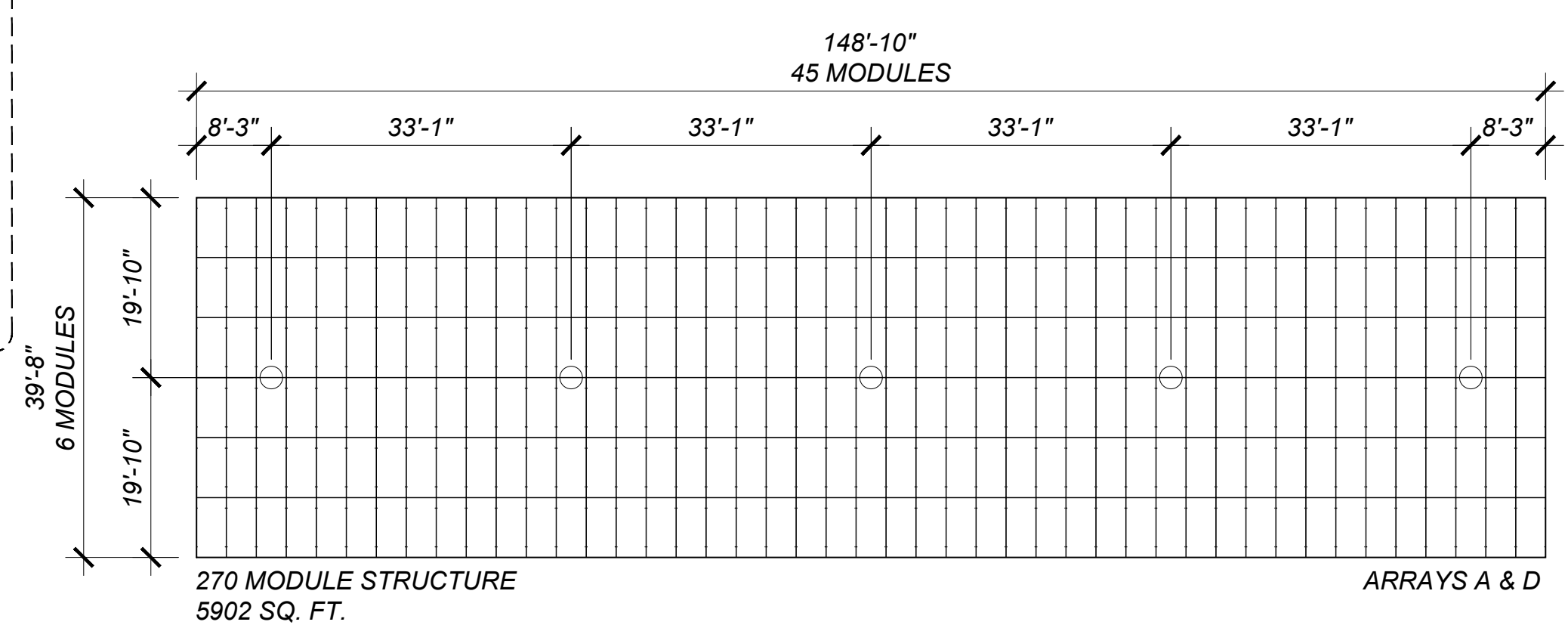
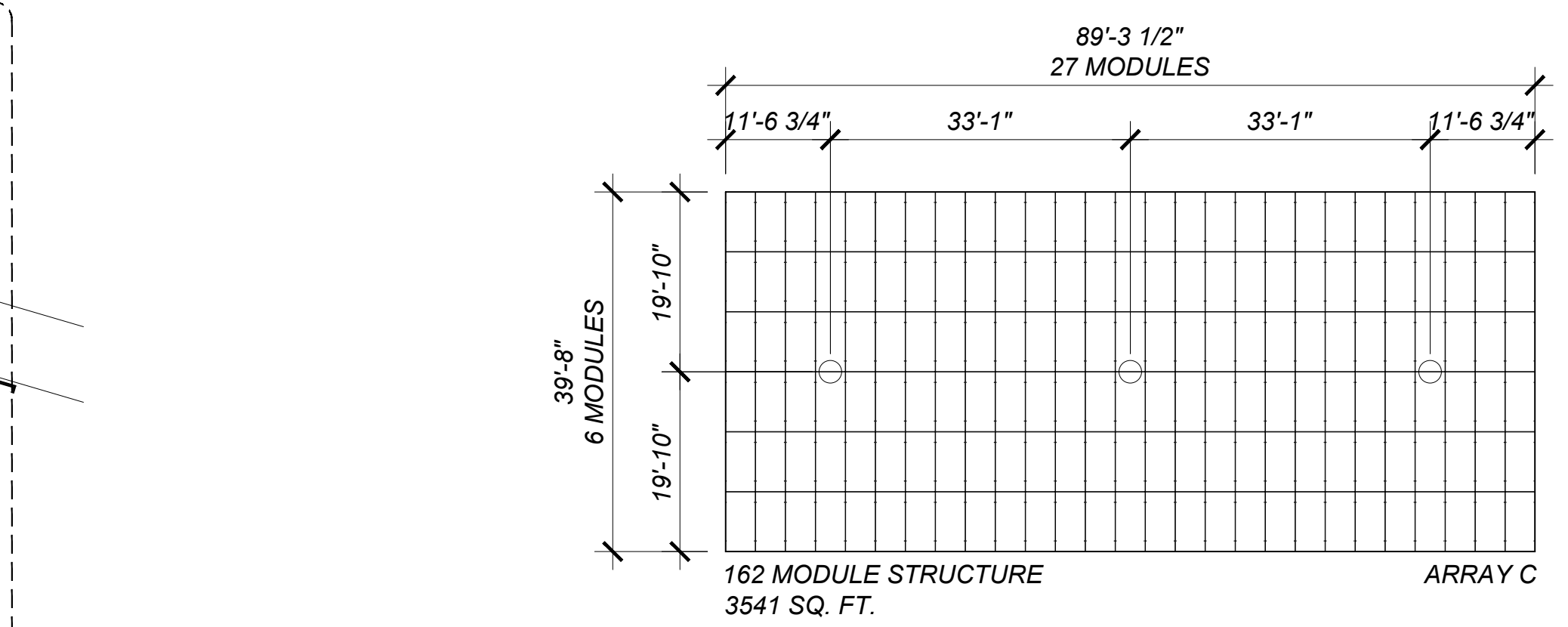
**1 SITE & FIRE ACCESS PLAN**  
Scale: 1" = 40' (FOR 24X36 SHEETS)



**4 TYPICAL ARRAY SECTION @ ARRAY B**  
Scale: 1/8" = 1'-0" (FOR 24X36 SHEETS)



**3 TYPICAL ARRAY SECTION @ ARRAY A, C, D**  
Scale: 1/8" = 1'-0" (FOR 24X36 SHEETS)



**2 ARRAY DIMENSIONS**  
Scale: 1/8" = 1'-0" (FOR 24X36 SHEETS)

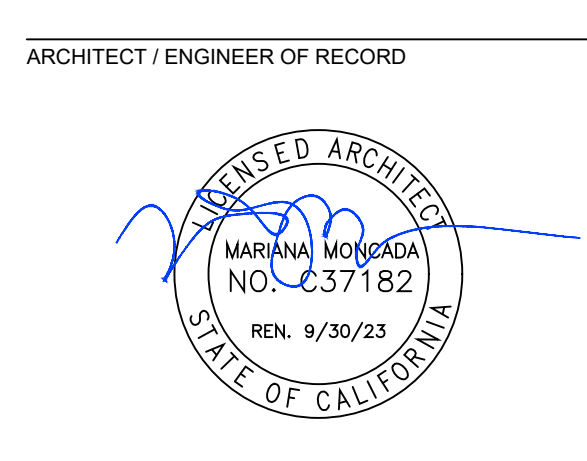


**FOREFRONT POWER**  
100 Montgomery Street, #1400  
San Francisco, CA 94104  
855-204-5083

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**TEICHERT SOLAR**  
10620 Treana Street, Ste. 140  
San Diego, CA 92131  
562-283-2970

M M P V design  
Mariana Moncada, Architect  
718 West Arbor Drive  
San Diego, CA 92103  
619.632.2883



**PROJECT**  
**BAKERSFIELD CITY SCHOOL DISTRICT**  
EDUCATION CENTER  
1300 BAKER STREET  
BAKERSFIELD, CA 93305

NO.	REVISION	DATE
	PLAN REVISIONS	06.28.23

DATE: **06.28.23**

SHEET TITLE: **SITE & FIRE ACCESS PLAN**

SHEET NO.: **ED-A1.0**

**DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE STATEMENT:**

"DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE STATEMENT: THE POT IDENTIFIED IN THESE CONSTRUCTION DOCUMENTS MEETS THE REQUIREMENTS OF THE CURRENT APPLICABLE CALIFORNIA BUILDING CODE (CBC) ACCESSIBILITY PROVISIONS FOR PATH OF TRAVEL REQUIREMENTS FOR ALTERATIONS, ADDITIONS AND STRUCTURAL REPAIRS. AS PART OF THE DESIGN OF THIS PROJECT, THE POT WAS EXAMINED AND ANY ELEMENTS, COMPONENTS OR PORTIONS OF THE POT THAT WERE DETERMINED TO BE NONCOMPLIANT WITH THE CBC HAVE BEEN IDENTIFIED AND THE CORRECTIVE WORK NECESSARY TO BRING THEM INTO COMPLIANCE HAS BEEN INCLUDED WITHIN THE SCOPE OF THIS PROJECT'S WORK THROUGH DETAILS, DRAWINGS AND SPECIFICATIONS INCORPORATED INTO THESE CONSTRUCTION DOCUMENTS. ANY NONCOMPLIANT ELEMENTS, COMPONENTS OR PORTIONS OF THE POT THAT WILL NOT BE CORRECTED BY THIS PROJECT BASED ON VALUATION THRESHOLD LIMITATIONS OR A FINDING OF UNREASONABLE HARDSHIP ARE INDICATED IN THESE CONSTRUCTION DOCUMENTS."

**ACCESSIBILITY NOTES:**

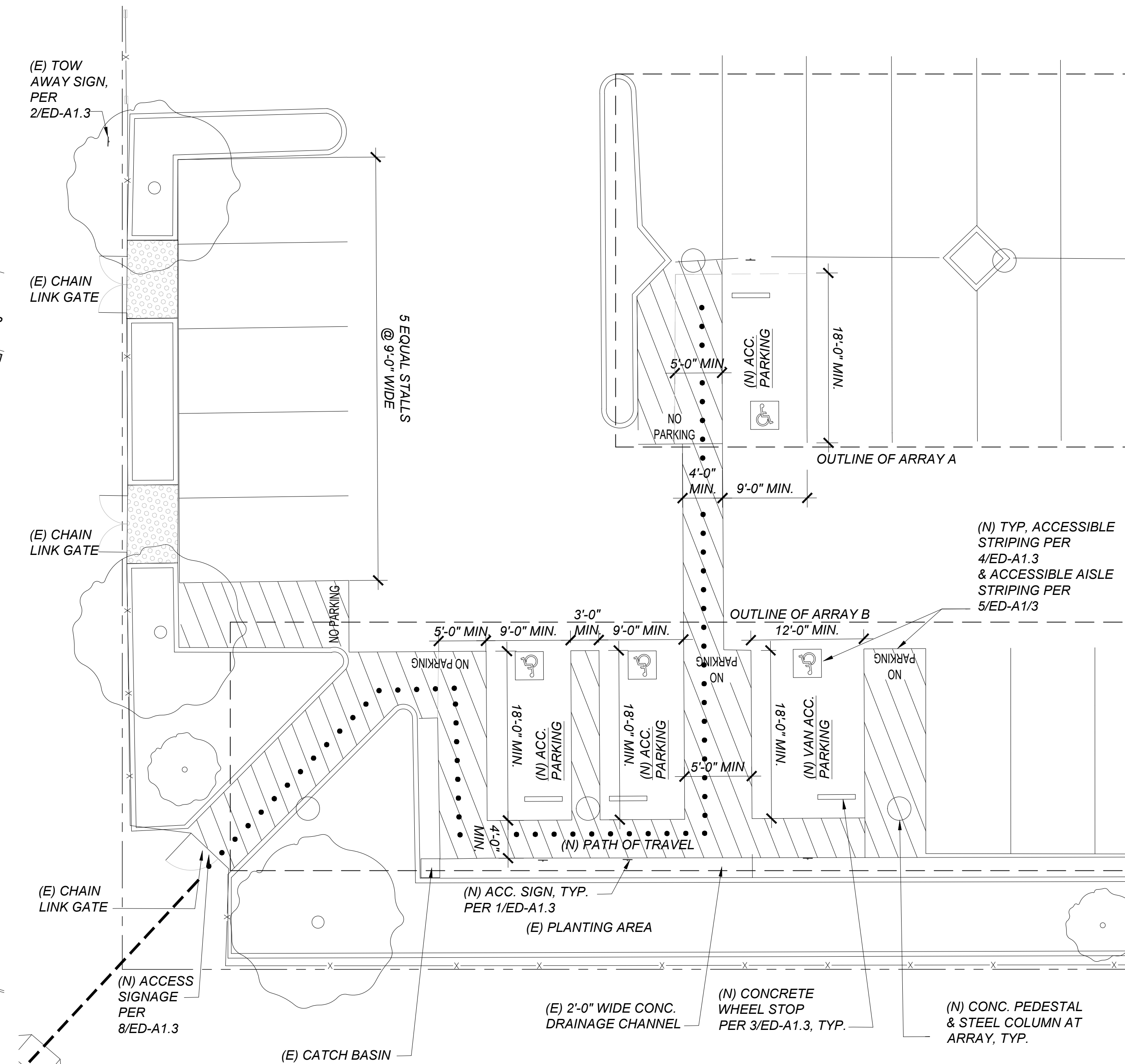
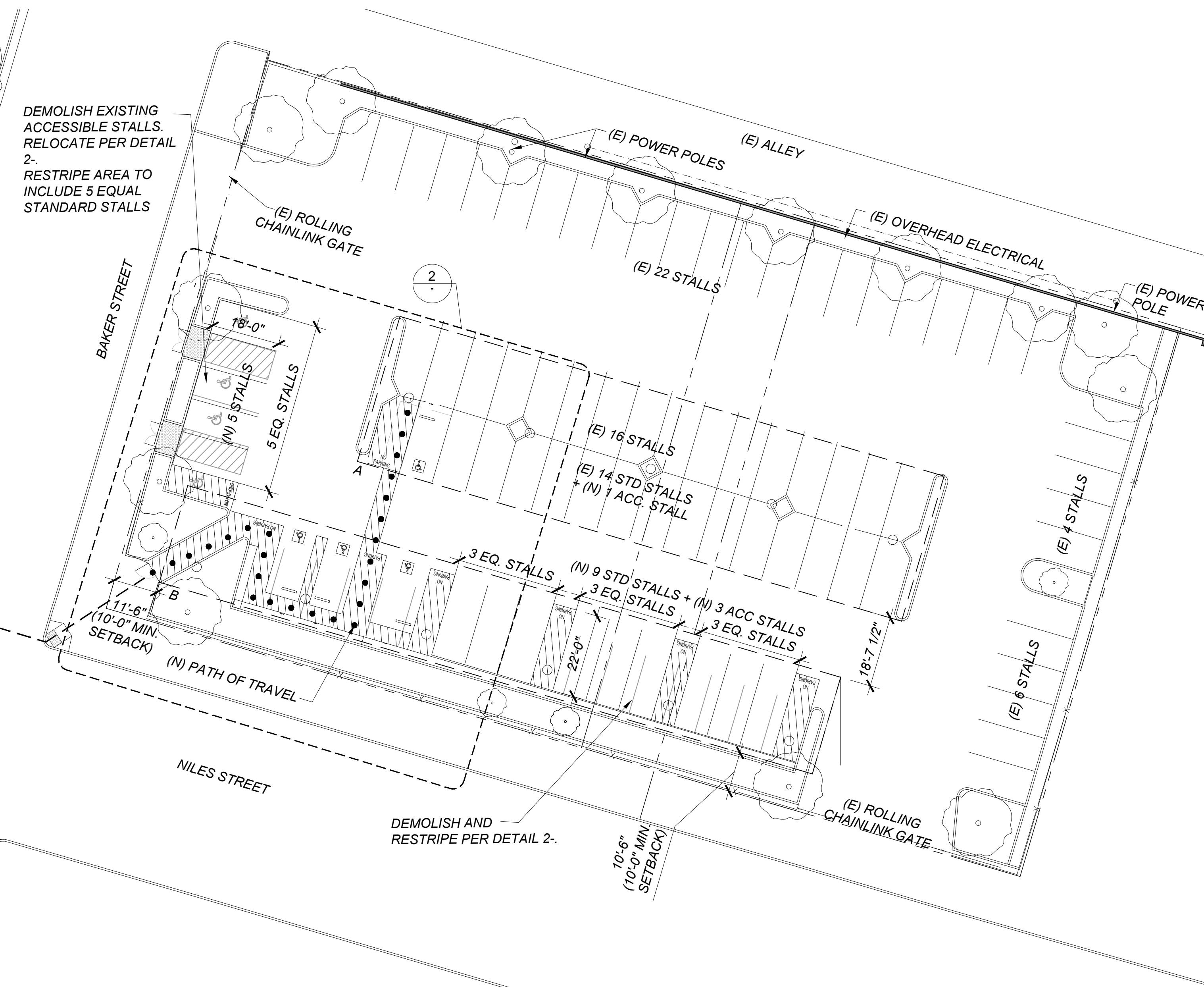
1. ACCESSIBLE PATH OF TRAVEL AS INDICATED ON PLAN IS A BARRIER-FREE ACCESS ROUTE WITHOUT ANY ABRUPT LEVEL OF CHANGES EXCEEDING 1/2" IF BEVELED AT 1:2 MAX SLOPE, OR VERTICAL LEVEL CHANGES NOT EXCEEDING 1/4" MAX, AND AT LEAST 48" IN WIDTH. SURFACE IS STABLE, FIRM AND SLIP RESISTANT. CROSS SLOPE DOES NOT EXCEED 2% AND SLOPE IN THE DIRECTION OF TRAVEL IS LESS THAN 5% UNLESS OTHERWISE INDICATED. ACCESSIBLE PATH OF TRAVEL SHALL BE MAINTAINED FREE OF OVERHANGING OBSTRUCTIONS TO 80" MINIMUM AND PROTRUDING OBJECTS GREATER THAN 4" PROJECTION FROM WALL AND ABOVE 27" AND LESS THAN 80". ARCHITECT OF RECORD SHALL VERIFY THAT THERE ARE NO BARRIERS IN THE PATH OF TRAVEL.
2. SEE SITE PLAN FOR MORE INFORMATION ON PATH OF TRAVEL.

**ACCESSIBLE PARKING AND PATH OF TRAVEL REQUIREMENTS:**

1. (N) PATH OF TRAVEL INDICATED BY DOTS:
  - ● ● ●
2. (E) PATH OF TRAVEL - NOT PART OF SCOPE, SHOWN FOR REFERENCE ONLY - INDICATED BY DASHED LINE:
  -
3. \*BOTH (E) AND (N) POT REQUIRES:
  - 5% DIRECTIONAL SLOPE MAX.
  - 2% CROSS SLOPE MAXIMUM
  - \*SEE #1 ACCESSIBILITY NOTES FOR ADDITIONAL REQUIREMENTS.
4. STALLS AND ACCESS AISLES REQUIRE:
  - 2% DIRECTIONAL SLOPE
  - 2% CROSS SLOPE MAX
5. FOR STRIPING, COLOR, WHEEL STOP, AND ALL OTHER DIMENSIONS, REFER TO SHEET ED-A1.3

**PARKING ANALYSIS - EAST LOT**

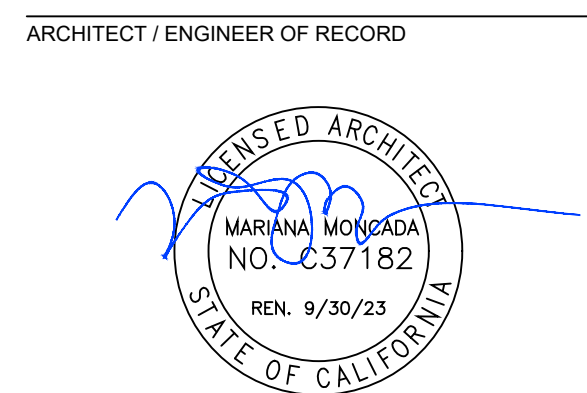
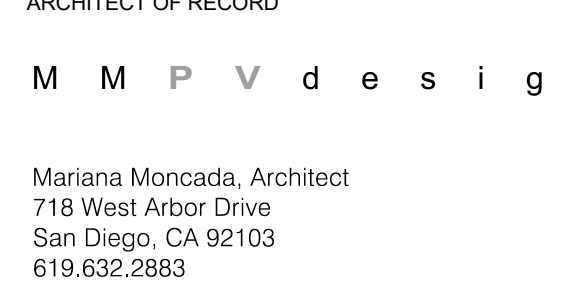
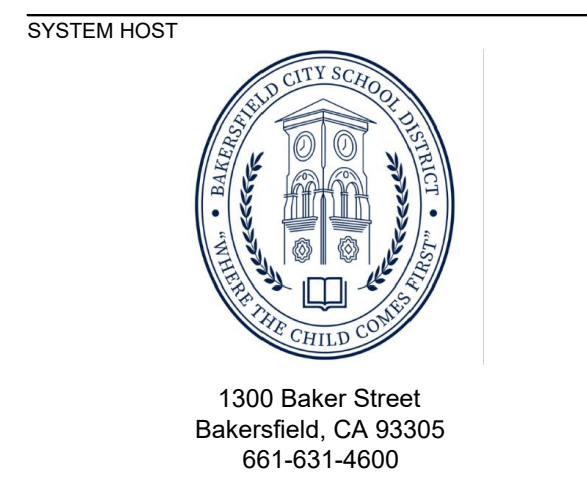
LOT	TOTAL STALLS	REQ'D ACCESSIBLE STALLS	PROVIDED ACCESSIBLE STALLS	COVERED STANDARD STALLS	RATIO: COVERED TO UNCOVERED	REQ'D COVERED ACCESSIBLE STALLS	PROVIDED COVERED ACCESSIBLE STALLS
1	78	4	4	40	51%	3	4



**1 PARKING PLAN**  
Scale: 1" = 20' (FOR 24X36 SHEETS)



**2 ACCESSIBLE PARKING PLAN**  
Scale: 1/8" = 1'-0" (FOR 24X36 SHEETS)



PROJECT  
**BAKERSFIELD CITY SCHOOL DISTRICT**  
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NO.	REVISION	DATE
	PLAN REVISIONS	06.28.23

DATE: **06.28.23**

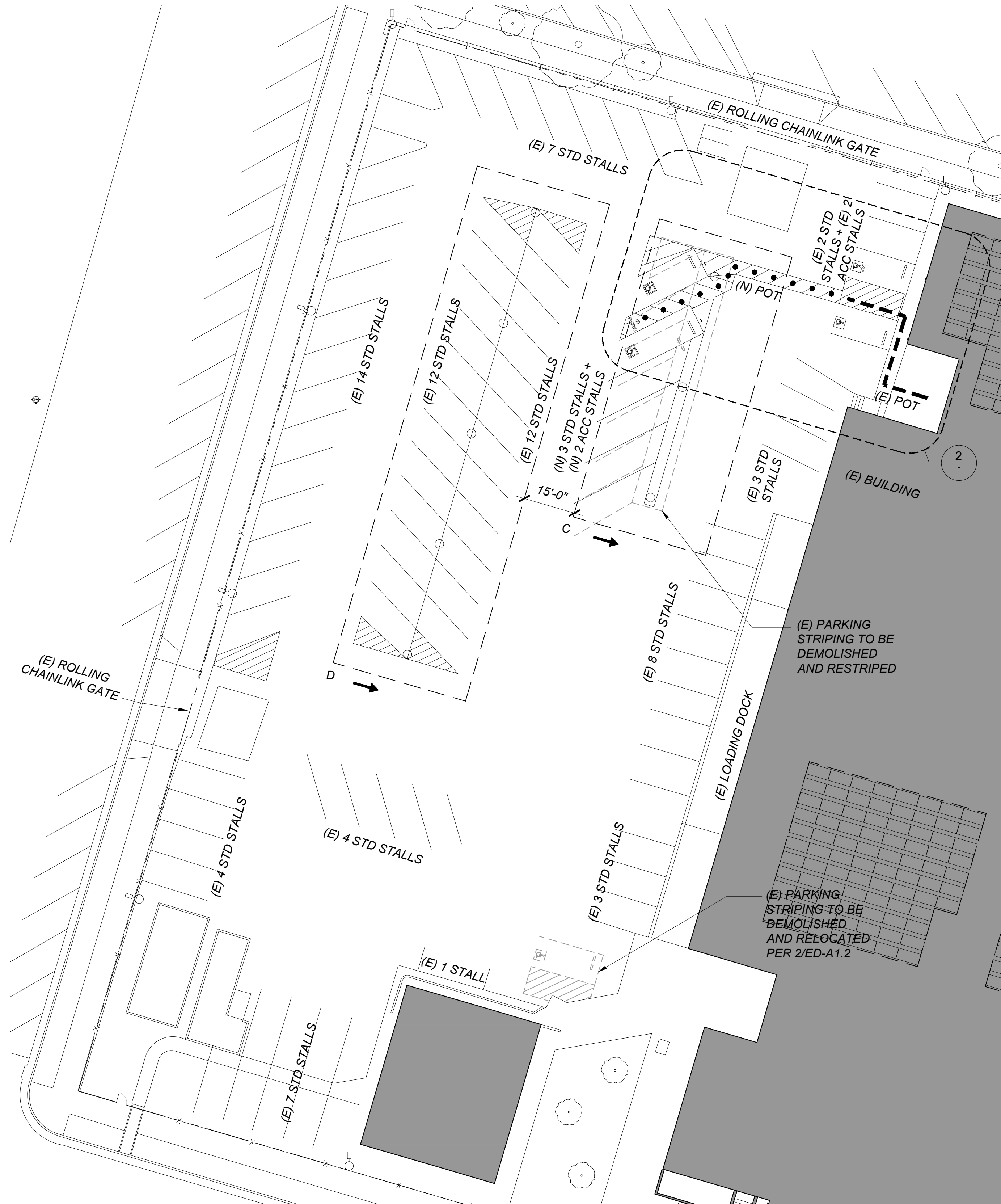
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**PARKING PLANS - EAST LOT**

SHEET NO.:

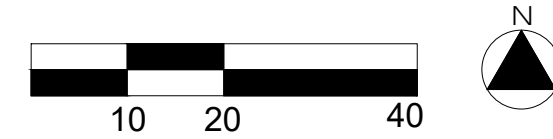
**ED-A1.1**

**DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE STATEMENT:**

"Design Professional in General Responsible Charge Statement: The POT identified in these construction documents meets the requirements of the current applicable California Building Code (CBC) accessibility provisions for path of travel requirements for alterations, additions and structural repairs. As part of the design of this project, the POT was examined and any elements, components or portions of the POT that were determined to be noncompliant with the CBC have been identified and the corrective work necessary to bring them into compliance has been included within the scope of this project's work through details, drawings and specifications incorporated into these construction documents. Any noncompliant elements, components or portions of the POT that will not be corrected by this project based on valuation threshold limitations or a finding of unreasonable hardship are indicated in these construction documents."



**1 PARKING PLAN**  
Scale: 1" = 20' (FOR 24X36 SHEETS)



**ACCESSIBILITY NOTES:**

1. ACCESSIBLE PATH OF TRAVEL AS INDICATED ON PLAN IS A BARRIER-FREE ACCESS ROUTE WITHOUT ANY ABRUPT LEVEL OF CHANGES EXCEEDING 1/2" IF BEVELED AT 1:2 MAX SLOPE, OR VERTICAL LEVEL CHANGES NOT EXCEEDING 1/4" MAX, AND AT LEAST 48" IN WIDTH. SURFACE IS STABLE, FIRM AND SLIP RESISTANT. CROSS SLOPE DOES NOT EXCEED 2% AND SLOPE IN THE DIRECTION OF TRAVEL IS LESS THAN 5% UNLESS OTHERWISE INDICATED. ACCESSIBLE PATH OF TRAVEL SHALL BE MAINTAINED FREE OF OVERHANGING OBSTRUCTIONS TO 80" MINIMUM AND PROTRUDING OBJECTS GREATER THAN 4" PROJECTION FROM WALL AND ABOVE 27" AND LESS THAN 80". ARCHITECT OF RECORD SHALL VERIFY THAT THERE ARE NO BARRIERS IN THE PATH OF TRAVEL.

2. SEE SITE PLAN FOR MORE INFORMATION ON PATH OF TRAVEL.

**PARKING ANALYSIS - WEST LOT**

LOT	TOTAL STALLS	REQ'D ACCESSIBLE STALLS	PROVIDED ACCESSIBLE STALLS	COVERED STANDARD STALLS	RATIO: COVERED TO UNCOVERED	REQ'D COVERED ACCESSIBLE STALLS	PROVIDED COVERED ACCESSIBLE STALLS
2	81	4	4	29	36%	1	2

**ACCESSIBLE PARKING AND PATH OF TRAVEL REQUIREMENTS:**

1. (N) PATH OF TRAVEL INDICATED BY DOTS:

2. (E) PATH OF TRAVEL INDICATED BY DASHED LINE:

3. \*BOTH (E) AND (N) POT REQUIRE:

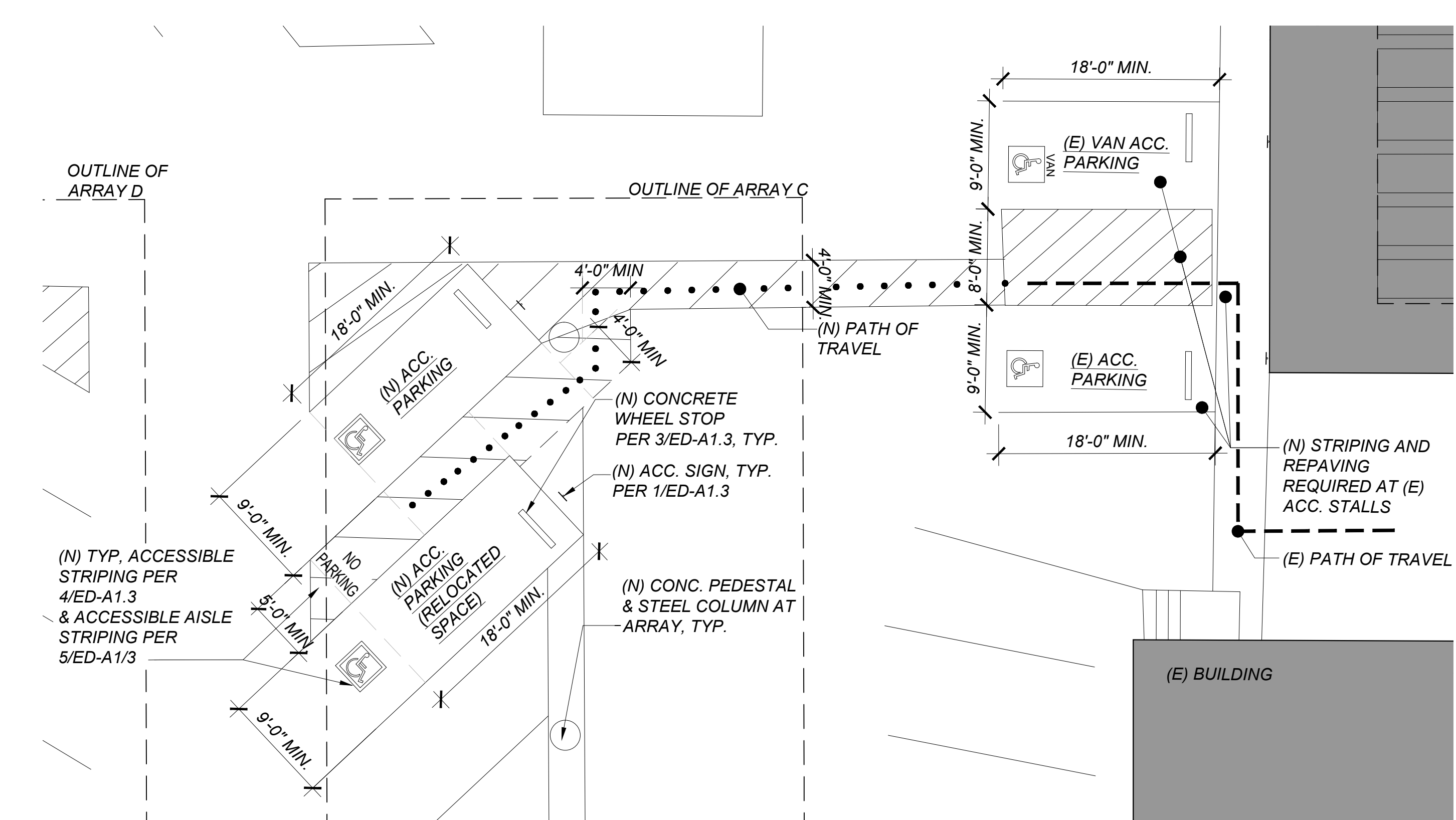
5% DIRECTIONAL SLOPE MAX.  
2% CROSS SLOPE MAXIMUM

\*SEE #1 ACCESSIBILITY NOTES FOR ADDITIONAL REQUIREMENTS.

4. STALLS AND ACCESS AISLES REQUIRE:

2% DIRECTIONAL SLOPE  
2% CROSS SLOPE MAX

5. FOR STRIPING, COLOR, WHEEL STOP, AND ALL OTHER DIMENSIONS, REFER TO SHEET ED-A1.3



**2 ACCESSIBLE PARKING PLAN**  
Scale: 1/8" = 1' (FOR 24X36 SHEETS)



SYSTEM HOST

1300 Baker Street  
Bakersfield, CA 93305  
661-631-4600

SYSTEM DEVELOPER

100 Montgomery Street, #1400  
San Francisco, CA 94104  
855-204-5083

ELECTRICAL CONSTRUCTORS AND ENGINEERS

1902 Channel Drive  
West Sacramento, CA 95691  
916-567-1100

STRUCTURAL ENGINEERING AND STEEL CONSTRUCT

10820 Treema Street, Ste. 140  
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ARCHITECT OF RECORD

M M P V d e s i g n

Mariana Moncada, Architect  
718 West Arbor Drive  
San Diego, CA 92103  
619.632.2883

ARCHITECT / ENGINEER OF RECORD

PROJECT

**BAKERSFIELD CITY SCHOOL DISTRICT**

EDUCATION CENTER  
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NO.	REVISION	DATE
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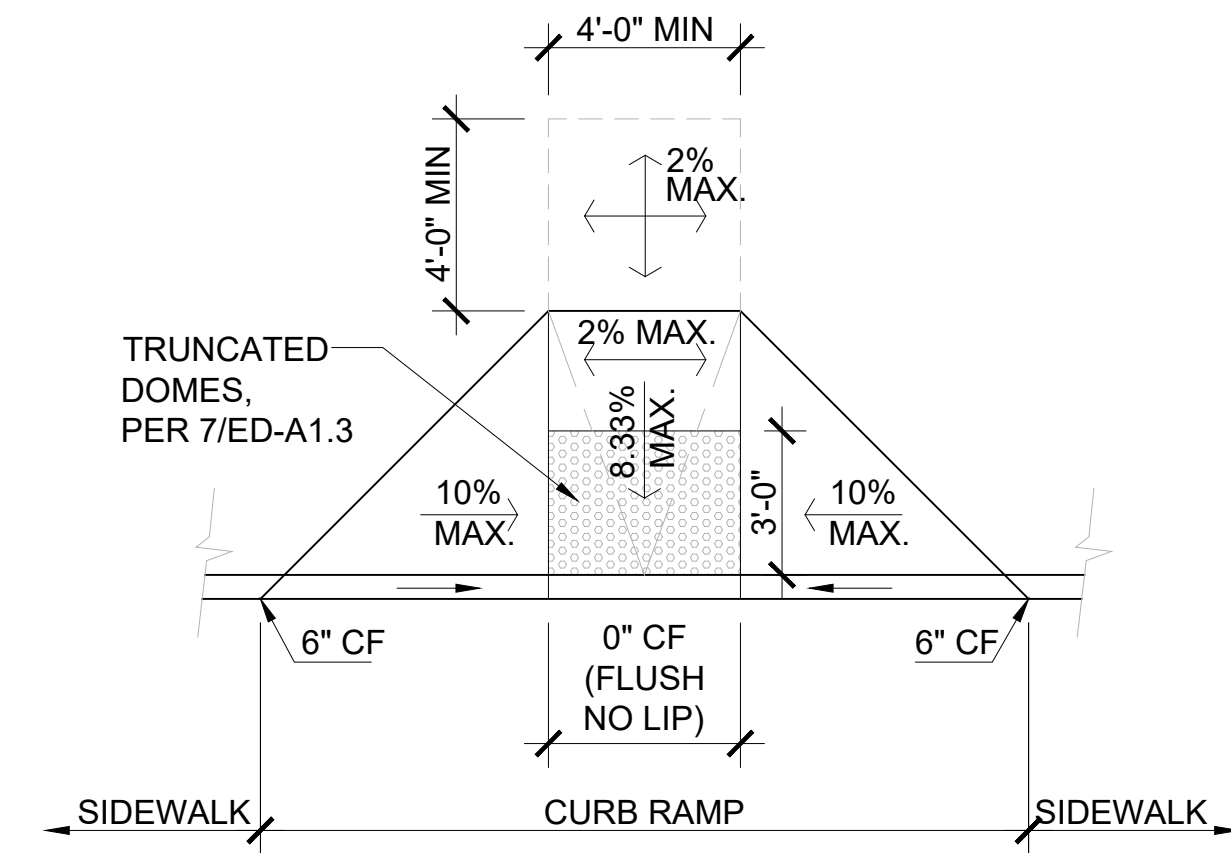
DATE: 06.28.23

SHEET TITLE

**PARKING PLANS - WEST LOT**

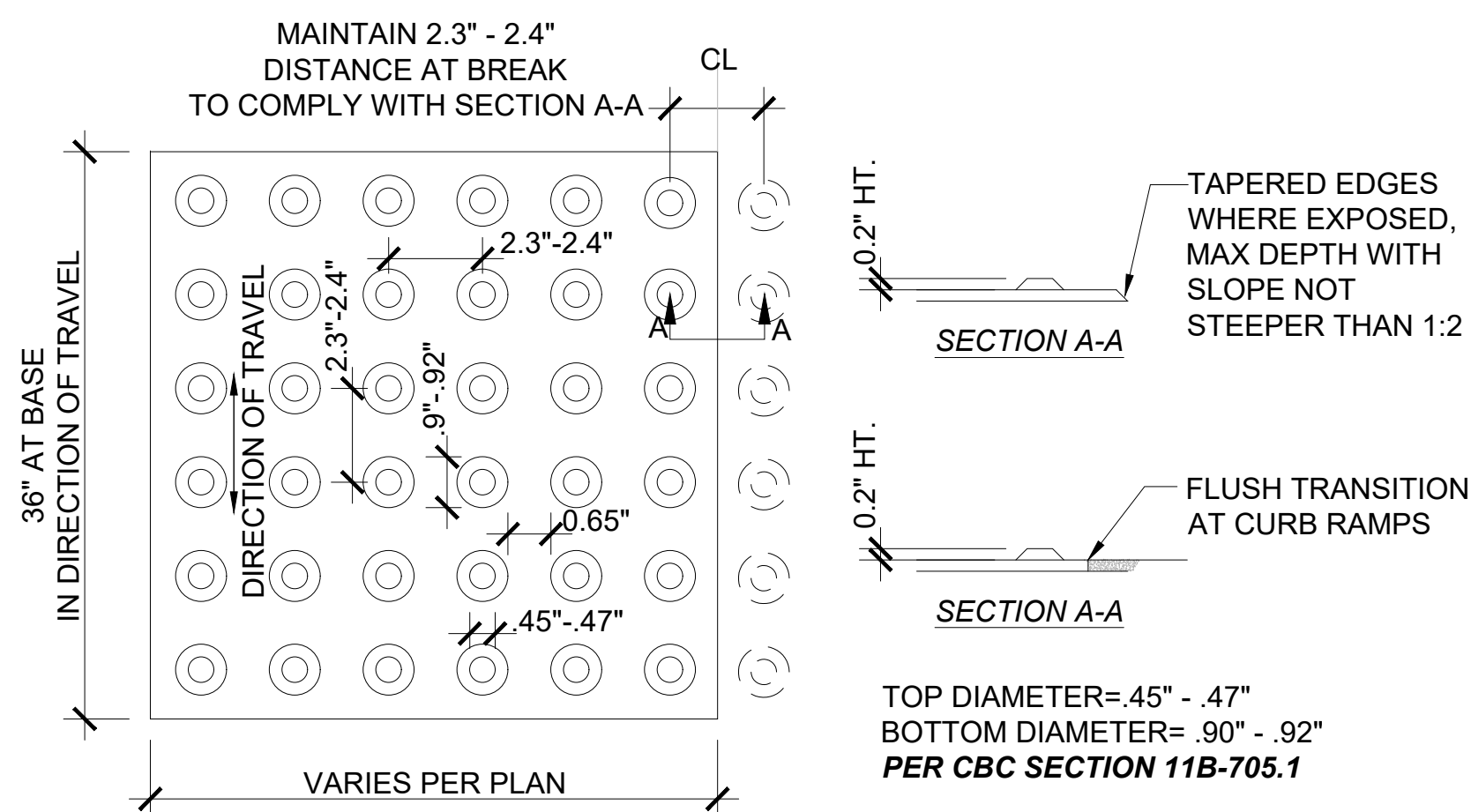
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**ED-A1.2**



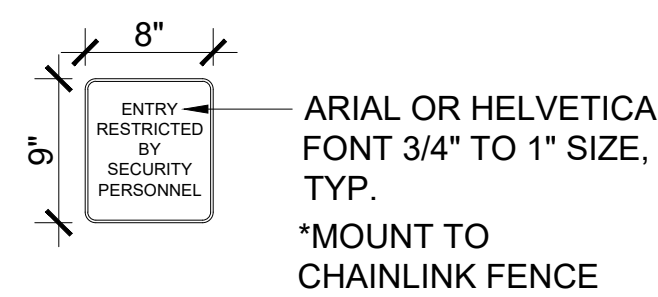
NOTES:  
1. "CF" - CURB FACE

**6 ACCESSIBLE CURB RAMP**  
Scale: 1/4" = 1'

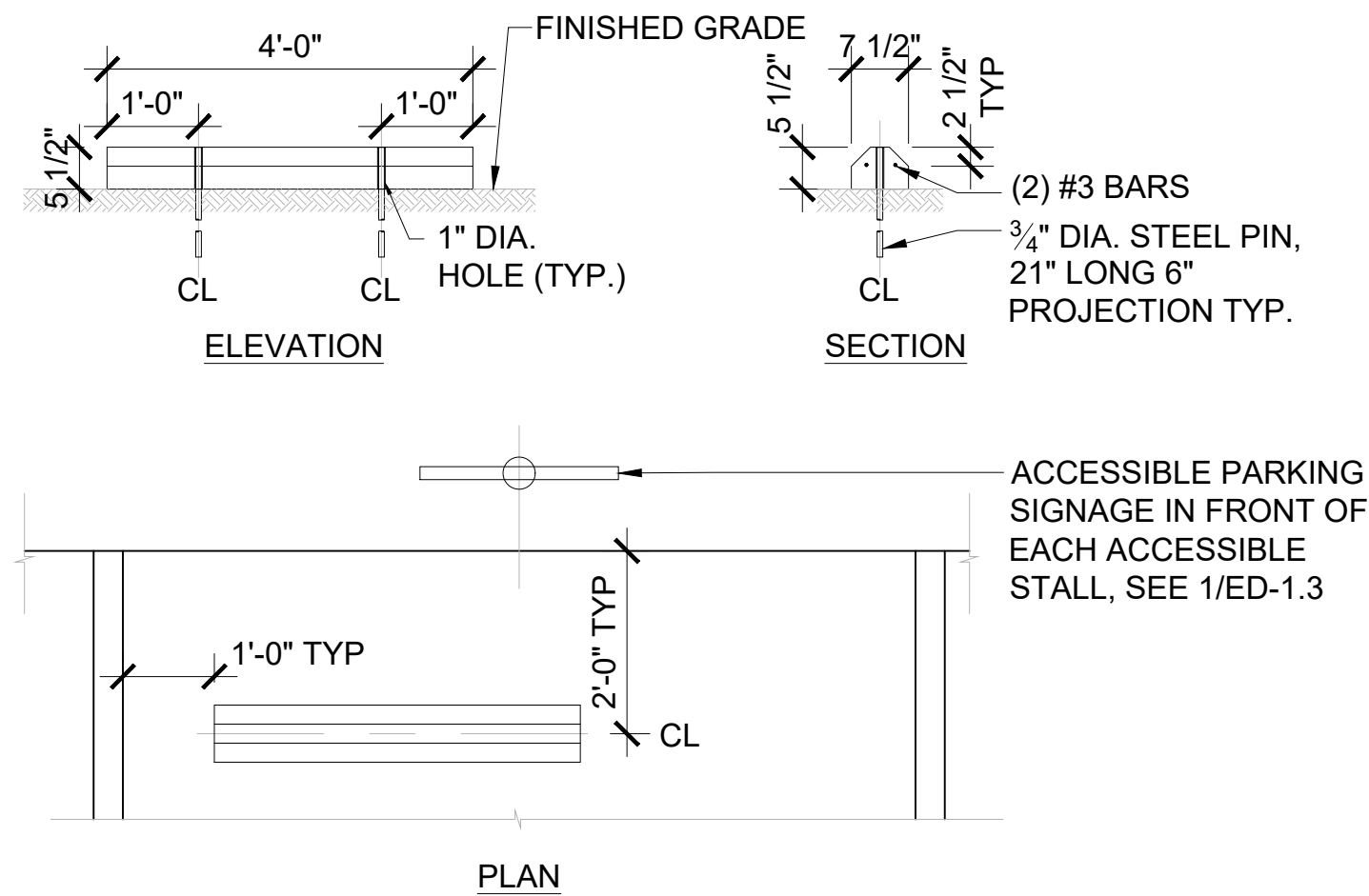


NOTES:  
1. YELLOW COLOR IS REQUIRED FOR NEW INSTALLATIONS YELLOW COLOR #33938 PER FED. STD. 595C

**7 TRUNCATED DOMES**  
Scale: 1" = 1'

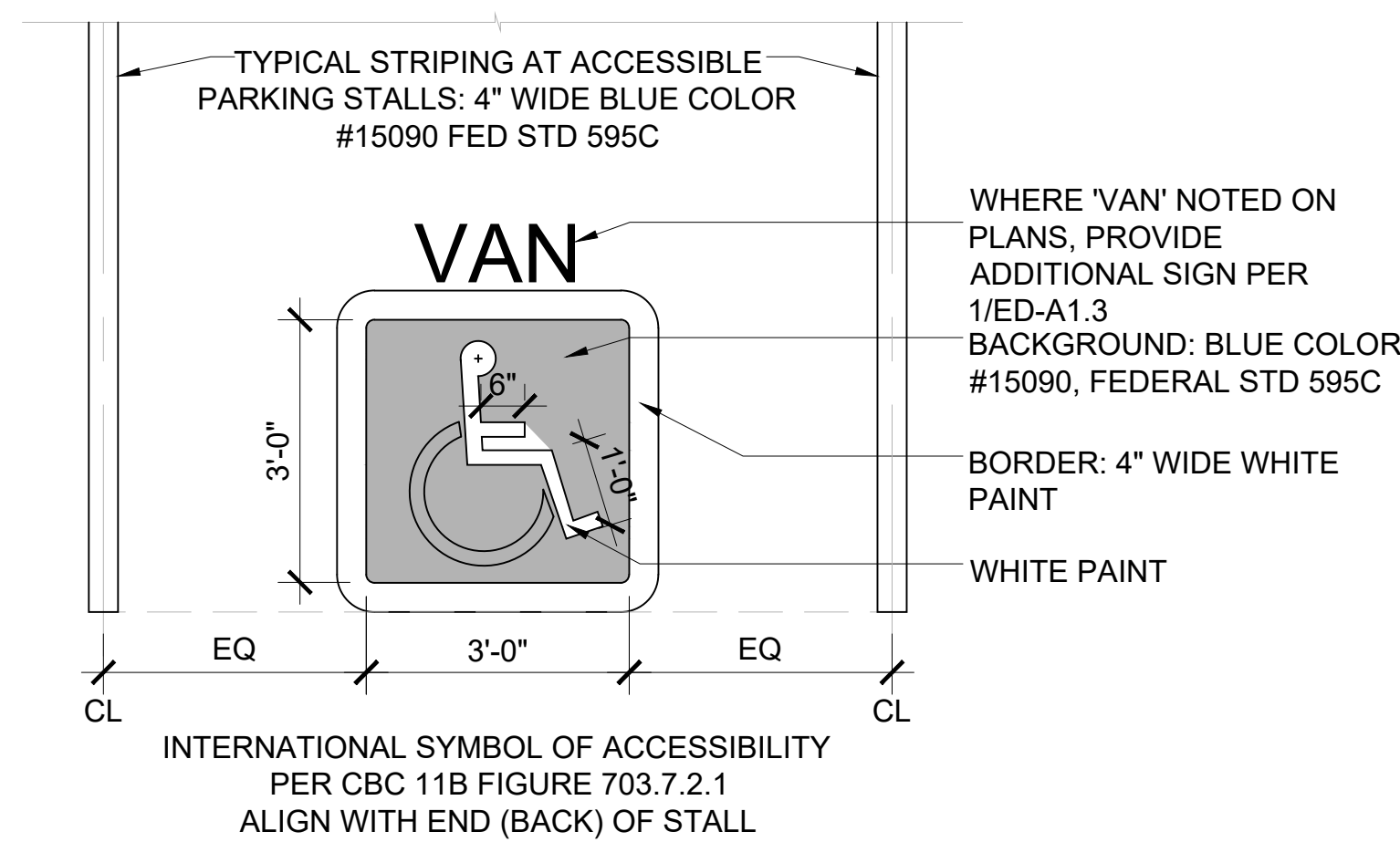


**8 ACCESSIBLE DOOR SIGN - SECURITY PERSONEL**  
Scale: 1" = 1'

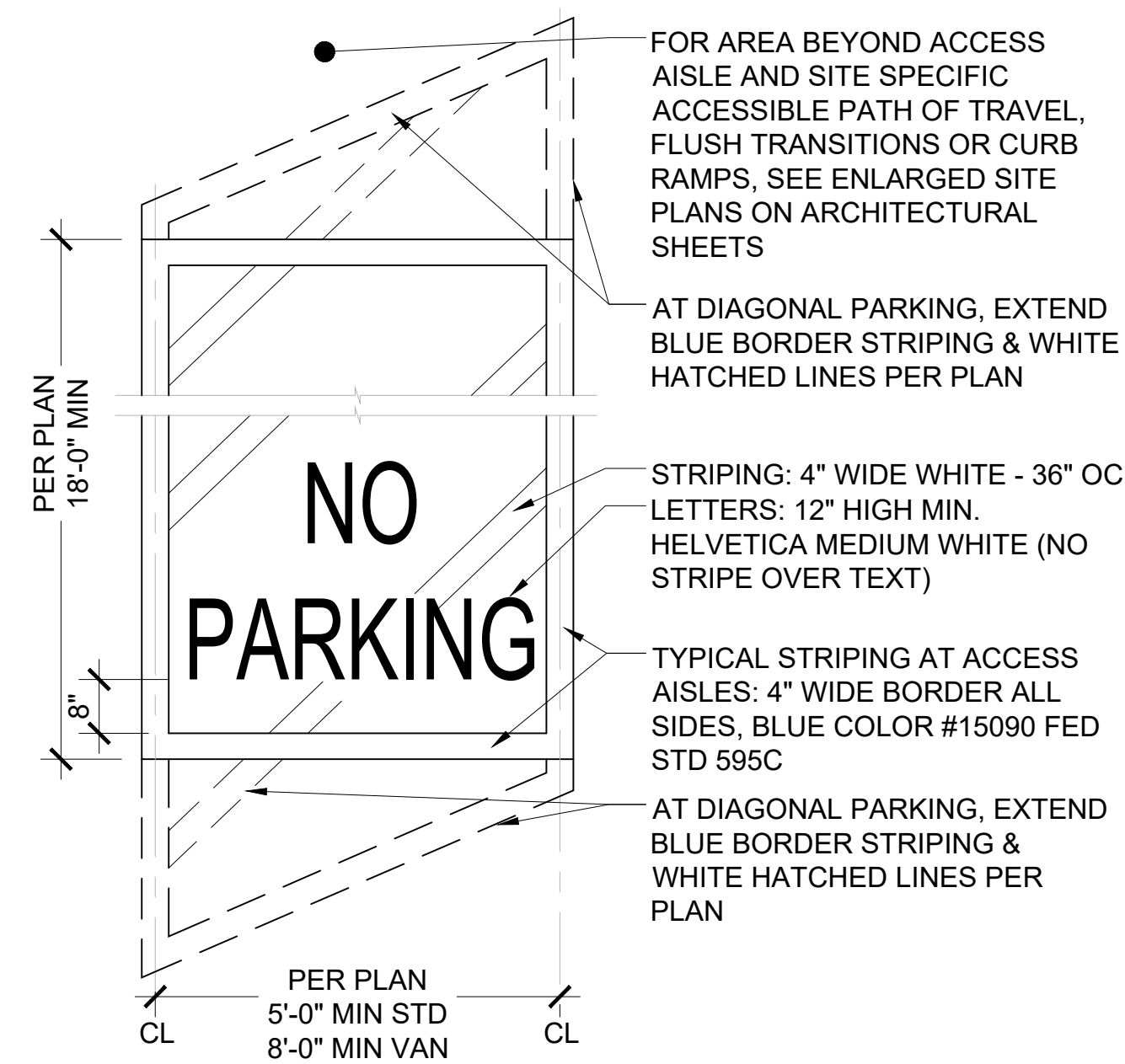


NOTES:  
1. PREFABRICATED P.C. CONCRETE - Fc = 3,500 PSI

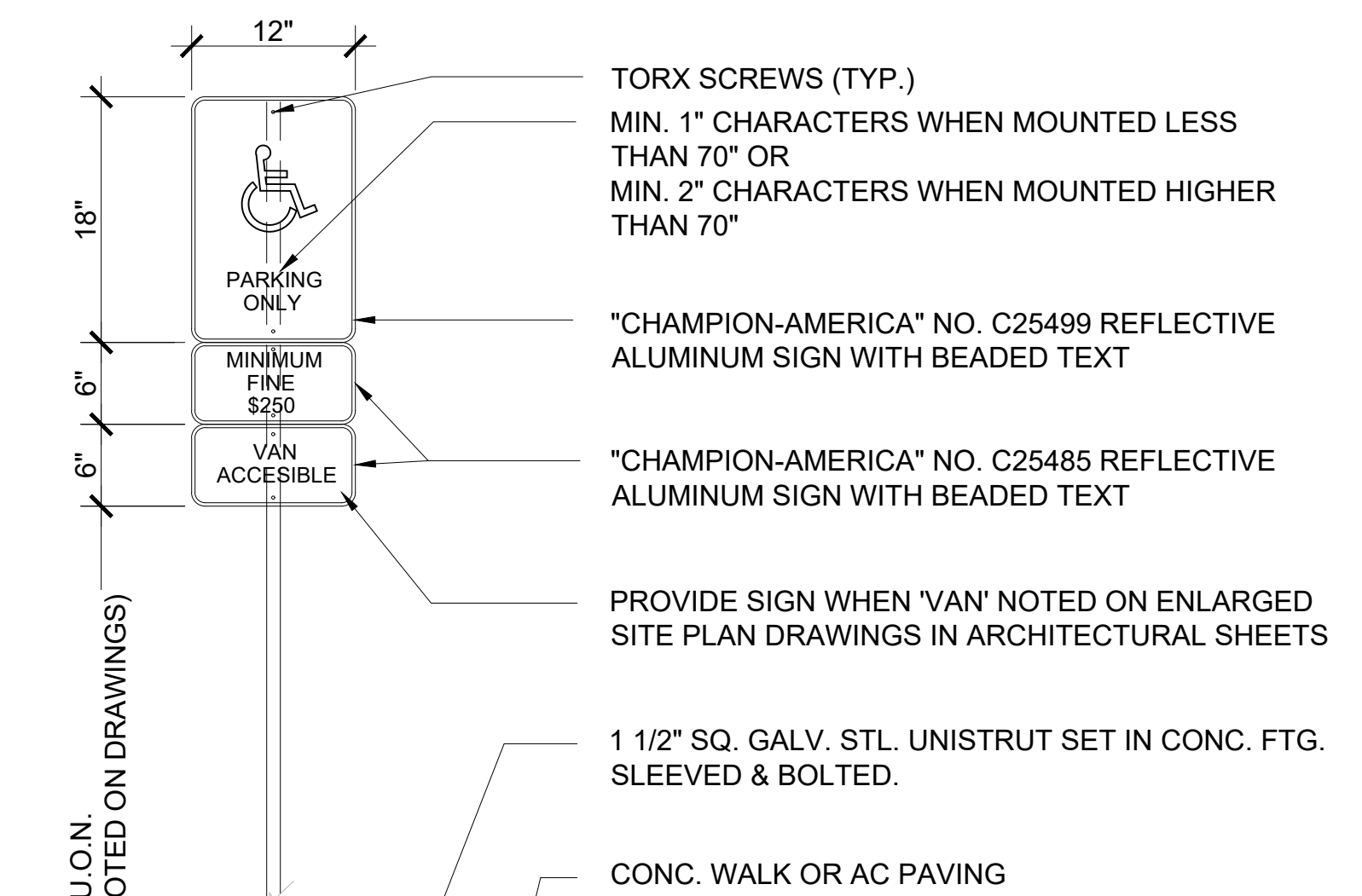
**3 CONCRETE WHEEL STOP**  
Scale: 1/2" = 1'



**4 ACCESSIBLE PARKING STRIPING**  
Scale: 1/2" = 1'



**5 ACCESSIBLE ACCESS AISLE STRIPING**  
Scale: 1/2" = 1'



**SIGN AND IDENTIFICATION**

1. THE INTERNATIONAL SYMBOL OF ACCESSIBILITY SHALL BE THE STANDARD USED TO IDENTIFY FACILITIES THAT ARE ACCESSIBLE TO AND USABLE BY PHYSICALLY DISABLED PERSONS. THE SYMBOL SHALL CONSIST OF A WHITE FIGURE ON A BLUE BACKGROUND. THE BLUE SHALL BE EQUAL TO (COLOR NO. 15090 IN FEDERAL STANDARD 595C).

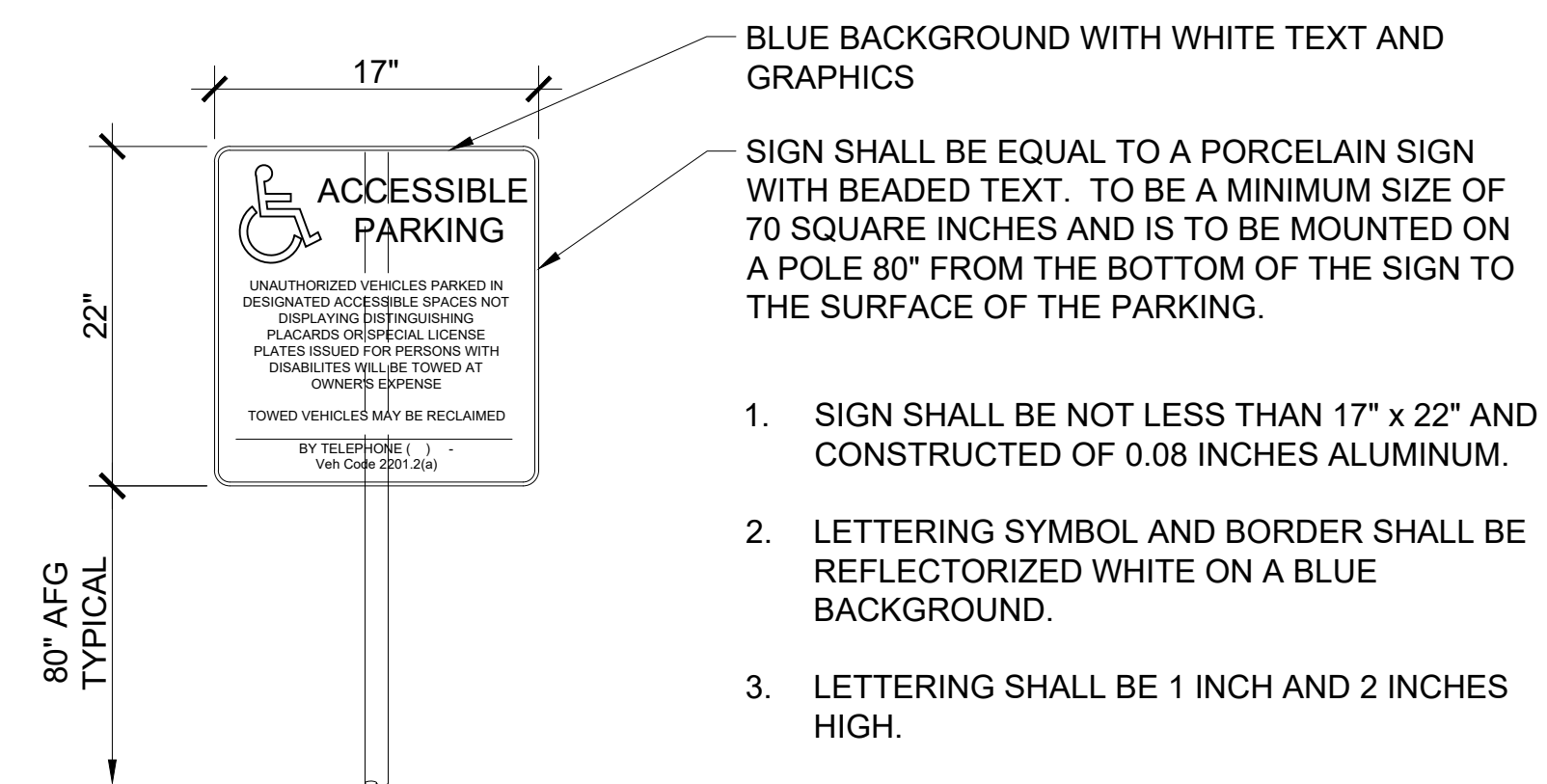
2. CHARACTERS AND SYMBOLS SHALL BE WHITE ON BLUE BACKGROUND. (COLOR NO. 15090 PER FED. STD. 595C).

**INTERNATIONAL SYMBOL OF ACCESSIBILITY NOTES:**

1. 3' x 3' SURFACE IDENTIFICATION AT ALL ACCESSIBLE PARKING STALLS, SEE 4/ED-A1.3

NOTES:  
1. FTG. CONCRETE - Fc = 2,500 PSI

**1 ACCESSIBLE PARKING SIGN**  
Scale: 1" = 1'



- SIGN SHALL BE NOT LESS THAN 17" x 22" AND CONSTRUCTED OF 0.08 INCHES ALUMINUM.
- LETTERING SYMBOL AND BORDER SHALL BE REFLECTORIZED WHITE ON A BLUE BACKGROUND.
- LETTERING SHALL BE 1 INCH AND 2 INCHES HIGH.
- ATTACH SIGN WITH TWO PIECES OF 8C-7 DIE CAST ALUMINUM SIGN CLAMPS.
- CONTRACTOR SHALL PROVIDE TELEPHONE NUMBER AND LOCATION PRIOR TO PRINTING OF SIGN. THE RECLAIM INFORMATION SHALL BE A PERMANENT PART OF THE SIGN.

**2 SITE ACCESSIBILITY TOW AWAY SIGN**  
Scale: 1" = 1'

SYSTEM HOST



1300 Baker Street  
Bakersfield, CA 93305  
661-631-4600

SYSTEM DEVELOPER



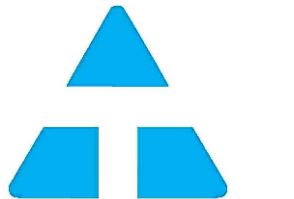
100 Montgomery Street, #1400  
San Francisco, CA 94104  
855-204-5083

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1902 Channel Drive  
West Sacramento, CA 95691  
916-567-1100

STRUCTURAL ENGINEERING AND STEEL CONSTRUCT



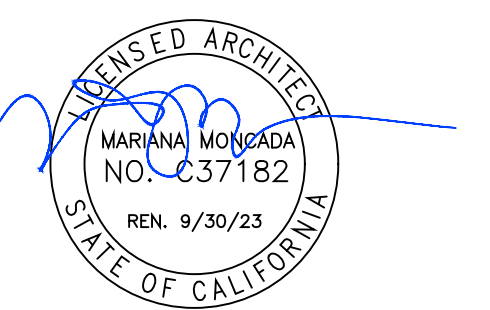
10620 Treena Street, Ste. 140  
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PROJECT

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BAKERSFIELD, CA 93305

NO.	REVISION	DATE
	PLAN REVISIONS	06.28.23

DATE:

06.28.23

SHEET TITLE

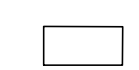
**ACCESSIBLE PARKING STANDARDS**

SHEET NO.:

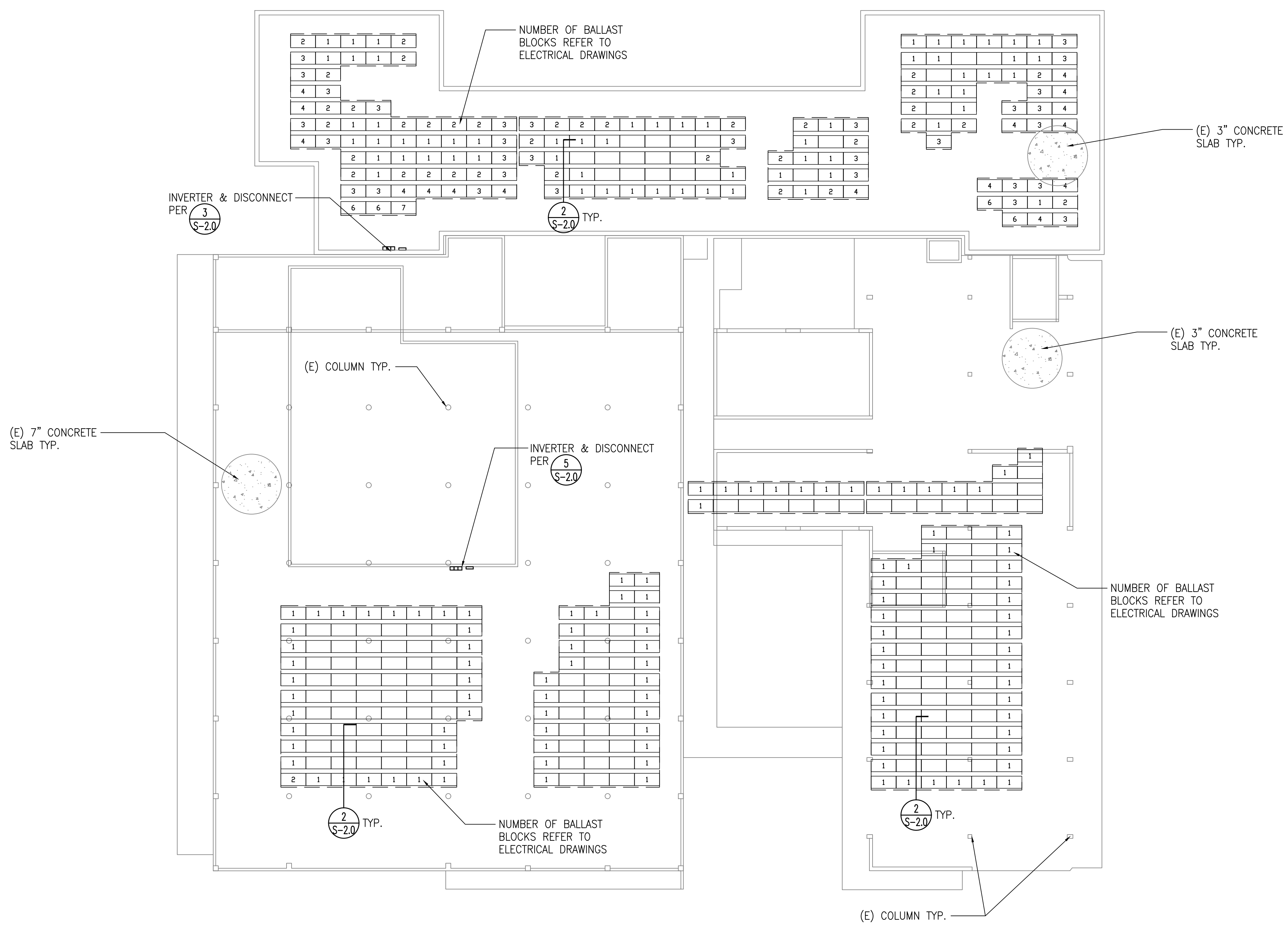
**ED-A1.3**

REQUIRED ARRAY CLEARANCES PER ASCE 7-16		
CONDITION	MIN. SEPARATION	DISTANCE (IN.)
BETWEEN SEPARATE SOLAR ARRAYS OF SIMILAR CONSTRUCTION	(0.5) (Mpv)	5
BETWEEN A SOLAR ARRAY AND A FIXED OBJECT ON THE ROOF OR SOLAR ARRAY OF DIFFERENT CONSTRUCTION	(Mpv)	9
BETWEEN A SOLAR ARRAY AND A ROOF EDGE WITH A QUALIFYING PARAPET	(Mpv)	9
BETWEEN A SOLAR ARRAY AND A ROOF EDGE WITHOUT A QUALIFYING PARAPET	(2.0) (Mpv) >= 4'	48


NOTE: SUFFICIENT SLACK IN ARRAY ELECTRICAL WIRING MUST BE PROVIDED TO ACCOMMODATE ALL POTENTIAL ARRAY MOVEMENT.

LEGEND	
	INDICATES SOLAR MODULE

- SHEET NOTES**
- REFERENCE PANELCLAW SOLAR DRAWINGS FOR BALLAST QUANTITY, LOCATIONS & REQUIREMENTS.
  - EXISTING FRAMING AND DIMENSIONS ARE SHOWN FOR REFERENCE ONLY.



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NO.	REVISION	DATE
100P		06-29-2023

DATE: 06.29.23

SHEET TITLE

PV AT ROOF FRAMING PLAN

SHEET NO.:

**S-1.0**

**PV AT ROOF FRAMING PLAN**  
SCALE: 1/16" = 1'-0"

**DESIGN BASIS:**

CODE: 2022 C.B.C. (CALIFORNIA BUILDING CODE TITLE)

LATERAL LOADS:

1. WIND		
BASIC WIND SPEED (3-SECOND GUST)	101 MPH	
WIND RISK CATEGORY,	III	
WIND EXPOSURE	B	
2. SEISMIC		
SEISMIC OCCUPANCY CATEGORY	III	
MAPPED SPECTRAL RESPONSE ACCELERATION, SS	0.921g	
MAPPED SPECTRAL RESPONSE ACCELERATION, S1	0.332g	
SITE CLASS	D	
MAPPED SPECTRAL RESPONSE ACCELERATION, SDS	0.737g	
MAPPED SPECTRAL RESPONSE ACCELERATION, SD1	0.436g	

**GENERAL STRUCTURAL NOTES:**

- ALL EQUIPMENT SHALL BE INSTALLED PER MANUFACTURER INSTALLATION AND OPERATIONS MANUAL REQUIREMENTS.
- PRIOR TO COMMENCEMENT OF WORK OR FABRICATION OF COMPONENTS, THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, DIMENSIONS, AND ELEVATIONS OF THE EXISTING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES BETWEEN THE FIELD-VERIFIED CONDITIONS, DIMENSIONS, AND ELEVATIONS AND THOSE INDICATED ON THE DRAWINGS.
- ALL CONSTRUCTION SHALL COMPLY WITH THE REQUIREMENTS OF THE LATEST EDITION OF THE CALIFORNIA BUILDING CODE.

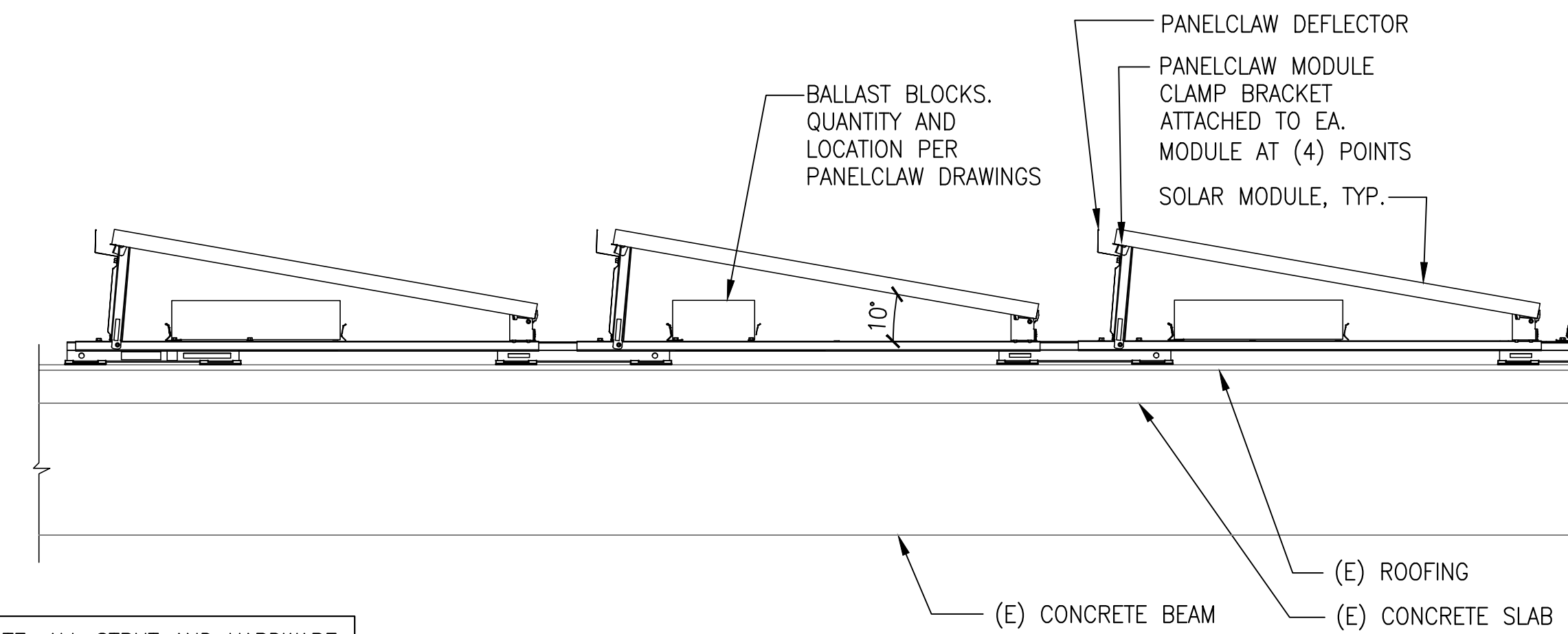
**SOLAR RACK COMPONENTS:**

- FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR INSTALLATION OF SOLAR COMPONENTS, INCLUDING MODULE CLAMPS, L-FEET, BRACKETS, MECHANICAL ATTACHMENTS, AND HARDWARE.

**REQUIRED SPECIAL INSPECTIONS:**

IN ADDITION TO THE REGULAR INSPECTIONS, THE FOLLOWING CHECKED ITEMS WILL ALSO REQUIRE SPECIAL INSPECTION IN ACCORDANCE WITH CHAPTER 17 OF THE CALIFORNIA BUILDING CODE. SPECIAL INSPECTION INDEPENDENT OF CONTRACTOR, ARCHITECT, OR ENGINEER OF RECORD SHALL BE PROVIDED BY OWNER ACCORDING TO THE CALIFORNIA BUILDING CODE CHAPTER 17. THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK FOR CONFORMANCE w/ THE CONTRACT DOCUMENTS, NOT THE SHOP DRAWINGS.

	TYPE:	REMARKS:
POST INSTALLED WEDGE ANCHORS HILTI KB-TZ2 EXPANSION ANCHORS (CBC TABLE 1705.3)	ICC ESR-4266	SPECIAL INSPECTOR MUST MAKE PERIODIC INSPECTIONS TO VERIFY ANCHOR TYPE, ANCHOR DIMENSIONS CONCRETE TYPE, CONCRETE THICKNESS, ANCHOR EMBEDMENT, AND ADHERENCE TO THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS.



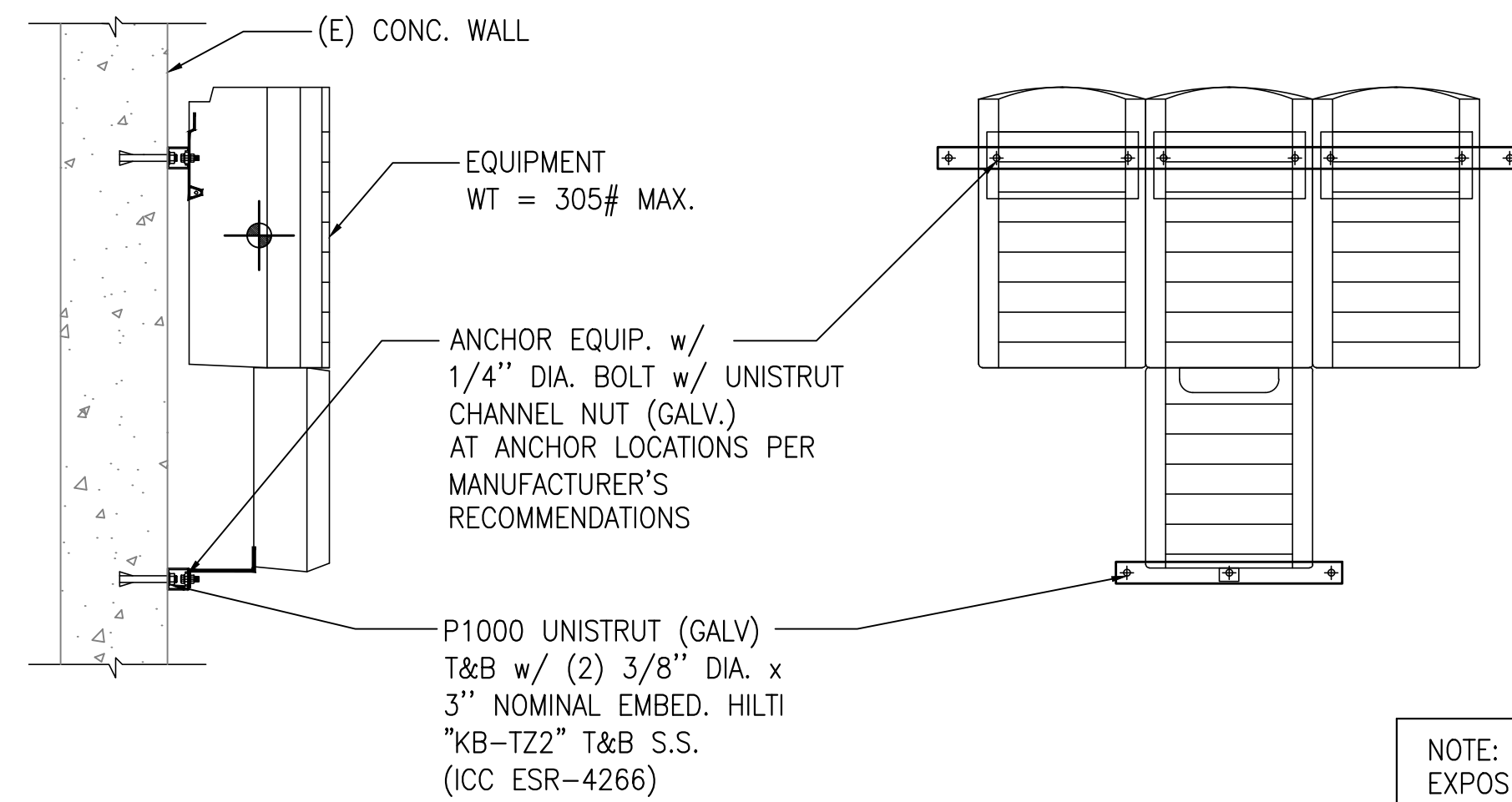
NOTE: ALL STRUT AND HARDWARE SHALL BE HOT DIPPED GALVANIZED OR STAINLESS STEEL

**1 STRUCTURAL NOTES**

SCALE: N.T.S.

**2 SECTION AT PV RACKING**

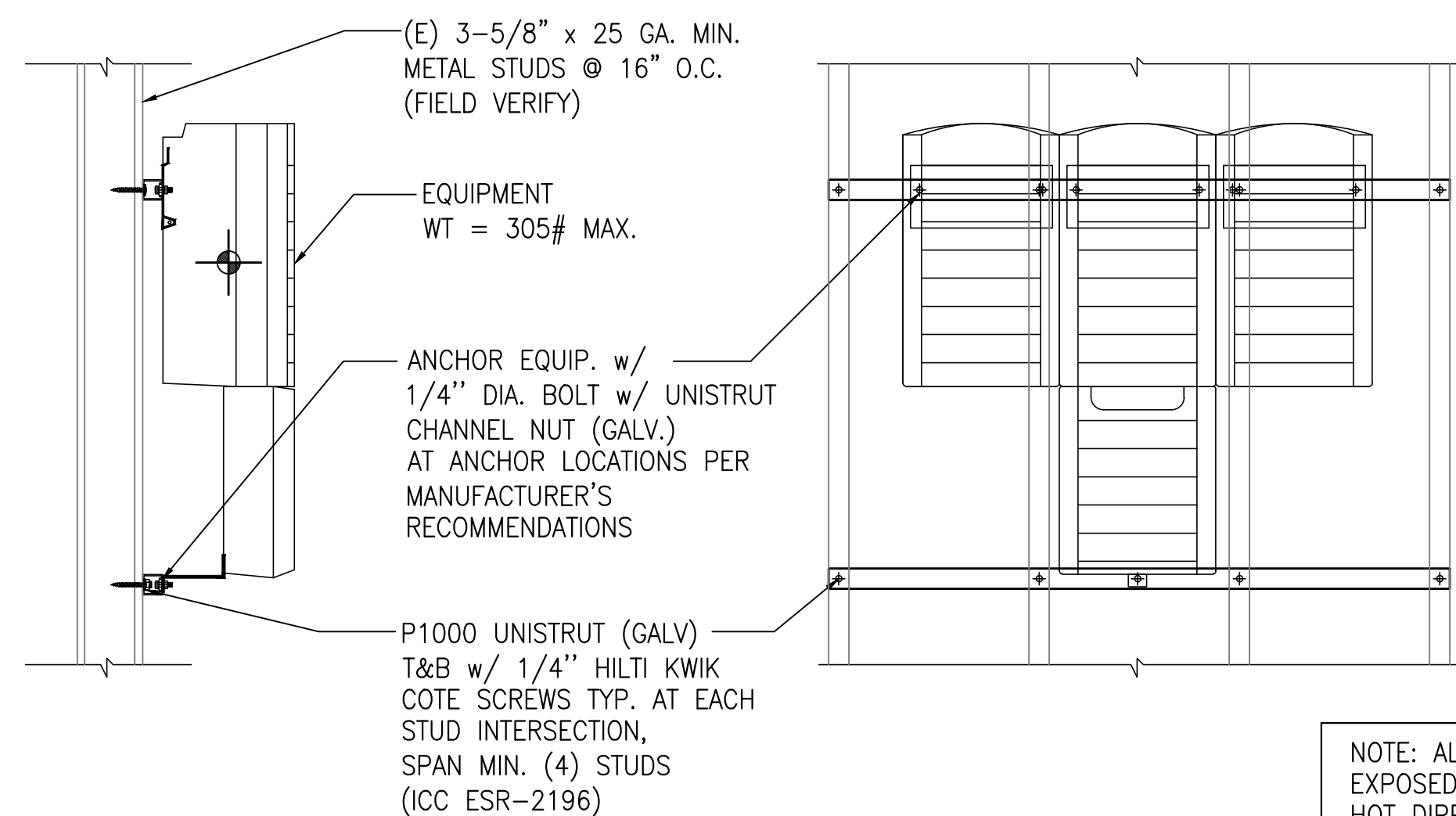
SCALE: 1" = 1'-0"



NOTE: ALL STRUT AND HARDWARE EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED OR STAINLESS STEEL

**3 EQUIPMENT ANCHORAGE TO CONCRETE WALL DETAIL**

SCALE: 1" = 1'-0"



NOTE: ALL STRUT AND HARDWARE EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED OR STAINLESS STEEL

**5 EQUIPMENT ANCHORAGE TO METAL STUD WALL DETAIL**

SCALE: 1" = 1'-0"

**4 NOT USED**

SCALE: 1" = 1'-0"

**6 NOT USED**

SCALE: N/A

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PROJECT

**BAKERSFIELD CITY SCHOOL DISTRICT**

EDUCATION CENTER  
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BAKERSFIELD, CA 93305

NO.	REVISION	DATE
100P		06-29-2023

DATE: 06.29.23

SHEET TITLE

STRUCTURAL NOTES & DETAILS

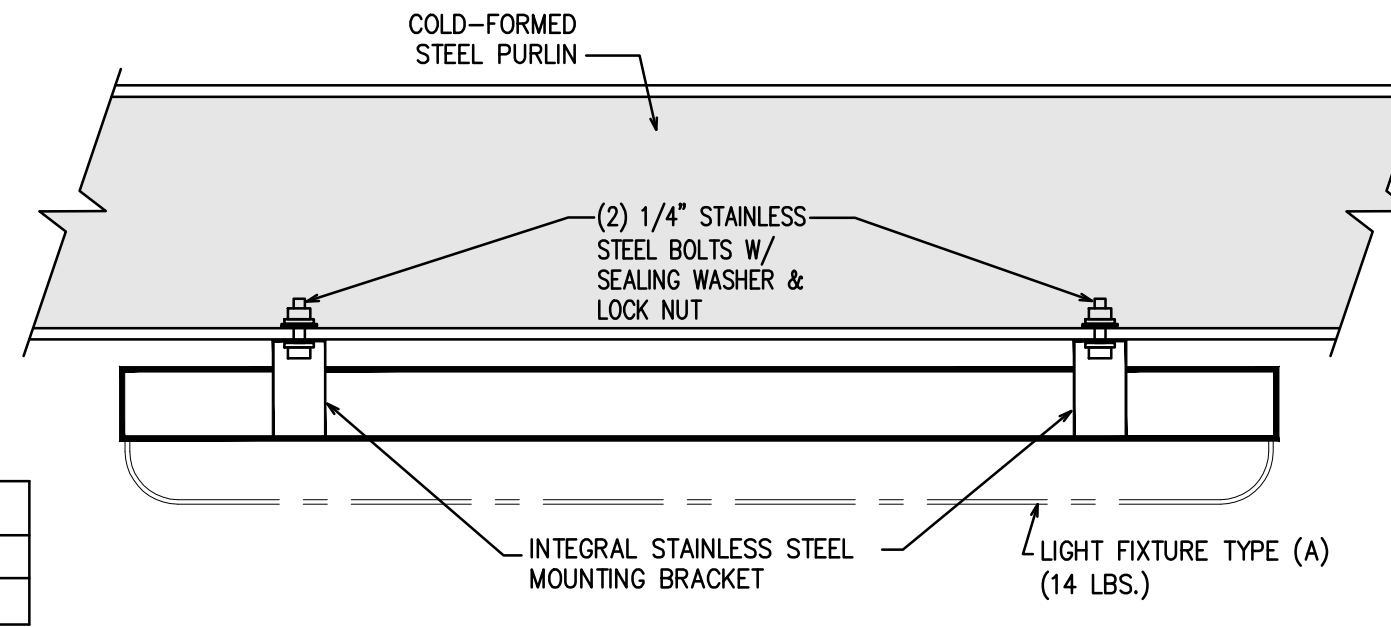
SHEET NO.:

**S-2.0**

### LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	MODEL NO.	SOURCE	WATTS	VOLT	MOUNTING
A	ILP	WTZ4-4L-U-50-RAFL-CORDW/6FT-BD50 (OR EQUAL)	LED	29	120-277	SURFACE, CARPORT STEEL

NOTE: REMOVE (2) EXISTING PARKING LOT LIGHT, POLE, & CONCRETE BASE. PROVIDE (15) NEW TYPE (A) LIGHT FIXTURES & CONNECT TO EXISTING CONTROLLED EXTERIOR LIGHTING CIRCUIT(S). VERIFY VOLTAGE, FOR 480V OPERATION ORDER WITH SD480 OPTION.



NOTE: LIGHT FIXTURE GROUNDED AT FACTORY GROUND TERMINAL WITH BRANCH CIRCUIT GROUNDING CONDUCTOR.

### LIGHT FIXTURE MOUNTING DETAIL

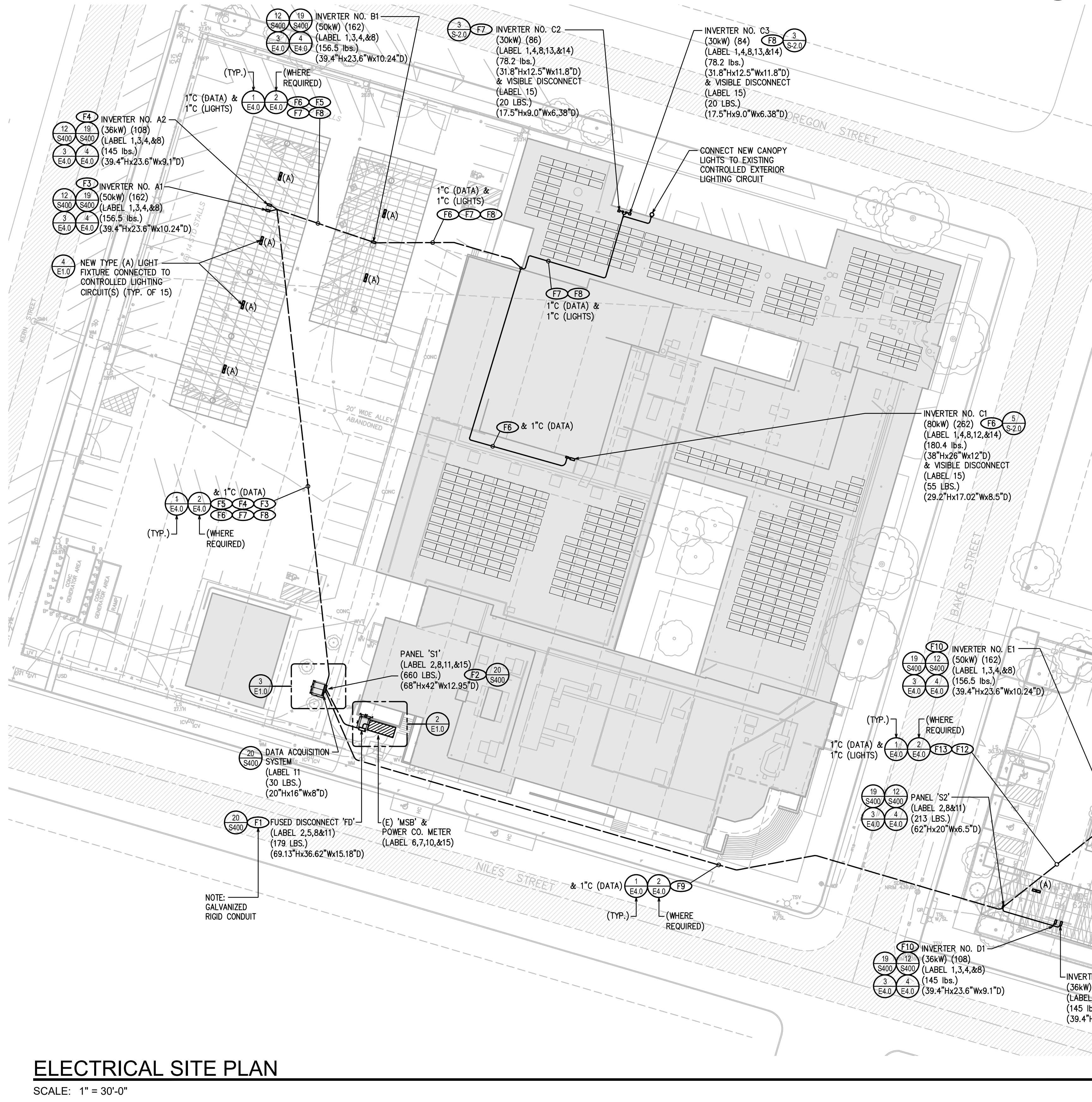
SCALE: NONE

### ELECTRICAL SYMBOLS:

- CONDUIT OR CABLE RUN ABOVE GRADE
- - - NEW CONDUIT OR CABLE RUN UNDERGROUND
- · - · - EXISTING CONDUIT RUN UNDERGROUND TO REMAIN
- - - - - EXISTING TO BE REMOVED
- CONDUIT STUB OUT
- ← A-2 HOMERUN OF CONDUIT AND WIRING, CIRCUIT NO. 2 TO PANEL 'A'
- ▨ POWER EQUIPMENT AS NOTED
- INVERTER AS NOTED
- JUNCTION BOX
- GROUND
- ⊕ TRANSFORMER
- ⊖ CIRCUIT BREAKER
- ⊘ DISCONNECT SWITCH AS NOTED
- ⊖ FUSE
- ⊖ METER
- ⊖ PARKING LOT LIGHT, POLE, & CONCRETE BASE
- ⊖ LED LIGHT FIXTURE, SURFACE MOUNTED
- (E) EXISTING
- (N) NEW
- (F) ELECTRICAL FEEDER NO. CALLOUT, REFER TO FEEDER SCHEDULE ON SHEET E2.2

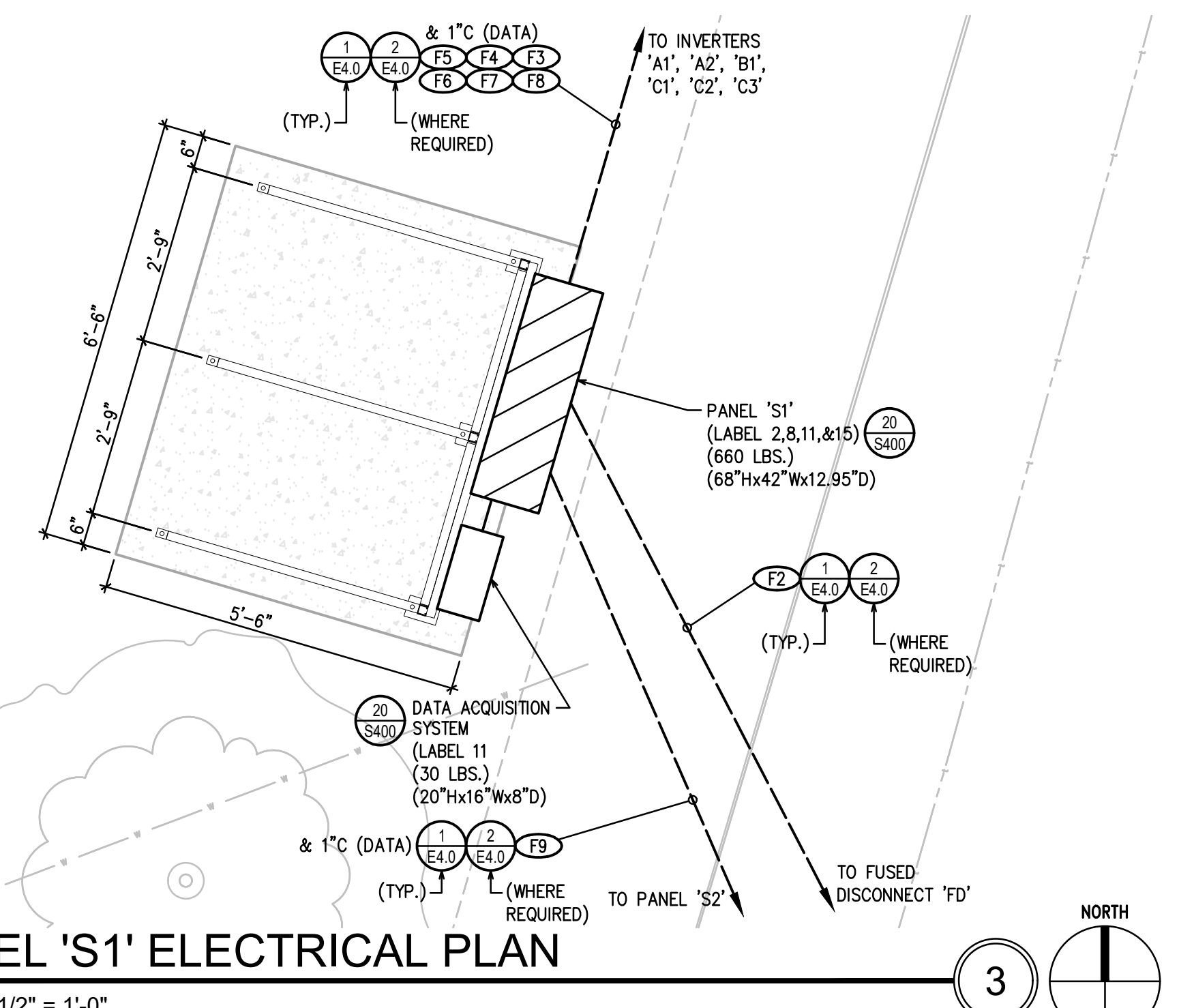
### GENERAL ELECTRICAL NOTES:

- ALL WORK AND MATERIAL SHALL CONFORM TO 2022 CBC, 2022 CEC ARTICLE 690 & OTHER APPLICABLE ARTICLES, CODES AND ORDINANCES. IT IS THE INTENTION OF THESE PLANS AND SPECIFICATIONS TO COVER ALL THINGS REQUIRED TO PROVIDE COMPLETE AND OPERATIVE SYSTEMS.
- ALL EQUIPMENT TO HAVE TESTING LABORATORY LABEL ATTACHED.
- CONDUCTORS SHALL BE THWN COPPER (CU) UNLESS INDICATED AS ALUMINUM (AL).
- ELECTRICAL ROUTING IS DIAGNOSTIC ONLY. ACTUAL ROUTING & PHYSICAL CONDITION MAY VARY. CONTRACTOR TO DETERMINE ACTUAL ROUTING AND PROVIDE ALL RECONNECTIONS & ITEMS NECESSARY FOR COMPLETE & OPERATING SYSTEMS.
- ALL SOLAR ELECTRICAL EQUIPMENT TO BE UL 1741 LISTED, IEEE 1547 RATED, & APPROVED BY THE CALIFORNIA ENERGY COMMISSION.
- ELECTRICAL EQUIPMENT (BRANDS "OR EQUAL" NOTE REQUIRED). OR EQUAL MATERIALS NEED TO BE APPROVED BY OWNER OR OWNER'S REPRESENTATIVE. LAYOUT LOCATIONS ARE REPRESENTATIVE AND ARE SUBJECT TO CHANGE WITH APPROVAL OF OWNER AND PERMITTING AUTHORITY, ETC.
- PROVIDE "WARNING: PHOTOVOLTAIC POWER SOURCE" AFFIXED LABEL ON PV CONDUIT RUNS, BOXES, & CONDUIT BODIES INSIDE BUILDING.
- STRING 1000V DC UL4703 (PV-WIRE) CABLING SHALL BE SUPPORTED TO MODULE & ARRAY STRUCTURE WITH WILEY ACME CABLE CLIPS.
- ALL INVERTER DC STRING FUSES ARE 20 AMP (CPS) OR 25 AMP (SOLAREDDGE) UNLESS NOTED OTHERWISE.
- HORIZONTAL DIRECTIONAL BORING OR TRENCHING FOR UNDERGROUND CONDUIT RUNS.
- WHERE FEEDER CONDUCTORS ARE OVERSIZED FOR VOLTAGE DROP, PROVIDE CONDUCTOR REDUCING MEANS TO ACCOMMODATE INVERTER, PANEL, & DISCONNECT LUGS, SIZED PER CEC AMPACITY REQUIREMENTS. THE MINIMUM CONDUCTOR SIZE, FOR CIRCUIT BREAKERS LISTED FOR 75°C TERMINATING, SHALL BE:  
50kW INVERTER #1, #6 GND. (AL)  
36kW INVERTER #4, #6 GND. (AL)  
80kW INVERTER #2/0, #4 GND. (AL)  
30kW INVERTER #6, #6 GND. (AL)
- REFER TO SHEETS E5.0 & E5.1 FOR REQUIRED SOLAR EQUIPMENT WARNING LABELING. REFER TO SHEET E1.0 FOR SOLAR EQUIPMENT LABELING LOCATIONS.
- GALVANIZED RIGID STEEL CONDUIT TO BE INSTALLED BETWEEN LINE SIDE TAP & VERIFIABLE FUSED AC DISCONNECT.



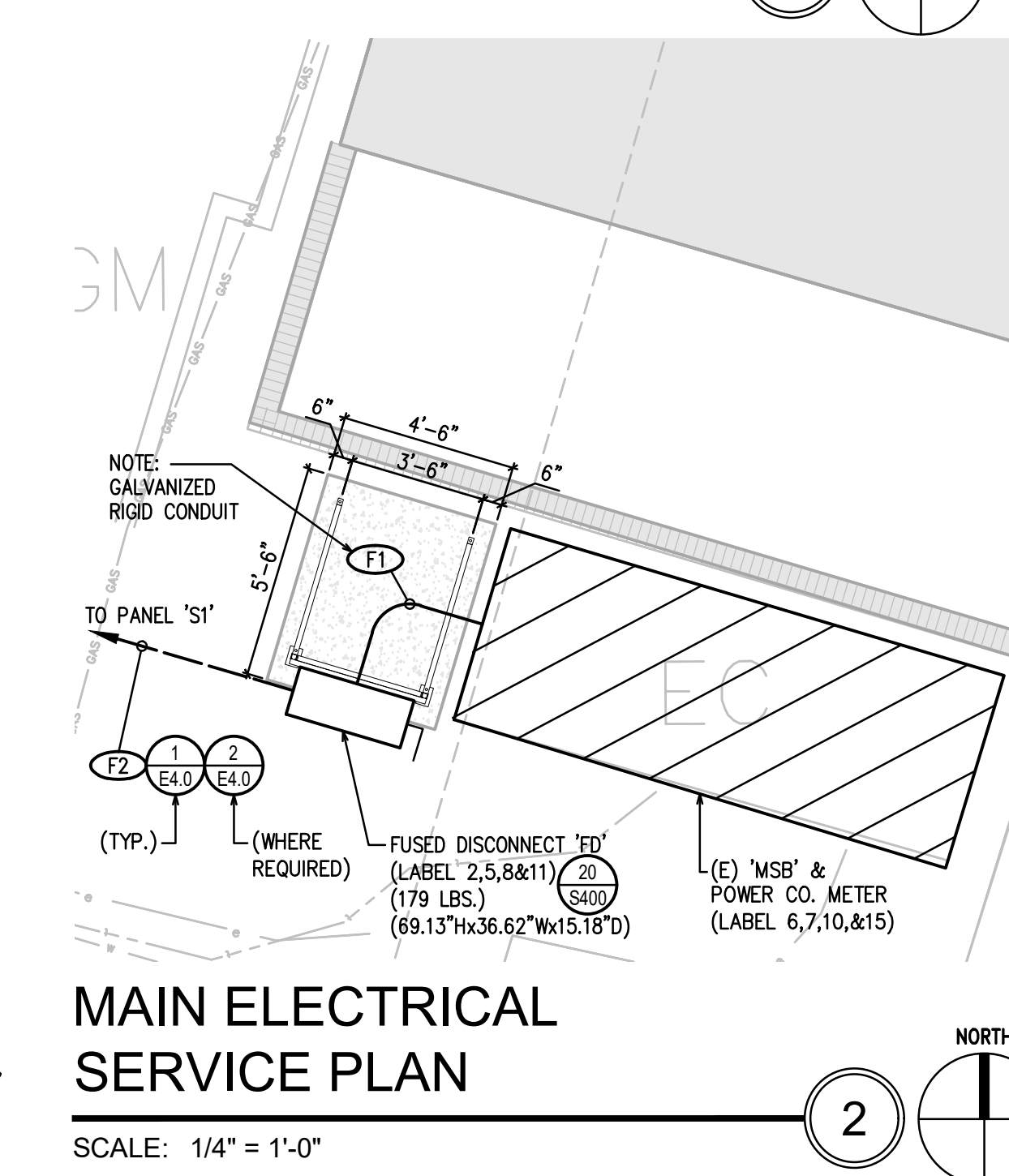
### ELECTRICAL SITE PLAN

SCALE: 1" = 30'-0"



### PANEL 'S1' ELECTRICAL PLAN

SCALE: 1/2" = 1'-0"



### MAIN ELECTRICAL SERVICE PLAN

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

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BAKERSFIELD, CA 93305

NO.	REVISION	DATE
1		06.28.23

DATE: 09.02.22

SHEET TITLE

**PV SYSTEM ELECTRICAL SITE PLAN**

SHEET NO.:

# E1.0



ROOF DC STRING - CONDUIT FILL TABLE				
MAXIMUM NUMBER OF CU #8 PV WIRES (PV WIRE + GROUND)				
CONDUIT TRADE SIZE	CONDUIT LENGTH 24" OR LESS (60% FILL)		CONDUIT LENGTH OVER 24" (40% FILL)	
	LFMC	LFMC	EMT	GRC
3/4"	3	2	2	2
1"	5	3	3	3
1-1/4"	10	6	6	6
1-1/2"	13	9	9	9
2"	22	9	9	9

TABLE ASSUMING CU #8 PV WIRE WITH .33" O.D.

CEC AC kW CALCULATION					
Inverter Model Number	PV Module Model Number	PV Module Count	PV Module PTC (Watts)	Inverter Efficiency (%)	CEC AC kW Rating
CPS SCA50KTL-DO/US [480V] [S11-JUN20]	LR6-72HPH-375M	486	352.9	98.5	168.937
CPS SCA36KTL-DO/US [480V] [S11-JUN20]	LR6-72HPH-375M	432	352.9	98.0	149.404
SE80KUS [480V]	LR6-72HPH-375M	262	352.9	98.5	91.073
SE30KUS [480V]	LR6-72HPH-375M	170	352.9	98.5	59.093
Total		1350		Total	468.507

SYSTEM SUMMARY	
MODULE MODEL	LONGI SOLAR LR6-72HPH-375M
MODULE STC DC RATING	375W
TOTAL MODULE COUNT	1,350
TOTAL STC DC SYSTEM SIZE	506.25kW
TOTAL NOMINAL AC SYSTEM SIZE	434.00kW
TOTAL CEC-AC SYSTEM SIZE	468.507kW
INVERTER MODELS	(3) CHINT POWER SYSTEMS AMERICA CPS SCA50KTL-DO/US [480V] [S11-JUN20]
	(4) CHINT POWER SYSTEMS AMERICA CPS SCA36KTL-DO/US [480V] [S11-JUN20]
	(1) SOLAREEDGE TECHNOLOGIES LTD. SE80KUS [480V]
	(2) SOLAREEDGE TECHNOLOGIES LTD. SE30KUS [480V]
MODULE TILT	7° & 10°
ARRAY AZIMUTH	107° & 197°
POINT OF SERVICE FAULT CURRENT CONTRIBUTION	976 AMPS
POINT OF SERVICE RATING	65,000 AIC

### 600V HEAVY DUTY AC VERIFIABLE DISCONNECT SCHEDULE

(WITH CLASS 'L' CURRENT LIMITING FUSING)

DESIGNATION	DISCONNECT SIZE	MANUFACTURER'S CAT NO.	AIC RATING
'FD'	800A 3P+S/N 600VAC	SQUARE D #H367NR	200,000 AIC

**DC STRING OCPD CALCULATION**  
PV MODULE OUTPUT:  
Isc: 9.87 x 1.56 = 15.40A  
20A FUSE ALLOWABLE (PER CEC 690.9(B))

**DC STRING WIRE SIZE CALCULATION**  
CANOPY PV MODULE OUTPUT:  
CEC 690.8(B)(1)  
#10 AWG = 40A (90°C) (PER TABLE CEC 310.15(B)(16))

Isc: 9.87 x 1.56 = 15.40A  
40.0A > 15.40A  
#10 AWG CONDUCTOR IS ALLOWABLE PER CEC 110.14(C)(1)(a)(3)

CEC 690.8(B)(2)  
#10 AWG = 40A (90°C) (PER TABLE CEC 310.15(B)(16))

108°F AMBIENT TEMP. = 0.87 DE-RATING

**50 KW INVERTER AC Wire & OCPD CALCULATION:**  
INVERTER:  
AC Output Power: 60.2A AC Output Current Max  
60.2A x 1.25 = 75.25A  
80 AMP OCPD PER 50kW INVERTER OUTPUT

#2 AWG THWN-2 = 90A (75°C) (PER TABLE CEC 310.16) (AL)

TEMP. CONDITIONS: OUTDOOR WIRE RUN - AMBIENT TEMP. = 38°C  
(3) CURRENT CARRYING CONDUCTORS IN A RACEWAY (SHARED CONDUIT) (PER TABLE CEC 310.15(B)(3)(a)) = 1.0

90A x 1.0 = 90A = 90A TEMP. ADJUSTED  
#2 CURRENT = 90A @ 75°C PER CEC 110.14(C)  
#2 AWG CONDUCTOR IS MINIMUM ALLOWABLE (AL)

**36 KW INVERTER AC Wire & OCPD CALCULATION:**  
INVERTER:  
AC Output Power: 43.5A AC Output Current Max  
43.5A x 1.25 = 54.38A  
60 AMP OCPD PER 36kW INVERTER OUTPUT

#4 AWG THWN-2 = 65A (75°C) (PER TABLE CEC 310.16) (AL)

TEMP. CONDITIONS: OUTDOOR WIRE RUN - AMBIENT TEMP. = 38°C  
(3) CURRENT CARRYING CONDUCTORS IN A RACEWAY (SHARED CONDUIT) (PER TABLE CEC 310.15(B)(3)(a)) = 1.0

65A x 1.0 = 65A = 65A TEMP. ADJUSTED  
#4 CURRENT = 65A @ 75°C PER CEC 110.14(C)  
#4 AWG CONDUCTOR IS MINIMUM ALLOWABLE (AL)

**80 KW INVERTER AC Wire & OCPD CALCULATION:**  
INVERTER:  
AC Output Power: 96.5A AC Output Current Max  
96.5A x 1.25 = 120.63A  
125 AMP OCPD PER 80kW INVERTER OUTPUT

#2/0 AWG THWN-2 = 135A (75°C) (PER TABLE CEC 310.16) (AL)

TEMP. CONDITIONS: OUTDOOR WIRE RUN - AMBIENT TEMP. = 38°C  
(3) CURRENT CARRYING CONDUCTORS IN A RACEWAY (SHARED CONDUIT) (PER TABLE CEC 310.15(B)(3)(a)) = 1.0

135A x 1.0 = 135A = 135A TEMP. ADJUSTED  
#2/0 CURRENT = 135A @ 75°C PER CEC 110.14(C)  
#2/0 AWG CONDUCTOR IS MINIMUM ALLOWABLE (AL)

**30 KW INVERTER AC Wire & OCPD CALCULATION:**  
INVERTER:  
AC Output Power: 36.25A AC Output Current Max  
36.25A x 1.25 = 45.31A  
50 AMP OCPD PER 30kW INVERTER OUTPUT

#6 AWG THWN-2 = 50A (75°C) (PER TABLE CEC 310.16) (AL)

TEMP. CONDITIONS: OUTDOOR WIRE RUN - AMBIENT TEMP. = 38°C  
(3) CURRENT CARRYING CONDUCTORS IN A RACEWAY (SHARED CONDUIT) (PER TABLE CEC 310.15(B)(3)(a)) = 1.0

50A x 1.0 = 50A = 50A TEMP. ADJUSTED  
#6 CURRENT = 50A @ 75°C PER CEC 110.14(C)  
#6 AWG CONDUCTOR IS MINIMUM ALLOWABLE (AL)

**MAX/COLD TEMP PV VOLTAGE CALCULATION:**  
LONGI SOLAR LR6-72HPH-375M  
Voc: 48.8V  
Temp. Coefficient: -0.286mV/C  
Low Temp\*: -2.0°C (27.0°F)  
# Modules in Series: 18

(48.8 V) x (0.00286 V/°C) x (27.0°) = 3.77 VΔ  
48.8 Voc + 3.77 VΔ = 52.57 Voc(corr)  
(52.57 V) x (18) = 946.2 VDC max (this is < 1000 VDC)

\* = Per ASHRAE table

21-30 CURRENT CARRYING CONDUCTORS IN A RACEWAY (SHARED CONDUIT) (PER TABLE CEC 310.15(B)(3)(a)) = 0.45 DE-RATING

Isc: (9.87A x 1.25) / (0.87 x 0.45) = 31.51A  
40A > 31.51A  
#10 AWG CONDUCTOR IS ALLOWABLE PER CEC 110.14(C)(1)(a)(3)

**ROOF PV MODULE TO OPTIMIZER:**  
CEC 690.8(B)(1)  
#12 AWG = 30A (90°C) (PER TABLE CEC 310.15(B)(16))

Isc: 9.87 x 1.56 = 15.40A  
30.0A > 15.40A  
#12 AWG CONDUCTOR IS ALLOWABLE PER CEC 110.14(C)(1)(a)(3)

CEC 690.8(B)(2)  
#12 AWG = 30A (90°C) (PER TABLE CEC 310.15(B)(16))

133°F AMBIENT TEMP. = 0.71 DE-RATING

Isc: (9.87A x 1.25) / (0.71) = 17.38A  
30A > 17.38A  
#12 AWG CONDUCTOR IS ALLOWABLE PER CEC 110.14(C)(1)(a)(3)

**OPTIMIZER TO OPTIMIZER:**  
CEC 690.8(B)(1)  
#10 AWG = 40A (90°C) (PER TABLE CEC 310.15(B)(16))

Isc: 18.00 x 1.56 = 28.08A  
40.0A > 28.08A  
#10 AWG CONDUCTOR IS ALLOWABLE PER CEC 110.14(C)(1)(a)(3)

CEC 690.8(B)(2)  
#10 AWG = 40A (90°C) (PER TABLE CEC 310.15(B)(16))

133°F AMBIENT TEMP. = 0.71 DE-RATING

Isc: (18.00A x 1.25) / (0.71) = 31.70A  
40A > 31.70A  
#10 AWG CONDUCTOR IS ALLOWABLE PER CEC 110.14(C)(1)(a)(3)

**OPTIMIZER TO INVERTER HOME RUN:**  
CEC 690.8(B)(1)  
#8 AWG = 55A (90°C) (PER TABLE CEC 310.15(B)(16))

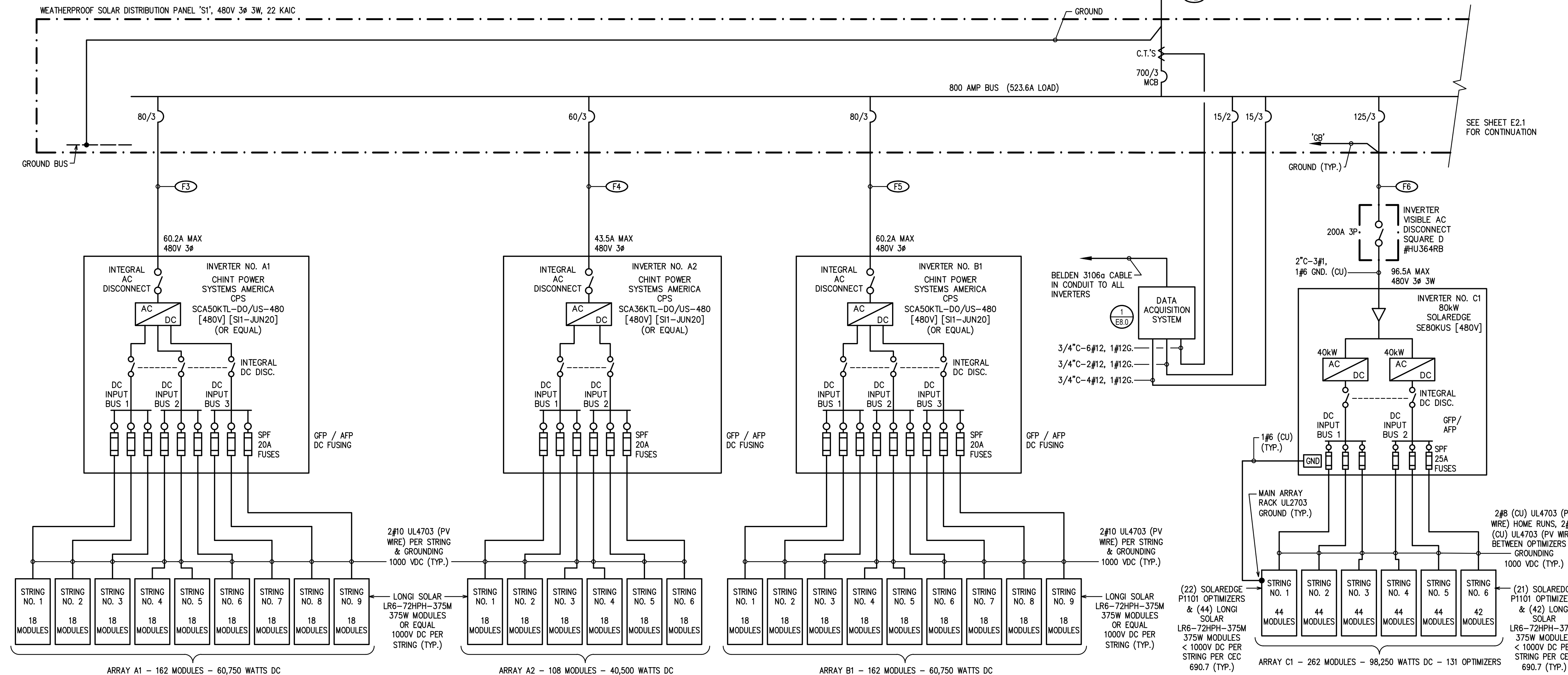
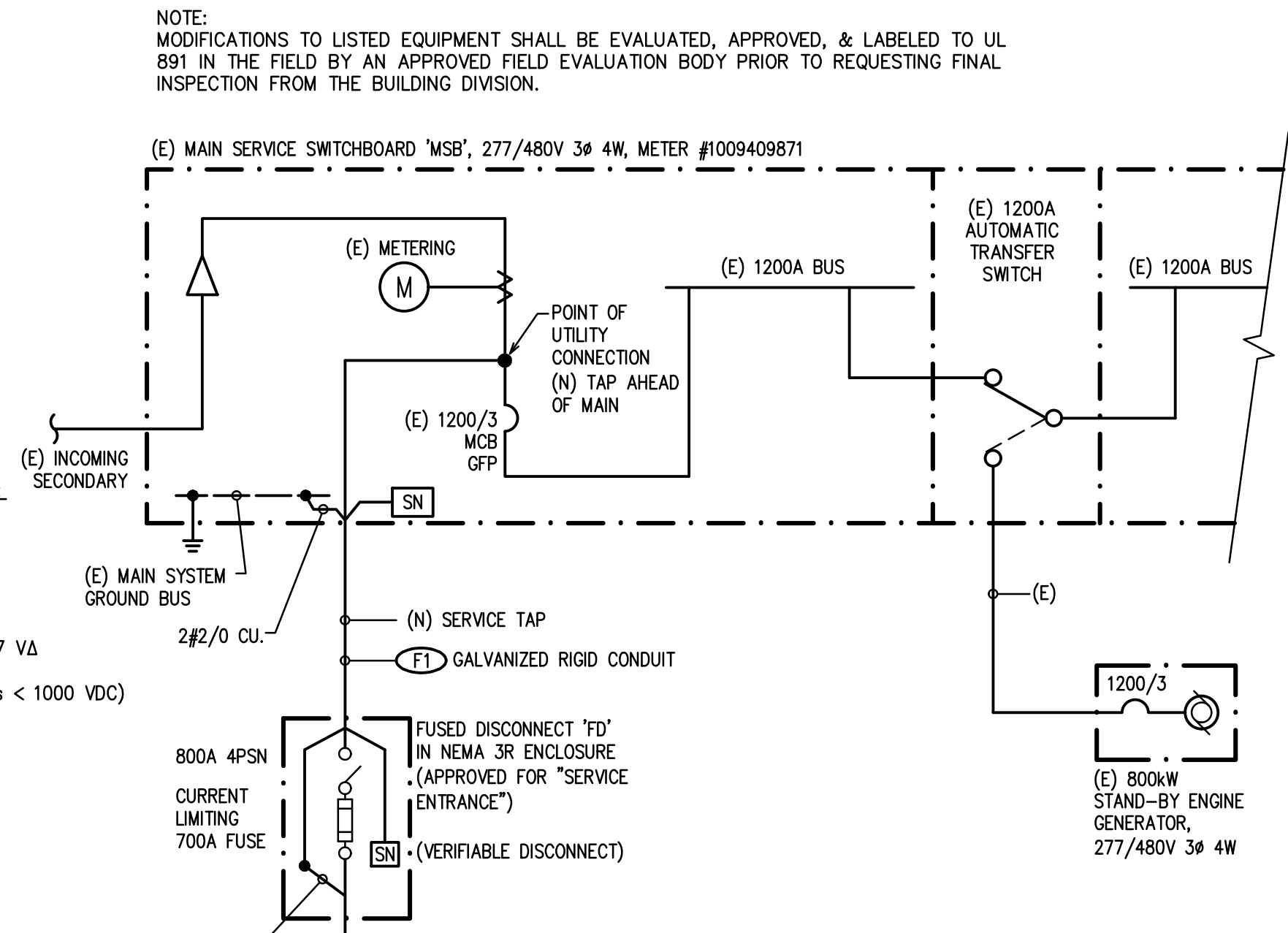
Isc: 18.00 x 1.56 = 28.08A  
55.0A > 28.08A  
#8 AWG CONDUCTOR IS ALLOWABLE PER CEC 110.14(C)(1)(a)(3)

CEC 690.8(B)(2)  
#8 AWG = 55A (90°C) (PER TABLE CEC 310.15(B)(16))

133°F AMBIENT TEMP. = 0.71 DE-RATING

7-9 CURRENT CARRYING CONDUCTORS IN A RACEWAY (SHARED CONDUIT) (PER TABLE CEC 310.15(B)(3)(a)) = 0.70 DE-RATING

Isc: (18.00A x 1.25) / (0.71 x 0.70) = 45.27A  
55A > 45.27A  
#8 AWG CONDUCTOR IS ALLOWABLE PER CEC 110.14(C)(1)(a)(3)



**SINGLE LINE DIAGRAM 506.25 KW TOTAL**  
SCALE: NONE

SYSTEM HOST

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SYSTEM DEVELOPER

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REGISTERED PROFESSIONAL ENGINEER  
R.J. HAROUN  
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PROJECT

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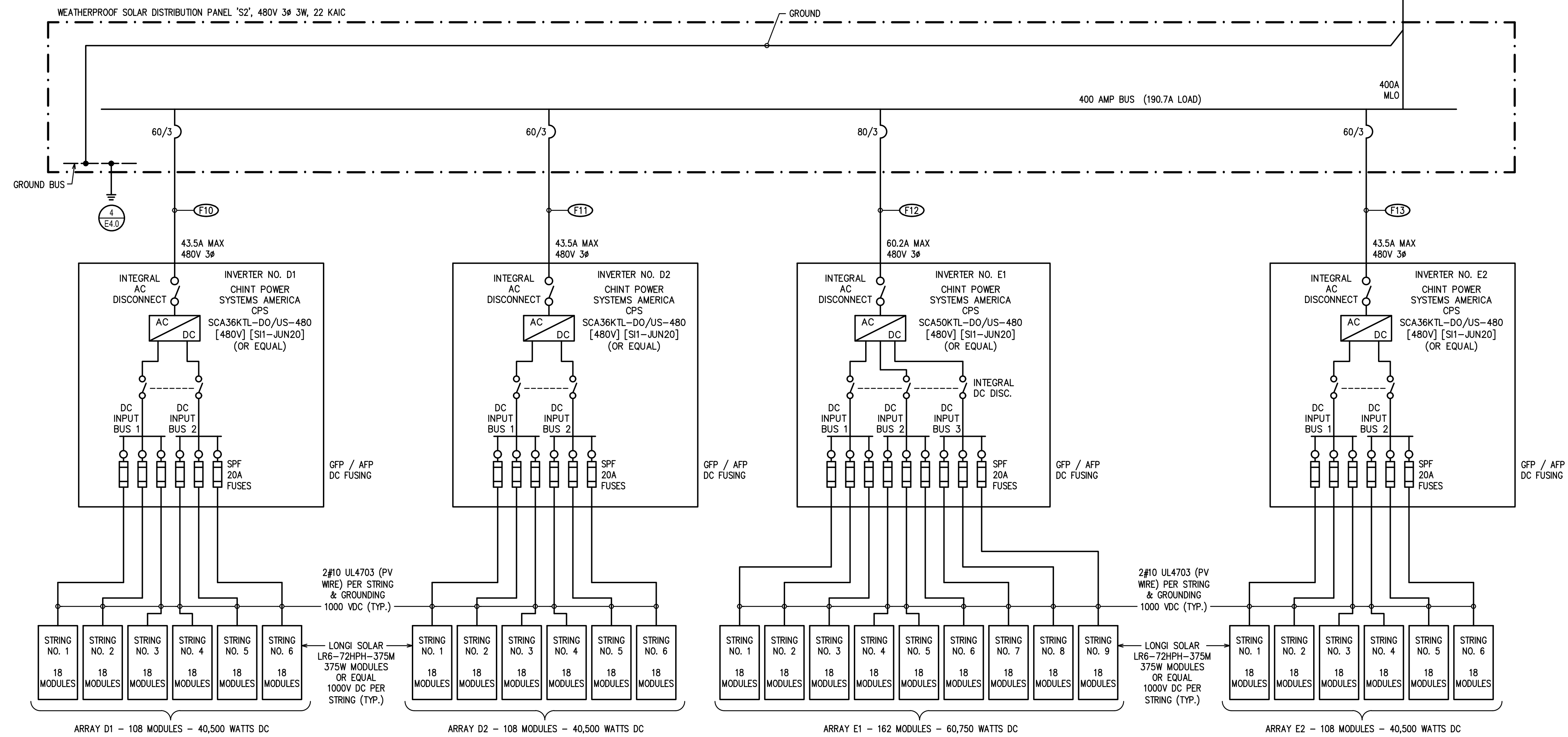
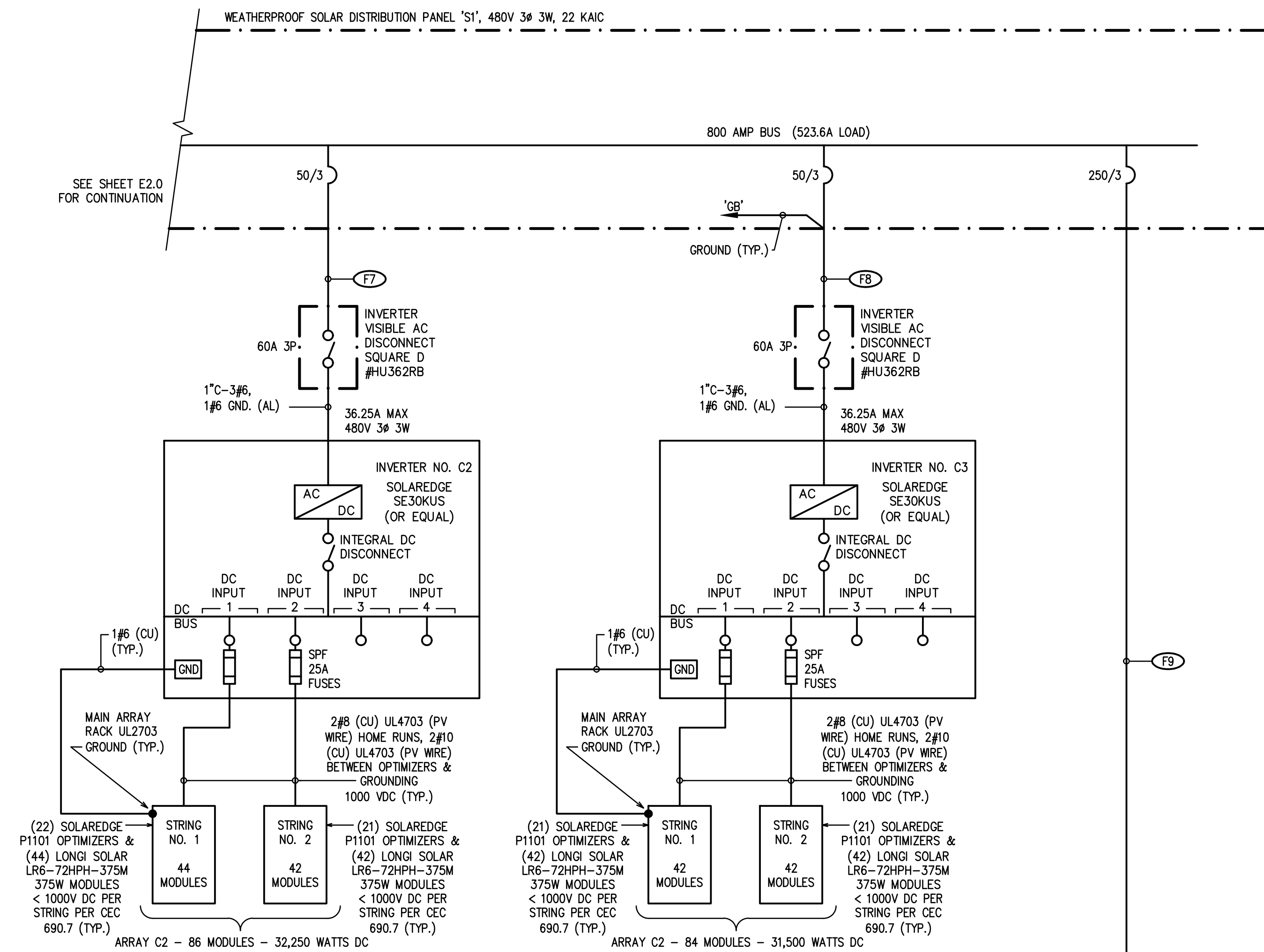
SHEET TITLE

**PV SYSTEM ELECTRICAL SINGLE LINE DIAGRAM**

SHEET NO.:

## ROOF PV SYSTEM LAYOUT GENERAL NOTES:

- PER THE EXCEPTION TO CFC 1204.3.1: THERE SHALL BE A MINIMUM 4-FOOT-WIDE CLEAR PERIMETER AROUND THE EDGES OF THE ROOF.
- PER CFC 1204.3.2: INTERIOR PATHWAYS SHALL BE PROVIDED BETWEEN ARRAY SECTIONS TO MEET THE FOLLOWING REQUIREMENTS:
  - PATHWAYS SHALL BE PROVIDED AT INTERVALS NOT GREATER THAN 150 FEET THROUGHOUT THE LENGTH AND WIDTH OF THE ROOF.
  - A PATHWAY NOT LESS THAN 4 FEET WIDE IN A STRAIGHT LINE TO ROOF STANDPIPES OR VENTILATION HATCHES.
  - A PATHWAY NOT LESS THAN 4 FEET WIDE AROUND ROOF ACCESS HATCHES, WITH NOT FEWER THAN ONE SUCH PATHWAY TO A PARAPET OR ROOF EDGE.
- PER CFC 1204.3.3: THE SOLAR INSTALLATION SHALL BE DESIGNED TO MEET THE FOLLOWING REQUIREMENTS:
  - WHERE NONGRAVITY-OPERATED SMOKE AND HEAT VENTS OCCUR, A PATHWAY NOT LESS THAN 4 FEET WIDE SHALL BE PROVIDED BORDERING ALL SIDES.
  - SMOKE VENTILATION OPTIONS BETWEEN ARRAYS: A PATHWAY NOT LESS THAN 8 FEET WIDE OR A PATHWAY NOT LESS THAN 4 FEET WIDE BORDERING 4-FOOT BY 8-FOOT VENTING CUTOUTS EVERY 20 FEET ON ALTERNATING SIDES OF THE PATHWAY.
- PER CFC 1204.3.4: CONDUIT, WIRING SYSTEMS, AND RACEWAYS FOR PHOTOVOLTAIC CIRCUITS SHALL BE LOCATED AS CLOSE AS POSSIBLE TO THE RIDGE OR HIP OR VALLEY AND FROM THE HIP OR VALLEY AS DIRECTLY AS POSSIBLE TO AN OUTSIDE WALL TO REDUCE TRIP HAZARDS AND MAXIMIZE VENTILATION OPPORTUNITIES. CONDUIT RUNS BETWEEN SUB ARRAYS AND TO INVERTER SHALL BE INSTALLED IN A MANNER THAT MINIMIZES THE TOTAL AMOUNT OF CONDUIT ON THE ROOF BY TAKING THE SHORTEST PATH FROM THE ARRAY TO THE INVERTER. DC WIRING SHALL BE INSTALLED IN METALLIC CONDUIT OR RACEWAYS WHEN LOCATED WITHIN ENCLOSED SPACES IN A BUILDING.



## SINGLE LINE DIAGRAM 506.25 KW TOTAL

SCALE: NONE

SYSTEM HOST



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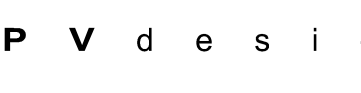
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SHEET TITLE

PV SYSTEM ELECTRICAL SINGLE LINE DIAGRAM

SHEET NO.:

E2.1

## FEEDER SCHEDULE (E)

NOTE:  
GALVANIZED RIGID CONDUIT  
(SEE GENERAL ELECTRICAL NOTE 13)

No.	Feeder Origin	Feeder Destination	Potential at Origin (Pi) (Volts)	System	Design Current (Amps)	Raceway Type	Sets of Cond.	Conductor Trade Size	Conductor Cross-Sectional Area (CM)	Conductor Material	DC Conductor Material Constant (K)	Q	Distance (ft)	Voltage Drop (VD) (Volts)	Potential at Load (Pl) (Volts)	Percent Voltage Drop (%VD)	Total Voltage Drop (%Vd AC)	Total Voltage Drop (%Vd AC + DC)	Conduit & Conductors	No.
F1	'MSB'	AC Disconnect 'FD'	480	AC 3-Phase	523.6	Steel	2	500 KCMIL	1000000	CU	12.9	1.1240	20	0.26	479.74	0.05	0.05	N/A	TWO: 3" C-3#500 KCMIL, 1#2/0 NEUT., 1#2/0 GND. (CU)	F1
F2	AC Disconnect 'FD'	Panel 'S1'	480	AC 3-Phase	523.6	PVC	3	350 KCMIL	1050000	AL	21.2	1.0083	40	0.74	479.26	0.15	0.21	N/A	THREE: 3" C-3#350 KCMIL, 1#3/0 GND. (AL)	F2
F3	Panel 'S1'	Inverter No. A1	480	AC 3-Phase	60.2	PVC	1	2	66360	AL	21.2	1.0000	260	8.66	471.34	1.80	2.01	2.47	1-1/2" C-3#2, 1#6 GND. (AL)	F3
F4	Panel 'S1'	Inverter No. A2	480	AC 3-Phase	43.5	PVC	1	4	41740	AL	21.2	1.0000	260	9.95	470.05	2.07	2.28	2.76	1" C-3#4, 1#6 GND. (AL)	F4
F5	Panel 'S1'	Inverter No. B2	480	AC 3-Phase	60.2	PVC	1	2	66360	AL	21.2	1.0000	310	10.33	469.67	2.15	2.36	2.60	1-1/2" C-3#2, 1#6 GND. (AL)	F5
F6	Panel 'S1'	Inverter No. C1	480	AC 3-Phase	96.5	PVC	1	4/0	211600	AL	21.2	1.0000	510	8.54	471.46	1.78	1.99	2.82	2" C-3#4/0, 1#2 GND. (AL)	F6
F7	Panel 'S1'	Inverter No. C2	480	AC 3-Phase	36.25	PVC	1	2	66360	AL	21.2	1.0000	480	9.63	470.37	2.01	2.21	3.04	1-1/2" C-3#2, 1#6 GND. (AL)	F7
F8	Panel 'S1'	Inverter No. C3	480	AC 3-Phase	36.25	PVC	1	2	66360	AL	21.2	1.0000	480	9.63	470.37	2.01	2.21	3.07	1-1/2" C-3#2, 1#6 GND. (AL)	F8
F9	Panel 'S1'	Panel 'S2'	480	AC 3-Phase	190.7	PVC	1	400 KCMIL	400000	AL	21.2	1.0208	390	6.97	473.03	1.45	1.66	N/A	3" C-3#400 KCMIL, 1#2 GND. (AL)	F9
F10	Panel 'S2'	Inverter No. D1	480	AC 3-Phase	43.5	Steel	1	4	41740	AL	21.2	1.0000	40	1.53	478.47	0.32	1.98	2.23	1" C-3#4, 1#6 GND. (AL)	F10
F11	Panel 'S2'	Inverter No. D2	480	AC 3-Phase	43.5	Steel	1	4	41740	AL	21.2	1.0000	40	1.53	478.47	0.32	1.98	2.50	1" C-3#4, 1#6 GND. (AL)	F11
F12	Panel 'S2'	Inverter No. E1	480	AC 3-Phase	60.2	PVC	1	2	66360	AL	21.2	1.0000	90	3.00	477.00	0.62	2.29	2.63	1-1/2" C-3#2, 1#6 GND. (AL)	F12
F13	Panel 'S2'	Inverter No. E2	480	AC 3-Phase	43.5	PVC	1	4	41740	AL	21.2	1.0000	90	3.44	476.56	0.72	2.38	2.92	1" C-3#4, 1#6 GND. (AL)	F13
A1-9	Inverter No. A1	Worst Case DC String	727.2	DC	9.28	n/a-DC	1	10	10380	CU	12.9	n/a	145	3.34	723.86	0.46	N/A	N/A	2#10 (CU)	A1-9
A2-6	Inverter No. A2	Worst Case DC String	727.2	DC	9.28	n/a-DC	1	10	10380	CU	12.9	n/a	150	3.46	723.74	0.48	N/A	N/A	2#10 (CU)	A2-6
B1-9	Inverter No. B1	Worst Case DC String	727.2	DC	9.28	n/a-DC	1	10	10380	CU	12.9	n/a	75	1.73	725.47	0.24	N/A	N/A	2#10 (CU)	B1-9
C1-6	Inverter No. C1	Worst Case DC String	925	DC	18	n/a-DC	1	8	16510	CU	12.9	n/a	275	7.74	917.26	0.84	N/A	N/A	2#8 (CU)	C1-6
C2-2	Inverter No. C2	Worst Case DC String	925	DC	18	n/a-DC	1	8	16510	CU	12.9	n/a	270	7.59	917.41	0.82	N/A	N/A	2#8 (CU)	C2-2
C3-2	Inverter No. C3	Worst Case DC String	925	DC	18	n/a-DC	1	8	16510	CU	12.9	n/a	280	7.88	917.12	0.85	N/A	N/A	2#8 (CU)	C3-2
D1-6	Inverter No. D1	Worst Case DC String	727.2	DC	9.28	n/a-DC	1	10	10380	CU	12.9	n/a	80	1.85	725.35	0.25	N/A	N/A	2#10 (CU)	D1-6
D2-6	Inverter No. D2	Worst Case DC String	727.2	DC	9.28	n/a-DC	1	10	10380	CU	12.9	n/a	165	3.81	723.39	0.52	N/A	N/A	2#10 (CU)	D2-6
E1-9	Inverter No. E1	Worst Case DC String	727.2	DC	9.28	n/a-DC	1	10	10380	CU	12.9	n/a	110	2.54	724.66	0.35	N/A	N/A	2#10 (CU)	E1-9
E2-6	Inverter No. E2	Worst Case DC String	727.2	DC	9.28	n/a-DC	1	10	10380	CU	12.9	n/a	170	3.92	723.28	0.54	N/A	N/A	2#10 (CU)	E2-6

SYSTEM HOST



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SYSTEM DEVELOPER



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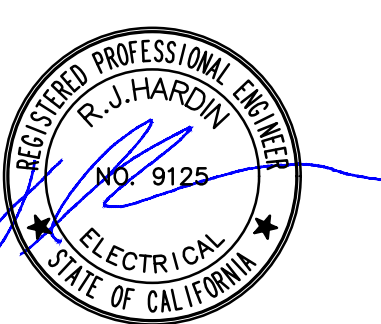
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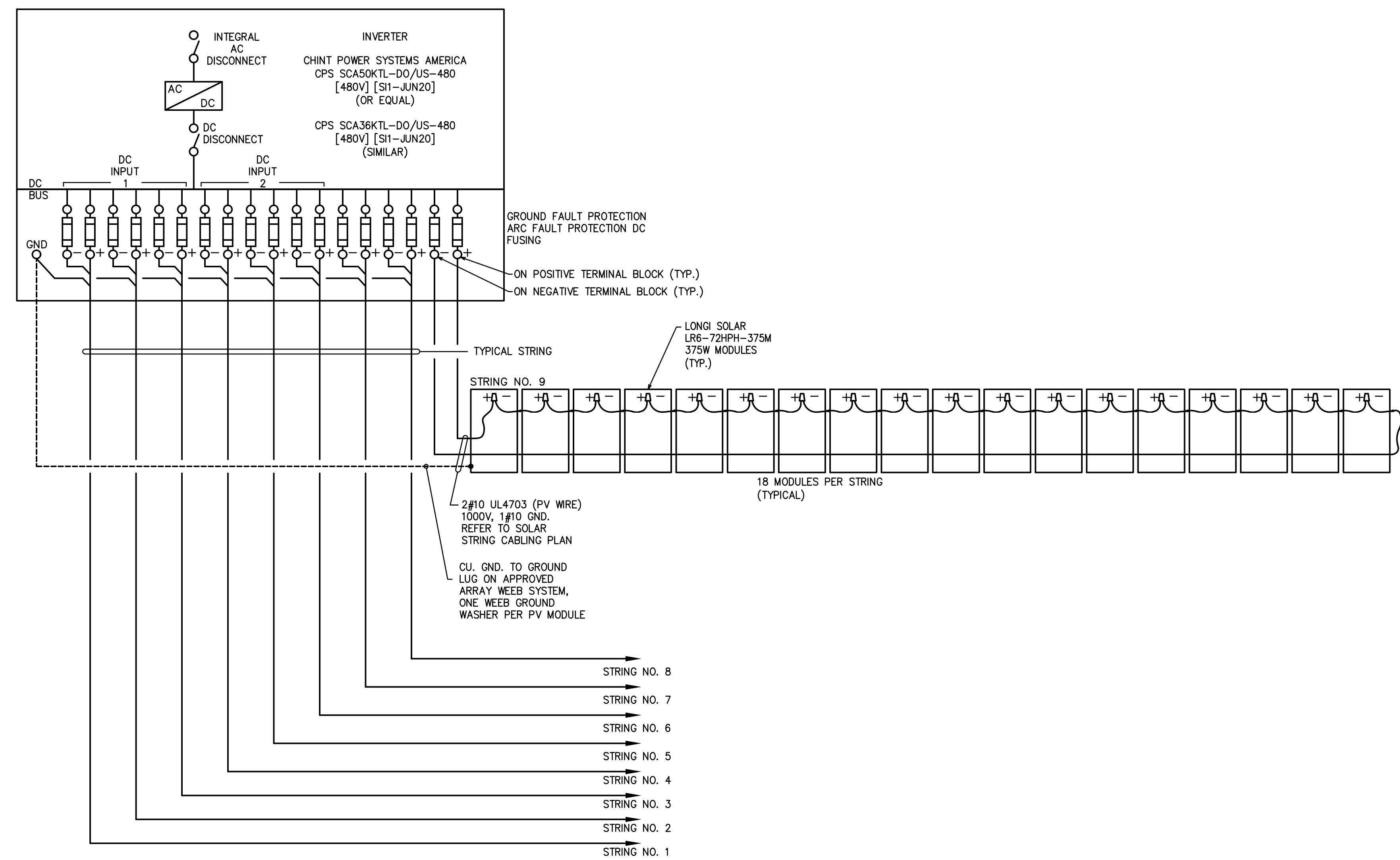
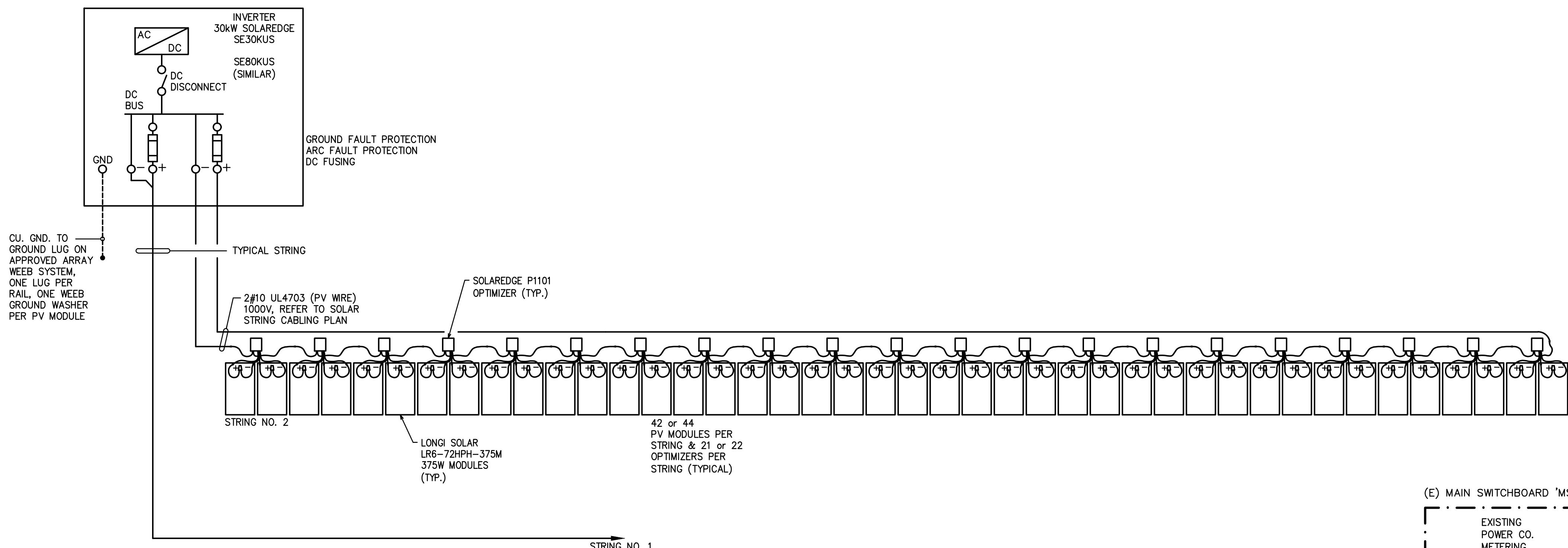
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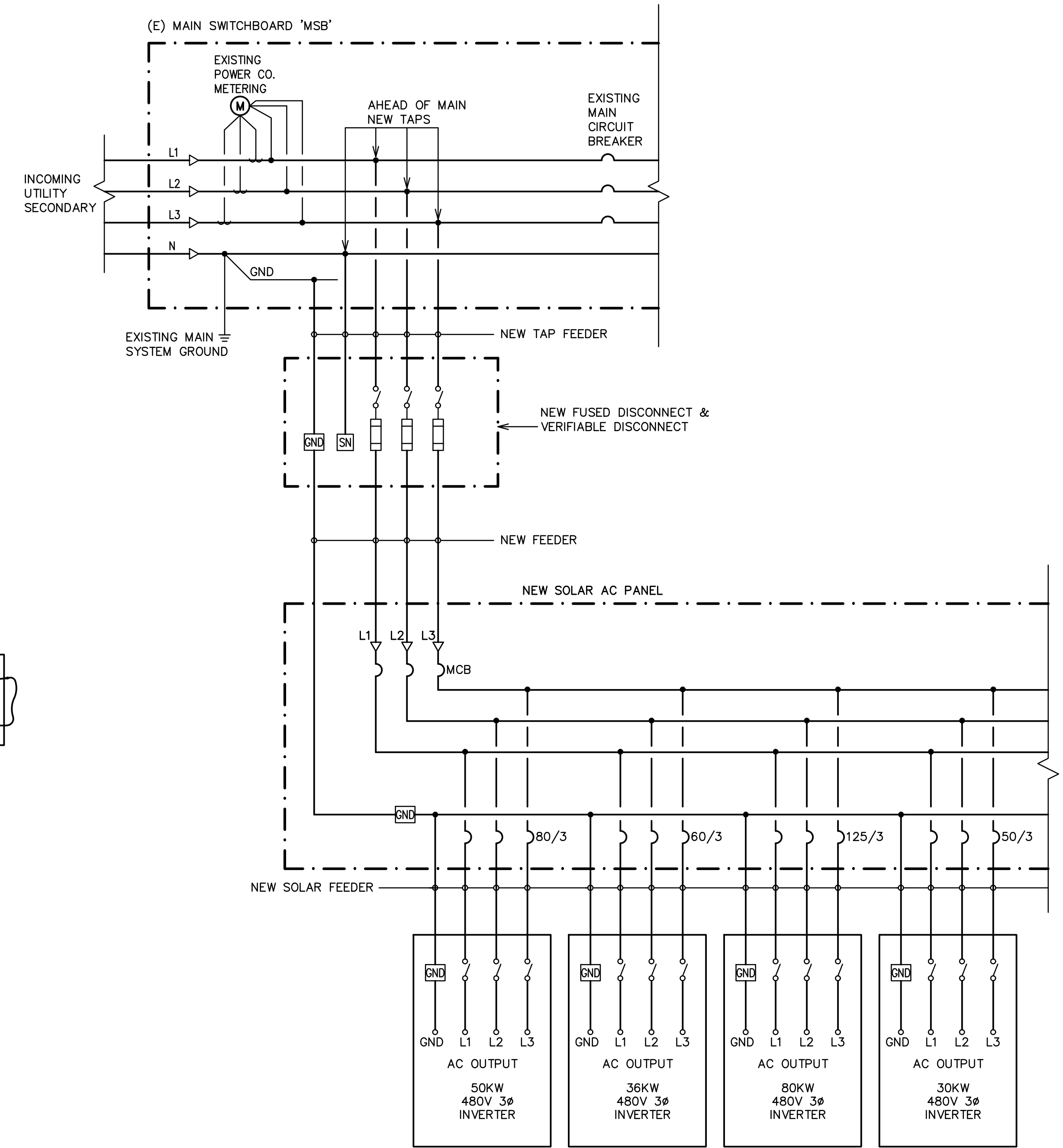
**PV SYSTEM ELECTRICAL FEEDER SCHEDULE**

SHEET NO.:

**E2.2**




**TYPICAL DC LINE DIAGRAM**  
SCALE: NONE



**TYPICAL THREE LINE DIAGRAM**  
SCALE: NONE

SYSTEM HOST



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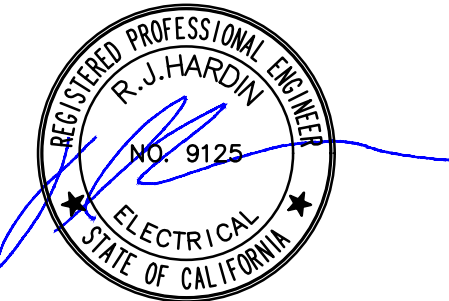
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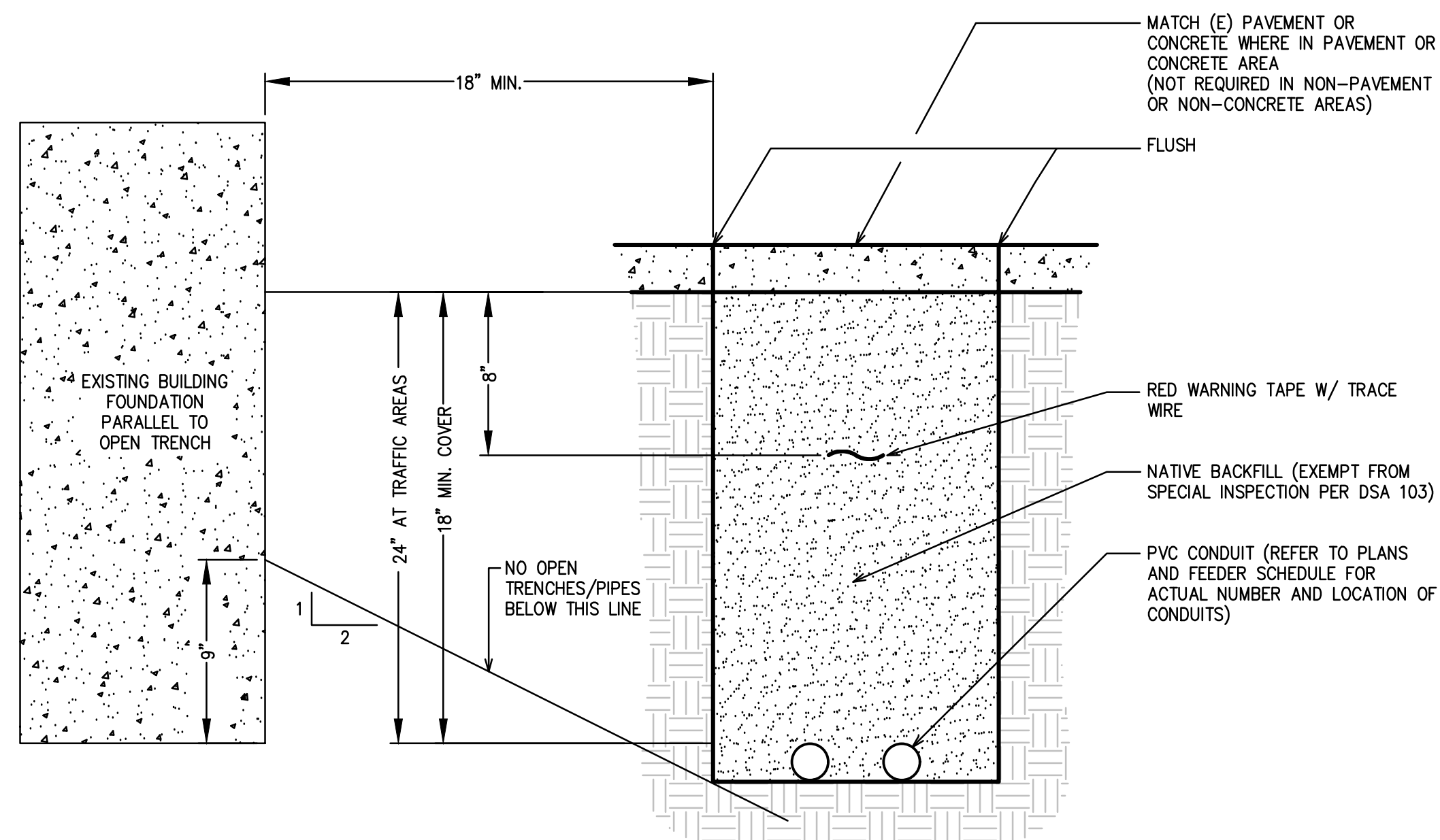
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SHEET TITLE

**PV SYSTEM TYPICAL ELECTRICAL THREE LINE DIAGRAM**

SHEET NO.:

**E3.0**



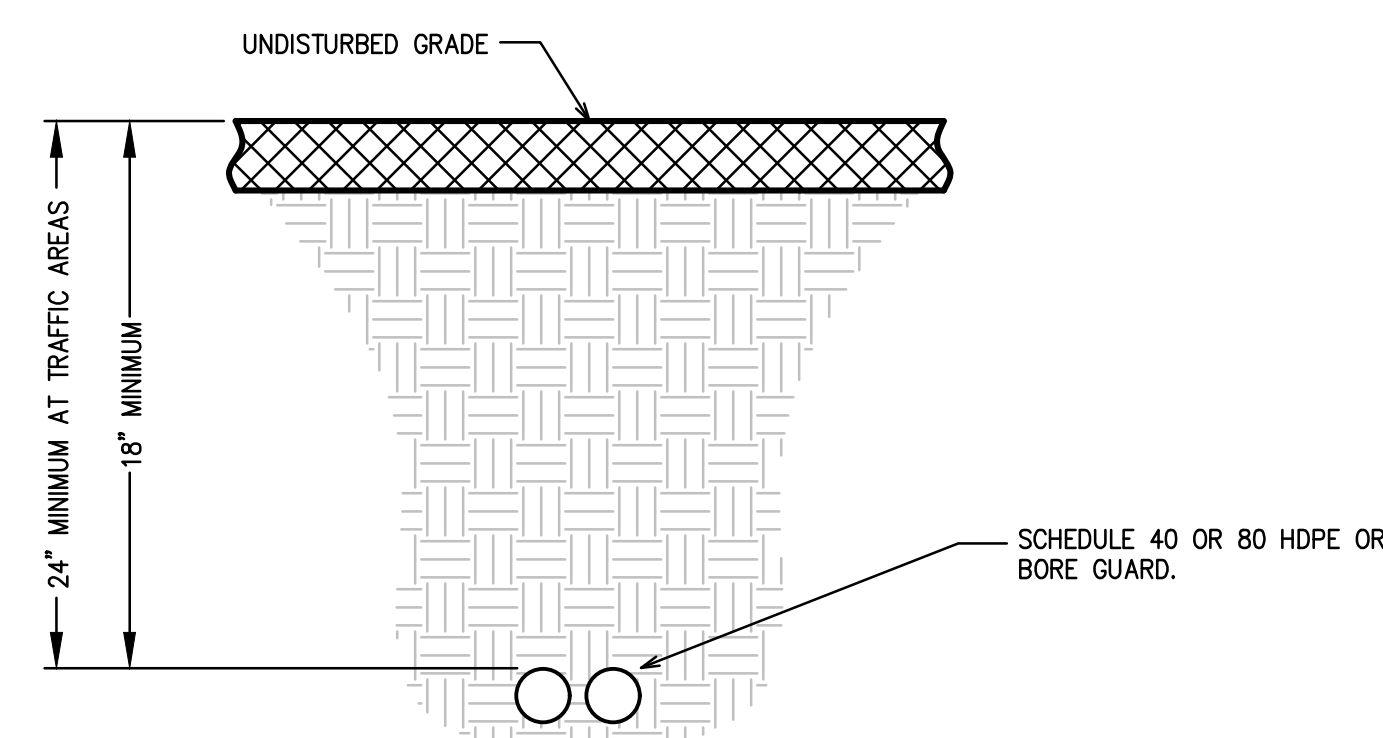
**TRENCH THROUGH PAVEMENT TRAFFIC DETAIL**

NO SCALE

NOTES:

1. TRENCHING ONLY WHERE REQUIRED
2. SOIL BACKFILL EXEMPT FROM SPECIAL INSPECTION PER DSA 103

2

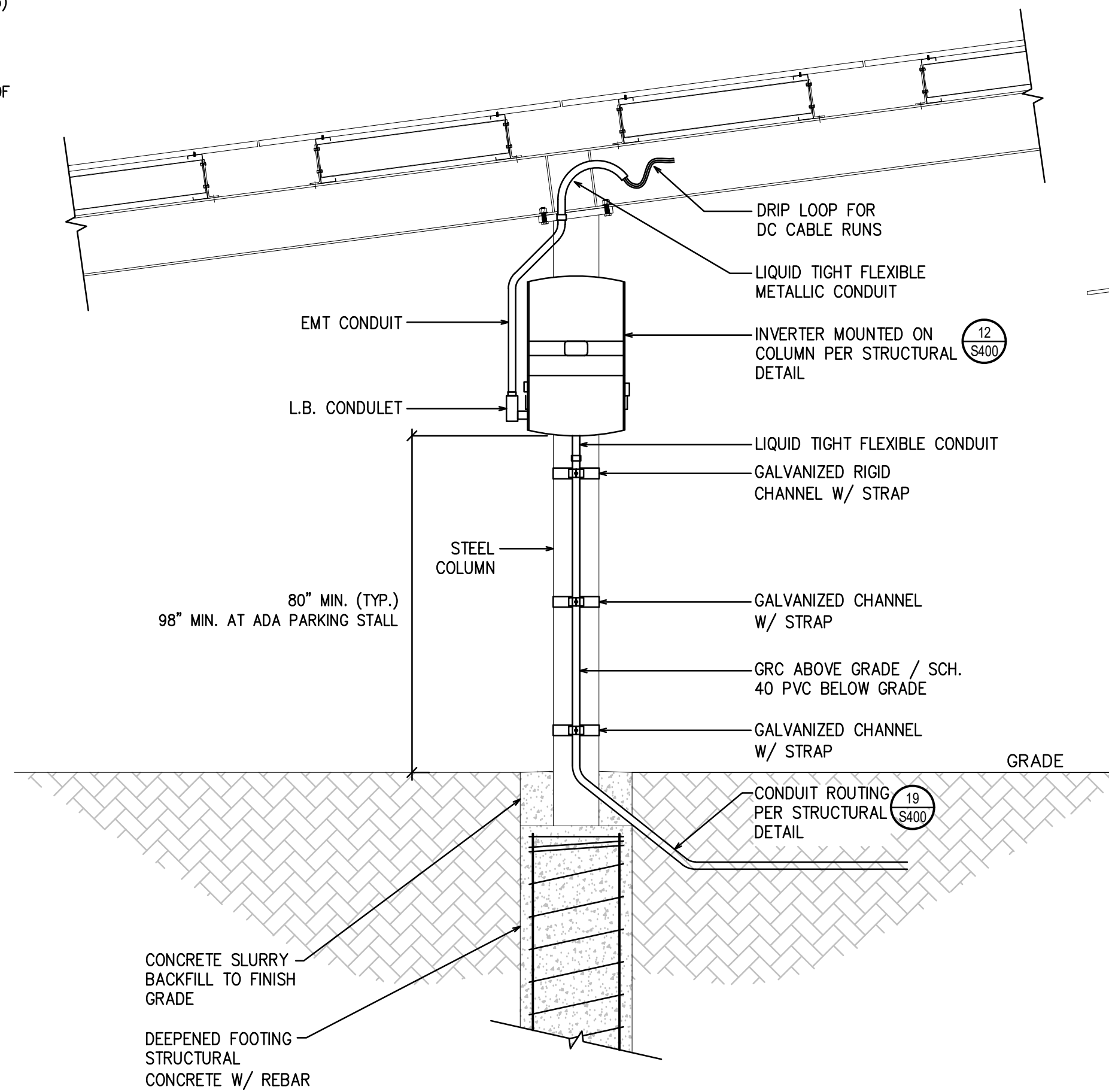


**HORIZONTAL BORE DETAIL**

NO SCALE

NOTE: BORING TYPICAL INSTALLATION METHOD

1

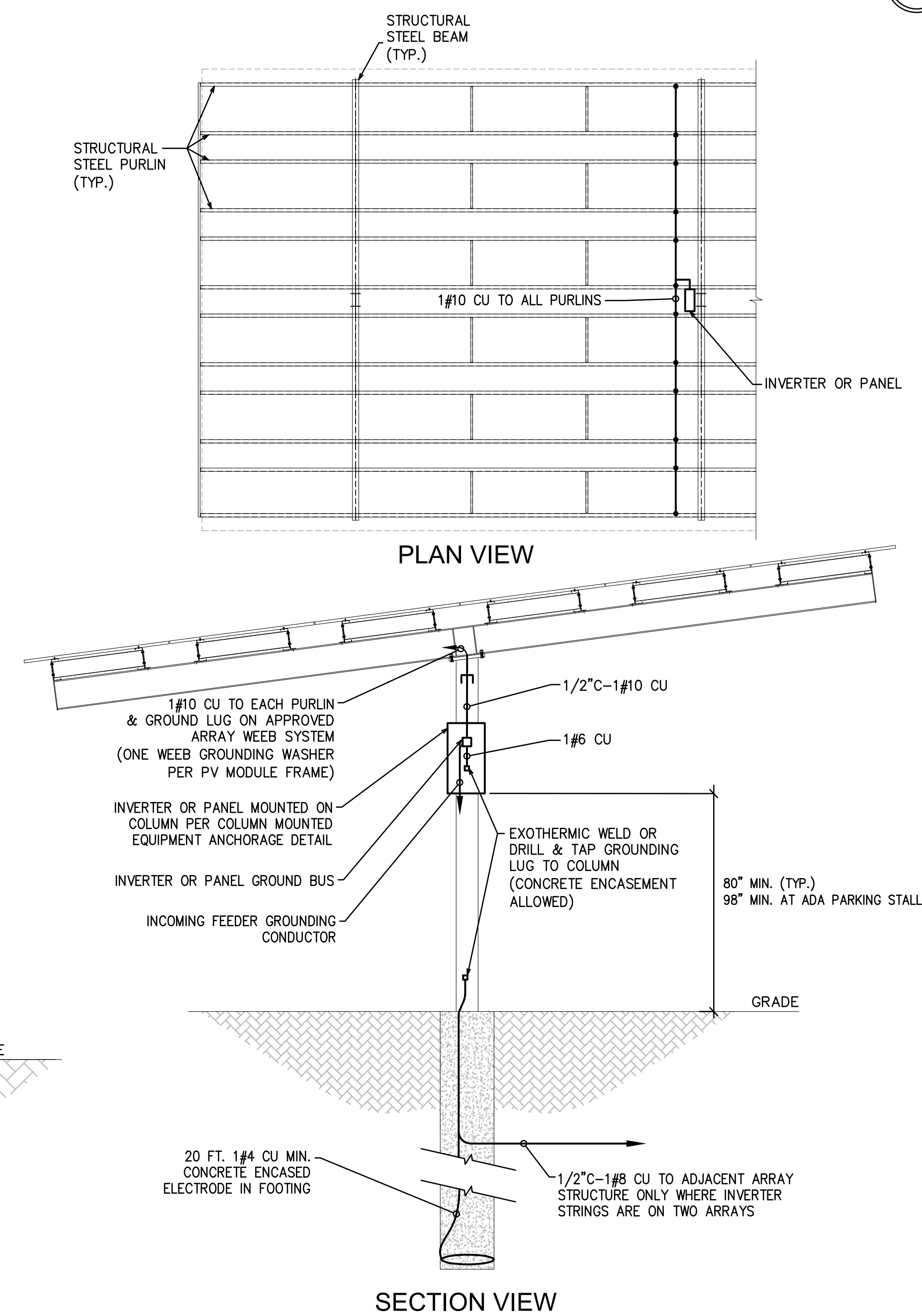


**TYPICAL PV CANOPY CONDUIT RISER DETAIL**

NO SCALE

NOTE: ONE REQUIRED PER ARRAY STRUCTURE

3



**PV CANOPY GROUNDING DETAIL**

NO SCALE

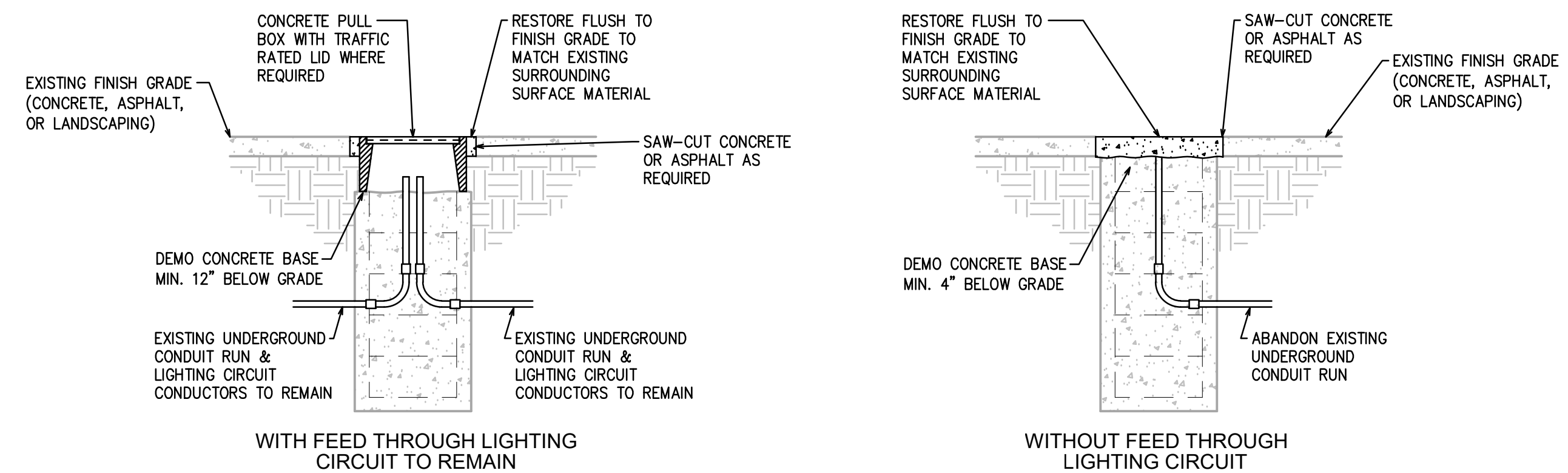
NOTE: ONE REQUIRED PER ARRAY STRUCTURE

4

**LIGHT POLE CONCRETE BASE DEMOLITION DETAIL**

SCALE: NONE

5



SYSTEM HOST



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Bakersfield, CA 93305  
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SYSTEM DEVELOPER



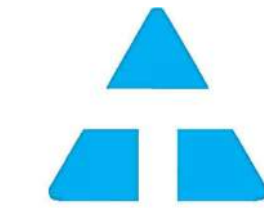
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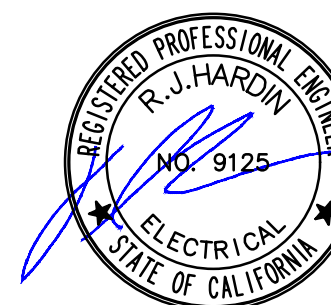
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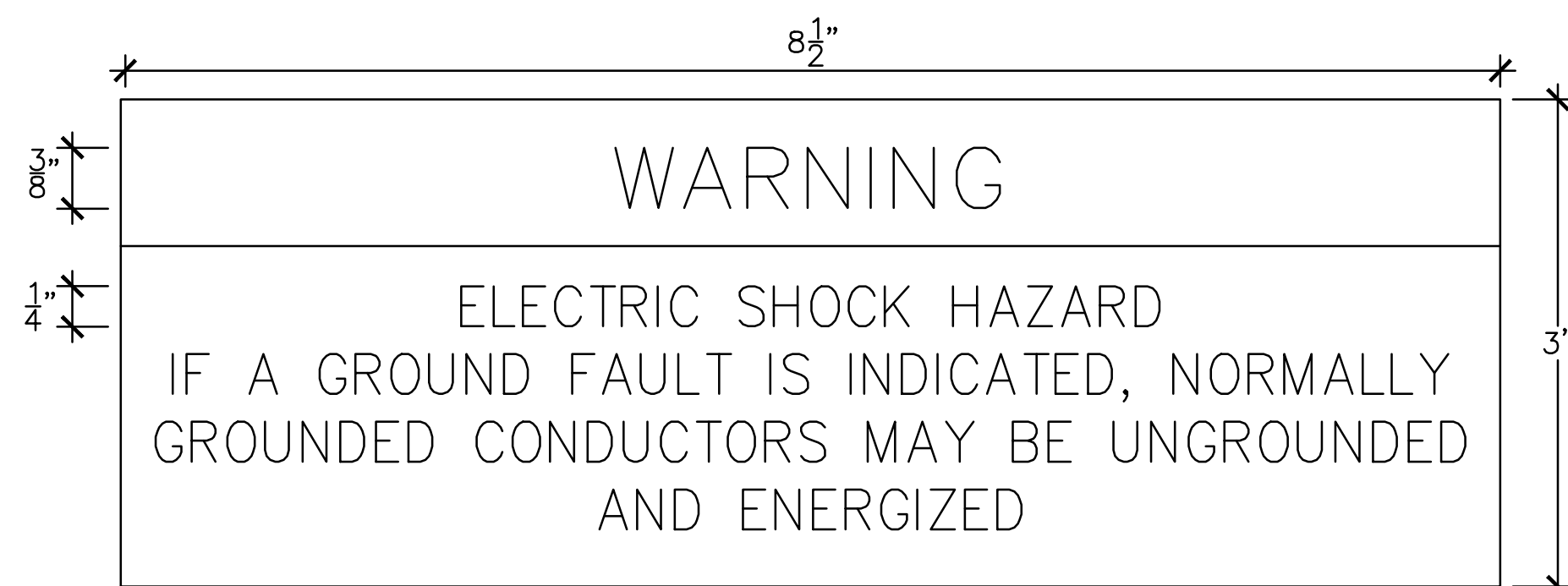
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**ELECTRICAL DETAILS**

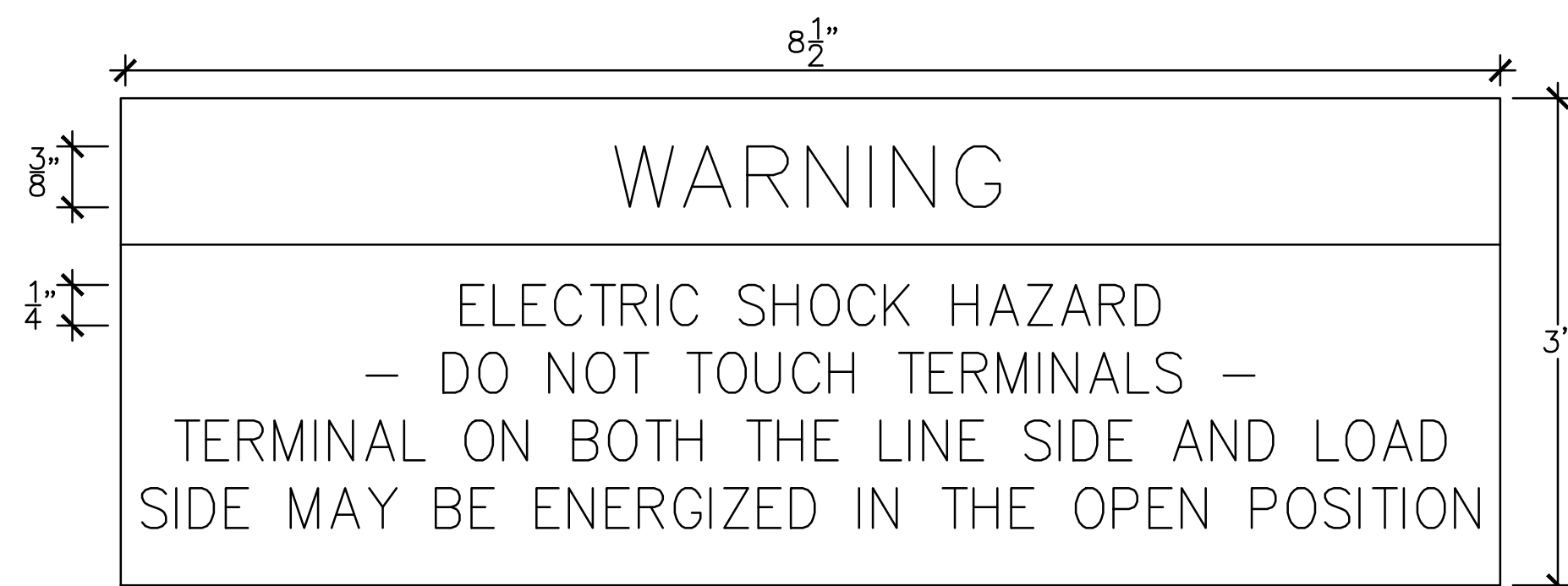
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**E4.0**



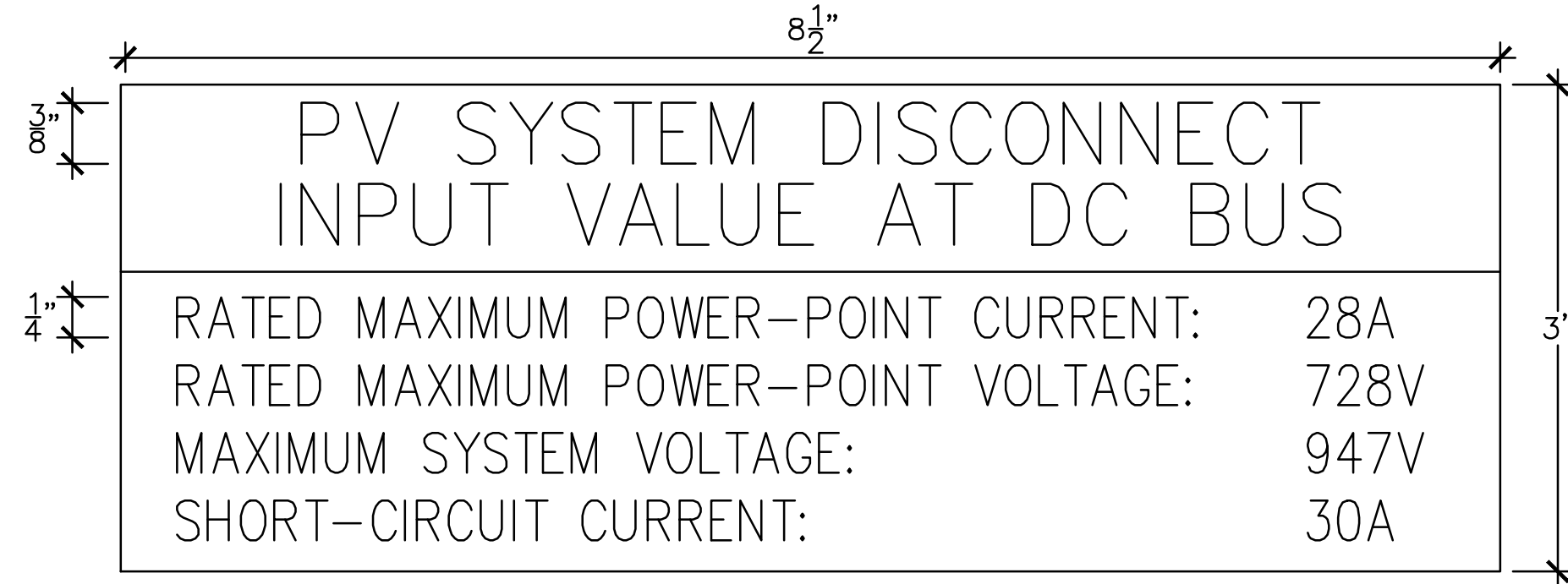
**LABEL - 1**  
SCALE: NONE

LOCATION:	INVERTERS
BACKGROUND:	RED
LETTERING:	WHITE
NOTES:	



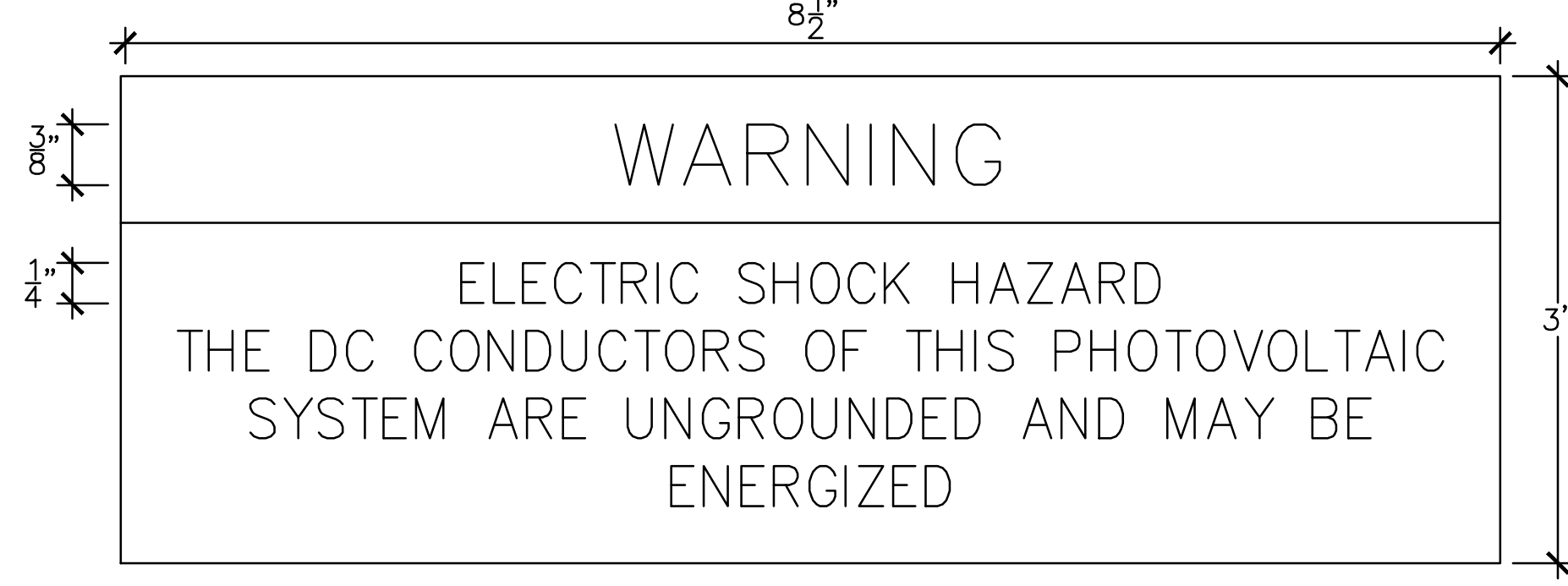
**LABEL - 2**  
SCALE: NONE

LOCATION:	AC DISCONNECTS & PANELBOARDS
BACKGROUND:	RED
LETTERING:	WHITE
NOTES:	



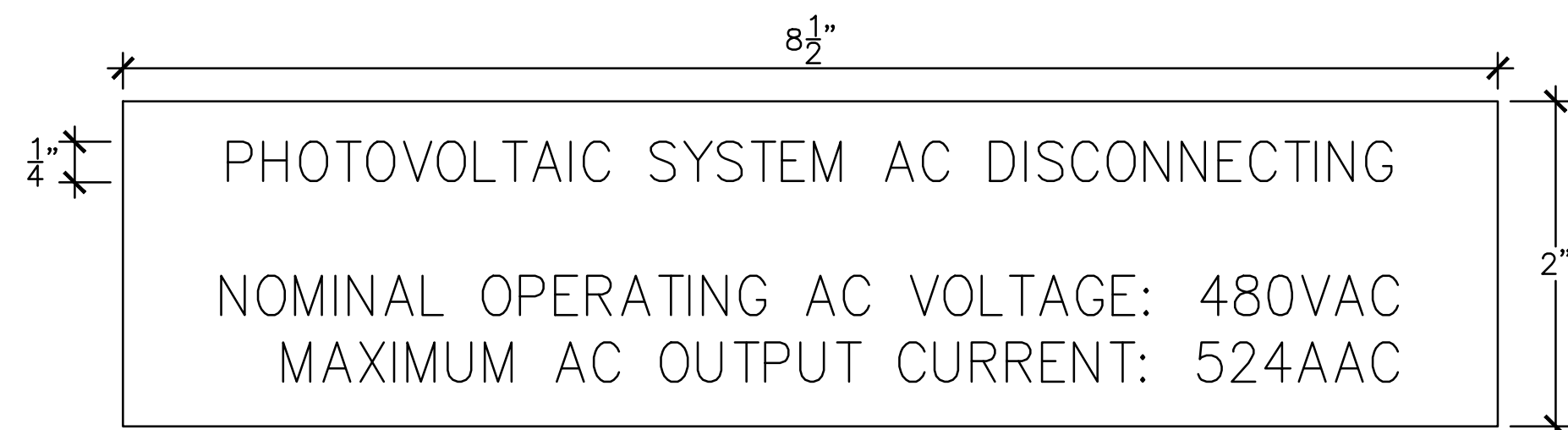
**LABEL - 3**  
SCALE: NONE

LOCATION:	36kW INVERTERS & 50kW INVERTERS
BACKGROUND:	RED
LETTERING:	WHITE
NOTES:	



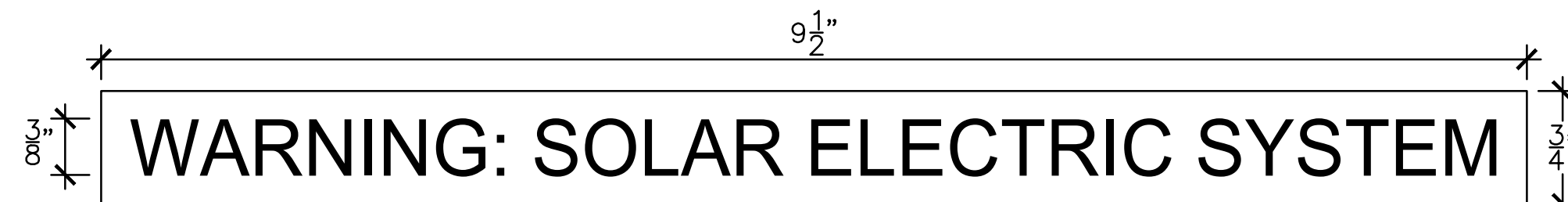
**LABEL - 4**  
SCALE: NONE

LOCATION:	INVERTERS
BACKGROUND:	RED
LETTERING:	WHITE
NOTES:	



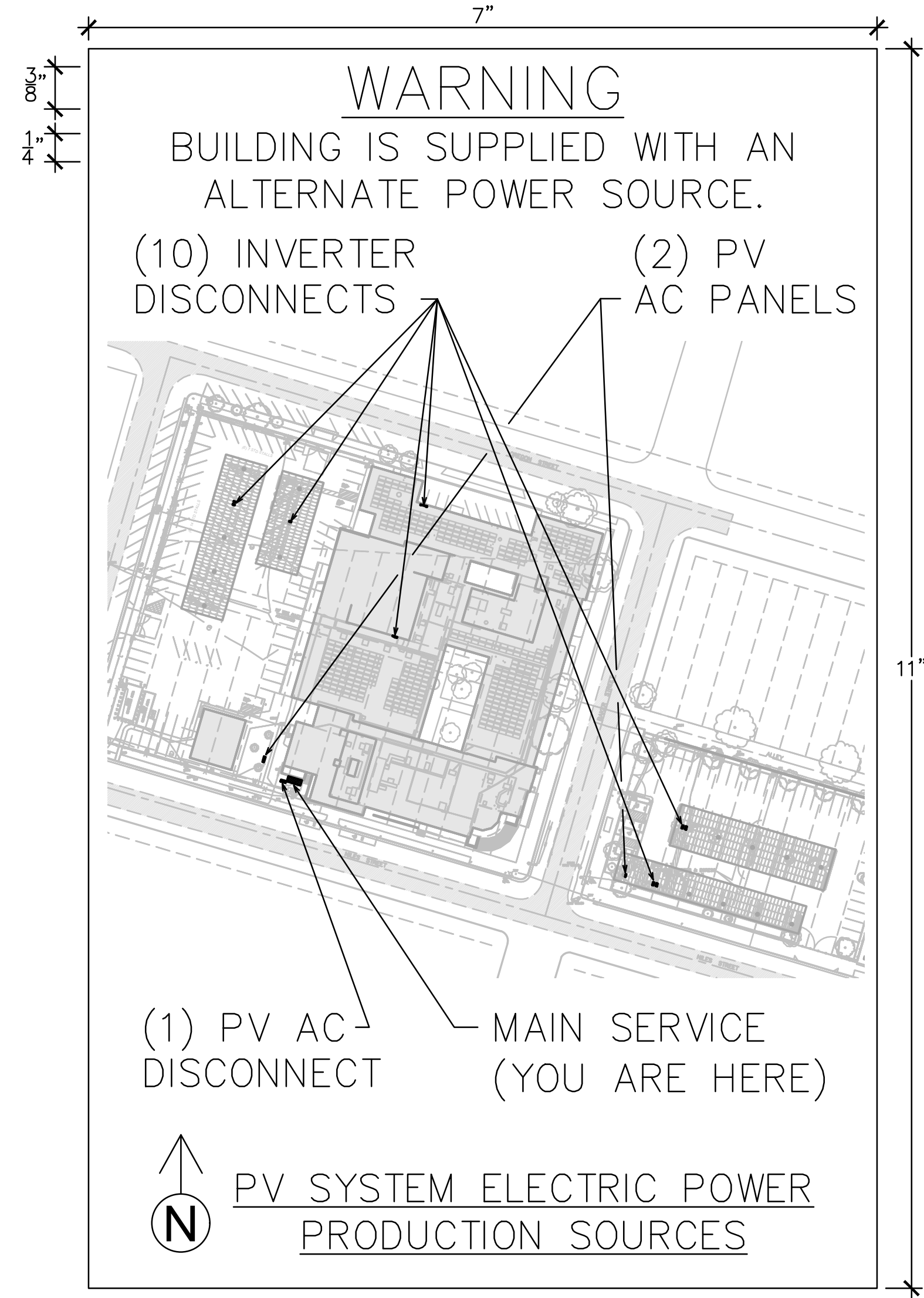
**LABEL - 5**  
SCALE: NONE

LOCATION:	AC DISCONNECT
BACKGROUND:	RED
LETTERING:	WHITE
NOTES:	



**LABEL - 6**  
SCALE: NONE

LOCATION:	MAIN SERVICE DISCONNECT
BACKGROUND:	RED
LETTERING:	WHITE
NOTES:	



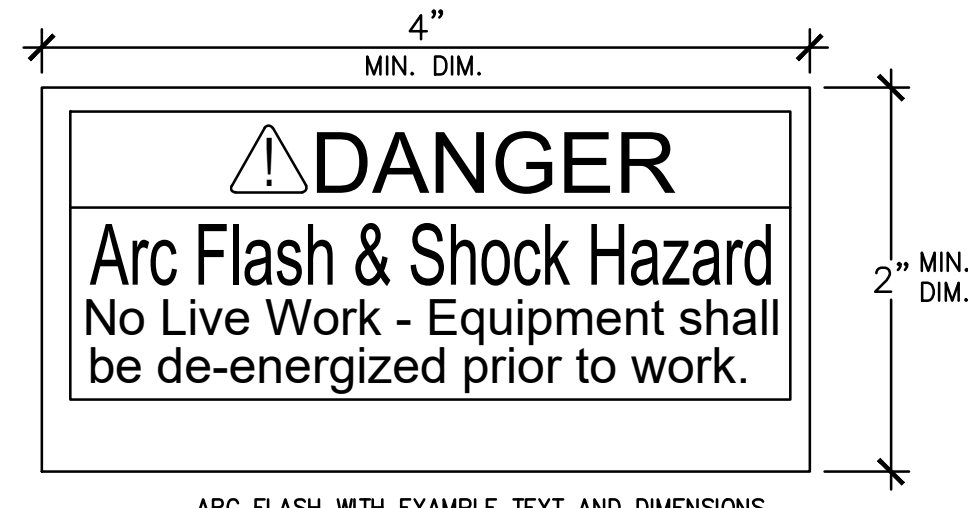
**LABEL - 7**  
SCALE: NONE

**WARNING LABELS & MARKING NOTES:**

- MARKING IS REQUIRED ON INTERIOR AND EXTERIOR DIRECT-CURRENT (DC) CONDUIT, ENCLOSURES, RACEWAYS, CABLE ASSEMBLIES, JUNCTION BOXES, COMBINER BOXES AND DISCONNECTS.
- THE MATERIALS USED FOR MARKING SHALL BE REFLECTIVE, WEATHER RESISTANT AND SUITABLE FOR THE ENVIRONMENT. MARKING AS REQUIRED IN SECTIONS 605.11.1.2 THROUGH 605.11.1.4 SHALL HAVE ALL LETTERS CAPITAL SIZED WITH A MINIMUM HEIGHT OF 3/8 INCH (9.5 MM) WHITE ON RED BACKGROUND.
- THE MARKING SHALL CONTAIN THE WORDS "WARNING: PHOTOVOLTAIC POWER SOURCE."
- THE MARKING SHALL BE PLACED ADJACENT TO THE MAIN SERVICE DISCONNECT IN A LOCATION CLEARLY VISIBLE FROM THE LOCATION WHERE THE DISCONNECT IS OPERATED.
- MARKING SHALL BE PLACED ON INTERIOR AND EXTERIOR DC CONDUIT, RACEWAYS, ENCLOSURES AND CABLE ASSEMBLIES EVERY 10 FEET (3048 MM), WITHIN 1 FOOT (305 MM) OF TURNS OR BENDS AND WITHIN 1 FOOT (305 MM) ABOVE AND BELOW PENETRATIONS OF ROOF/CEILING ASSEMBLIES, WALLS OR BARRIERS.

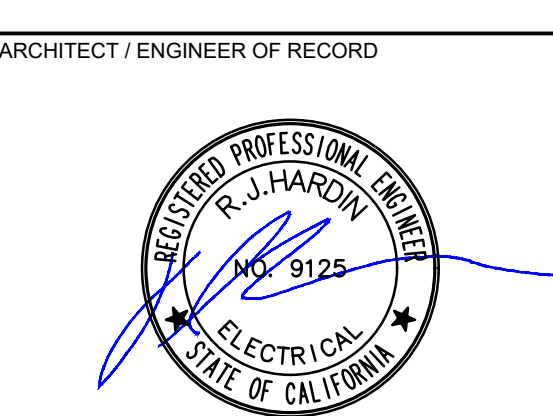
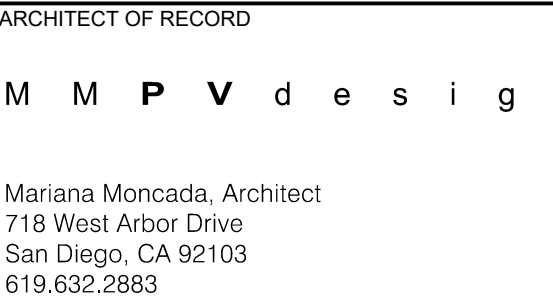
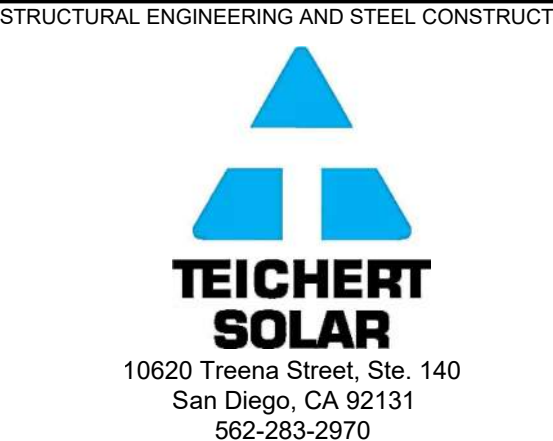
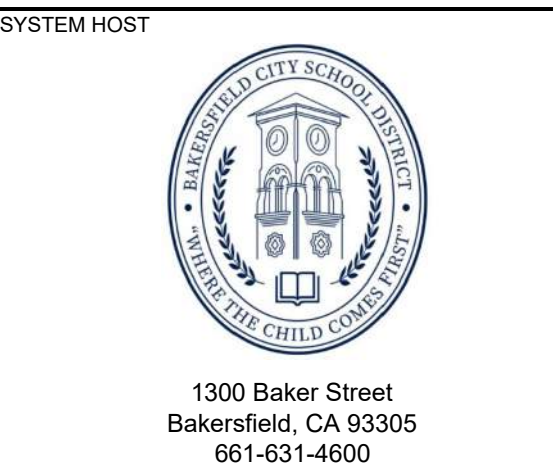
LOCATION:	MAIN SERVICE DISCONNECT
BACKGROUND:	RED
LETTERING:	WHITE
NOTES:	

1 SIGN AT (E) SERVICE METER. PLACE ADDITIONAL SIGN AT SOLAR AC SYSTEM DISCONNECT WHERE NOT LOCATED WITHIN 25' & IN VIEW OF (E) SERVICE METER.



**LABEL - 8**  
SCALE: NONE

LOCATION:	INVERTER DISCONNECTS, AC DISCONNECT, PANEL
BACKGROUND:	WHITE, RED OR YELLOW
LETTERING:	BLACK AND/OR RED
NOTES:	



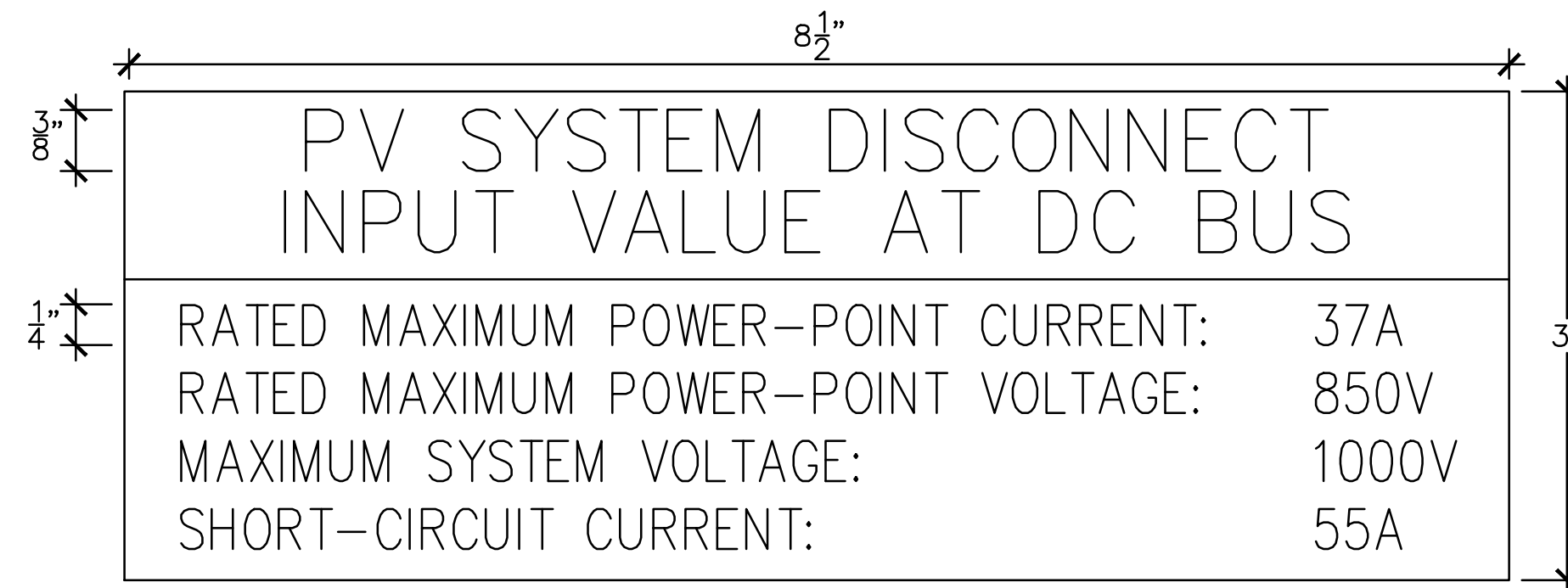
PROJECT  
**BAKERSFIELD CITY SCHOOL DISTRICT**  
EDUCATION CENTER  
1300 BAKER STREET  
BAKERSFIELD, CA 93305

NO.	REVISION	DATE
1		06.28.23

DATE: 09.02.22

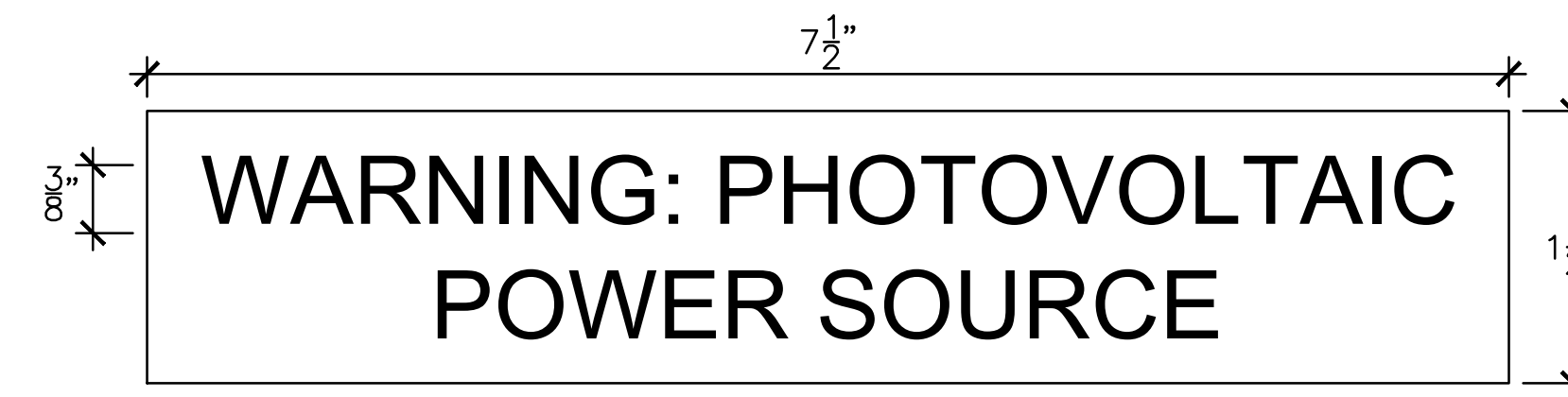
SHEET TITLE  
**PV SYSTEM TYPICAL ELECTRICAL WARNING LABELS**

SHEET NO.:  
**E5.0**



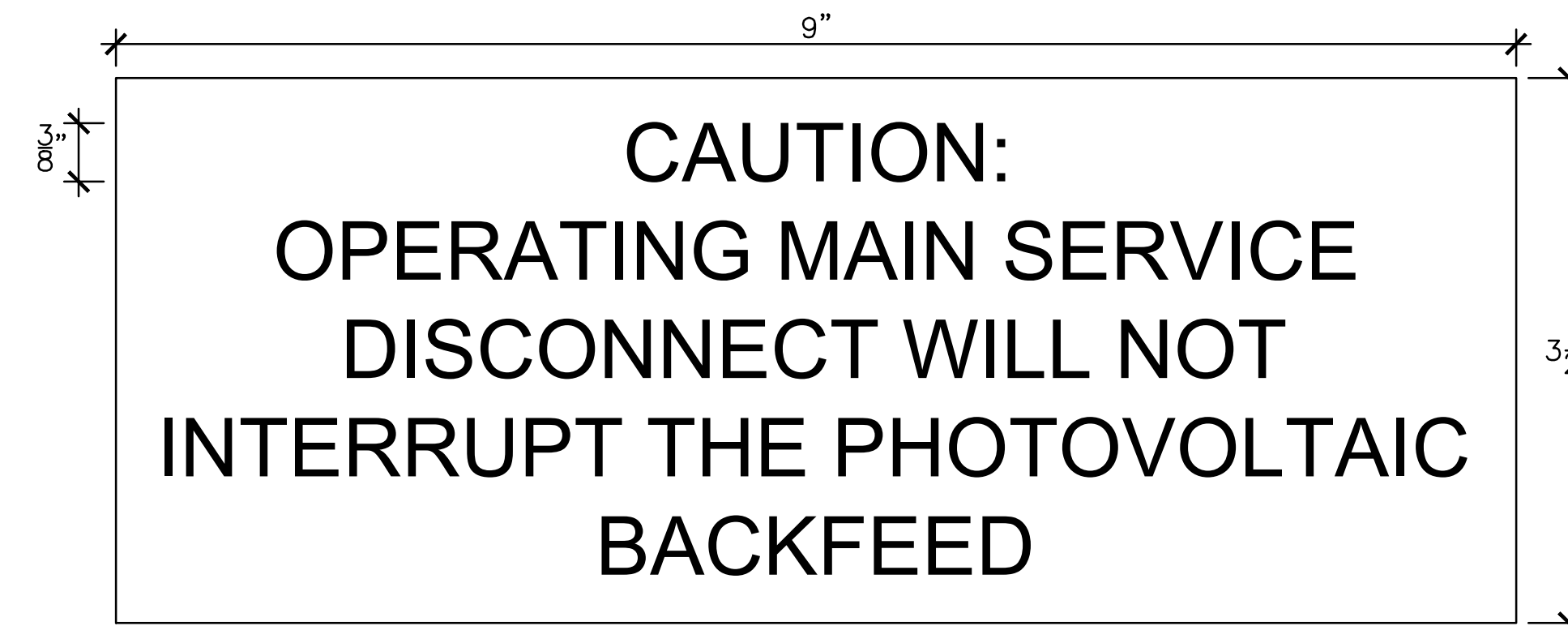
**LABEL - 13**  
SCALE: NONE

LOCATION:	30kW INVERTER
BACKGROUND:	RED
LETTERING:	WHITE
NOTES:	



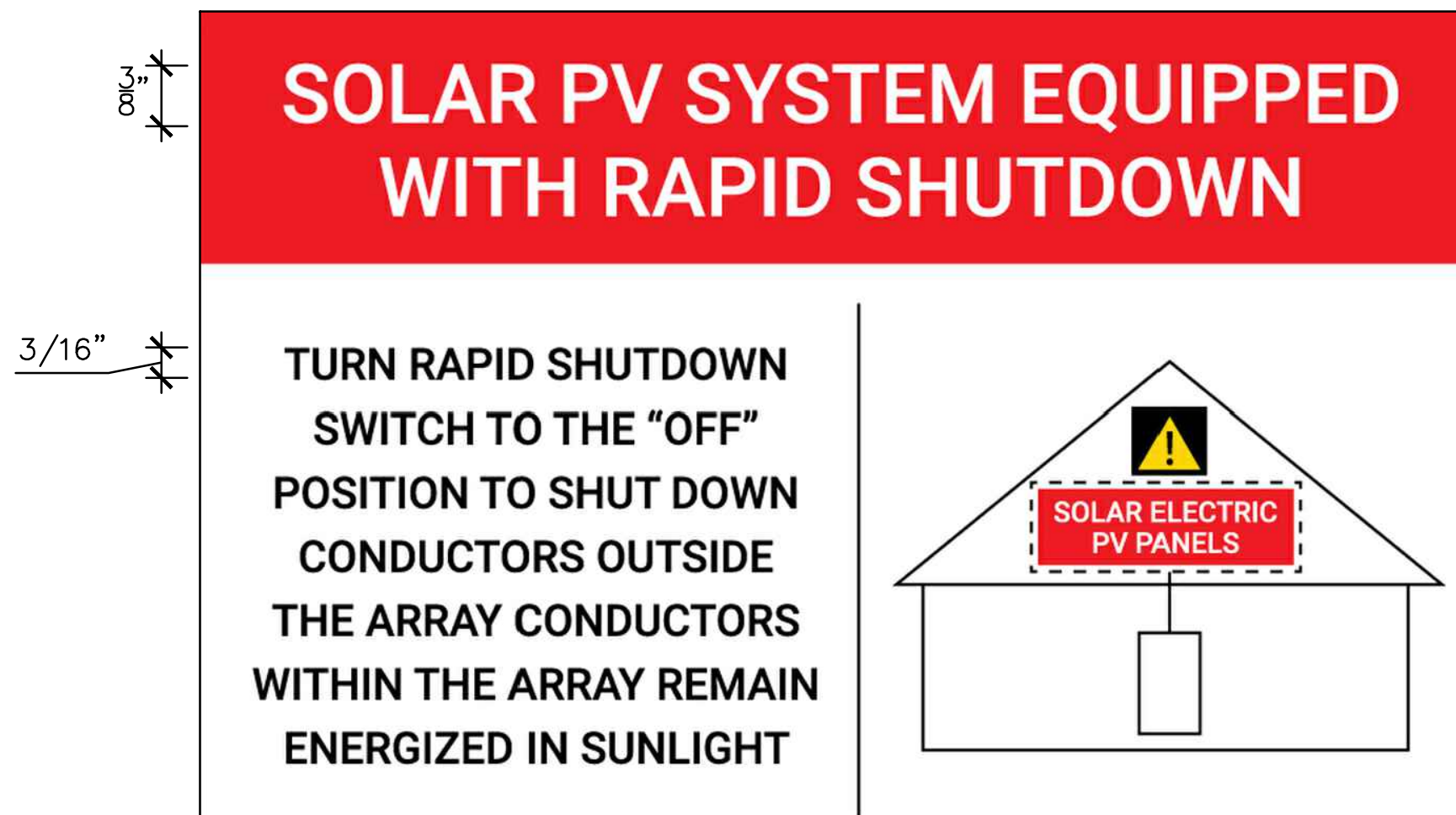
**LABEL - 9**  
SCALE: NONE

LOCATION:	DC ENCLOSURES, RACEWAYS AND CONDUITS
BACKGROUND:	RED
LETTERING:	WHITE
NOTES:	EXPOSED CONDUIT EVERY 10 FT.



**LABEL - 10**  
SCALE: NONE

LOCATION:	MAIN SERVICE DISCONNECT
BACKGROUND:	RED
LETTERING:	WHITE
NOTES:	



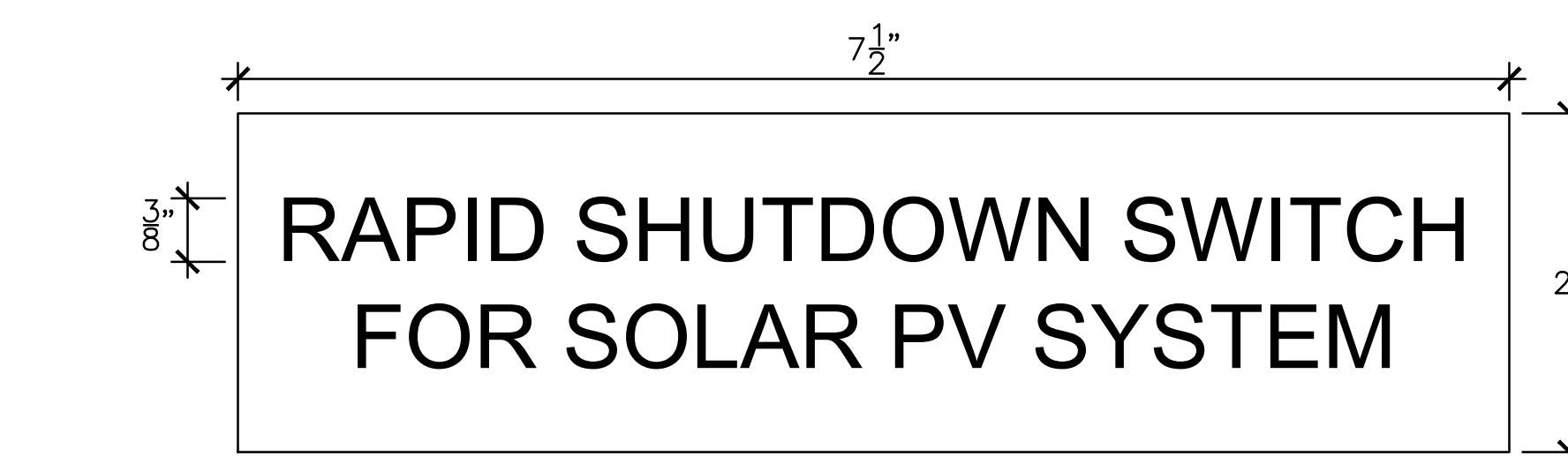
**LABEL - 14**  
SCALE: NONE

LOCATION:	MAIN SWITCHBOARD, PV DIST. PANEL & INVERTERS
BACKGROUND:	RED
LETTERING:	WHITE
NOTES:	



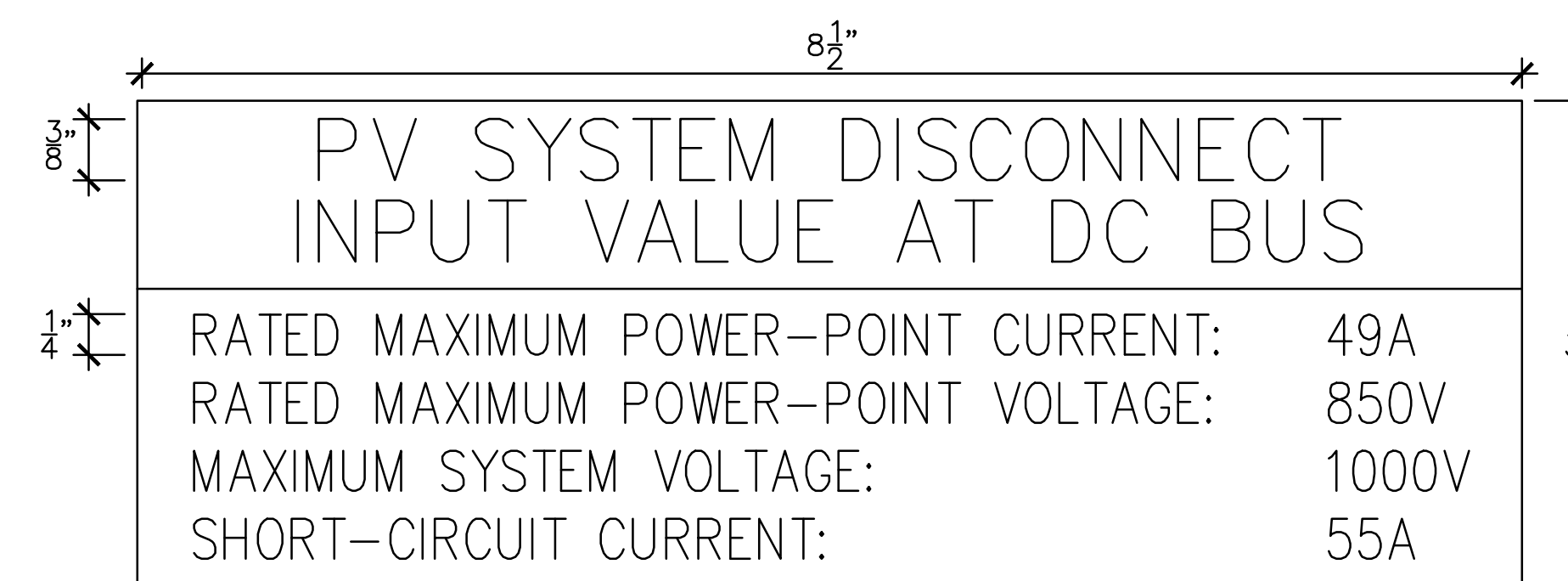
**LABEL - 11**  
SCALE: NONE

LOCATION:	AC DISCONNECT, PANELS, TRANSFORMERS, DAS
BACKGROUND:	BLUE
LETTERING:	WHITE
NOTES:	



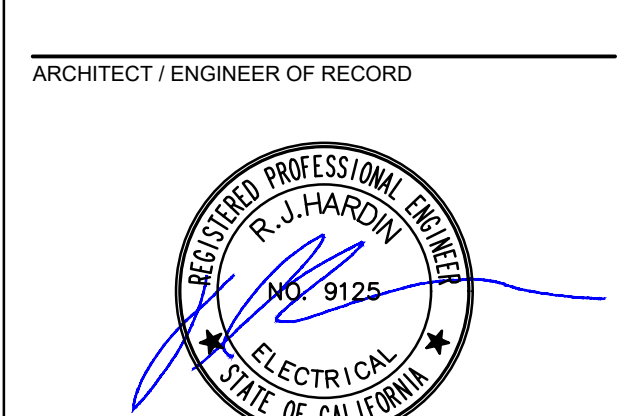
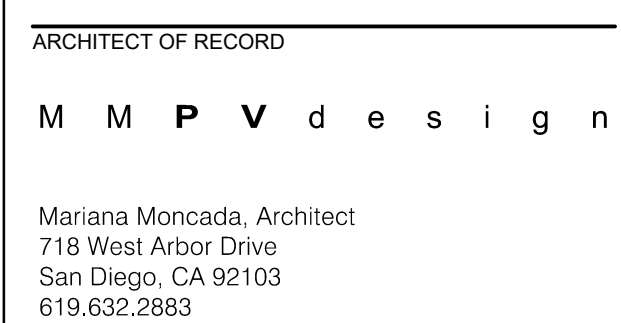
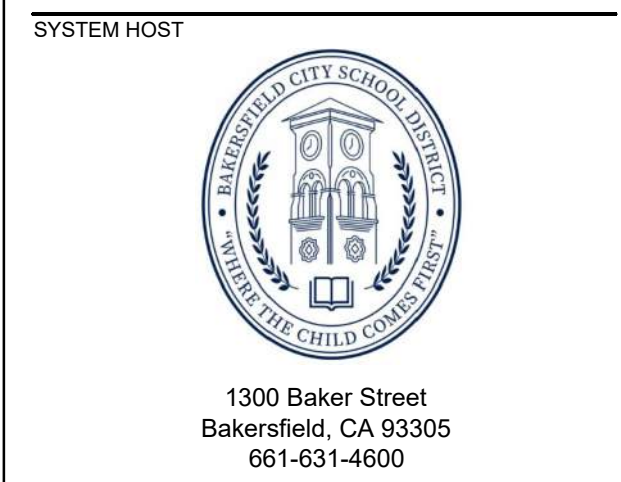
**LABEL - 15**  
SCALE: NONE

LOCATION:	ROOF-TOP INVERTER VISIBLE DISCONNECTS
BACKGROUND:	RED
LETTERING:	WHITE
NOTES:	



**LABEL - 12**  
SCALE: NONE

LOCATION:	80kW INVERTER
BACKGROUND:	RED
LETTERING:	WHITE
NOTES:	



PROJECT  
**BAKERSFIELD CITY SCHOOL DISTRICT**  
  
EDUCATION CENTER  
1300 BAKER STREET  
BAKERSFIELD, CA 93305

NO.	REVISION	DATE
1	△	06.28.23
DATE: 09.02.22		

SHEET TITLE  
**PV SYSTEM TYPICAL ELECTRICAL WARNING LABELS**

SHEET NO.:  
**E5.1**







STATE OF CALIFORNIA CALIFORNIA ENERGY COMMISSION  
**Outdoor Lighting**  
 CERTIFICATE OF COMPLIANCE NRCC-LTO-E  
 This document is used to demonstrate compliance with requirements in 110.9, 130.0, 130.2, 140.7, and 141.0(b)(2) for outdoor lighting scopes using the prescriptive path for nonresidential and hotel/motel occupancies. It is also used to document compliance with requirements in 160.5, 170.2(e)(6), 180.1(a) and 180.2(b)(4b) for outdoor lighting scopes using the prescriptive path for multifamily and mixed-use occupancies. Multifamily includes dormitory and senior living facilities.  
 Project Name: Bakersfield City School District - Education Center Report Page: (Page 1 of 7)  
 Project Address: 1300 Baker Street Date Prepared: 6/13/2023

**A. GENERAL INFORMATION**

01 Project Location (city) Bakersfield  
 02 Climate Zone 13  
 04 Total Illuminated Hardscape Area (ft²) 20065  
 03 Outdoor Lighting Zone per Title 24 Part 1 10.1.14 or as designated by Authority Having Jurisdiction (AHJ):  
 LZ-0: Very Low - Undeveloped Parkland  LZ-2: Moderate - Urban Clusters  LZ-4: High - Must be reviewed by CA Energy Commission for Approval  
 LZ-1: Low - Rural Areas  LZ-3: Moderately High - Urban Areas  
 05 Occupancy Types within Project  
 All Other Occupancies

**B. PROJECT SCOPE**  
 This table includes outdoor lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.7 / 170.2(e)(6) or 141.0(b)(2) / 180.2(b)(4b) for alterations.  
 My Project Consists of:  
 01  New Lighting System Must Comply with Allowances from 140.7 / 170.2(e)(6)  
 Altered Lighting System Is your alteration increasing the connected lighting load (Watts)?  Yes  No  
 03 % of Existing Luminaires Being Altered¹ Sum Total of Luminaires Being Added or Altered Calculation Method  
 < 10%  >= 10% and < 50%  >= 50%  
 Please proceed to Table F, Outdoor Lighting Fixture Schedule to define the project's luminaires.  
 ¹ FOOTNOTES: % of Existing Luminaires Being Altered = (Sum Total of Luminaires Being Added or Altered / Existing Luminaires within the Scope of the Permit Application) x 100.

Registration Number: Generated Date/Time: Documentation Software: EnergyPro  
 CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: EnergyPro-7514-0623-0144  
 Schema Version: rev 20220101 Report Generated: 2023-06-13 16:58:13

STATE OF CALIFORNIA CALIFORNIA ENERGY COMMISSION  
**Outdoor Lighting**  
 CERTIFICATE OF COMPLIANCE NRCC-LTO-E  
 Project Name: Bakersfield City School District - Education Center Report Page: (Page 4 of 7)  
 Project Address: 1300 Baker Street Date Prepared: 6/13/2023

**H. OUTDOOR LIGHTING CONTROLS**  
 This table demonstrates compliance with controls requirements for all new or altered luminaires installed as part of the permit application. For alteration projects, luminaires which are existing to remain (ie untouched) and luminaires which are removed and reinstalled (wiring only) do not need to be included in this table even if they are within the spaces covered by the permit application.  
 Outdoor lighting for nonresidential buildings, parking garages and common service areas in multifamily buildings must be documented separately from outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit.  
**Mandatory Controls for Nonresidential Occupancies, Parking Garages & Common Areas in Multifamily Buildings**

01	02	03	04	05
Area Description	Shut-Off 130.2(c)(1) / 160.5(c)	Auto-Schedule 130.2(c)(2) / 160.5(c)	Motion Sensor 130.2(c)(3) / 160.5(c)	Field Inspector
Exterior Lights	Photocontrol	Provided	Provided	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

¹ FOOTNOTE: Text has been abbreviated, please refer to Table 160.5-A to confirm compliance with the specific light source technologies listed.  
 ² Authority having jurisdiction may ask for cutsheets or other documentation to confirm compliance of light source.  
 ³ Recessed luminaires marked for use in fire-rated installations, and recessed luminaires installed in non-insulated ceilings are excepted from ii and iii.

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 Schema Version: rev 20220101 Report Generated: 2023-06-13 16:58:13

STATE OF CALIFORNIA CALIFORNIA ENERGY COMMISSION  
**Outdoor Lighting**  
 CERTIFICATE OF COMPLIANCE NRCC-LTO-E  
 Project Name: Bakersfield City School District - Education Center Report Page: (Page 7 of 7)  
 Project Address: 1300 Baker Street Date Prepared: 6/13/2023

**DOCUMENTATION AUTHOR'S DECLARATION STATEMENT**  
 I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Richard J. Hardin  
 Signature: [Signature]  
 Signature Date: 2023-06-13  
 Address: 356 Pollasky Ave, Clovis CA 93612  
 Phone: 559.323.4995

**RESPONSIBLE PERSON'S DECLARATION STATEMENT**  
 I certify the following under penalty of perjury, under the laws of the State of California:  
 1. The information provided on this Certificate of Compliance is true and correct.  
 2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)  
 3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.  
 4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.  
 5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Rich Hardin  
 Signature: [Signature]  
 Signature Date: 2023-06-13  
 Address: 356 Pollasky Ave, Suite 200, Clovis CA 93612  
 Phone: 559.323.4995

Registration Number: Generated Date/Time: Documentation Software: EnergyPro  
 CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: EnergyPro-7514-0623-0144  
 Schema Version: rev 20220101 Report Generated: 2023-06-13 16:58:13

STATE OF CALIFORNIA CALIFORNIA ENERGY COMMISSION  
**Outdoor Lighting**  
 CERTIFICATE OF COMPLIANCE NRCC-LTO-E  
 Project Name: Bakersfield City School District - Education Center Report Page: (Page 2 of 7)  
 Project Address: 1300 Baker Street Date Prepared: 6/13/2023

**C. COMPLIANCE RESULTS**  
 Results in this table are automatically calculated from data input and calculations in Tables F through N. Note: if any cell on this table says "COMPLIES with Exceptional Conditions" refer to Table D. Exceptional Conditions for guidance or see applicable Table referenced below.

Calculations of Total Allowed Lighting Power (Watts) 140.7 / 170.2(e)(6) or 141.0(b)(2) / 180.2(b)(4b)						Compliance Results					
01	02	03	04	05	06	07	08	09			
General Hardscape Allowance 140.7(d)(1) / 170.2(e)(6) (See Table I)	+ Per Application 140.7(d)(2) / 170.2(e)(6) (See Table J)	+ Sales Frontage 140.7(i)(2) (See Table K)	+ Ornamental 140.7(d)(2) / 170.2(e)(6) (See Table L)	+ Per Specific Area 140.7(d)(2) / 170.2(e)(6) (See Table M)	OR Existing Power Allowance 141.0(b)(2) / 180.2(b)(4b) (See Table N)	=	Total Allowed (Watts)	≥ Total Actual (Watts)	07 must be >= 08		
581	+	---	+	---	OR	---	=	581	≥	435	COMPLIES
Shielding Compliance (See Table G for Details)									N/A		
Controls Compliance (See Table H for Details)									COMPLIES		

**D. EXCEPTIONAL CONDITIONS**  
 This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

**E. ADDITIONAL REMARKS**  
 This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

Registration Number: Generated Date/Time: Documentation Software: EnergyPro  
 CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: EnergyPro-7514-0623-0144  
 Schema Version: rev 20220101 Report Generated: 2023-06-13 16:58:13

STATE OF CALIFORNIA CALIFORNIA ENERGY COMMISSION  
**Outdoor Lighting**  
 CERTIFICATE OF COMPLIANCE NRCC-LTO-E  
 Project Name: Bakersfield City School District - Education Center Report Page: (Page 5 of 7)  
 Project Address: 1300 Baker Street Date Prepared: 6/13/2023

**I. LIGHTING POWER ALLOWANCE (per 140.7 / 170.2(e))**  
 This table includes areas using allowance calculations per 140.7 / 170.2(e). General Hardscape Allowance is per Table 140.7-A/ Table 170.2-R while "Use it or lose it" Allowances are per Table 140.7-B/ Table 170.2-S. Indicate which allowances are being used to expand sections for user input. Luminaires that qualify for one of the "Use it or lose it" allowances shall not qualify for another "Use it or lose it" allowance. Outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit are included in Table H, and are not included here. All other multifamily outdoor lighting is included here.

02	01 "Use it or lose it" Allowance (select all that apply) (select all that apply)				03	04	05	06	07	08	09
	General Hardscape Allowance Table I (below)	Per Application Table J	Sales Frontage Table K	Ornamental Table L							
Area Description					Illuminated Area (ft²)	Allowed Density (W/ft²)	Area Allowance (Watts)	Perimeter Length (ft)	Allowed Density (W/ft)	Linear Allowance (Watts)	Total General AWA + LWA (Watts)
Solar Canopies					20065	0.019	381.2	0	0.2	0	381
Initial Wattage Allowance for Entire Site (Watts):											200
Instances of Initial Wattage Allowance (LZ 0 only):											
Total General Hardscape Allowance (Watts):											581

**J. LIGHTING ALLOWANCE: PER APPLICATION**  
 This section does not apply to this project.

**K. LIGHTING ALLOWANCE: SALES FRONTAGE**  
 This section does not apply to this project.

**L. LIGHTING ALLOWANCE: ORNAMENTAL**  
 This section does not apply to this project.

Registration Number: Generated Date/Time: Documentation Software: EnergyPro  
 CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: EnergyPro-7514-0623-0144  
 Schema Version: rev 20220101 Report Generated: 2023-06-13 16:58:13

STATE OF CALIFORNIA CALIFORNIA ENERGY COMMISSION  
**Outdoor Lighting**  
 CERTIFICATE OF COMPLIANCE NRCC-LTO-E  
 Project Name: Bakersfield City School District - Education Center Report Page: (Page 3 of 7)  
 Project Address: 1300 Baker Street Date Prepared: 6/13/2023

**F. OUTDOOR LIGHTING FIXTURE SCHEDULE**  
 For new or altered lighting systems demonstrating compliance with 140.7 / 170.2(e)(6) all new luminaires being installed and any existing luminaires remaining or being moved within the spaces covered by the permit application are included in the Table below. For altered lighting systems using the Existing Power method per 141.0(b)(2) only new luminaires being installed and replacement luminaires being installed as part of the project scope are included (ie, existing luminaires remaining or existing luminaires being moved are not included). Outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit are included in Table H, and are not included here. All other multifamily outdoor lighting is included here.

01	02	03	04	05	06	07	08	09	10
Name or Item Tag	Complete Luminaire Description	Watts per luminaire¹	How is Wattage determined	Total Number Luminaires²	Luminaire Status³	Excluded per 140.7(a) / 170.2(e)(6)A	Design Watts	Cutoff Req. > 6,200 initial lumen output 130.2(b) / 160.5(c)¹	Field Inspector
A	29W LED <input type="checkbox"/> Linear	29	Mfr. Spec	15	New	<input type="checkbox"/>	435	NA: < 6200 lumens	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
Total Design Watts:							435		

¹ NOTES: Selections with a \* require a note in the space below explaining how compliance is achieved.  
 ²: Luminaire is lighting a status: EXCEPTION 2 to 130.2(b)  
 ³ FOOTNOTES: Authority Having Jurisdiction may ask for Luminaire cut sheets to confirm wattage used for compliance per 130.0(c) / 160.5(b)  
 ⁴ For linear luminaires, wattage should be indicated as W/ft instead of Watts/luminaire. Total linear feet should be indicated in column 05 instead of number of luminaires.  
 ⁵ Select "New" for new luminaires in a new outdoor lighting project, or for added luminaires in an alteration. Select "Altered" for replacement luminaires in an alteration. Select "Existing to Remain" for existing luminaires within the project scope that are not being altered and are remaining. Select "Existing Reinstalled" for existing luminaires which are being removed and reinstalled as part of the project scope.  
 ⁶ Compliance with mandatory shielding requirements is required for luminaires with initial lumen output >= 6,200 unless exempted by 130.2(b) / 160.5(c)

**G. SHIELDING REQUIREMENTS (BUG)**  
 This section does not apply to this project.

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STATE OF CALIFORNIA CALIFORNIA ENERGY COMMISSION  
**Outdoor Lighting**  
 CERTIFICATE OF COMPLIANCE NRCC-LTO-E  
 Project Name: Bakersfield City School District - Education Center Report Page: (Page 6 of 7)  
 Project Address: 1300 Baker Street Date Prepared: 6/13/2023

**M. LIGHTING ALLOWANCE: PER SPECIFIC AREA**  
 This section does not apply to this project.

**N. EXISTING CONDITIONS POWER ALLOWANCE (alterations only)**  
 This section does not apply to this project.

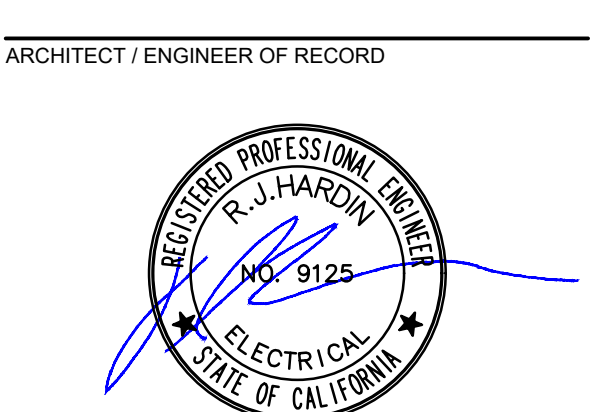
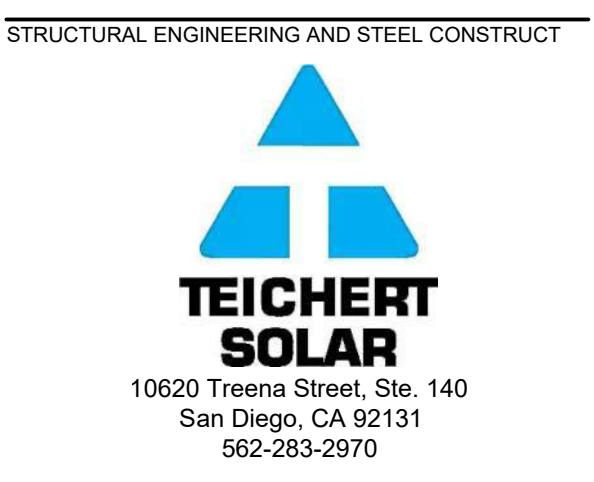
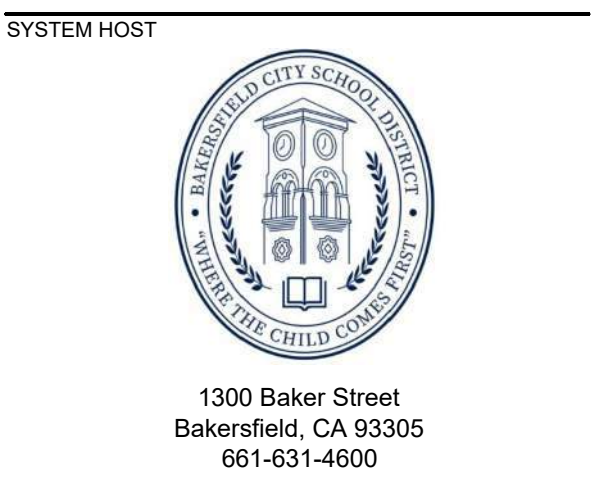
**O. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION**

Form/Title
NRCC-LTO-E - Must be submitted for all buildings

**P. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE**

Form/Title	Systems/Spaces To Be Field Verified
NRCA-LTO-02-A - Must be submitted for all outdoor lighting controls except for alterations where controls are added to <= 20 luminaires.	Exterior Lights;

Registration Number: Generated Date/Time: Documentation Software: EnergyPro  
 CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: EnergyPro-7514-0623-0144  
 Schema Version: rev 20220101 Report Generated: 2023-06-13 16:58:13



PROJECT

**BAKERSFIELD CITY SCHOOL DISTRICT**

EDUCATION CENTER  
 1300 BAKER STREET  
 BAKERSFIELD, CA 93305

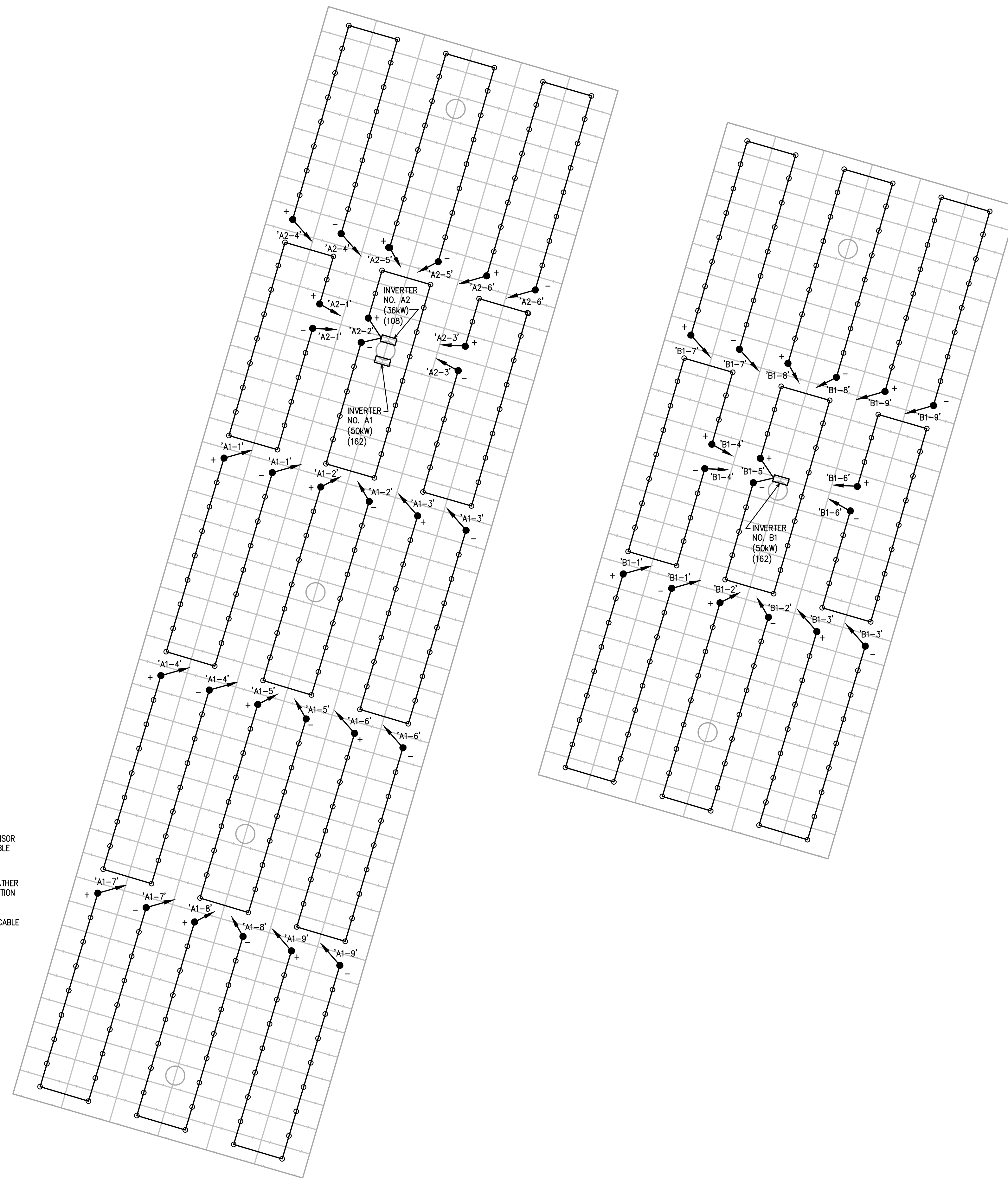
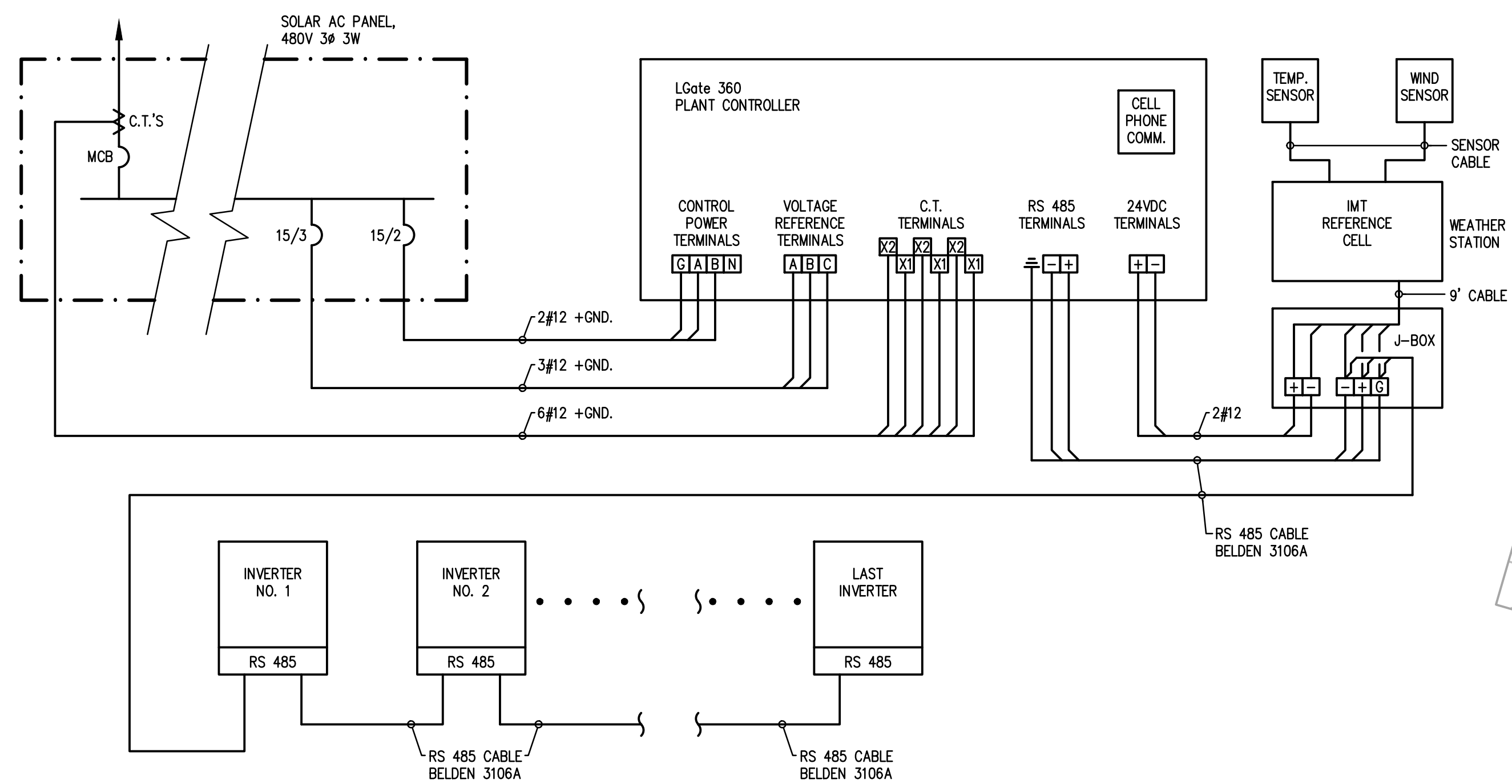
NO.	REVISION	DATE
1		06.28.23

DATE: 09.02.22

SHEET TITLE

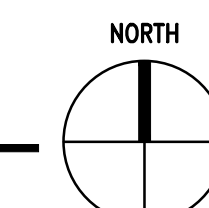
**OUTDOOR LIGHTING TITLE 24 COMPLIANCE REPORT**

SHEET NO.: **E7.0**




TYPICAL DATA ACQUISITION SYSTEM WIRING DIAGRAM

PV ARRAY STRING CABLING PLAN



SYSTEM HOST



1300 Baker Street  
Bakersfield, CA 93305  
661-631-4600

SYSTEM DEVELOPER



100 Montgomery Street, #1400  
San Francisco, CA 94104  
855-204-5083

ELECTRICAL CONSTRUCTORS AND ENGINEERS



1902 Channel Drive  
West Sacramento, CA 95691  
916-567-1100

STRUCTURAL ENGINEERING AND STEEL CONSTRUCT




10620 Treena Street, Ste. 140  
San Diego, CA 92131  
562-283-2970

ARCHITECT OF RECORD

M M P V design

Mariana Moncada, Architect  
718 West Arbor Drive  
San Diego, CA 92103  
619.632.2883

ARCHITECT / ENGINEER OF RECORD



PROJECT

**BAKERSFIELD CITY SCHOOL DISTRICT**

EDUCATION CENTER  
1300 BAKER STREET  
BAKERSFIELD, CA 93305

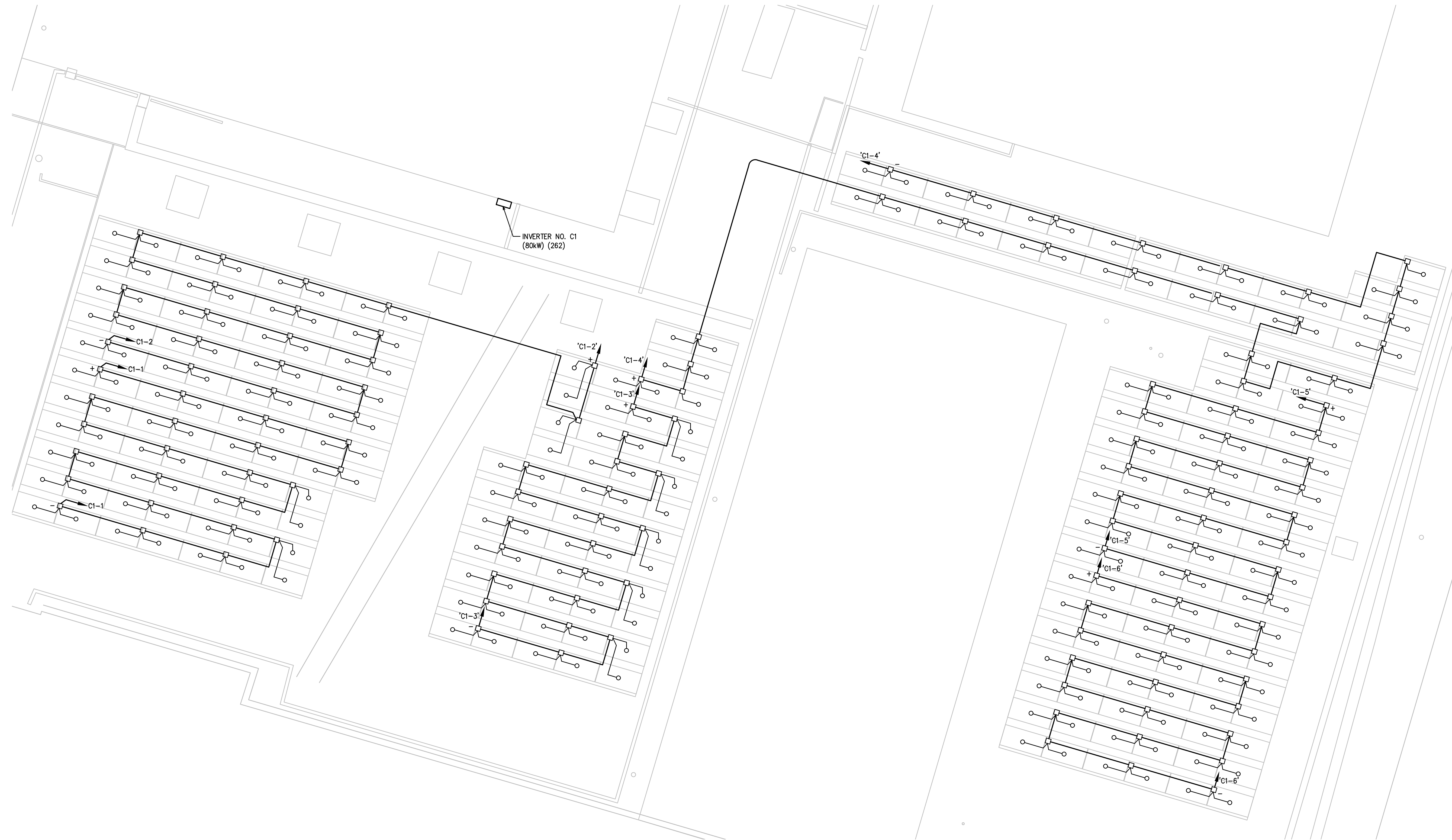
NO.	REVISION	DATE
1		06.28.23

DATE: 09.02.22

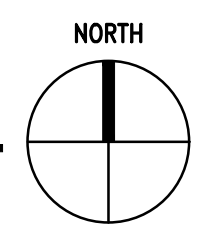
SHEET TITLE

**PV SYSTEM ARRAY ELECTRICAL STRING CABLING PLAN**

SHEET NO.: **E8.0**



**PV ARRAY STRING CABLING PLAN**  
 SCALE: 1/8"=1'-0"



SYSTEM HOST



1300 Baker Street  
 Bakersfield, CA 93305  
 661-631-4600

SYSTEM DEVELOPER



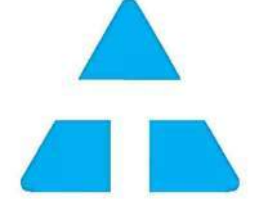
100 Montgomery Street, #1400  
 San Francisco, CA 94104  
 855-204-5083

ELECTRICAL CONSTRUCTORS AND ENGINEERS



1902 Channel Drive  
 West Sacramento, CA 95691  
 916-567-1100

STRUCTURAL ENGINEERING AND STEEL CONSTRUCT



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 San Diego, CA 92131  
 562-283-2970

ARCHITECT OF RECORD

M M P V design

Mariana Moncada, Architect  
 718 West Arbor Drive  
 San Diego, CA 92103  
 619.632.2883

ARCHITECT / ENGINEER OF RECORD



PROJECT

**BAKERSFIELD CITY SCHOOL DISTRICT**

EDUCATION CENTER  
 1300 BAKER STREET  
 BAKERSFIELD, CA 93305

NO.	REVISION	DATE
1		06.28.23

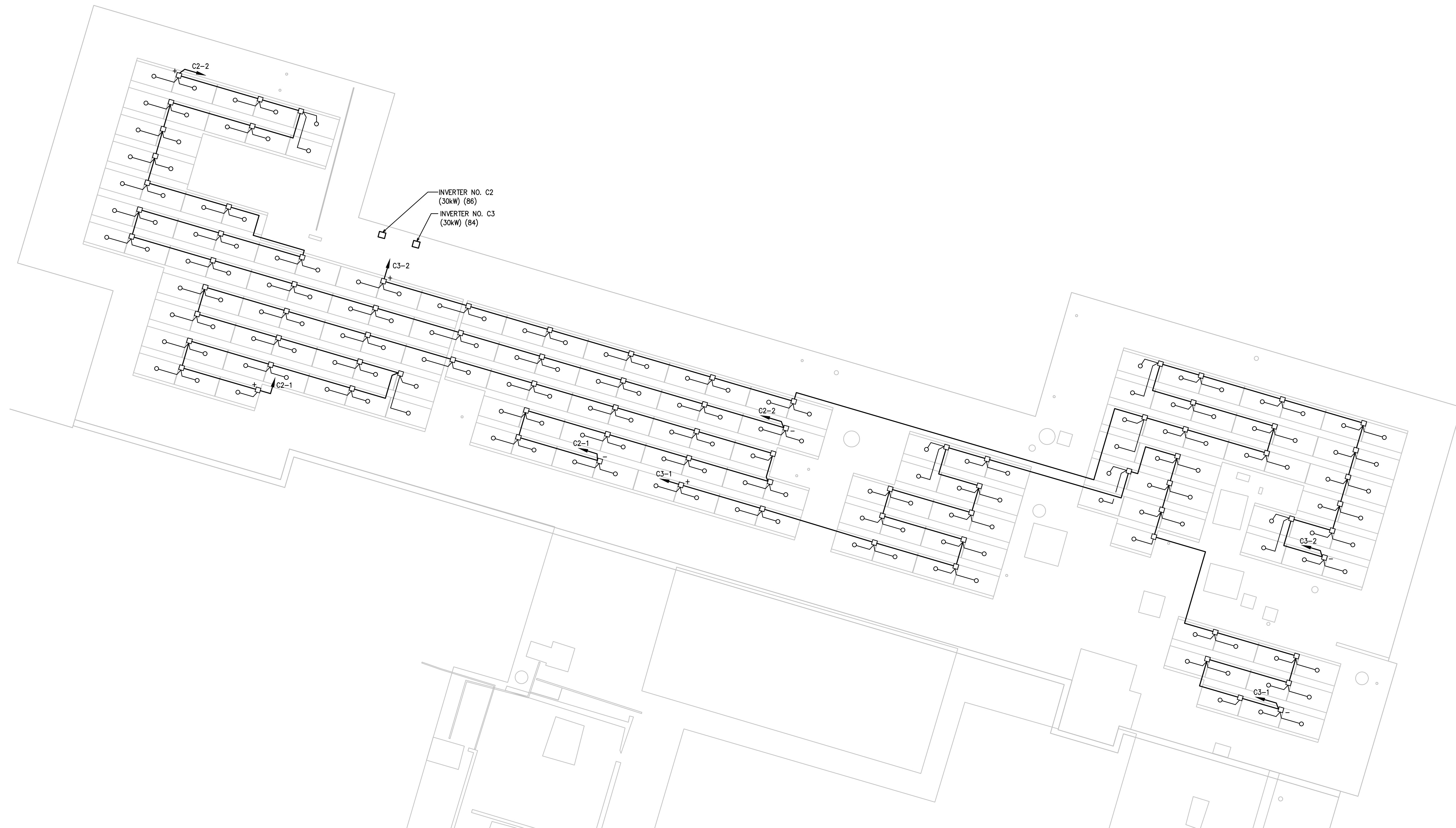
DATE: 09.02.22

SHEET TITLE

**PV SYSTEM ARRAY ELECTRICAL STRING CABLING PLAN**

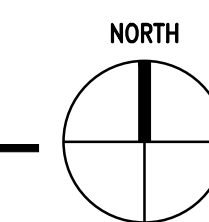
SHEET NO.:

**E8.1**



**PV ARRAY STRING CABLING PLAN**

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



SYSTEM HOST



1300 Baker Street  
Bakersfield, CA 93305  
661-631-4600

SYSTEM DEVELOPER



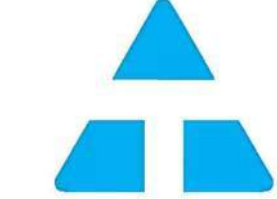
100 Montgomery Street, #1400  
San Francisco, CA 94104  
855-204-5083

ELECTRICAL CONSTRUCTORS AND ENGINEERS



1902 Channel Drive  
West Sacramento, CA 95691  
916-567-1100

STRUCTURAL ENGINEERING AND STEEL CONSTRUCT



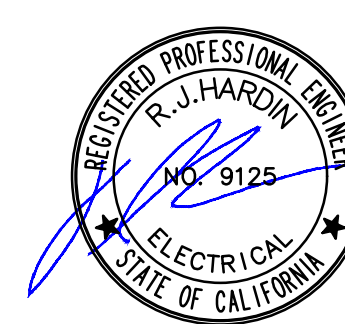
10620 Treena Street, Ste. 140  
San Diego, CA 92131  
662-283-2970

ARCHITECT OF RECORD

M M P V d e s i g n

Mariana Moncada, Architect  
718 West Arbor Drive  
San Diego, CA 92103  
619.632.2883

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PROJECT

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SCHOOL DISTRICT**

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BAKERSFIELD, CA 93305

NO.	REVISION	DATE
1		06.28.23

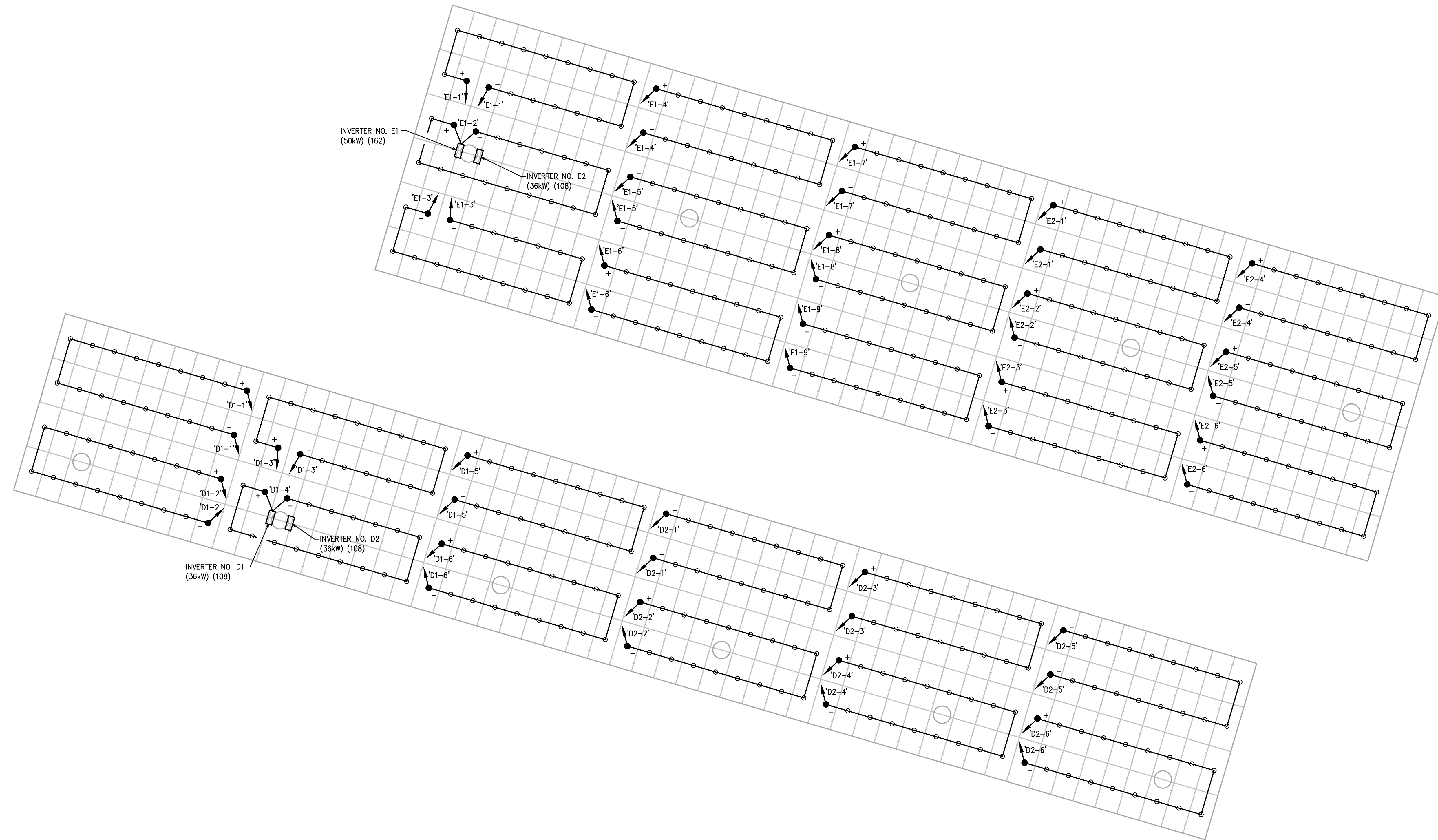
DATE: 09.02.22

SHEET TITLE

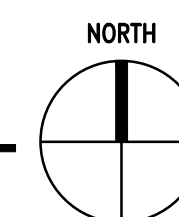
**PV SYSTEM ARRAY  
ELECTRICAL STRING  
CABLING PLAN**

SHEET NO.:

**E8.2**



**PV ARRAY STRING CABLING PLAN**  
 SCALE: 1/8"=1'-0"



SYSTEM HOST



1300 Baker Street  
 Bakersfield, CA 93305  
 661-631-4600

SYSTEM DEVELOPER



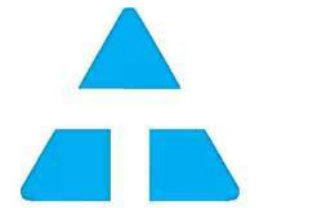
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 855-204-5083

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STRUCTURAL ENGINEERING AND STEEL CONSTRUCT



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PROJECT

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EDUCATION CENTER  
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NO.	REVISION	DATE
1		06.28.23

DATE: 09.02.22

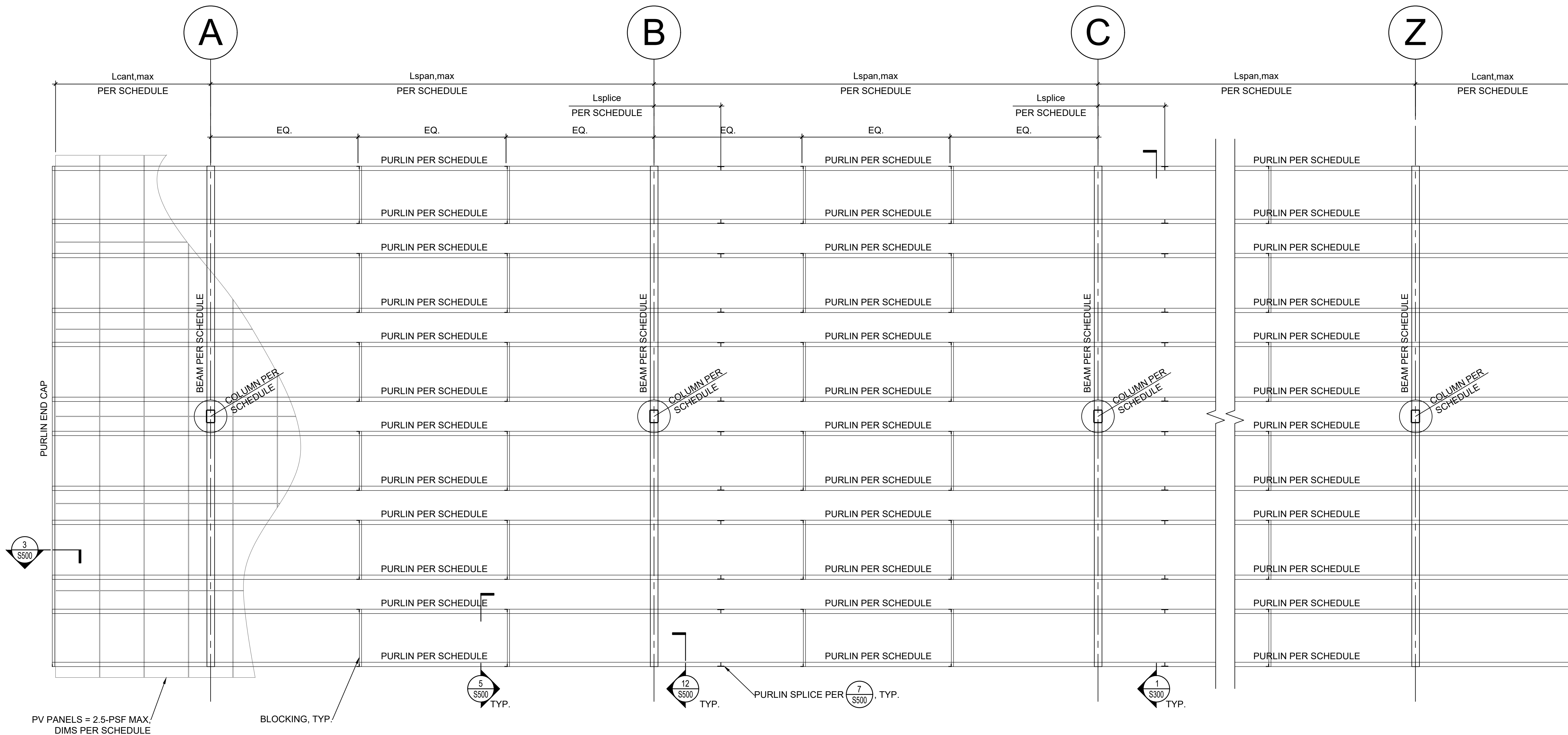
SHEET TITLE

**PV SYSTEM ARRAY  
 ELECTRICAL STRING  
 CABLING PLAN**

SHEET NO.:

**E8.3**

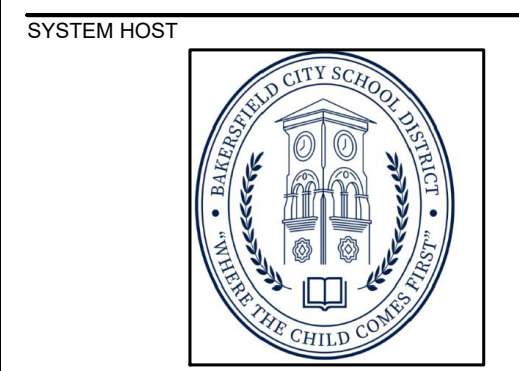




**1 FRAMING PLAN**  
SCALE: 1/4" = 1'-0"

MEMBER & DIMENSIONAL SCHEDULE												
ARRAY	ARRAY SIZE	# OF COLUMNS	COLUMN	BEAM	PURLIN	PANEL LENGTH	PANEL WIDTH	MAX SPAN LENGTH, Lspan	MAX CANT. LENGTH, Lcant	SPLICE LENGTH, Lsplice	MAX. COLUMN LENGTH	MIN. CLEARANCE
A, D	6x45	5	HSS12x8x5/16	W14X30	12X4X14GA	78.9"	39.2"	33'-1"	8'-3"	4'-11 5/8"	18'-0"	14'-0"
C	6x27	3	HSS12x8x5/16	W14X30	12X4X14GA	78.9"	39.2"	33'-1"	11'-6 3/4"	4'-11 5/8"	18'-0"	14'-0"

**2 SCHEDULE**  
NO SCALE



1300 Baker Street  
Bakersfield, CA 93305  
661-631-4600

SYSTEM DEVELOPER



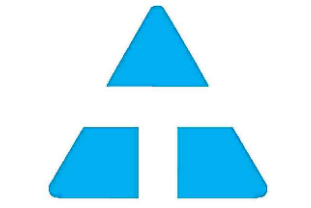
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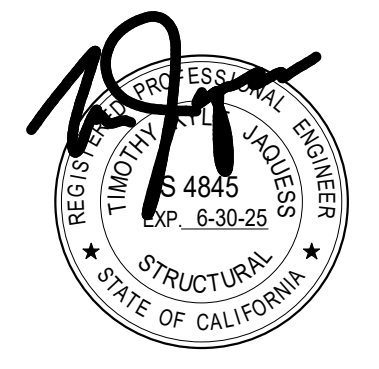
10620 Treena Street, Ste. 140  
San Diego, CA 92131  
562-283-2970

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PROJECT

**BAKERSFIELD CITY SCHOOL DISTRICT**

EDUCATION CENTER  
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BAKERSFIELD, CA 93305

NO.	REVISION	DATE
90P		07-02-2022

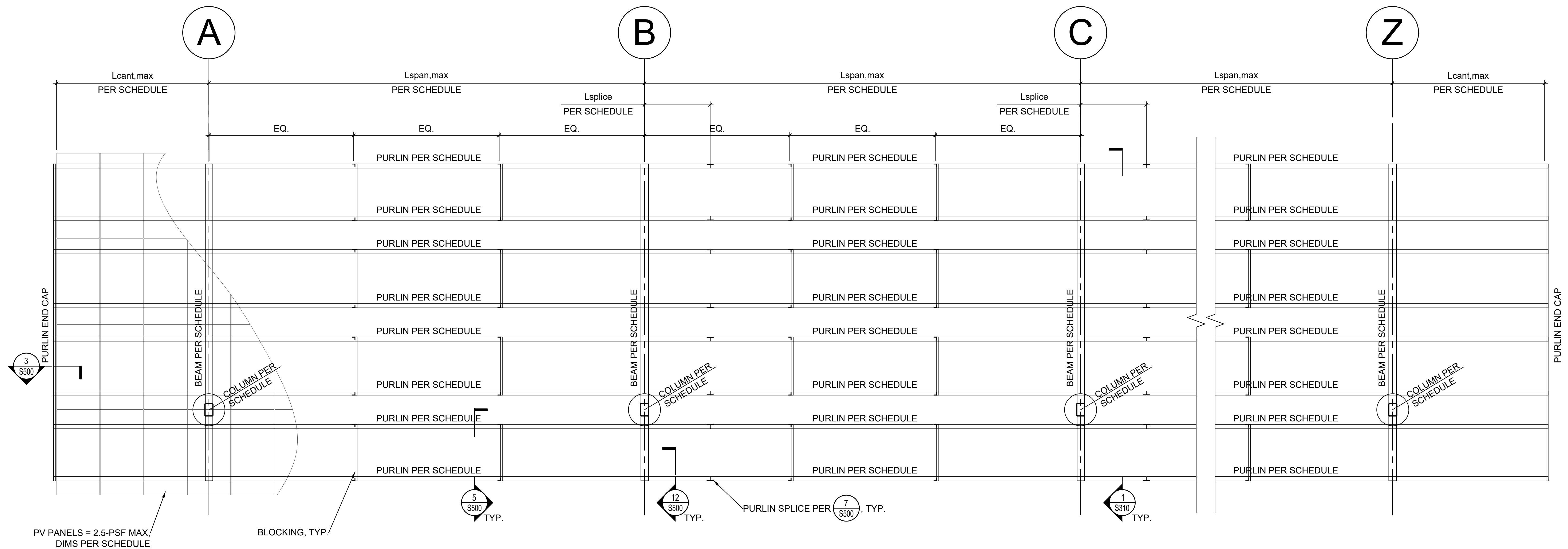
DATE: 07.01.22

SHEET TITLE  
**FRAMING PLAN & SCHEDULE**

SHEET NO.:

**S200**

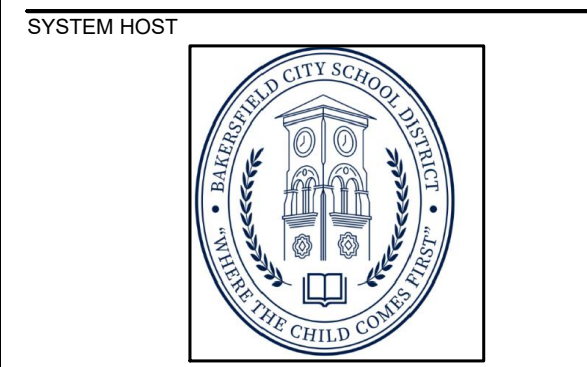




**1 FRAMING PLAN**  
SCALE: 1/4" = 1'-0"

MEMBER & DIMENSIONAL SCHEDULE												
ARRAY	ARRAY SIZE	# OF COLUMNS	COLUMN	BEAM	PURLIN	PANEL LENGTH	PANEL WIDTH	MAX SPAN LENGTH, Lspan	MAX CANT. LENGTH, Lcant	SPLICE LENGTH, Lsplice	MAX. COLUMN LENGTH	MIN. CLEARANCE
B	4x54	6	HSS12x8x5/16	W14X30	12X4X14GA	78.9"	39.2"	33'-1"	8'-3"	4'-11 5/8"	18'-0"	14'-0"

**2 SCHEDULE**  
NO SCALE



1300 Baker Street  
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661-631-4600

SYSTEM DEVELOPER



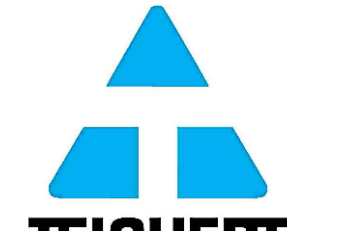
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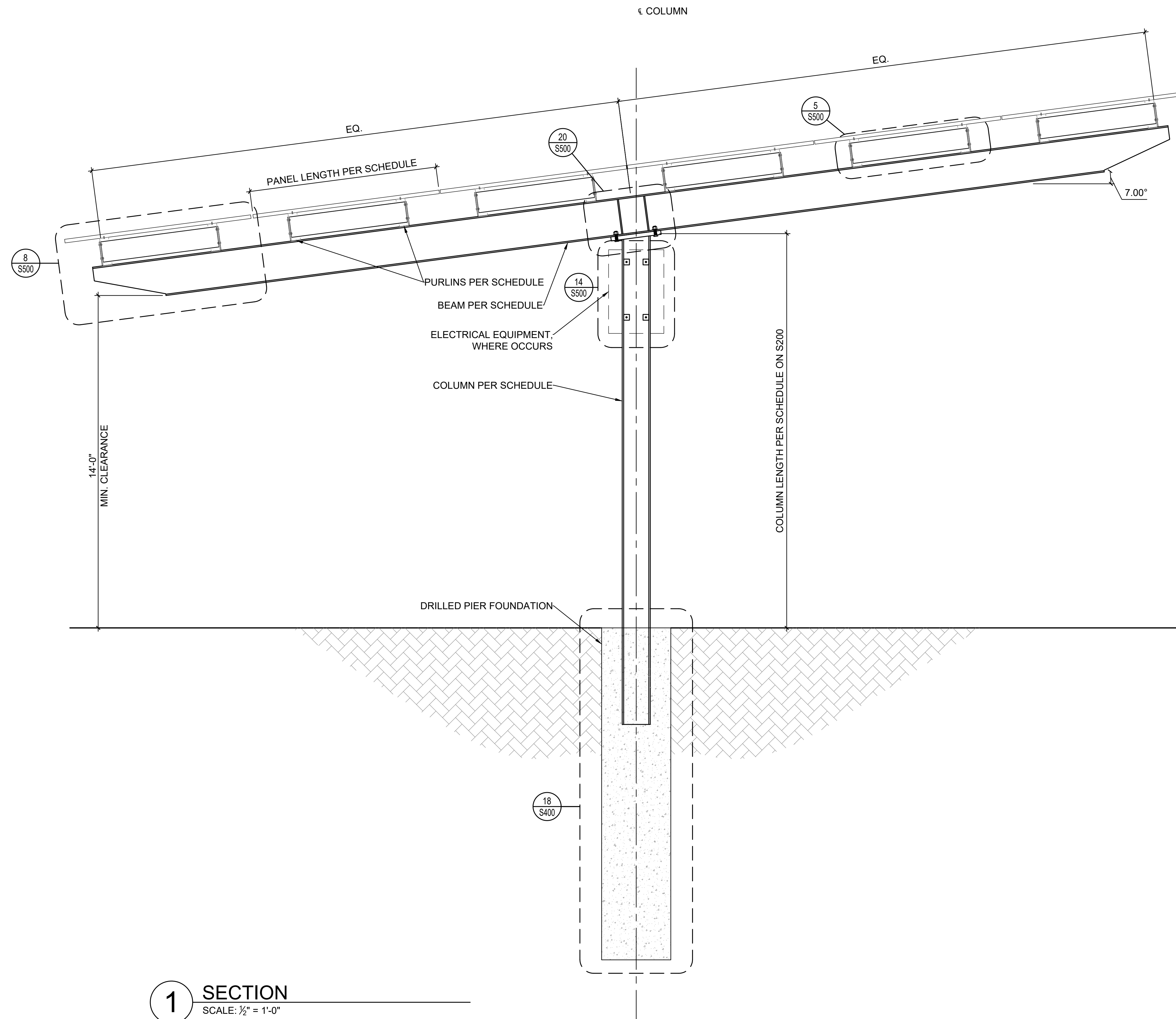
NO.	REVISION	DATE
90P		07-02-2022

DATE: 07.01.22

SHEET TITLE  
**FRAMING PLAN & SCHEDULE**

SHEET NO.:

**S210**



**1 SECTION**  
SCALE: 1/2" = 1'-0"

SYSTEM HOST



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SYSTEM DEVELOPER



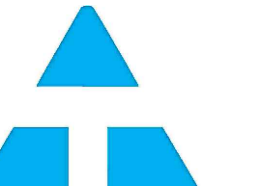
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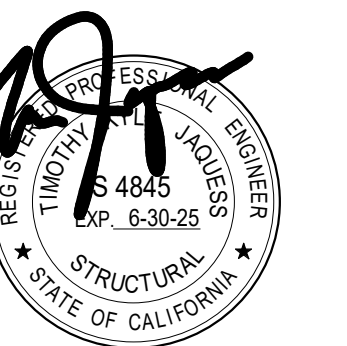
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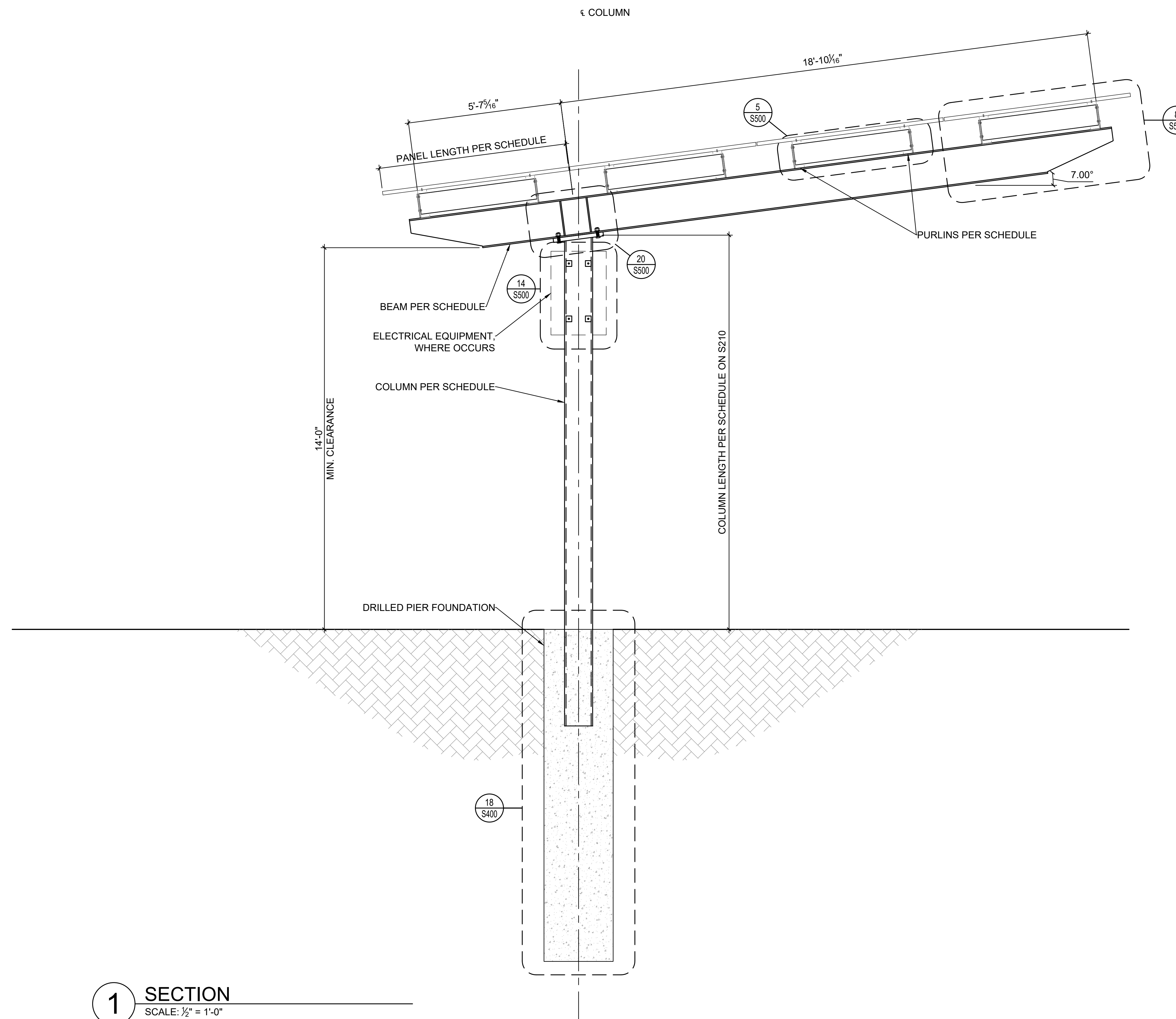
NO.	REVISION	DATE
90P		07-02-2022

DATE: 07.01.22

SHEET TITLE  
**SECTION - 6X**

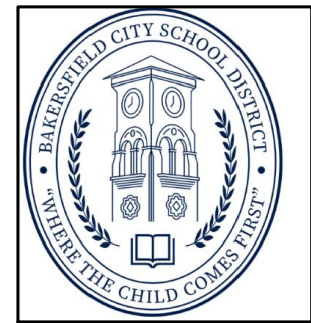
SHEET NO.:

**S300**



**1 SECTION**  
SCALE: 1/2" = 1'-0"

SYSTEM HOST



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SYSTEM DEVELOPER



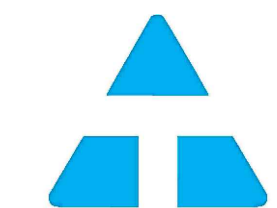
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855-204-5083

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PROJECT

**BAKERSFIELD CITY  
SCHOOL DISTRICT**

EDUCATION CENTER  
1300 BAKER STREET  
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NO.	REVISION	DATE
90P		07-02-2022

DATE: 07.01.22

SHEET TITLE  
**SECTION - 4X (UP)**

SHEET NO.:

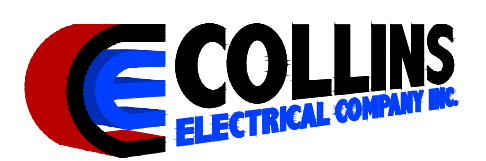
**S310**



1300 Baker Street  
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San Francisco, CA 94104  
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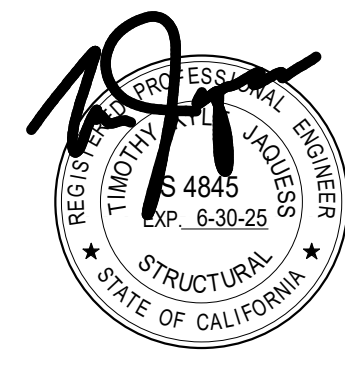


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West Sacramento, CA 95691  
916-567-1100



10620 Trenea Street, Ste. 140  
San Diego, CA 92131  
562-283-2970

Mariano Moncada, Architect  
718 West Arbor Drive  
San Diego, CA 92103  
619.632.2883



**BAKERSFIELD CITY SCHOOL DISTRICT**

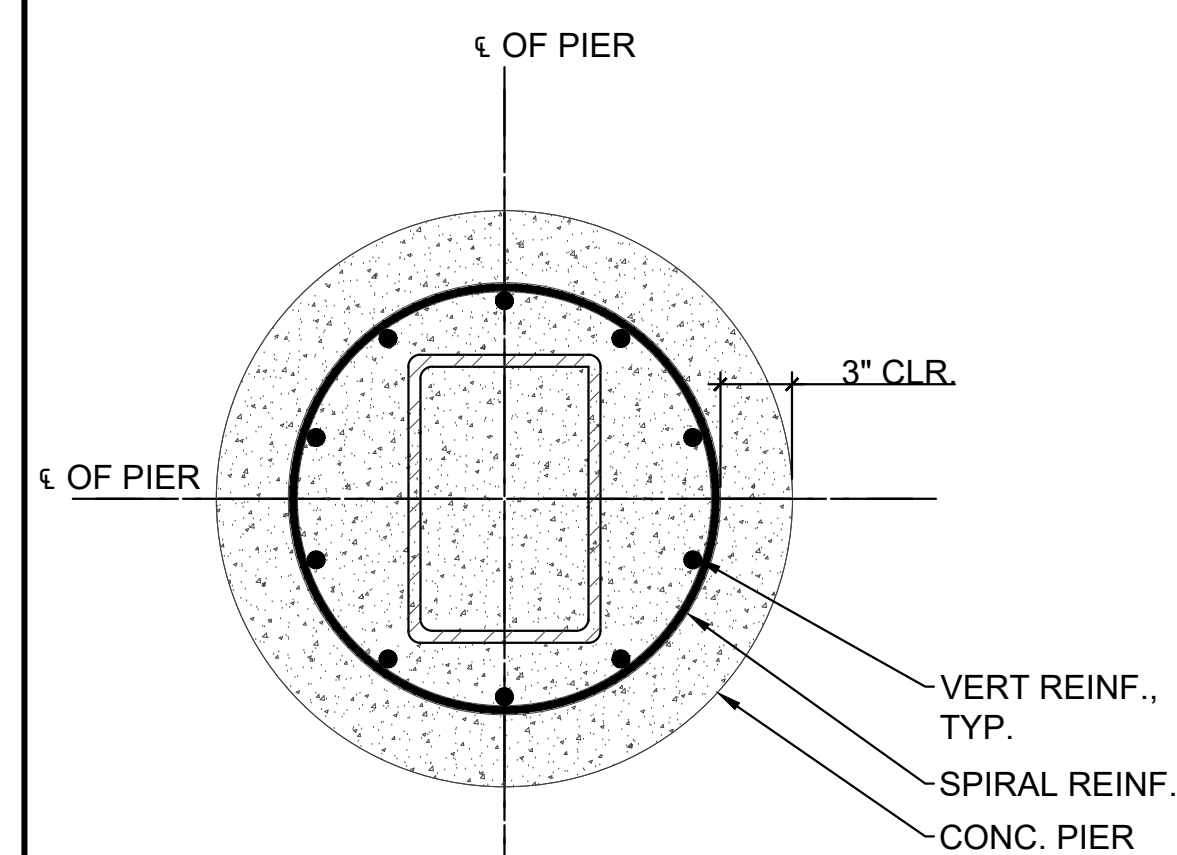
EDUCATION CENTER  
1300 BAKER STREET  
BAKERSFIELD, CA 93305

NO.	REVISION	DATE
90P		07-02-2022

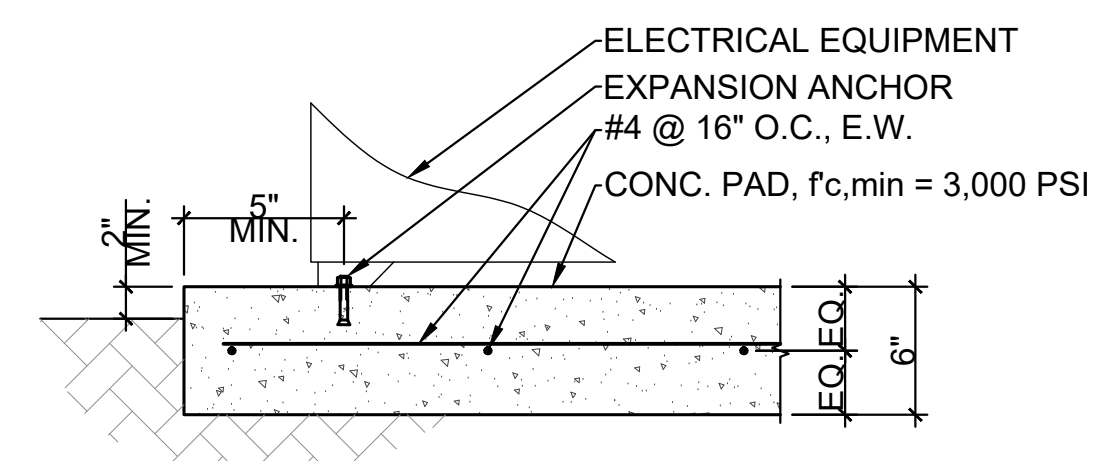
DATE: 07.01.22

**FOUNDATION & ANCHORAGE DETAILS**

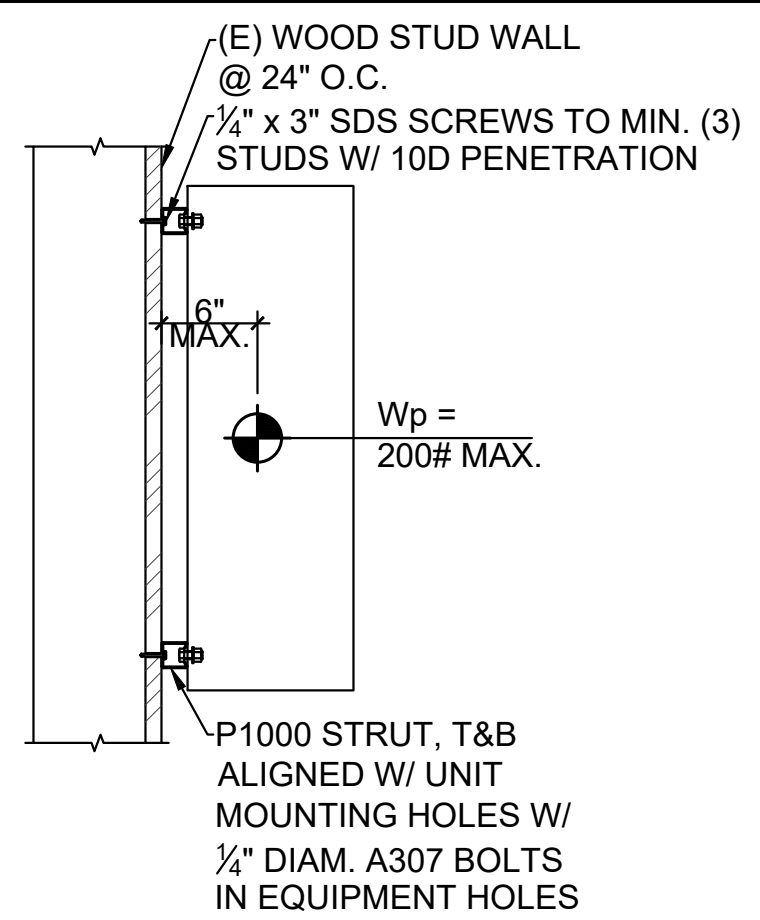
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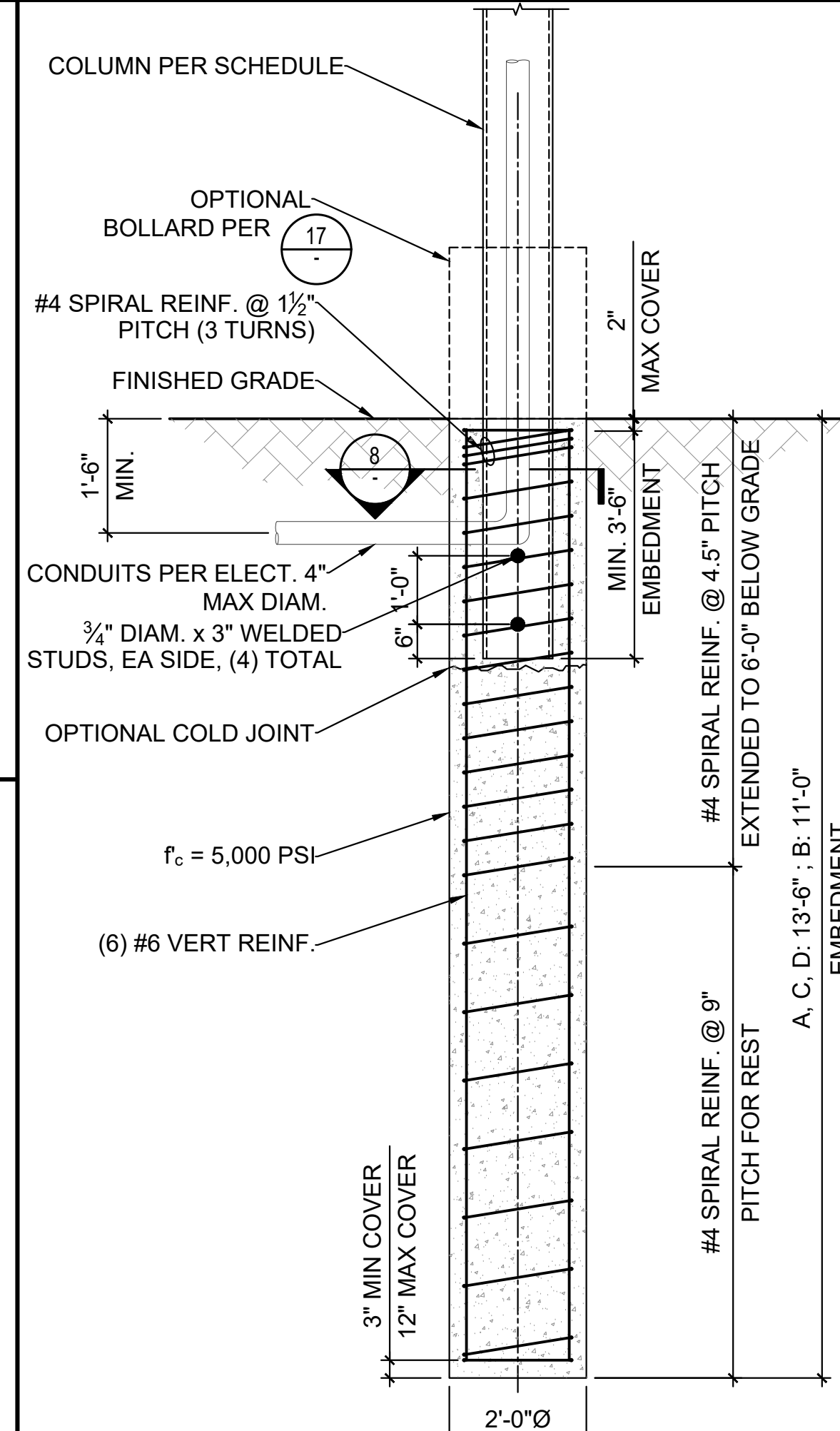
**8 REINF. PLACEMENT**  
SCALE: 3" = 1'-0"



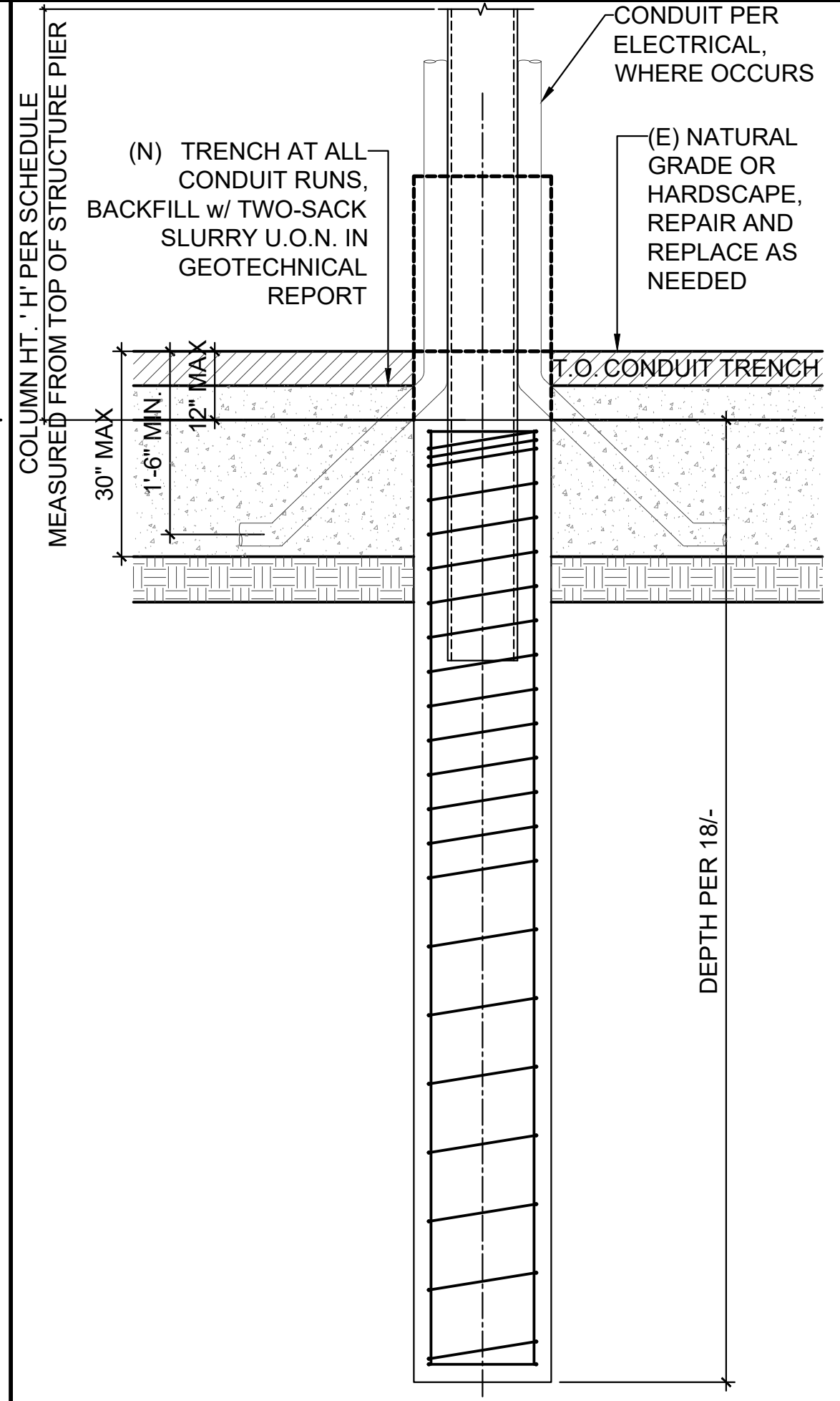
**9 EQUIPMENT PAD**  
SCALE: 1" = 1'-0"



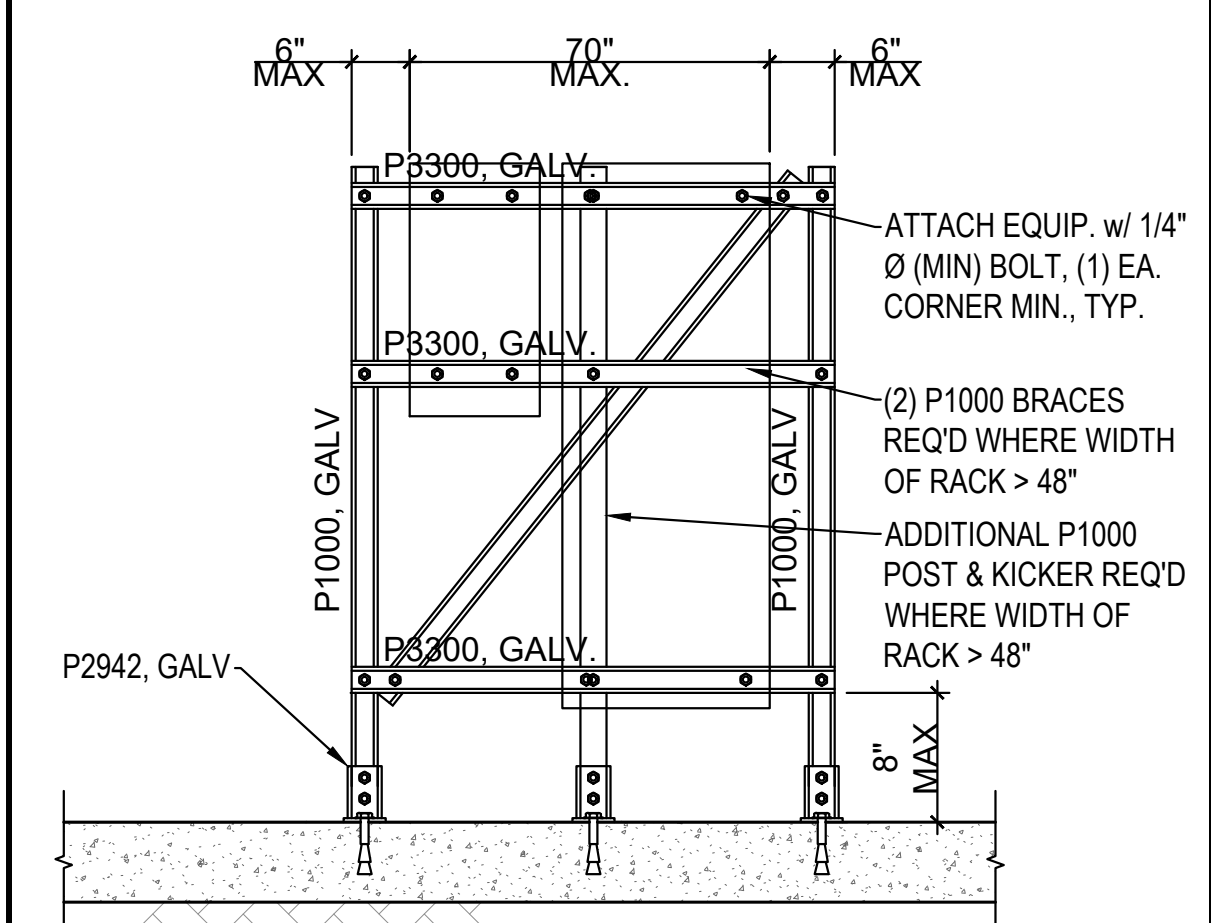
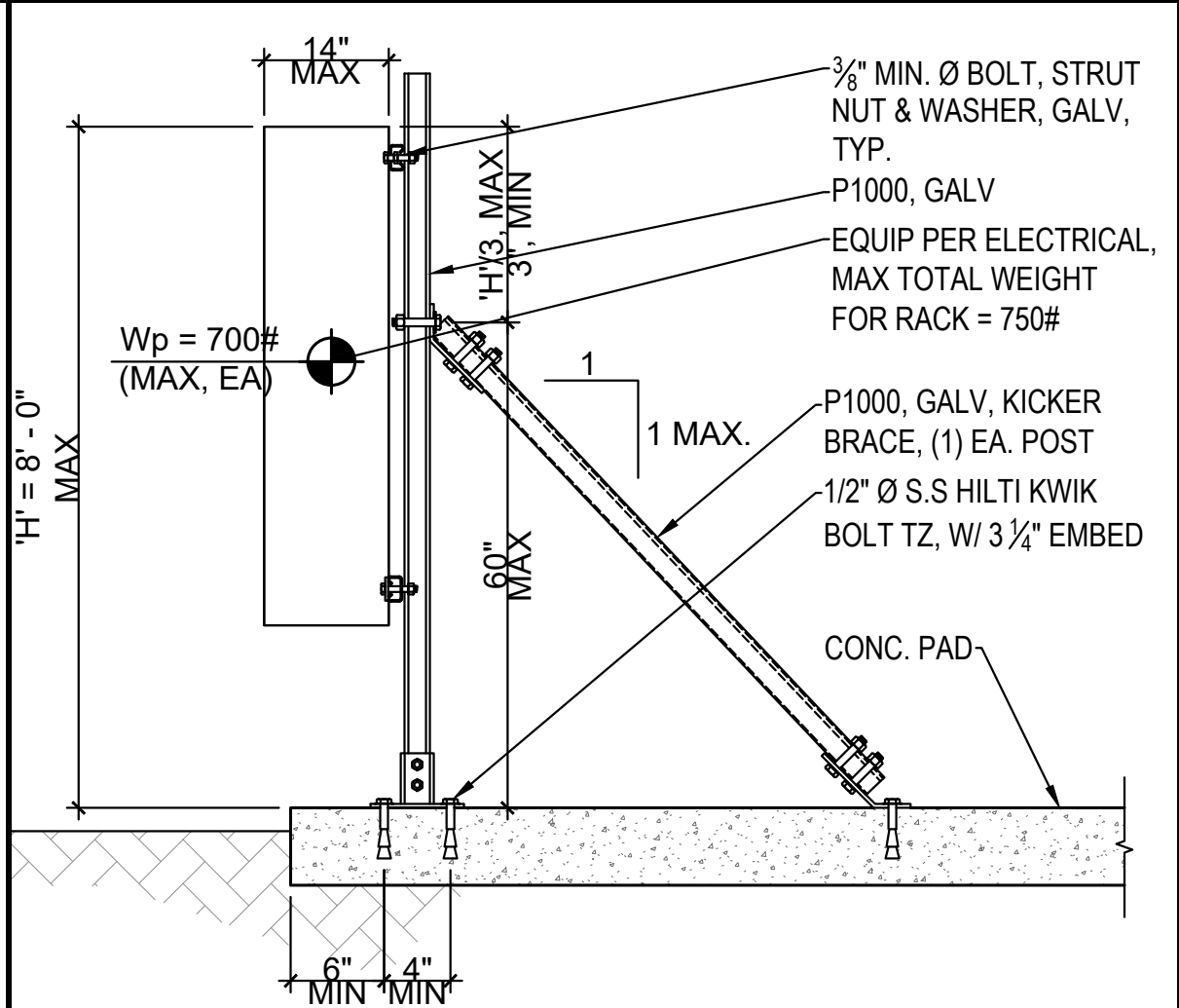
**12 WALL MOUNTED EQUIPMENT**  
SCALE: 1/2" = 1'-0"



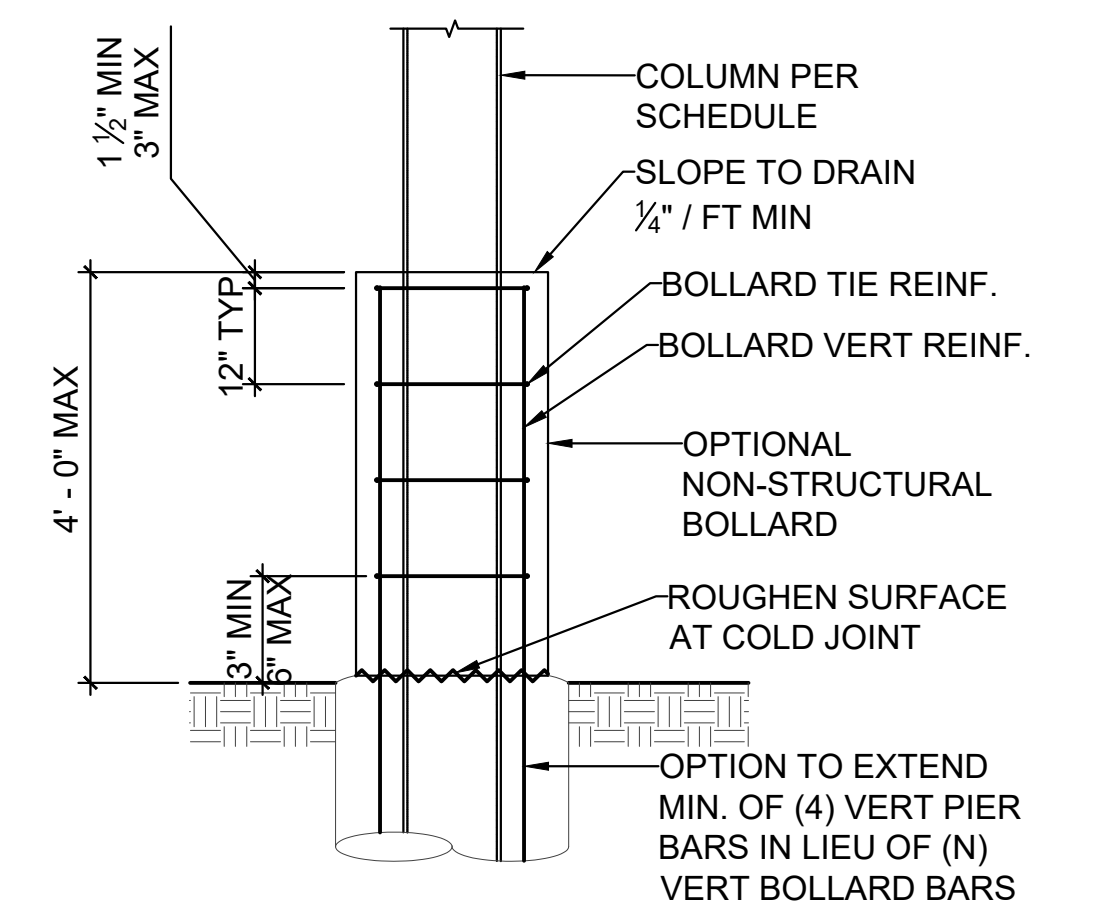
**18 PIER FOUNDATION**  
SCALE: 1/2" = 1'-0"



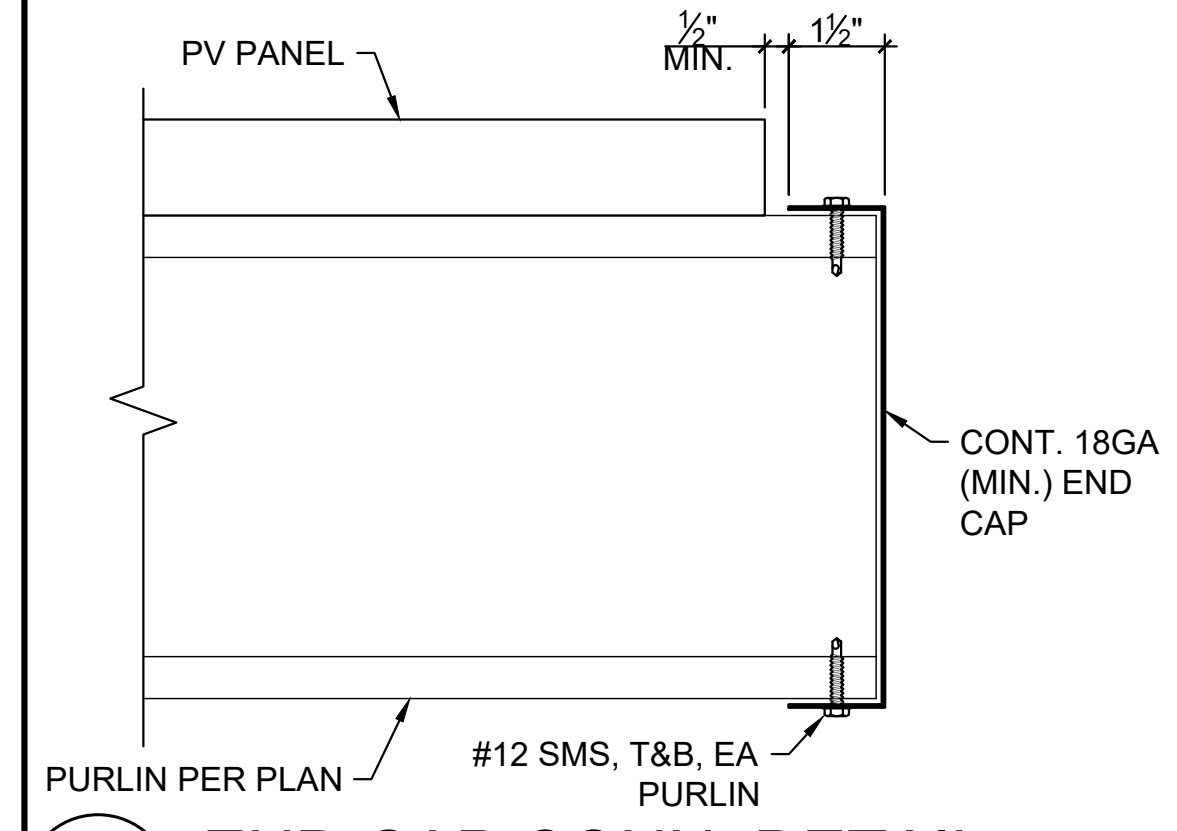
**19 CONDUIT ROUTING**  
SCALE: 1/2" = 1'-0"



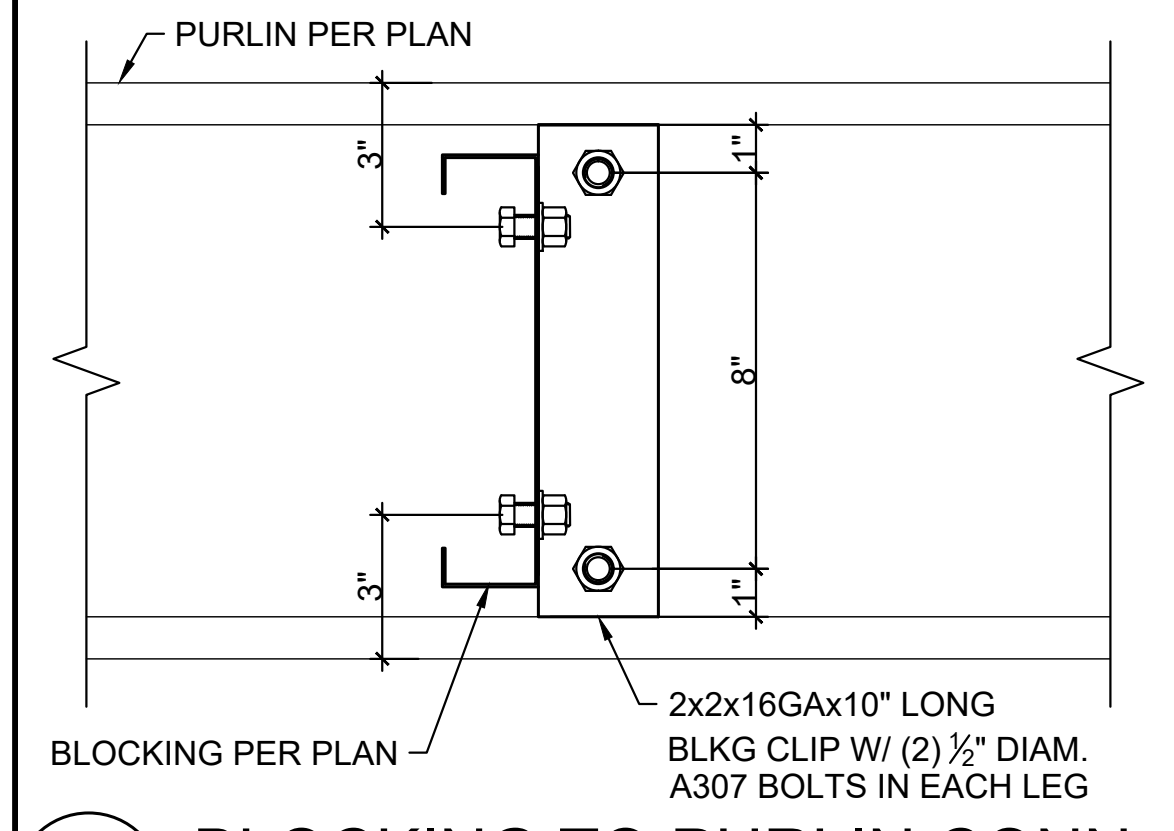
**20 EQUIPMENT RACK**  
SCALE: 1" = 1'-0"



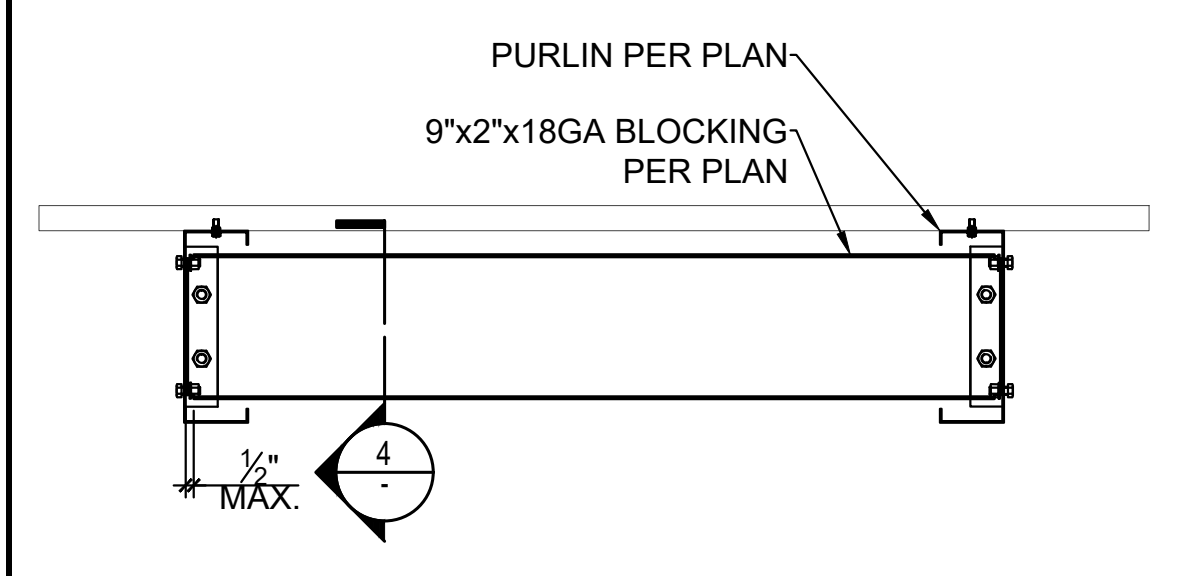
**17 BOLLARD - EMBEDDED CLMN.**  
SCALE: 1/2" = 1'-0"



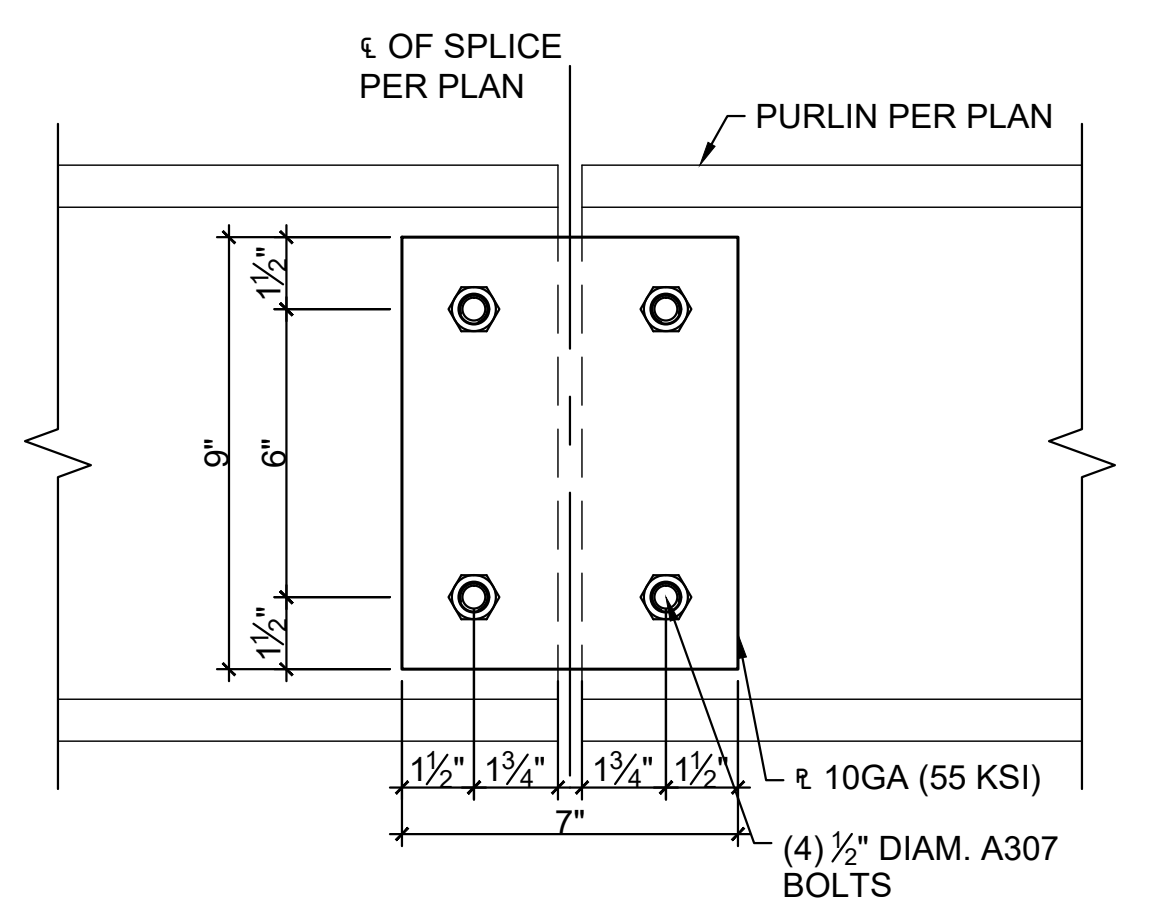
**3** END CAP CONN. DETAIL  
SCALE: 3" = 1'-0"



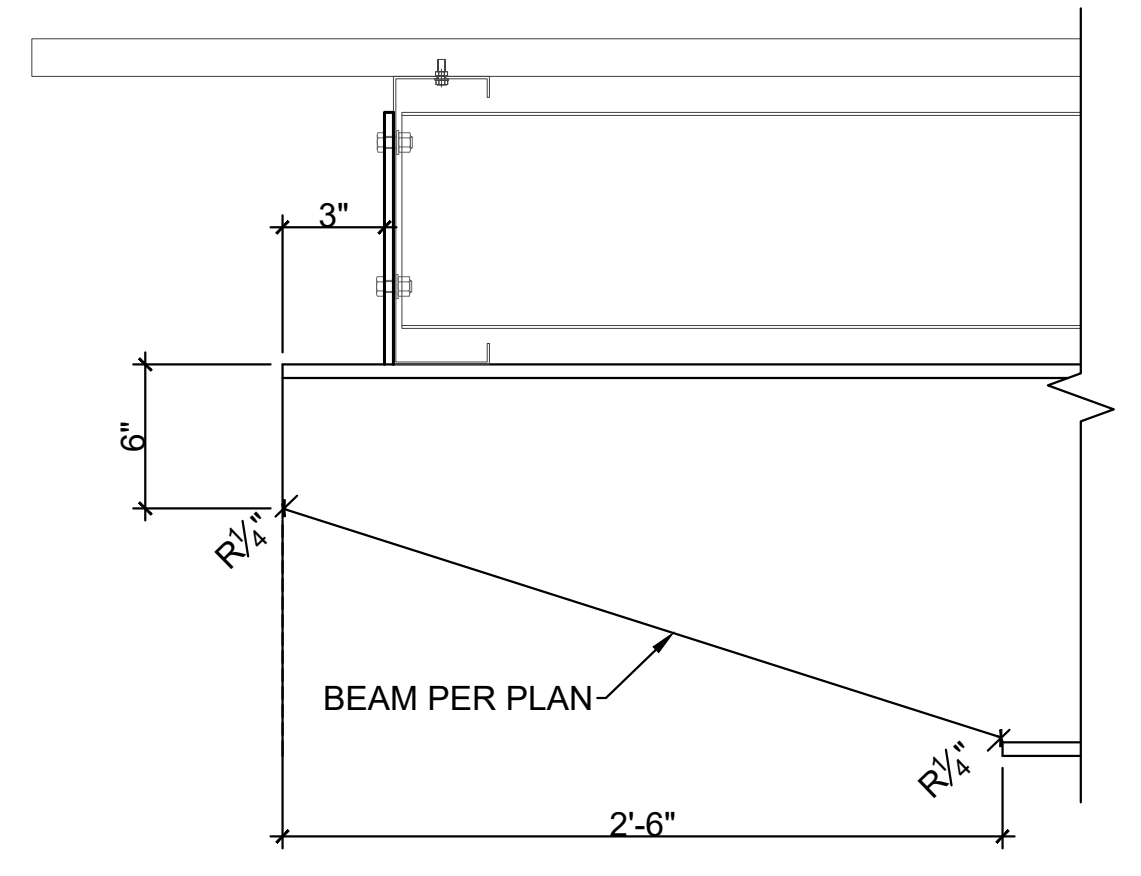
**4** BLOCKING TO PURLIN CONN.  
SCALE: 3" = 1'-0"



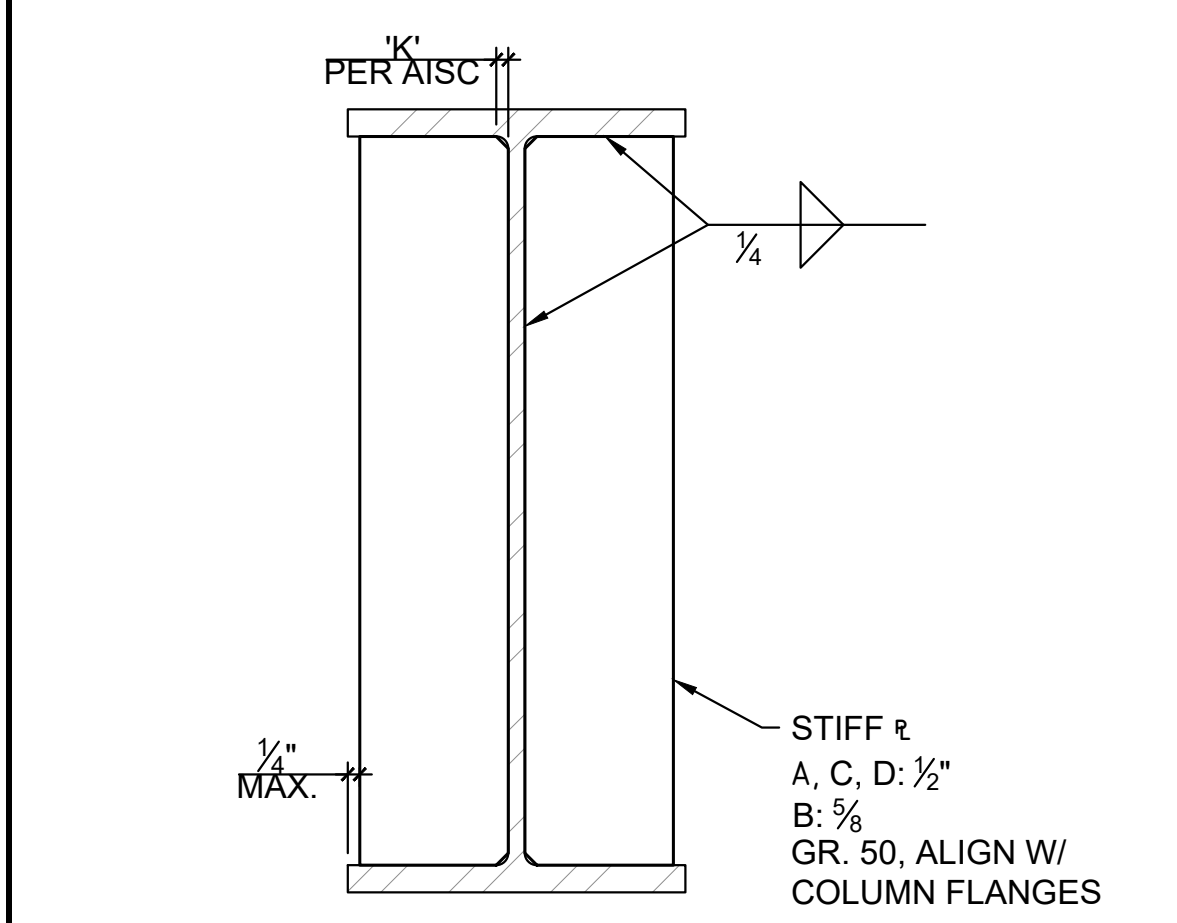
**5** PURLIN BLOCKING  
SCALE: 1/2" = 1'-0"



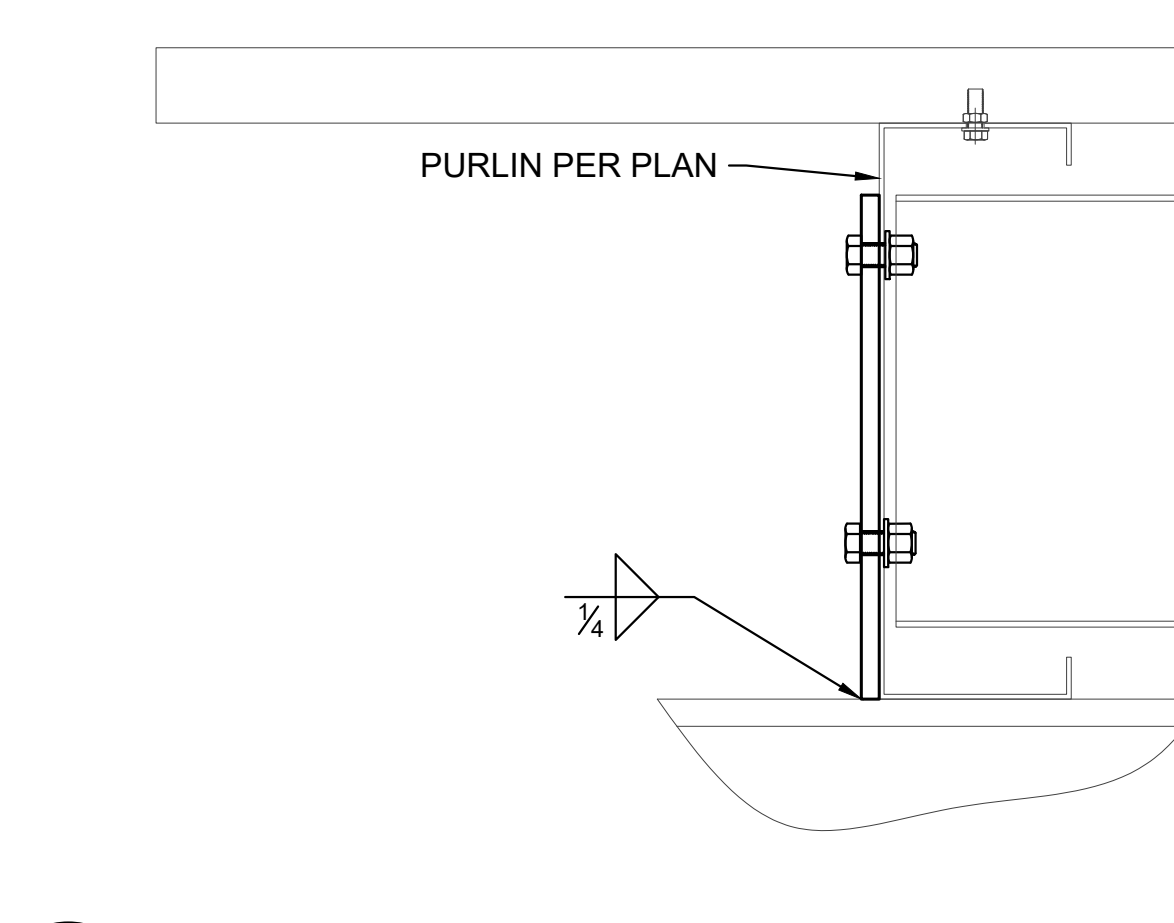
**7** PURLIN SPLICE  
SCALE: 3" = 1'-0"



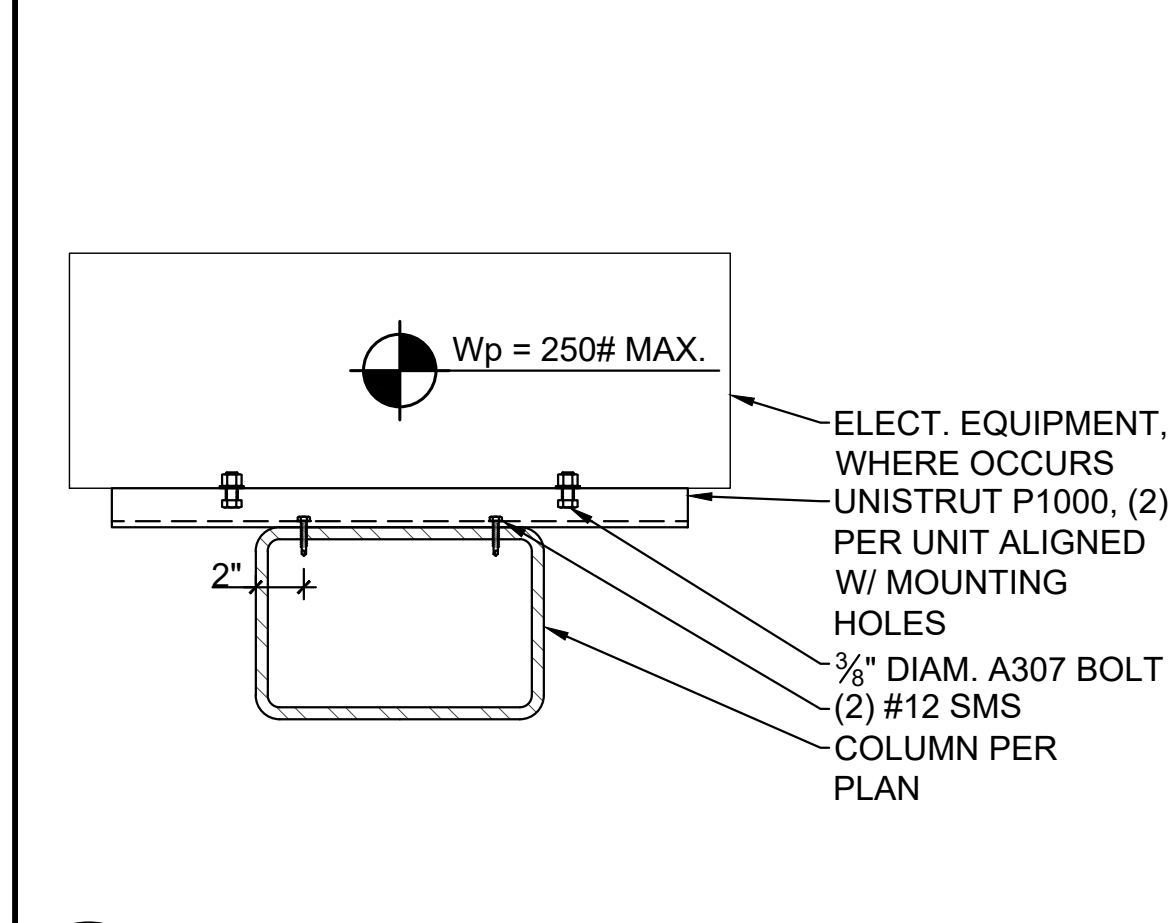
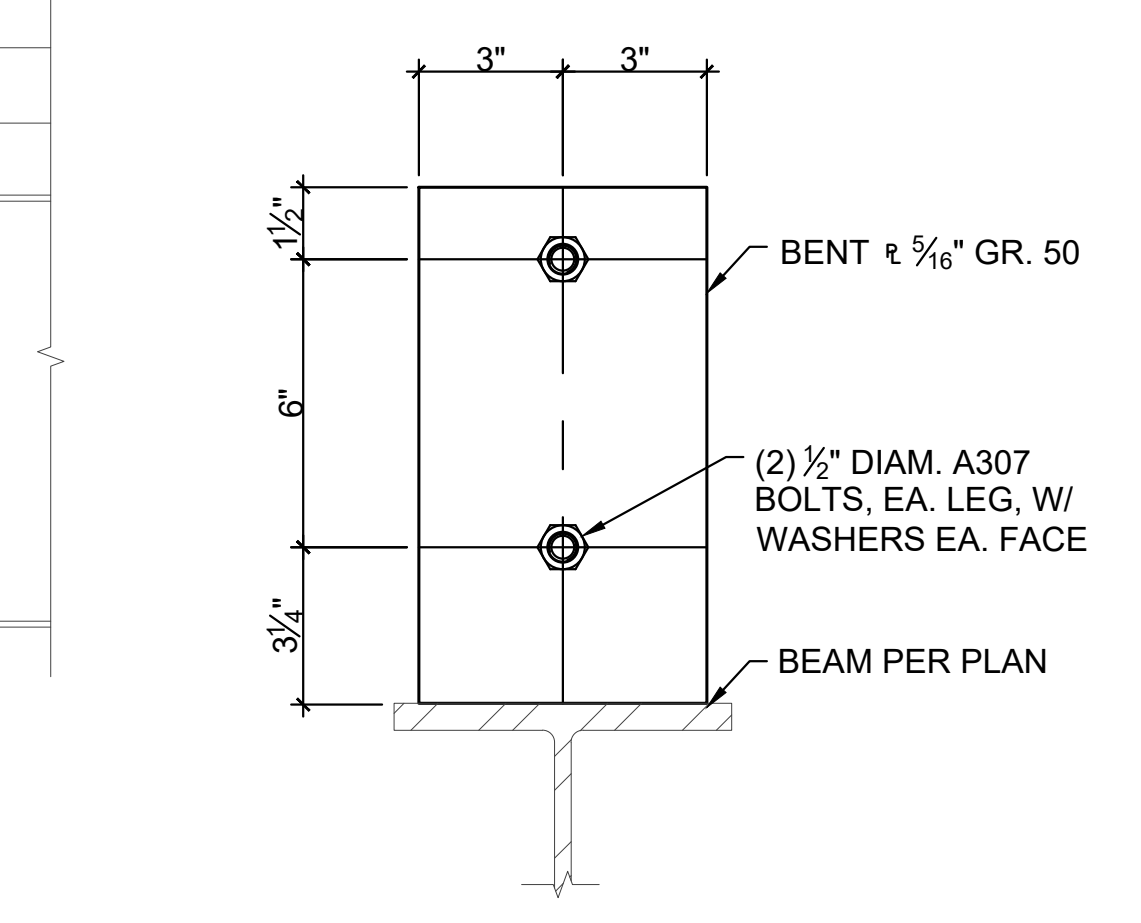
**8** BEAM END DETAIL  
SCALE: 1/2" = 1'-0"



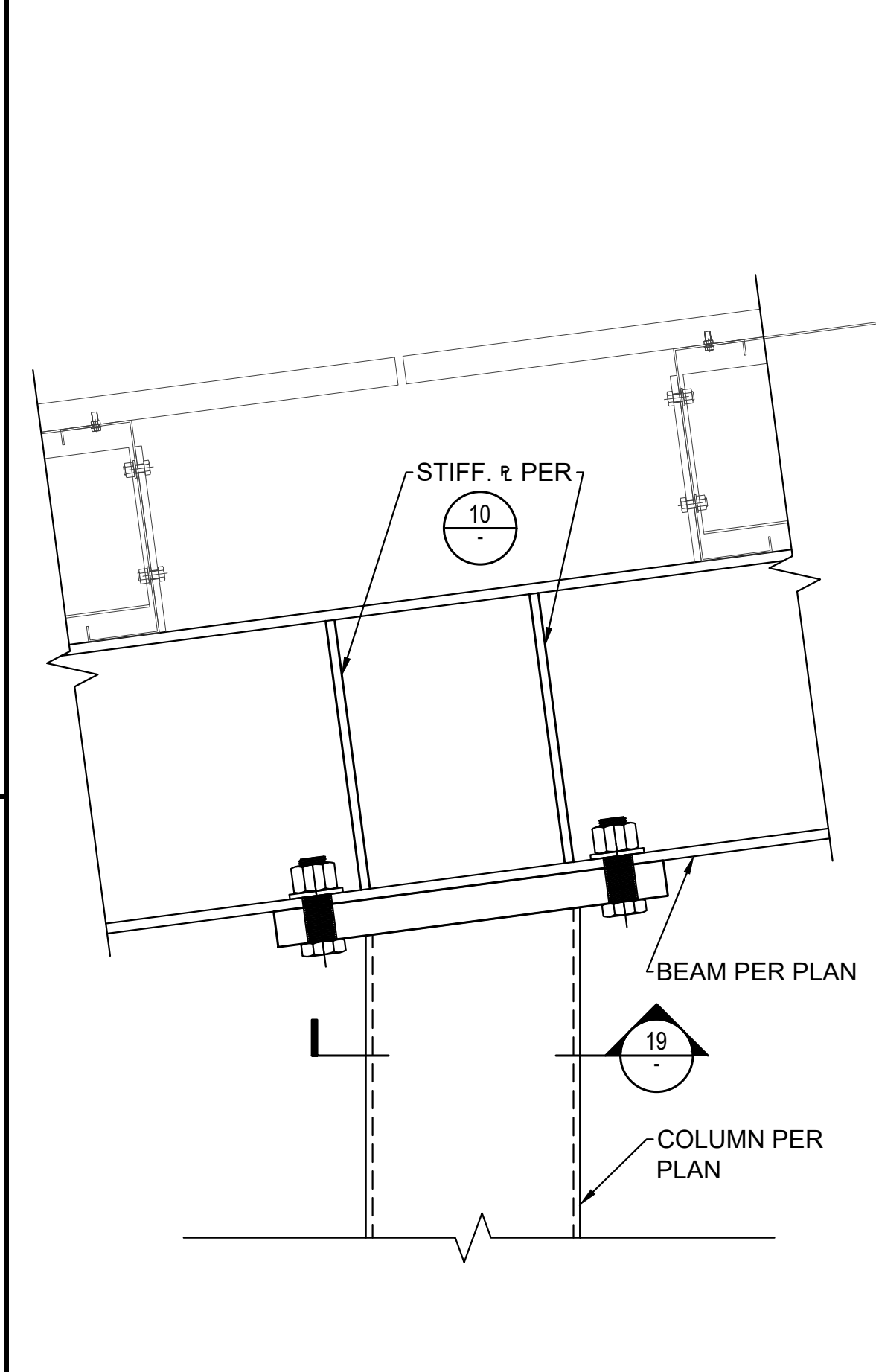
**10** STIFFENER PLATE  
SCALE: 3" = 1'-0"



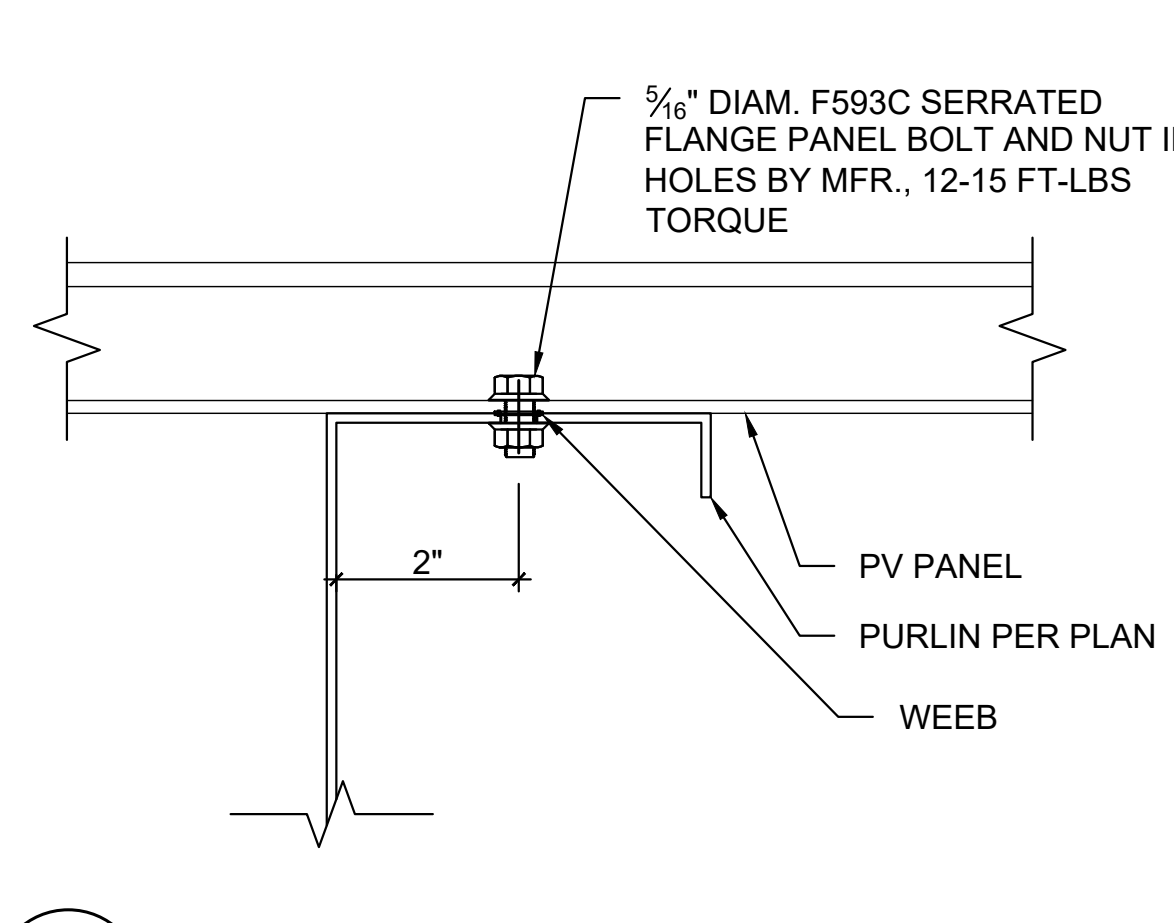
**12** BEAM TO PURLIN CONN.  
SCALE: 3" = 1'-0"



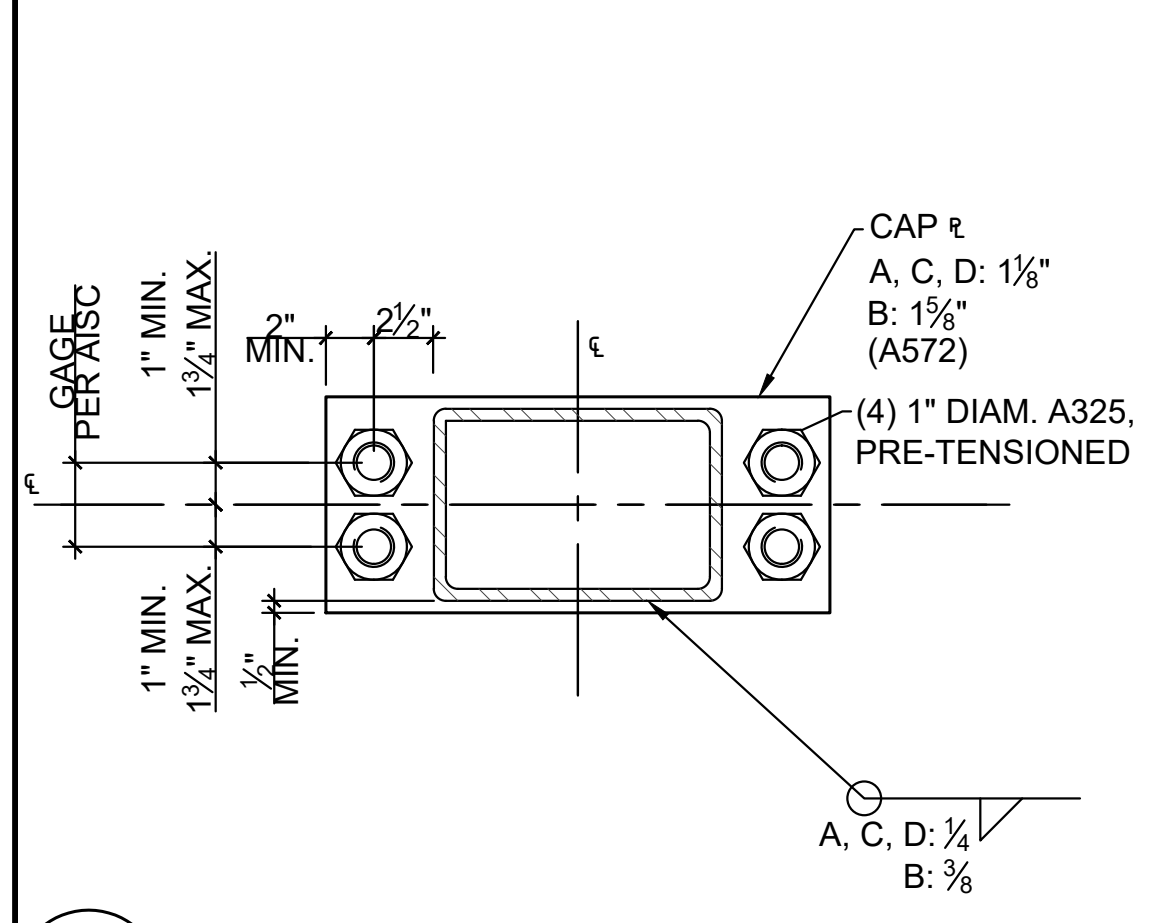
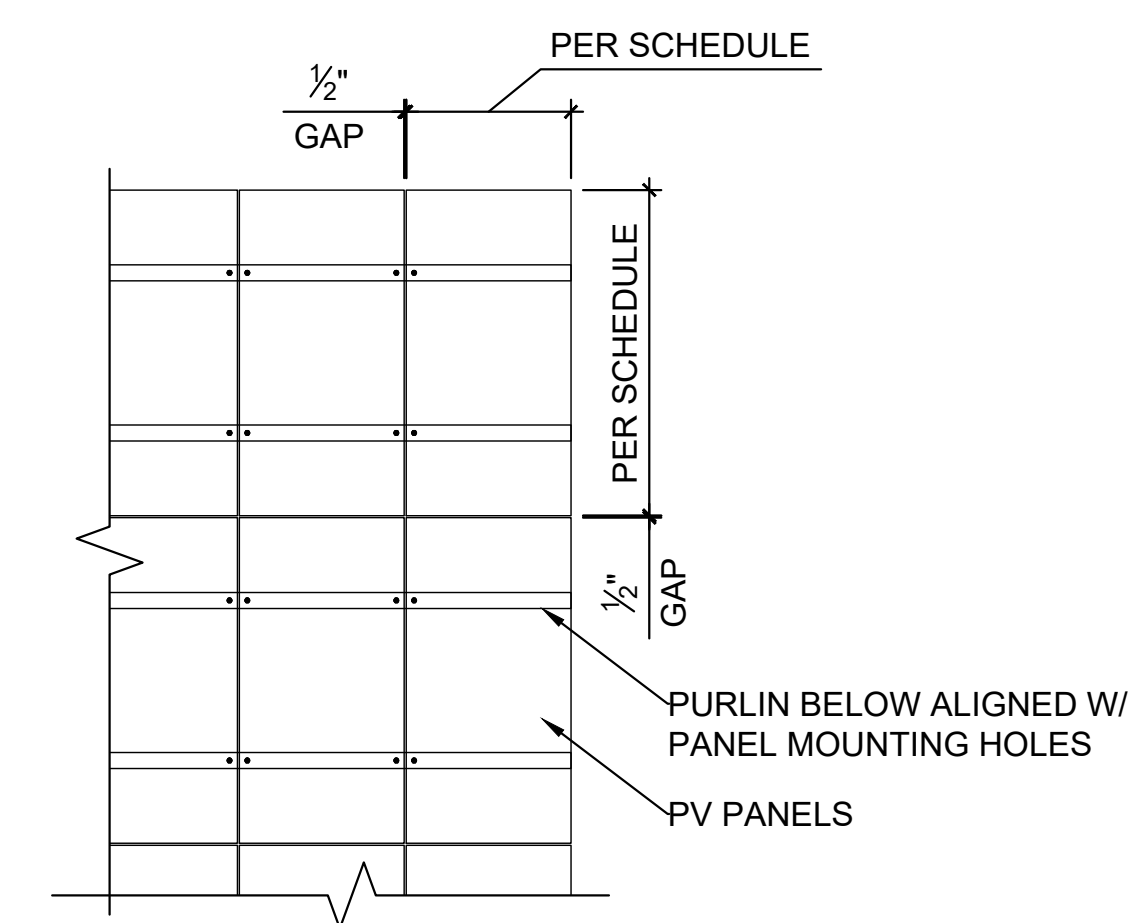
**14** EQUIPMENT MOUNTING  
SCALE: 1/2" = 1'-0"




**20** BEAM TO COLUMN CONN.  
SCALE: 1/2" = 1'-0"



**17** PV PANEL ATTACHMENT  
SCALE: 6" = 1'-0"




**19** CAP PLATE  
SCALE: 1/2" = 1'-0"

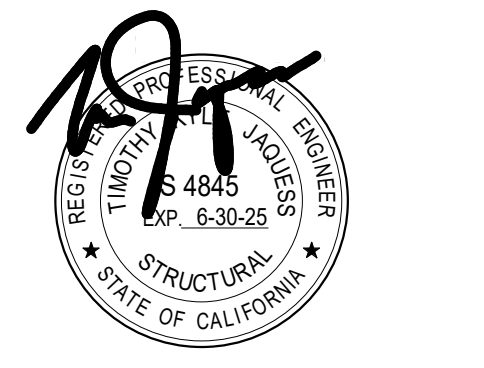
SYSTEM HOST  
  
 1300 Baker Street  
 Bakersfield, CA 93305  
 661-631-4600

SYSTEM DEVELOPER  
  
 100 Montgomery Street, #1400  
 San Francisco, CA 94104  
 855-204-5083

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 Mariana Moncada, Architect  
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 San Diego, CA 92103  
 619.632.2883

ARCHITECT / ENGINEER OF RECORD  


PROJECT  
**BAKERSFIELD CITY SCHOOL DISTRICT**  
 EDUCATION CENTER  
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 BAKERSFIELD, CA 93305

NO.	REVISION	DATE
90P		07-02-2022

DATE: 07.01.22

SHEET TITLE  
**STEEL DETAILS**

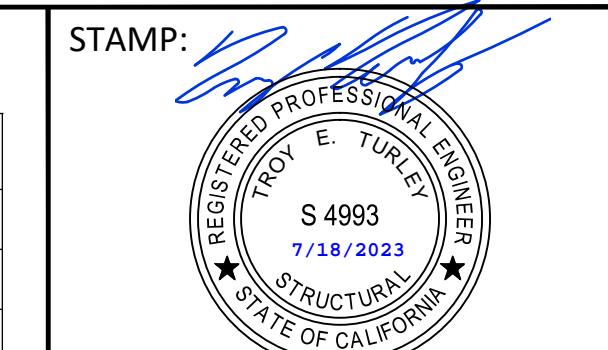
SHEET NO.:  
**S500**

Site Design Criteria - Flat Roof PV System Basis of Design	
Roof Live Load (psf)	20(see footnote 1)
Ground Snow Pg (psf)	0
Flat Roof Snow Pf (psf)	0
Snow Importance Factor (Is)	1.1
<b>Wind Design Data</b>	
Basic Wind Speed (mph)	101
Risk Category	III
Wind Exposure	B
<b>Earthquake Design Data</b>	
Risk Category	III
Importance Factor (Ie)	1.25
Component Importance Factor (Ip)	1.0
Mapped Acceleration Parameter (Ss)	0.921
Mapped Acceleration Parameter(S1)	0.332
Seismic Site Class	D
Design Spectral Acceleration Parameter (Sds)	0.737
Design Spectral Acceleration Parameter (Sd1)	0.436
Seismic Design Category (SDC)	D
Basic seismic-force-resisting system(s)	ASCE 7 sec. 13.6.12
Base Design Shear = Fp x W	0.35 W
Response Modification Factor (R)	2.5
Analysis Procedure	ASCE 7 sec. 13.6.12
Design Code (with local amendments)	2022 CBC
-	ASCE 7 - 16
<b>ALTERNATE DESIGN METHOD</b>	
-	SEAOC PV2
1. Roof Live Load only applicable to areas not covered by PV modules. Reference SEAOC Design Guidelines	

**GENERAL NOTES:**

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- REFER TO AND FOLLOW THE APPROPRIATE PANELCLAW INSTALLATION MANUALS AND PROCEDURES DURING THE INSTALLATION PROCESS. NOT FOLLOWING SUCH PROCEDURES AND METHODS COULD RESULT IN DAMAGE TO THE COMPONENTS OR MAY VOID THE PRODUCT WARRANTY.
- ARRAY SETBACKS: ALL ARRAYS ARE REQUIRED TO BE SETBACK 4-FEET FROM ALL ROOF EDGES UNLESS OTHERWISE SPECIFIED AND CALLED OUT ON THE ARRAY DIAGRAMS ON THIS PAGE OR ON ADDITIONAL ARRAY BALLAST PAGES
- REFER TO THE SPECIFIC ARRAY BALLAST SHEETS FOR BALLASTING REQUIREMENTS BASED ON THE PROVIDED SITE INFORMATION
- SYSTEM PSF INCLUDES ALL PANELCLAW RACKING COMPONENTS, MECHANICAL ATTACHMENTS (IF APPLICABLE), PV MODULE AND BALLAST BLOCKS. FOR MAXIMUM SYSTEM POINT LOAD SUMMARY (PLS), REFER TO CALCULATIONS.
- PANELCLAW AND/OR PANELCLAW CONSULTING ENGINEERS ARE NOT RESPONSIBLE FOR DETERMINING THE ADEQUACY OF THE STRUCTURE TO SUPPORT LOADS IMPOSED BY THE ARRAY AND MOUNTING SYSTEM. SUPPORT STRUCTURE TO BE CHECKED BY OTHERS
- ALWAYS ALLOW 6" CLEARANCE BETWEEN NEIGHBORING SUBARRAYS, 6" BETWEEN SUBARRAYS AND ALL FIXED ROOF OBJECTS AND 4" BETWEEN SUBARRAYS AND ROOF EDGES. REFER TO LOCAL FIRE CODES AND ELECTRICAL CODES FOR ADDITIONAL REQUIREMENTS WHICH MAY GOVERN DESIGN. SUBARRAYS THAT USE A SEISMIC ANALYSIS METHOD OF DELTA MPV PER SEAOC OR ASCE 7-16 HAVE THEIR OWN CLEARANCE REQUIREMENTS. REFER TO THE BALLAST LAYOUT SHEETS WITHIN THIS DOCUMENT FOR DETAILS.
- BALLAST BLOCK DIMENSIONS MUST CONFORM TO THE FOLLOWING SPECIFICATIONS: 3-3/4" THICK MAX., 7-5/8" ± 1/8" WIDTH, 15-5/8" ± 1/8" LENGTH.
- IF AN ARRAY CLEARANCES TABLE APPEARS BELOW ON THIS PAGE, THE DESIGN UTILIZES THIRD PARTY SEISMIC NON-LINEAR RESPONSE ANALYSIS TO ESTIMATE MAXIMUM ARRAY SEISMIC DISPLACEMENT. THE PREDICTED MOVEMENT IS ONLY AN ESTIMATE. PANELCLAW IS NOT RESPONSIBLE OR LIABLE FOR ANY DAMAGES OR COSTS ASSOCIATED WITH PV ARRAY MOVEMENT INCLUDING MOVEMENT IN EXCESS OF THE CLEARANCES NOTED IN THIS DOCUMENT OR ANY REQUIREMENT TO REPOSITION THE ARRAYS IF MOVEMENT OCCURS.
- DEFLECTORS MUST BE INSTALLED WHEN WINDS ARE EXPECTED TO EXCEED APPROX. 25% OF WIND SPEED DOCUMENTED IN SITE DESIGN CRITERIA TABLE. DEFLECTORS ARE REQUIRED ON ALL MODULES UNLESS OTHERWISE NOTED ON BALLAST LAYOUT PAGES.

SHEET INDEX	
NO.	DESCRIPTION
PC-1	COVER SHEET
PC-2	PROJECT SUMMARY
PC-3	ARRAY SITE MAP
PC-4	TYPICAL ARRAY DIMENSIONS
PC-5	ASSEMBLIES
PC-6	RACKING COMPONENTS
PC-7	BALLAST LEGEND
PC-8 TO PC-17	BALLAST LAYOUT - 1 TO 10



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REV	DESCRIPTION	DATE	CHECK
0	Initial Ballast Map Layout	2022-05-06	BG
1	Revised Ballast Map Layout	2022-07-13	TA

SCALE:  
 0" 1/2" 1" 2"  
 ORIGINAL SIZE 36"x24"  
 SHEET SIZE ARCH "D"

PREPARED FOR:  
 Collins Electrical Company

PROJECT:  
 Bakersfield CSD Education Center

LOCATION:  
 1300 Baker Street,  
 Bakersfield, CA, USA

SHEET TITLE:  
 COVER SHEET

REVISION: 1 SHEET: PC-1



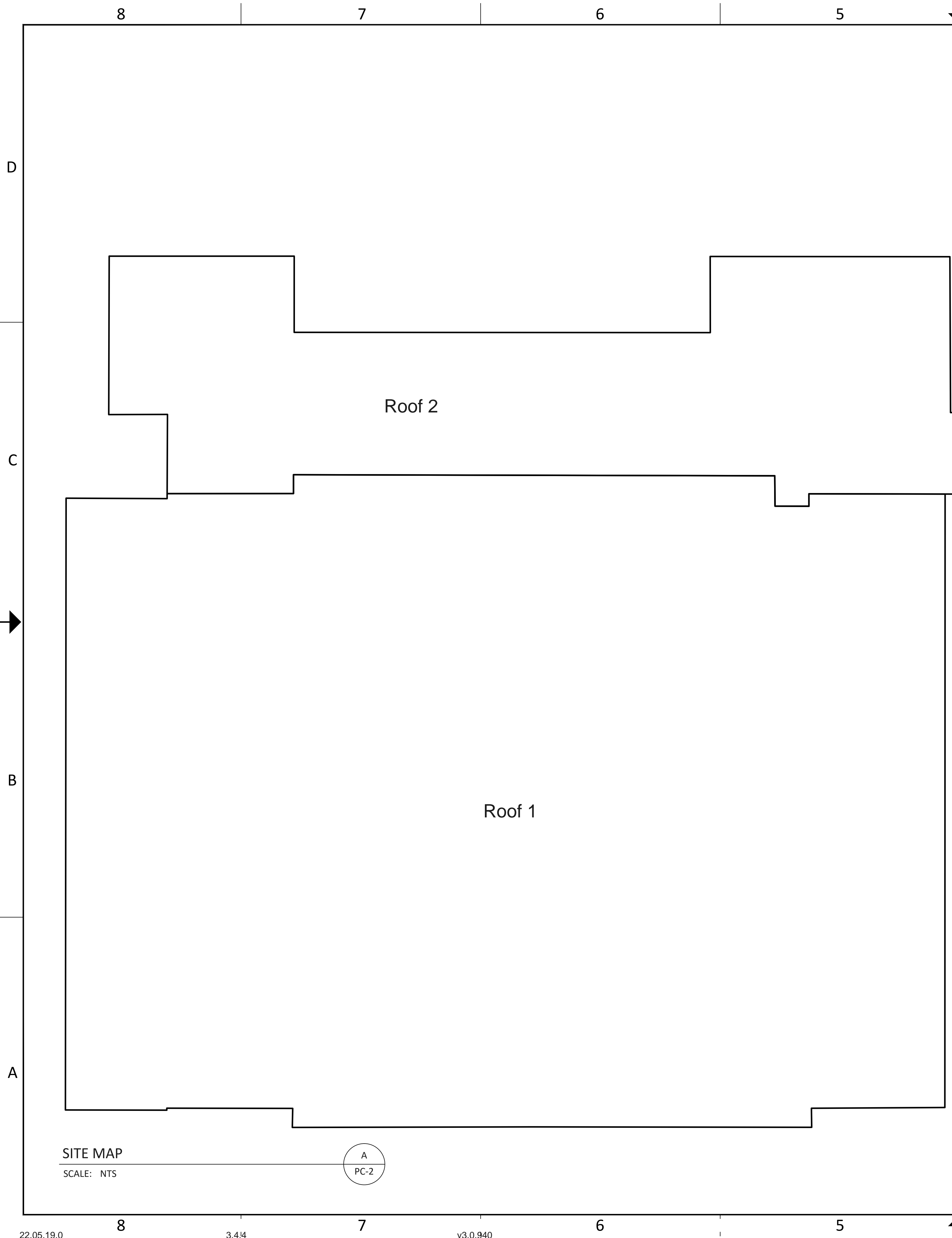
AERIAL PHOTO / SITE DIAGRAM

REQUIRED ARRAY CLEARANCES PER ASCE 7-16		
CONDITION	MINIMUM SEPARATION	DISTANCE (IN.)
BETWEEN SEPARATE SOLAR ARRAYS OF SIMILAR CONSTRUCTION	(0.5) (Mpv)	5
BETWEEN A SOLAR ARRAY AND A FIXED OBJECT ON THE ROOF OR SOLAR ARRAY OF DIFFERENT CONSTRUCTION	(Mpv)	9
BETWEEN A SOLAR ARRAY AND A ROOF EDGE WITH A QUALIFYING PARAPET	(Mpv)	9
BETWEEN A SOLAR ARRAY AND A ROOF EDGE WITHOUT A QUALIFYING PARAPET	(2.0) (Mpv) >= 4ft	48

NOTE: SUFFICIENT SLACK IN ARRAY ELECTRICAL WIRING MUST BE PROVIDED TO ACCOMMODATE ALL POTENTIAL ARRAY MOVEMENT.

THIS CONSTRUCTION SET PROVIDES THE RACKING LAYOUT FOR ALL ARRAYS WITH NUMBER OF BALLAST BLOCKS AND/OR MECHANICAL ATTACHMENTS BASED ON THE APPROVED STRUCTURAL CALCULATIONS FOR THE COMPLETED INSTALLED CONDITION OF THE SOLAR ARRAY. THE INSTALLER IS RESPONSIBLE FOR THE SAFETY AND CARE OF THE ARRAY DURING ALL PHASES OF INSTALLATION. THEREFORE, THE INSTALLER MUST MONITOR THE WEATHER FORECAST AND TAKE NECESSARY PRECAUTIONS (SEE GENERAL NOTE #10) TO TEMPORARILY SHORE/BRACE ALL ARRAYS DURING CONSTRUCTION UNTIL INSTALLATION IS COMPLETED IN CONFORMANCE WITH THIS APPROVED CONSTRUCTION SET AND THE PRODUCT INSTALLATION MANUAL (SEE GENERAL NOTE #2). THE INSTALLER HAS SOLE RESPONSIBILITY FOR THE MEANS, METHODS, AND TECHNIQUES OF CONSTRUCTION OF THE SOLAR ARRAY FOR COMPLIANCE WITH LAWS, REGULATIONS, AND CODES, AND FOR THE SAFETY OF CONSTRUCTION APPLICABLE TO THIS WORK.

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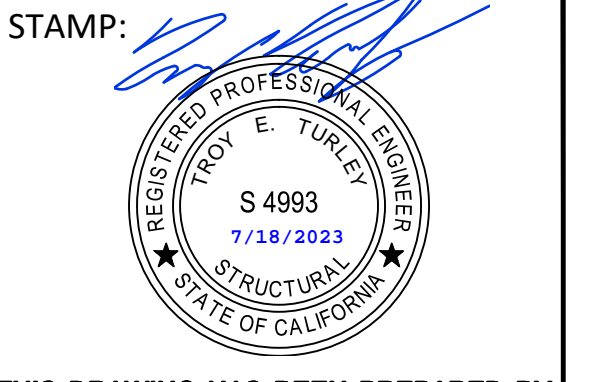


SITE MAP  
SCALE: NTS

PROJECT SUMMARY	
MODULE TYPE	LONGI SOLAR LR6-72HPH-375M
MODULE DIMENSIONS (IN.)	78.90 X 39.21 X 1.38
NUMBER OF MODULES	432
MODULE WATTAGE (W STC)	375
SYSTEM SIZE (kW STC)	162
SYSTEM WEIGHT (LB)	42325
SYSTEM AREA (SQ FT.)	12411
AGGREGATE SYSTEM LOAD (PSF)	3.41
NUMBER OF ARRAYS	10
ARRAY TILT (DEG)	10.24

PROJECT PART QUANTITY		
ITEM	PART NUMBER	QTY
<b>Base</b>	500050203	1006
BASE, 03, CFR		
<b>Module Connector</b>	500050701	864
MODULE CONNECTOR, 1030, 10D, CFR		
<b>Rail</b>	2000695	1190
RAIL, CFR		
<b>Cam</b>	5000500	864
CAM, 10D, CFR		
<b>Cam Claw</b>	2000673	864
CAM CLAW, CFR		
<b>Deflector</b>	200088702	432
DEFLECTOR, 10D, 2025, CFR		
<b>Bolt</b>	2000697	4350
BLT, HEX FLG, TRI, M6X16, GR8.8, PATCH		
<b>Base Pad</b>	2000678	0
PAD, BASE, CFR		
<b>CONCRETE MASONRY UNIT</b>	N/A	435
BLOCK, CONCRETE, 32.6 LB, 4 X 8 X 16 IN NOMINAL, PARTNER SUPPLIED, SEE INSTALLATION MANUAL		

Note: \*Accessory quantities, if applicable, are shown here only and not on subsequent pages of this document. Each module requires two of each type of accessory when specified.



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1	2022-07-13	TA	Revised Ballast Map Layout

SCALE:  
0" 1/2" 1" 2"  
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SHEET SIZE ARCH "D"

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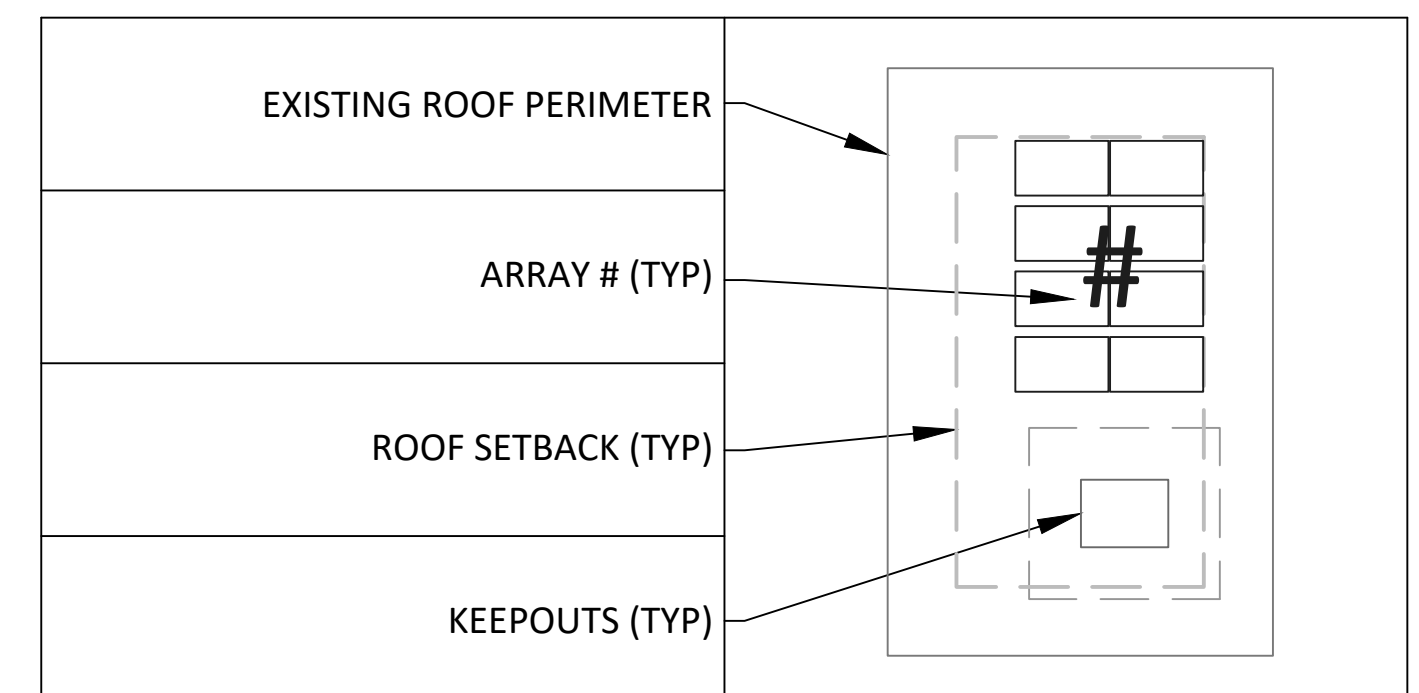
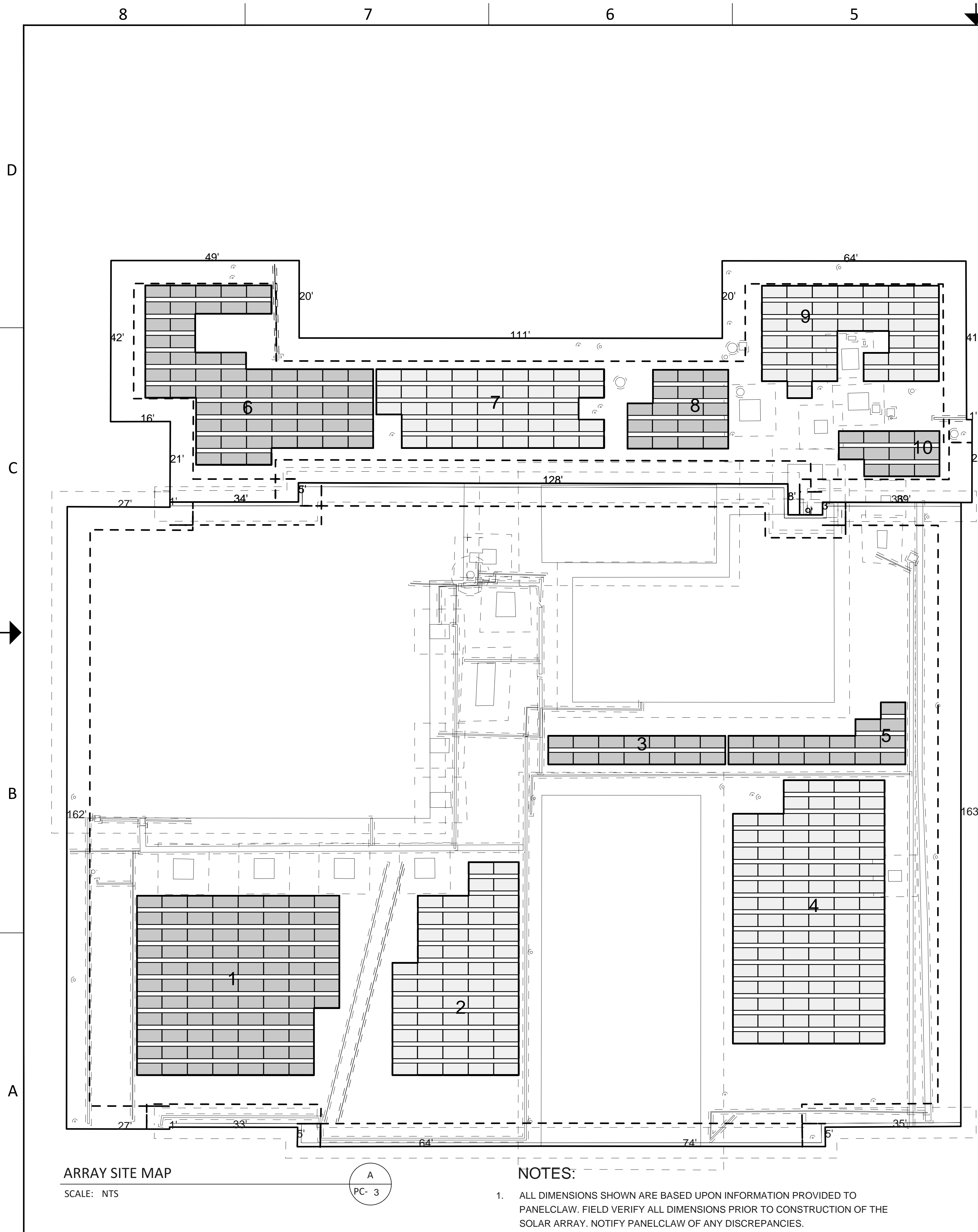
PROJECT:  
Bakersfield CSD Education Center

LOCATION:  
1300 Baker Street,  
Bakersfield, CA, USA

SHEET TITLE:  
PROJECT SUMMARY

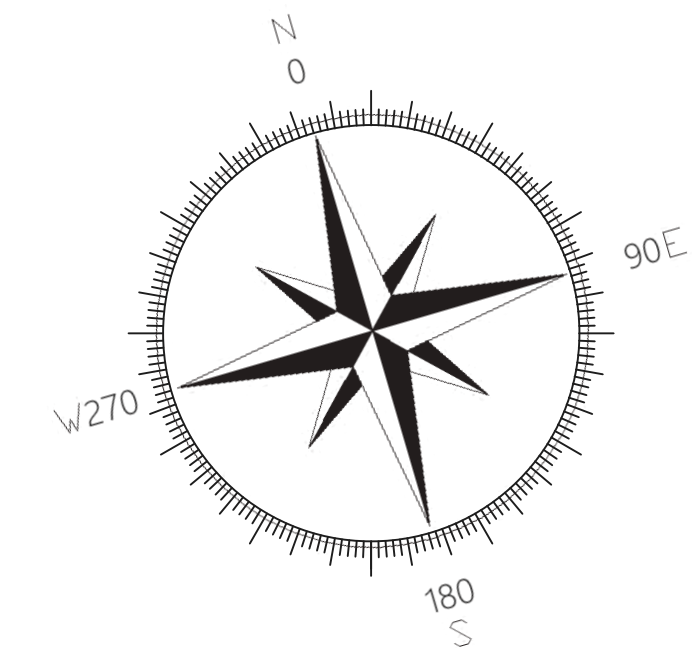
REVISION: 1 SHEET: PC-2

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ROOF NAME	ROOF SETBACK (FT.)	ROOF HEIGHT (FT)	PARAPET HEIGHT (FT)	ROOF TILT (DEG)
Roof 1	6.00	20.00	1.0	3
Roof 2	6.00	32.00	4.0	3

KEEPOUT NAME	KEEPOUT CLEARANCE (FT.)	KEEPOUT HEIGHT (IN.)
Group 1	0.5	12
Group 2	4	204
Group 3	4	60
Group 4	6	0
Group 5	4	96



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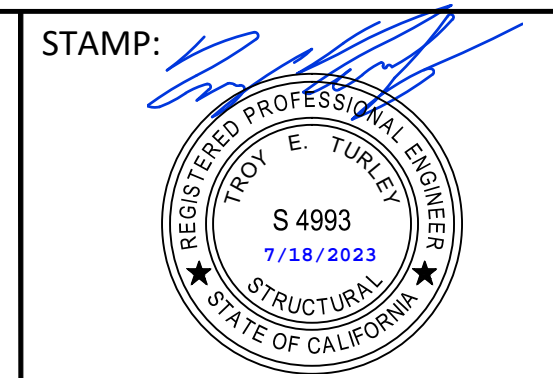
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LOCATION:  
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SHEET TITLE:  
 ARRAY SITE MAP

REVISION: 1 SHEET: PC-3





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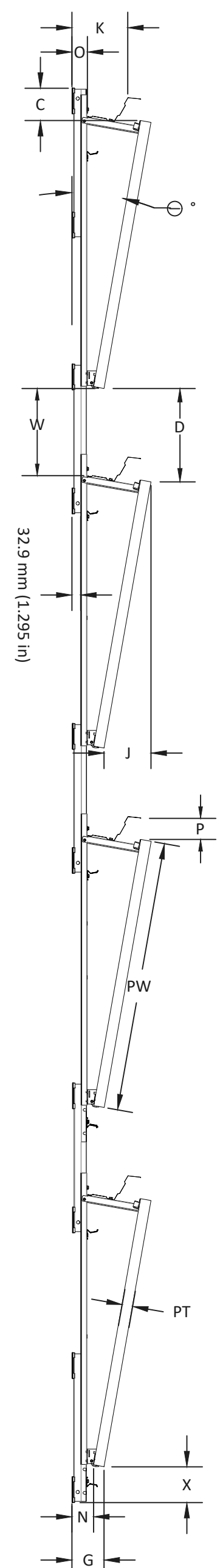
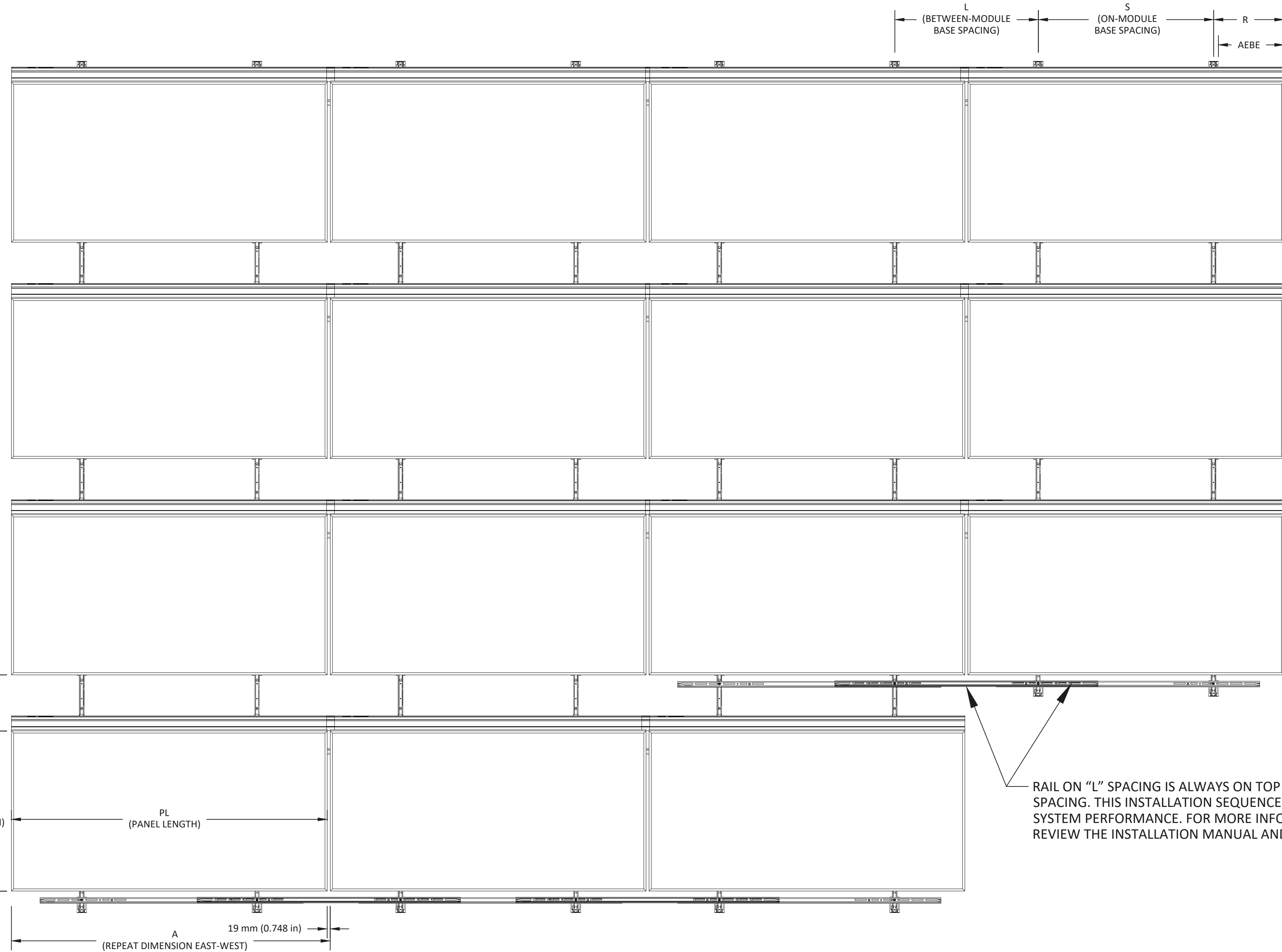
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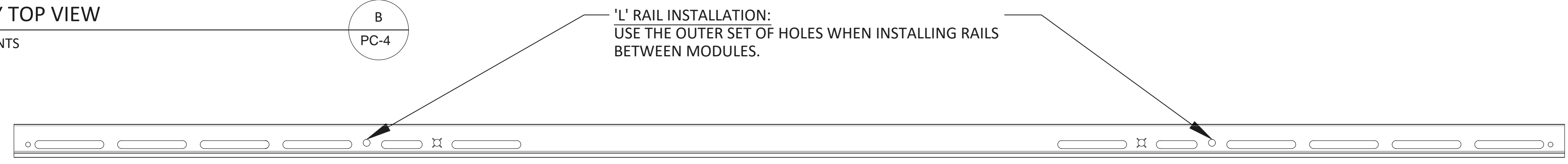
SHEET TITLE:  
**TYPICAL ARRAY DIMENSIONS**

REVISION: 1 SHEET: PC-4



ARRAY CROSS SECTION VIEW  
 SCALE: NTS

ARRAY TOP VIEW  
 SCALE: NTS



RAIL DETAIL  
 SCALE: NTS

INSTALLATION MEASUREMENTS				
UNITS	AEBE	S	L	CAM SPACING*
mm	410	1123	900	45
inches	16 3/16	44 3/16	35 7/16	1 3/4

\*CAM SPACING SHOWN ON ASSEMBLIES PAGE.

MODULE DIMENSIONS				
UNITS	PL	PW	PT	
mm	2004	996	35	
inches	78.90	39.21	1.38	

INSTALLED ARRAY DIMENSIONS																		
UNITS	A	B	C	D	G	J	K	M	N	O	P	R	W	X	Theta (DEG)	D/J (#:1)	G.C.R.*	
mm	2023	1335	123	355	116	177	211	980	82	61	87	440	339	136	10.24	2.00	0.75	
inches	79.65	52.57	4.84	13.98	4.57	6.97	8.30	38.59	3.21	2.39	3.42	17 5/16	13.37	5.35	10.24	2.00	0.75	

\* G.C.R. = (PW) / B

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8

7

6

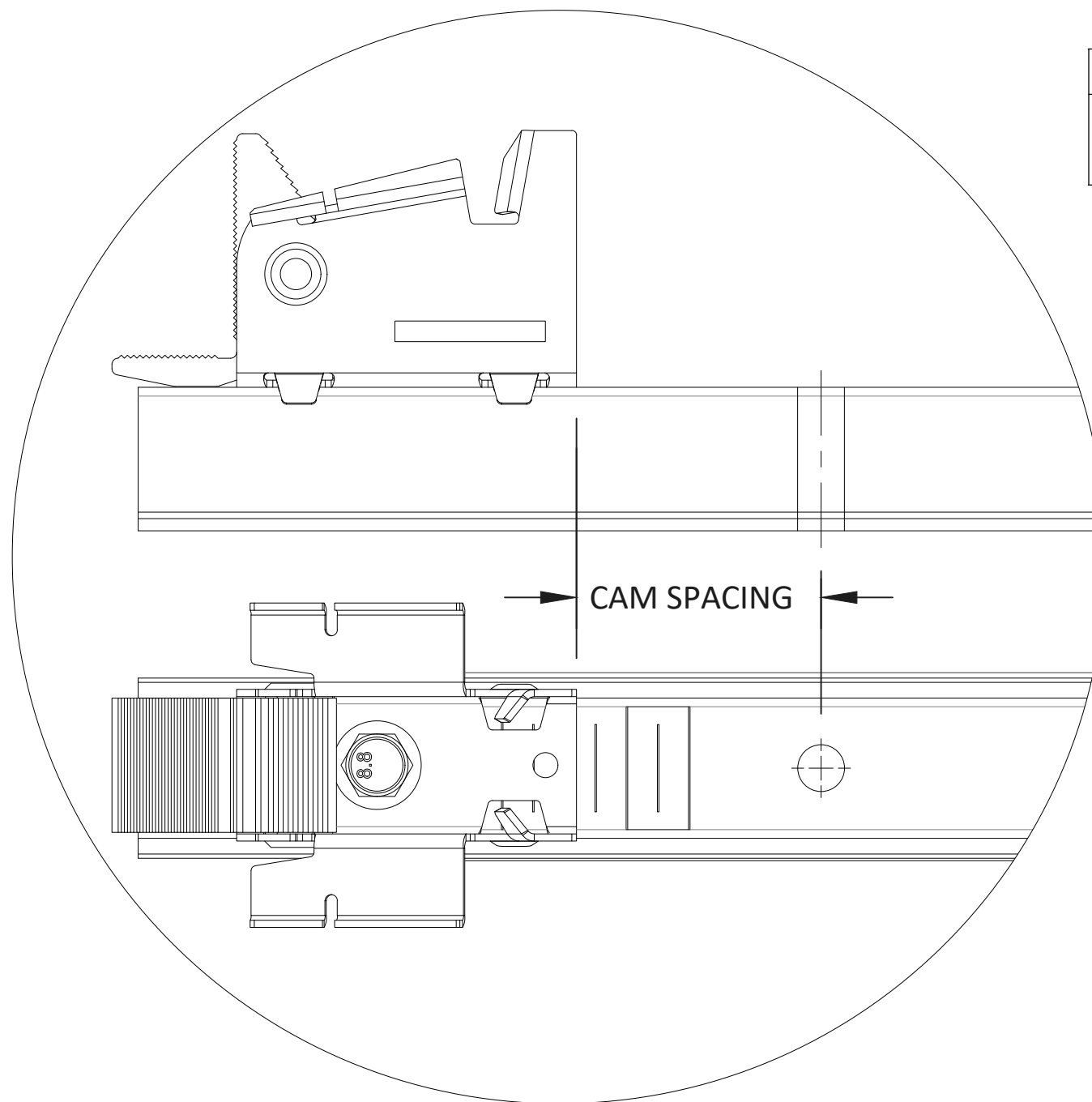
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4

3

2

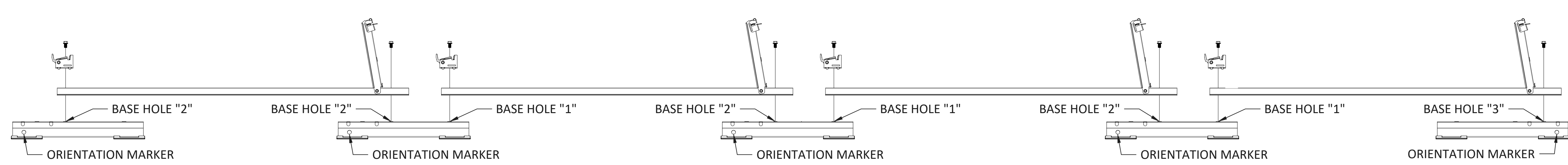
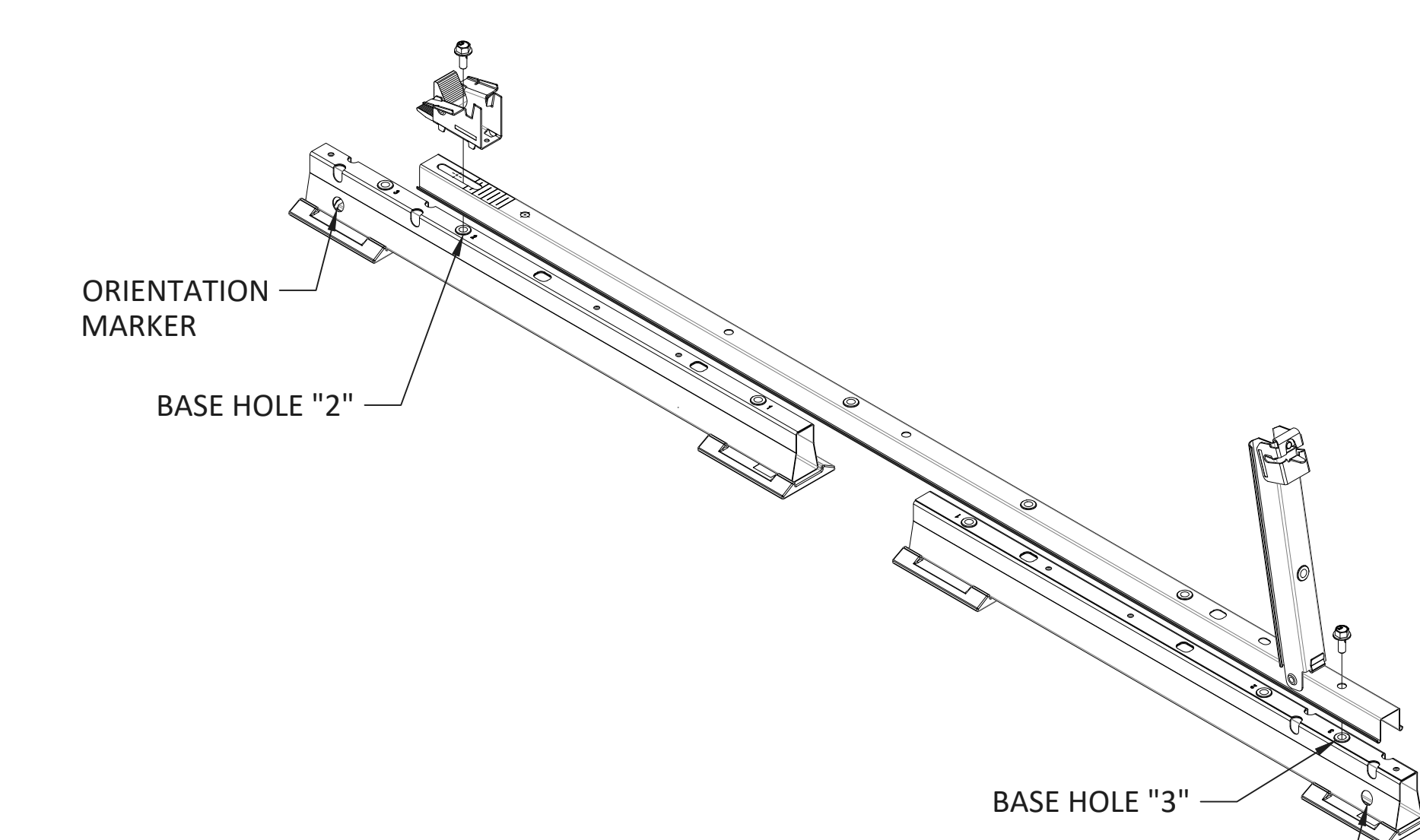
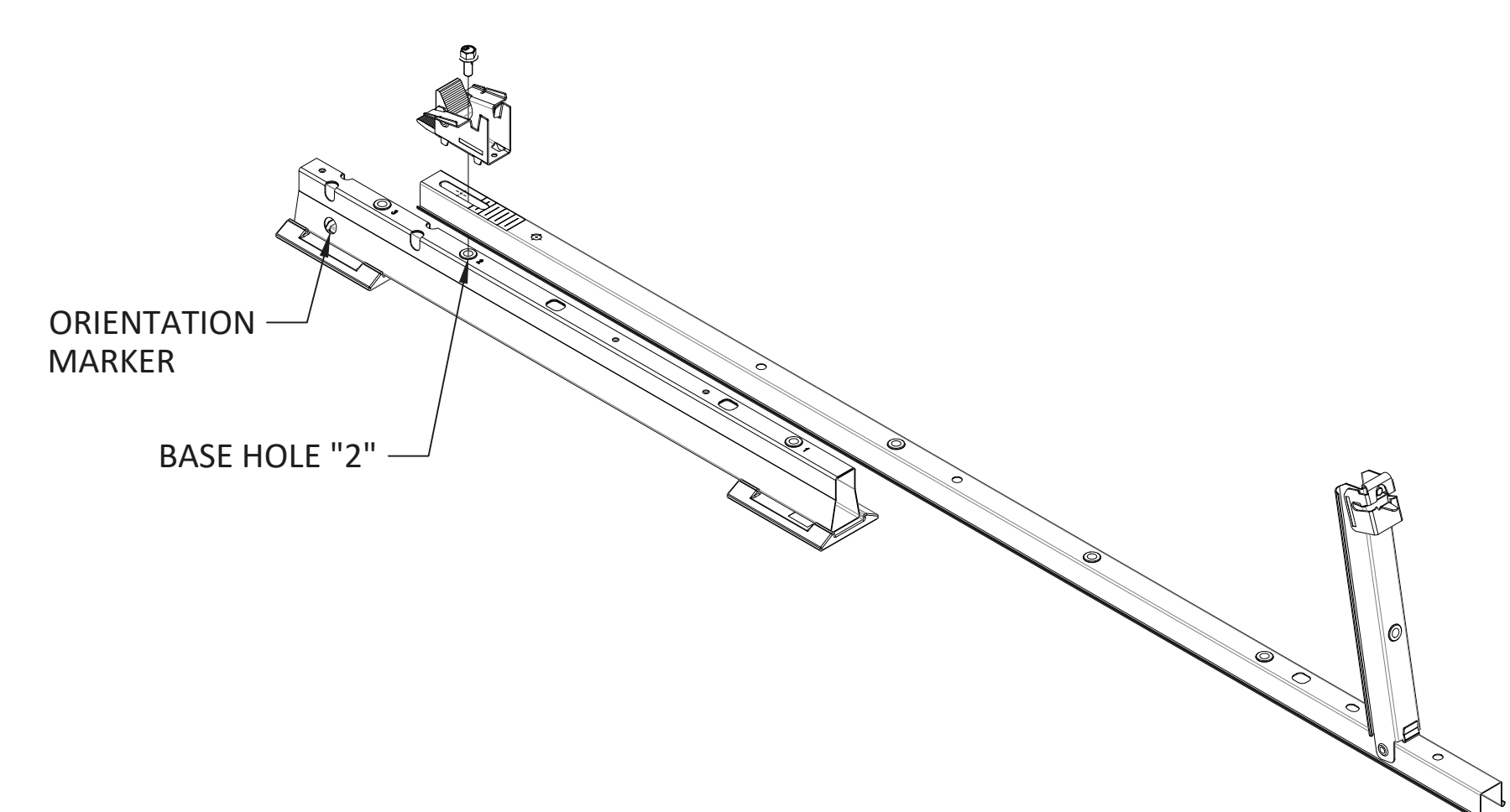
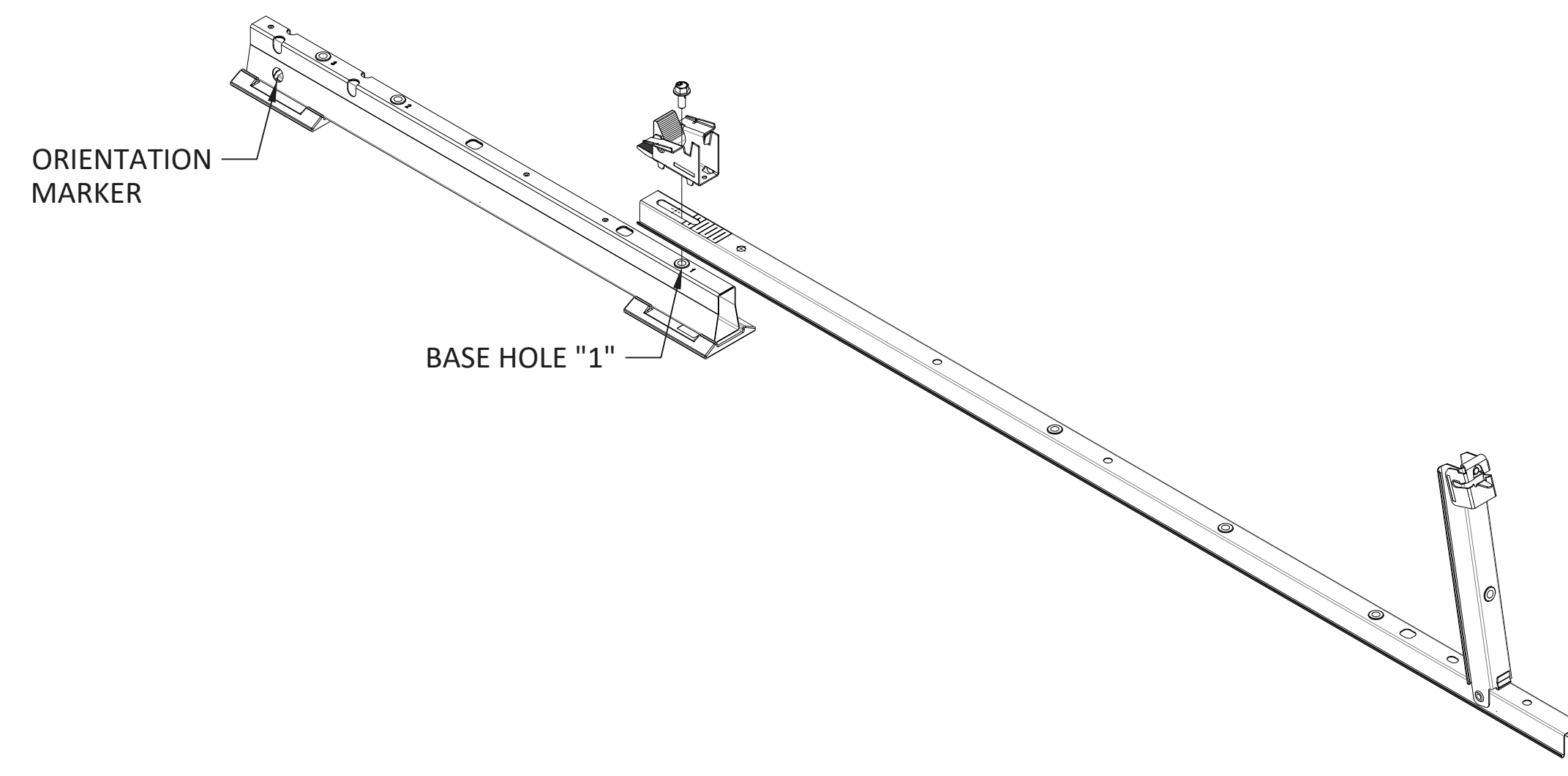
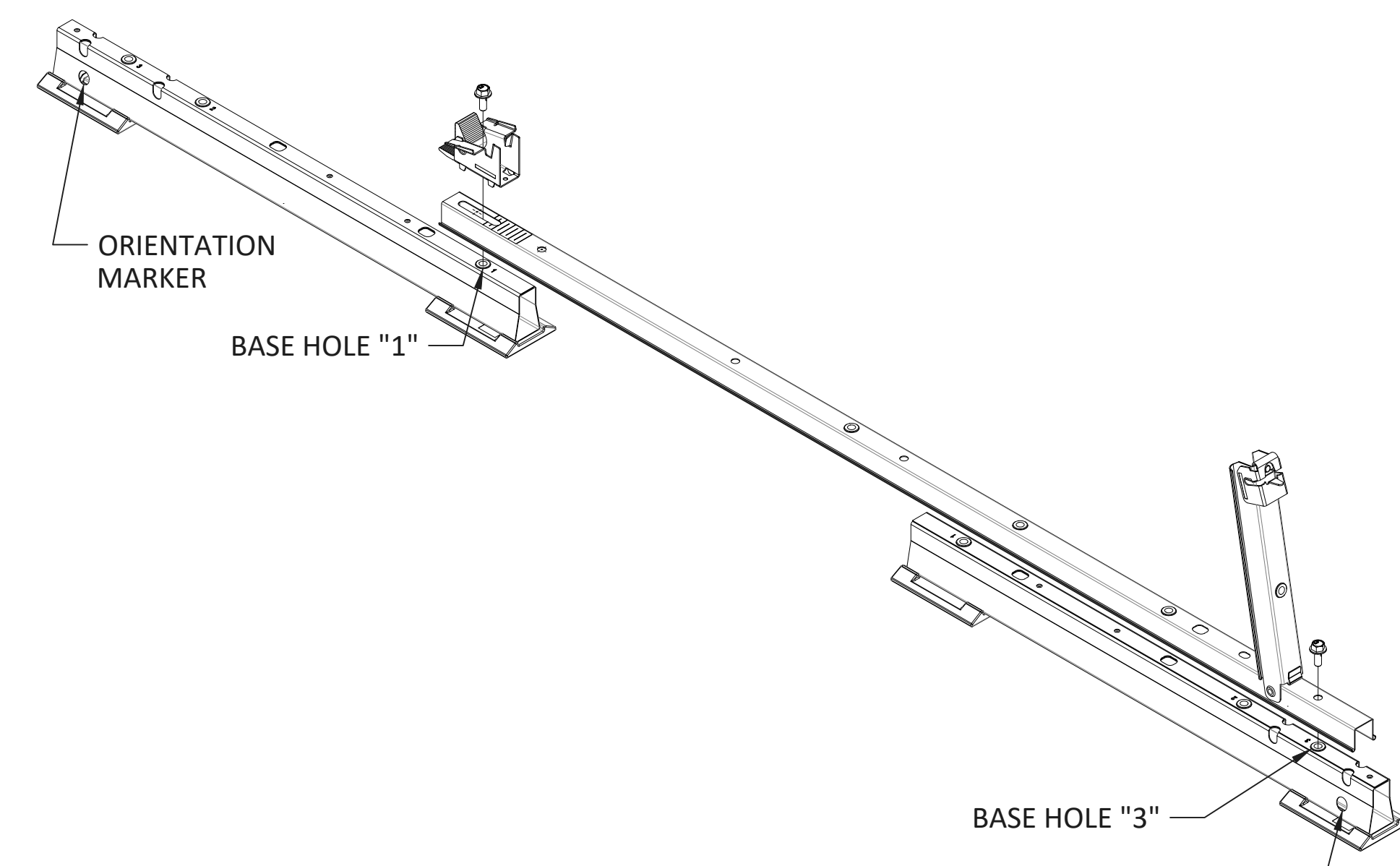
1



UNITS		CAM SPACING
mm		45
inches		1 3/4

STANDARD ASSEMBLY QUANTITY	
NORTH ASSEMBLY	142
SOUTH ASSEMBLY	142
MIDDLE ASSEMBLY	580
NORTH SOUTH ASSEMBLY	0

NOTE: ASSEMBLIES IN THIS TABLE USE THE STANDARD 2-PAD BASE



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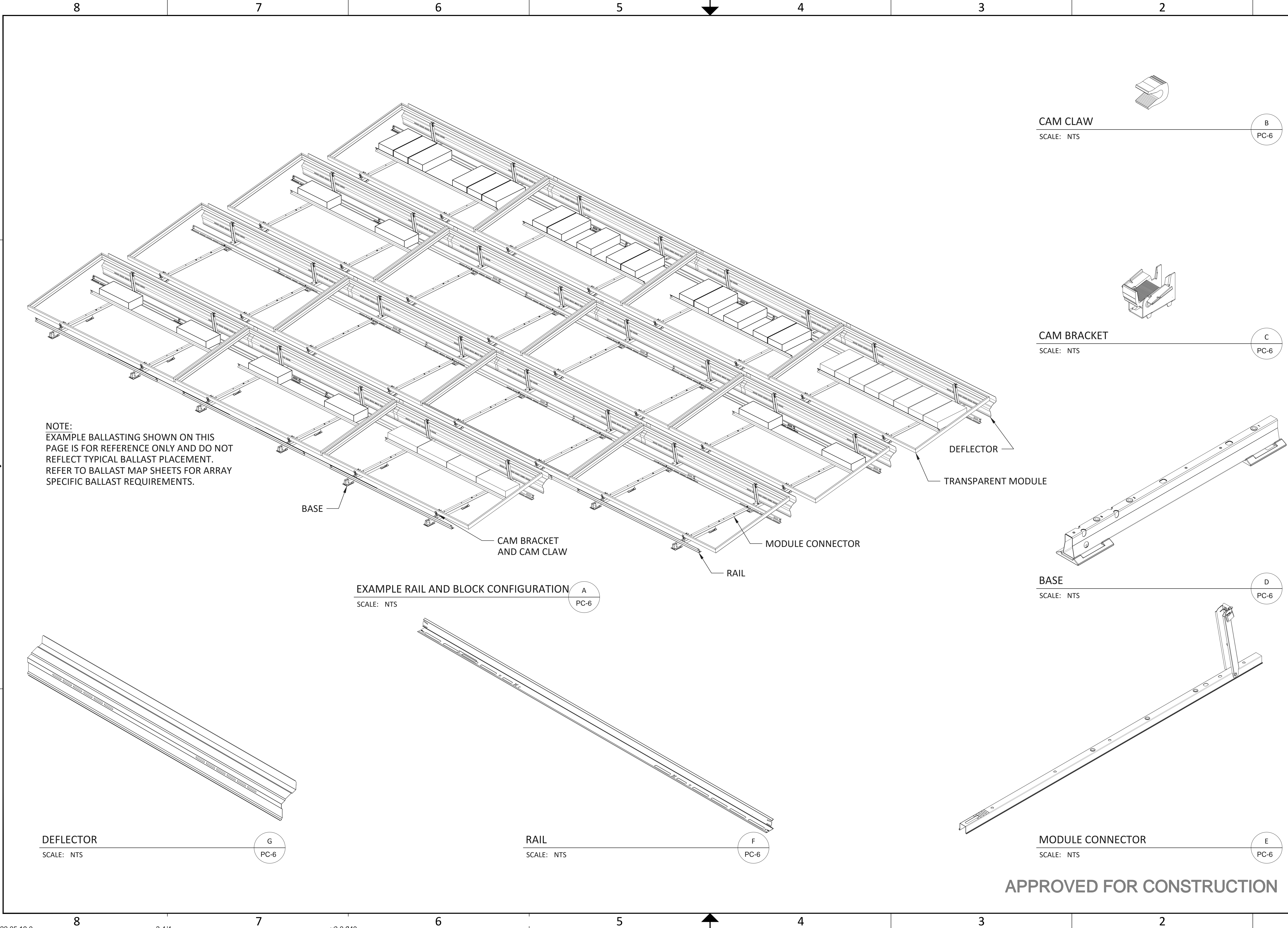
PROJECT:  
 Bakersfield CSD Education Center

LOCATION:  
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 Bakersfield, CA, USA

SHEET TITLE:  
**ASSEMBLIES**

REVISION: 1 SHEET: PC-5

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STAMP:  
  
 REGISTERED PROFESSIONAL ENGINEER  
 TROY E. TURLEY  
 S 4993  
 7/18/2023  
 STRUCTURAL  
 STATE OF CALIFORNIA

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SHEET TITLE:  
**RACKING COMPONENTS**

REVISION: 1 SHEET: PC-6

**CAM CLAW**  
 SCALE: NTS

**CAM BRACKET**  
 SCALE: NTS

**BASE**  
 SCALE: NTS

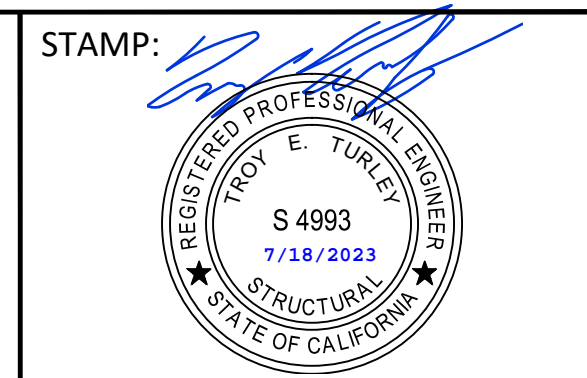
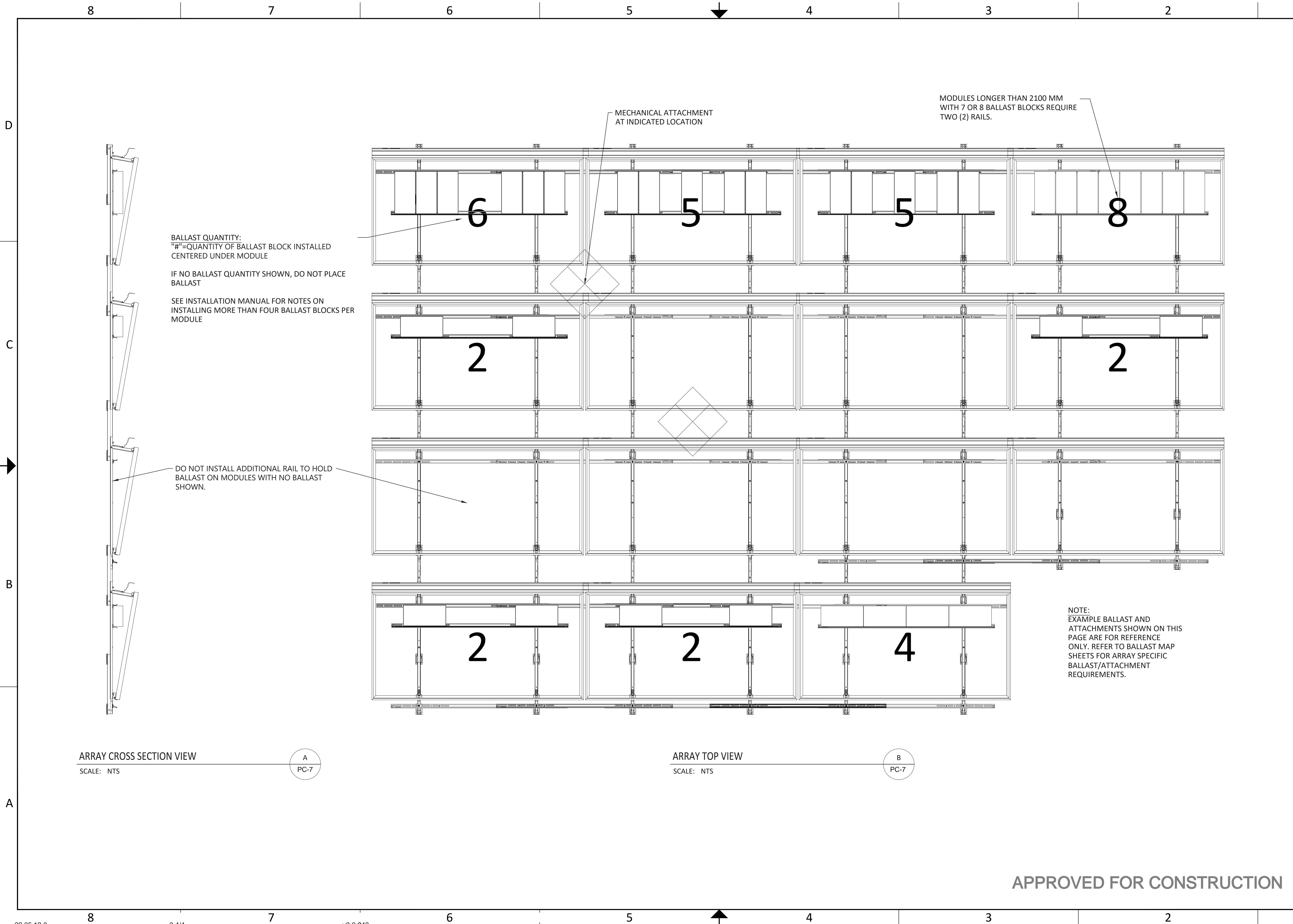
**MODULE CONNECTOR**  
 SCALE: NTS

**EXAMPLE RAIL AND BLOCK CONFIGURATION**  
 SCALE: NTS

**DEFLECTOR**  
 SCALE: NTS

**RAIL**  
 SCALE: NTS

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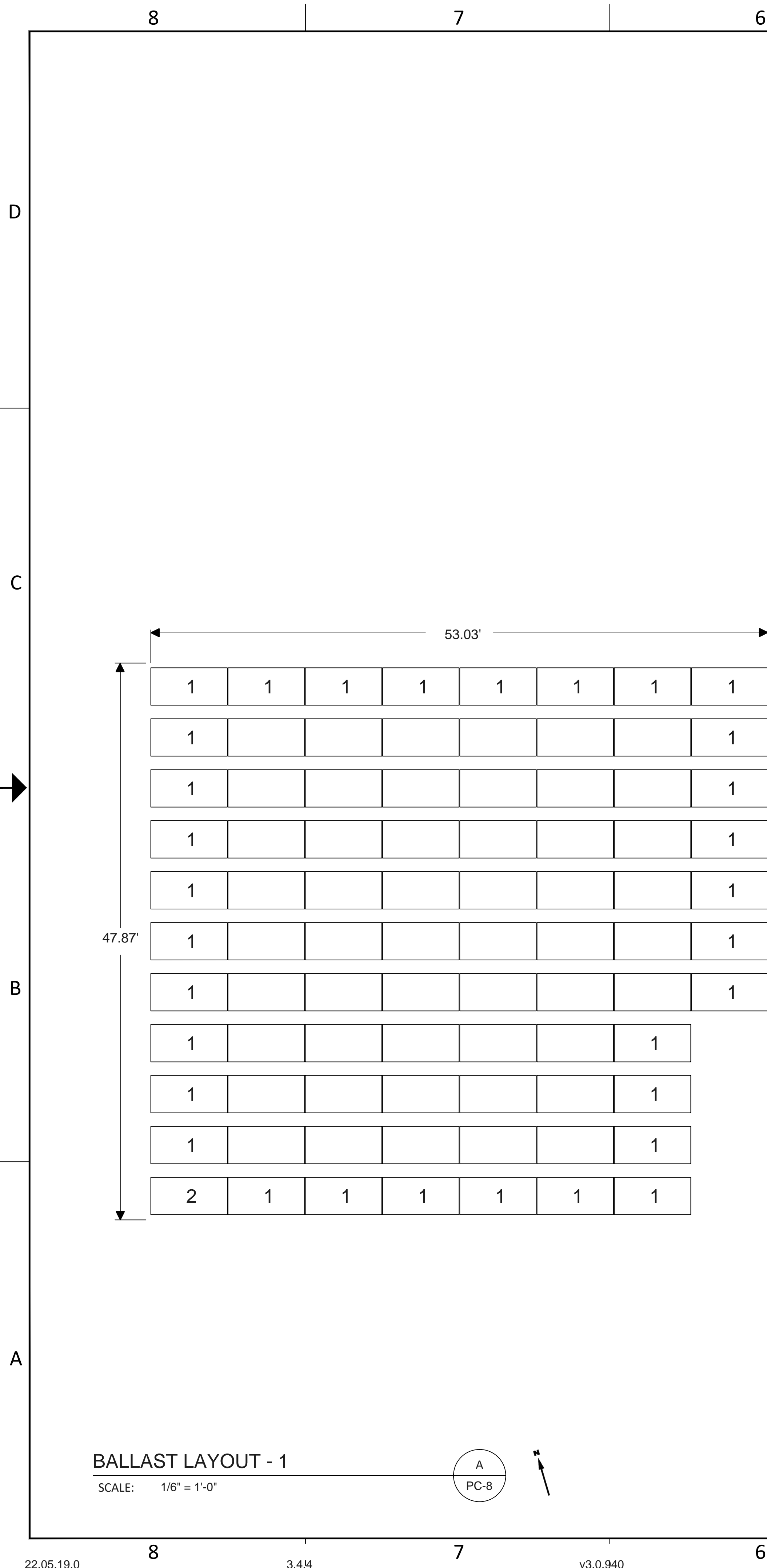
**PROJECT:**  
 Bakersfield CSD Education Center

**LOCATION:**  
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**SHEET TITLE:**  
 BALLAST LEGEND

**REVISION:** 1  
**SHEET:** PC-7

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**BALLAST LAYOUT - 1**  
SCALE: 1/8" = 1'-0"

ARRAY 1	
ROOF INFORMATION	
ROOF HEIGHT (FT)	20.00
PARAPET HEIGHT (FT)	1.0
ROOF TILT (DEG)	3
ROOF TYPE	TBD
SPECIFICATIONS	
NUMBER OF MODULES	84
MODULE POWER (W)	375
ARRAY OUTPUT (Kw)	31.5
ARRAY AZIMUTH	196
PART QUANTITIES	
ITEM	QTY
Base	184
Module Connector	168
Rail	206
Cam	168
Cam Claw	168
Deflector	84
Base Pad	0
Ballast Block	34
LOADING DETAILS	
SINGLE MODULE WT (LB)	50.7
SINGLE CMU WT (LB)	32.6
TOTAL ARRAY WT (LB)	6523
ARRAY AREA (SQ. FT)	2426
ARRAY LOAD (PSF)	2.69
REQUIRED CLEARANCES PER ASCE 7-16	
CONDITION 1 (in.)	5
CONDITION 2 (in.)	9
CONDITION 3 (in.)	9
CONDITION 4 (in.)	48

ASSEMBLY QUANTITIES	
ASSEMBLY	QTY
NORTH ASSEMBLY	16
SOUTH ASSEMBLY	16
MIDDLE ASSEMBLY	136
NORTH SOUTH ASSEMBLY	0

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Bakersfield CSD Education Center

LOCATION:

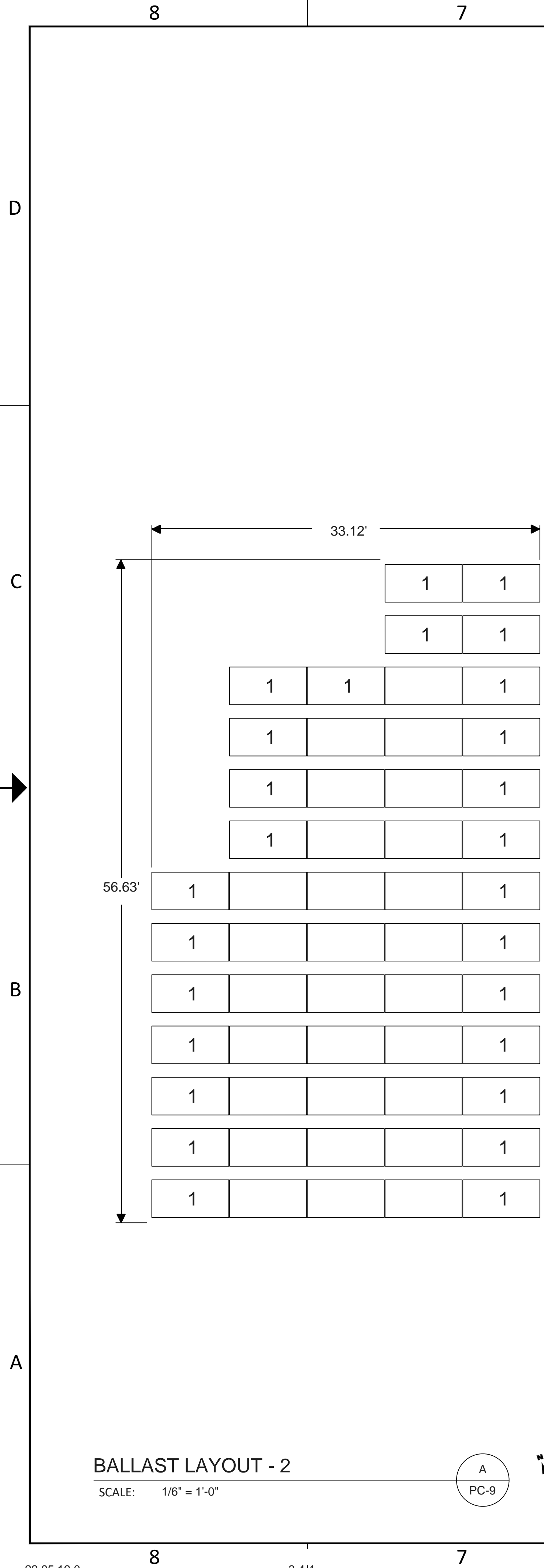
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Bakersfield, CA, USA

SHEET TITLE:

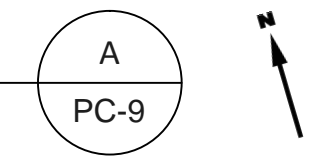
BALLAST LAYOUT - 1

REVISION: 1 SHEET: PC-8

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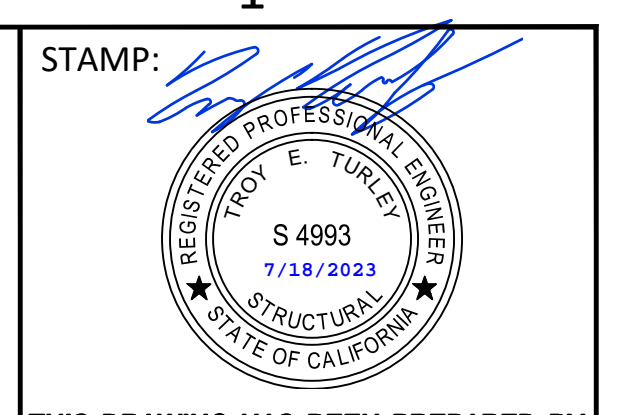


**BALLAST LAYOUT - 2**  
SCALE: 1/8" = 1'-0"



ARRAY 2	
ROOF INFORMATION	
ROOF HEIGHT (FT)	20.00
PARAPET HEIGHT (FT)	1.0
ROOF TILT (DEG)	3
ROOF TYPE	TBD
SPECIFICATIONS	
NUMBER OF MODULES	55
MODULE POWER (W)	375
ARRAY OUTPUT (Kw)	20.625
ARRAY AZIMUTH	196
PART QUANTITIES	
ITEM	QTY
Base	120
Module Connector	110
Rail	133
Cam	110
Cam Claw	110
Deflector	55
Base Pad	0
Ballast Block	27
LOADING DETAILS	
SINGLE MODULE WT (LB)	50.7
SINGLE CMU WT (LB)	32.6
TOTAL ARRAY WT (LB)	4421
ARRAY AREA (SQ. FT)	1589
ARRAY LOAD (PSF)	2.78
REQUIRED CLEARANCES PER ASCE 7-16	
CONDITION 1 (in.)	5
CONDITION 2 (in.)	9
CONDITION 3 (in.)	9
CONDITION 4 (in.)	48

ASSEMBLY QUANTITIES	
ASSEMBLY	QTY
NORTH ASSEMBLY	10
SOUTH ASSEMBLY	10
MIDDLE ASSEMBLY	90
NORTH SOUTH ASSEMBLY	0

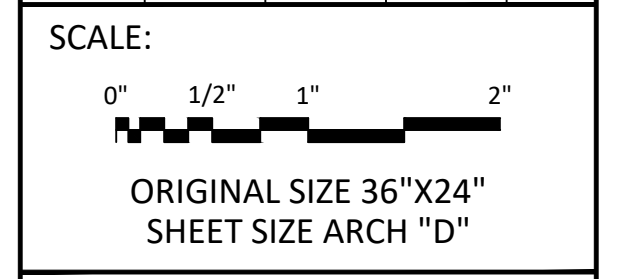


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REV	DESCRIPTION	DATE	CHECK
0	Initial Ballast Map Layout	2022-05-06	BG
1	Revised Ballast Map Layout	2022-07-13	TA



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Collins Electrical Company

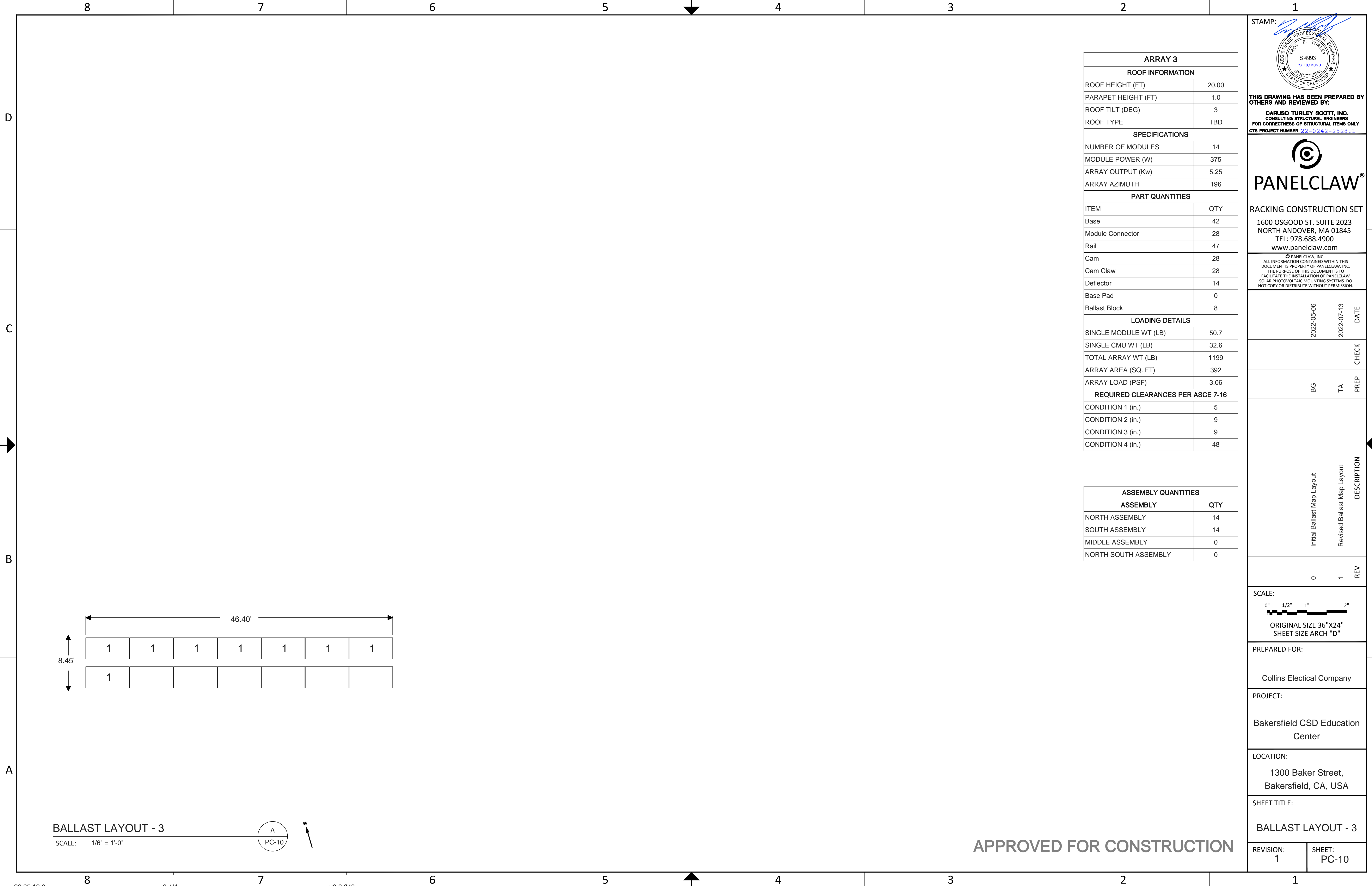
PROJECT:  
Bakersfield CSD Education Center

LOCATION:  
1300 Baker Street,  
Bakersfield, CA, USA

SHEET TITLE:  
BALLAST LAYOUT - 2

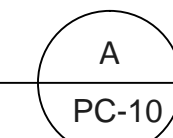
REVISION: 1  
SHEET: PC-9

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**BALLAST LAYOUT - 3**

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



ARRAY 3	
ROOF INFORMATION	
ROOF HEIGHT (FT)	20.00
PARAPET HEIGHT (FT)	1.0
ROOF TILT (DEG)	3
ROOF TYPE	TBD
SPECIFICATIONS	
NUMBER OF MODULES	14
MODULE POWER (W)	375
ARRAY OUTPUT (Kw)	5.25
ARRAY AZIMUTH	196
PART QUANTITIES	
ITEM	QTY
Base	42
Module Connector	28
Rail	47
Cam	28
Cam Claw	28
Deflector	14
Base Pad	0
Ballast Block	8
LOADING DETAILS	
SINGLE MODULE WT (LB)	50.7
SINGLE CMU WT (LB)	32.6
TOTAL ARRAY WT (LB)	1199
ARRAY AREA (SQ. FT)	392
ARRAY LOAD (PSF)	3.06
REQUIRED CLEARANCES PER ASCE 7-16	
CONDITION 1 (in.)	5
CONDITION 2 (in.)	9
CONDITION 3 (in.)	9
CONDITION 4 (in.)	48

ASSEMBLY QUANTITIES	
ASSEMBLY	QTY
NORTH ASSEMBLY	14
SOUTH ASSEMBLY	14
MIDDLE ASSEMBLY	0
NORTH SOUTH ASSEMBLY	0

STAMP:  
  
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REV	DESCRIPTION	DATE	CHECK
0	Initial Ballast Map Layout	2022-05-06	BG
1	Revised Ballast Map Layout	2022-07-13	TA

SCALE:  
  
 ORIGINAL SIZE 36"X24"  
 SHEET SIZE ARCH "D"

PREPARED FOR:  
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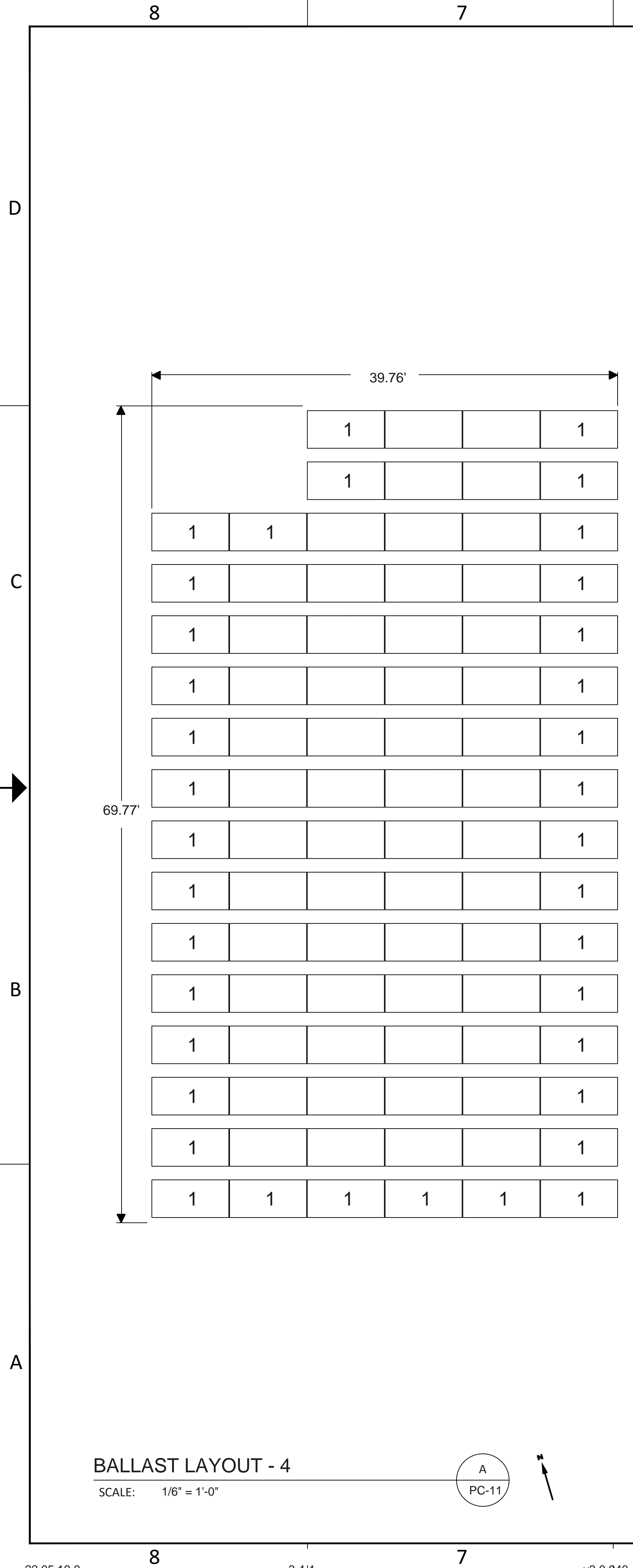
PROJECT:  
 Bakersfield CSD Education Center

LOCATION:  
 1300 Baker Street,  
 Bakersfield, CA, USA

SHEET TITLE:  
 BALLAST LAYOUT - 3

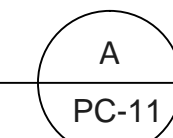
REVISION: 1 SHEET: PC-10

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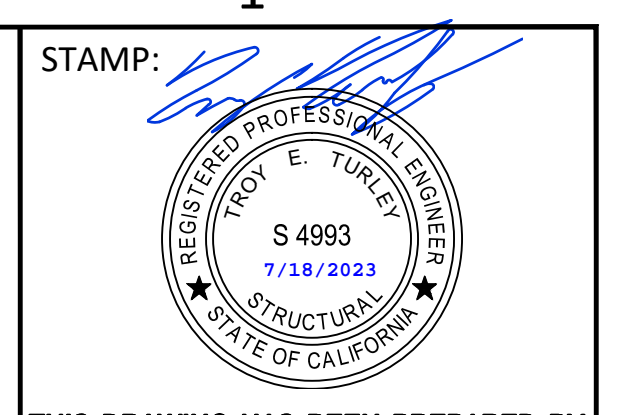
**BALLAST LAYOUT - 4**

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



ARRAY 4	
ROOF INFORMATION	
ROOF HEIGHT (FT)	20.00
PARAPET HEIGHT (FT)	1.0
ROOF TILT (DEG)	3
ROOF TYPE	TBD
SPECIFICATIONS	
NUMBER OF MODULES	92
MODULE POWER (W)	375
ARRAY OUTPUT (Kw)	34.5
ARRAY AZIMUTH	196
PART QUANTITIES	
ITEM	QTY
Base	196
Module Connector	184
Rail	216
Cam	184
Cam Claw	184
Deflector	92
Base Pad	0
Ballast Block	37
LOADING DETAILS	
SINGLE MODULE WT (LB)	50.7
SINGLE CMU WT (LB)	32.6
TOTAL ARRAY WT (LB)	7113
ARRAY AREA (SQ. FT)	2662
ARRAY LOAD (PSF)	2.67
REQUIRED CLEARANCES PER ASCE 7-16	
CONDITION 1 (in.)	5
CONDITION 2 (in.)	9
CONDITION 3 (in.)	9
CONDITION 4 (in.)	48

ASSEMBLY QUANTITIES	
ASSEMBLY	QTY
NORTH ASSEMBLY	12
SOUTH ASSEMBLY	12
MIDDLE ASSEMBLY	160
NORTH SOUTH ASSEMBLY	0

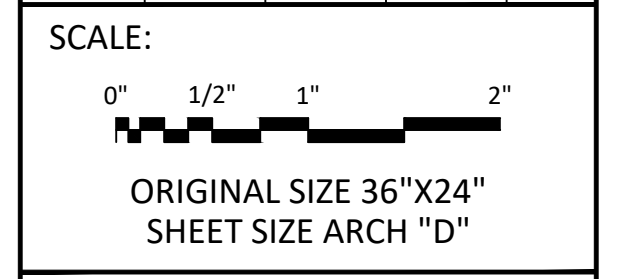


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1	Revised Ballast Map Layout	2022-07-13	TA



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PROJECT:  
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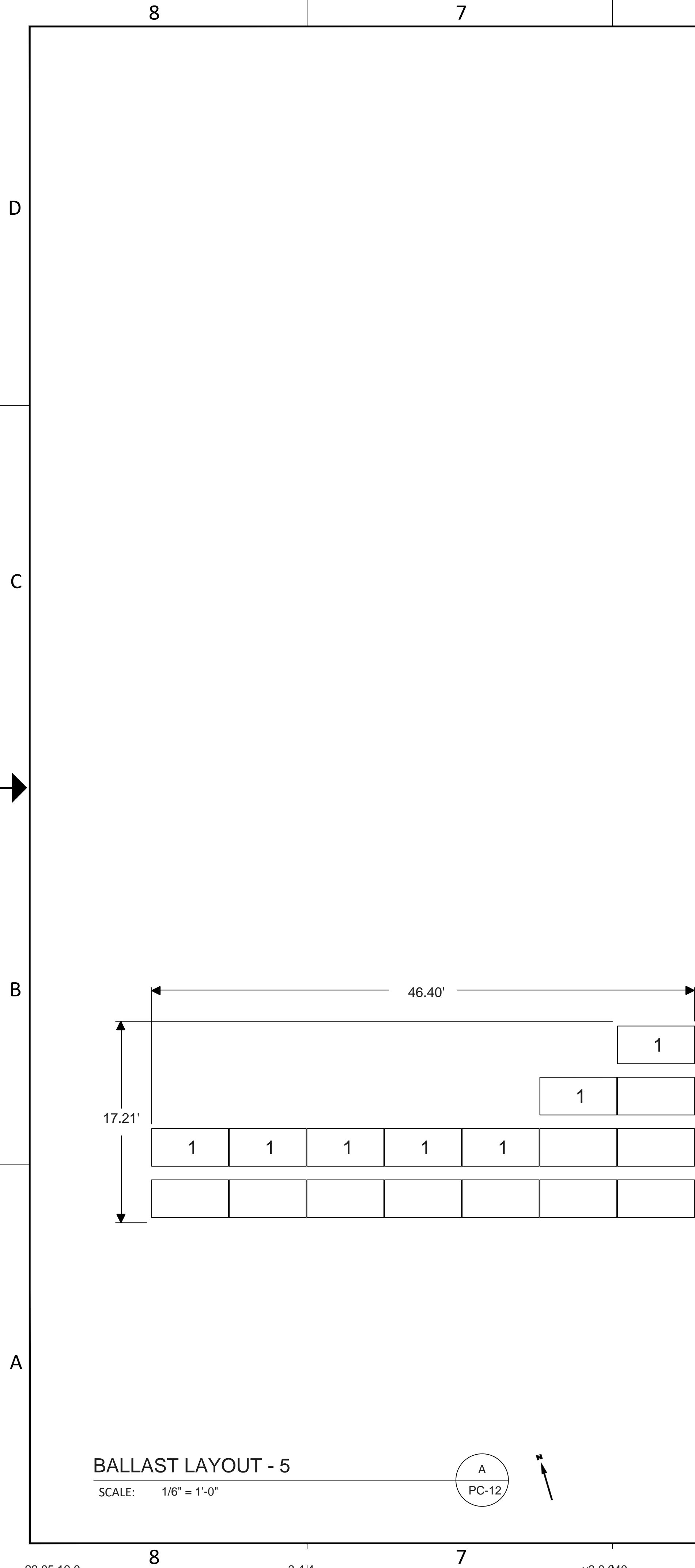
LOCATION:  
 1300 Baker Street,  
 Bakersfield, CA, USA

SHEET TITLE:  
 BALLAST LAYOUT - 4

REVISION: 1  
 SHEET: PC-11

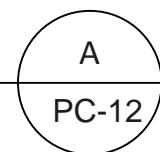
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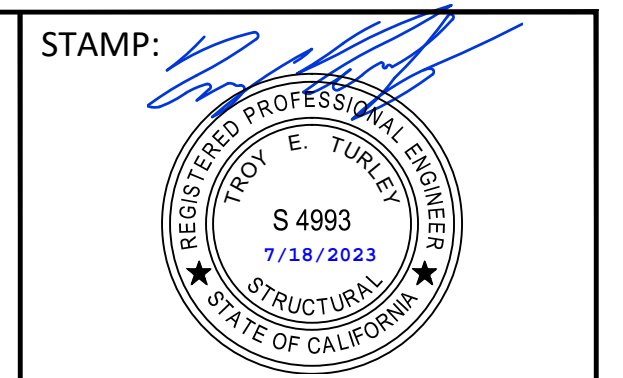
**BALLAST LAYOUT - 5**

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



ARRAY 5	
ROOF INFORMATION	
ROOF HEIGHT (FT)	20.00
PARAPET HEIGHT (FT)	1.0
ROOF TILT (DEG)	3
ROOF TYPE	TBD
SPECIFICATIONS	
NUMBER OF MODULES	17
MODULE POWER (W)	375
ARRAY OUTPUT (Kw)	6.375
ARRAY AZIMUTH	196
PART QUANTITIES	
ITEM	QTY
Base	48
Module Connector	34
Rail	51
Cam	34
Cam Claw	34
Deflector	17
Base Pad	0
Ballast Block	7
LOADING DETAILS	
SINGLE MODULE WT (LB)	50.7
SINGLE CMU WT (LB)	32.6
TOTAL ARRAY WT (LB)	1353
ARRAY AREA (SQ. FT)	480
ARRAY LOAD (PSF)	2.82
REQUIRED CLEARANCES PER ASCE 7-16	
CONDITION 1 (in.)	5
CONDITION 2 (in.)	9
CONDITION 3 (in.)	9
CONDITION 4 (in.)	48

ASSEMBLY QUANTITIES	
ASSEMBLY	QTY
NORTH ASSEMBLY	14
SOUTH ASSEMBLY	14
MIDDLE ASSEMBLY	6
NORTH SOUTH ASSEMBLY	0



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0	Initial Ballast Map Layout	2022-05-06	BG
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SCALE:  
 0" 1/2" 1" 2"  
 ORIGINAL SIZE 36"X24"  
 SHEET SIZE ARCH "D"

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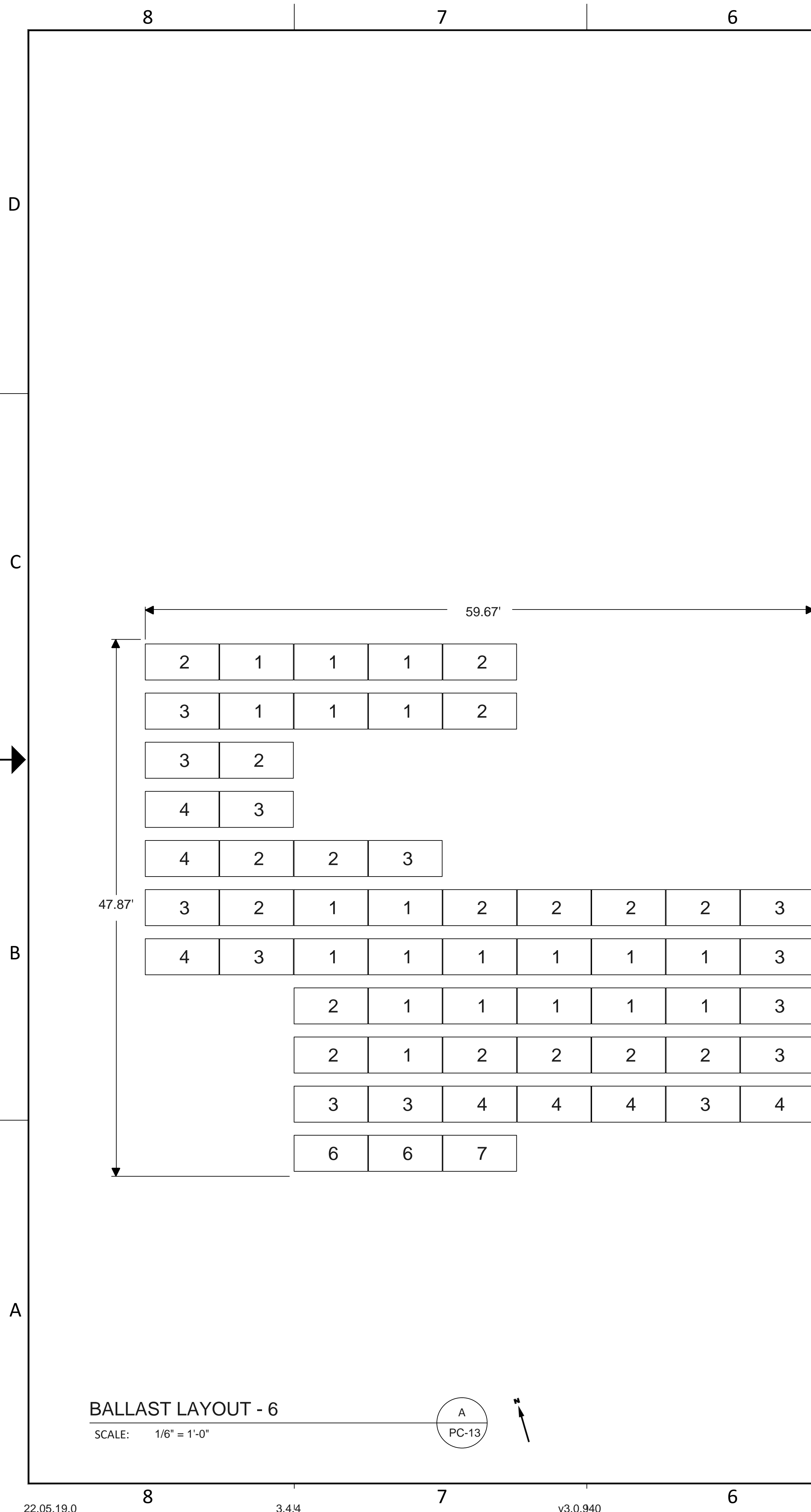
PROJECT:  
 Bakersfield CSD Education Center

LOCATION:  
 1300 Baker Street,  
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SHEET TITLE:  
 BALLAST LAYOUT - 5

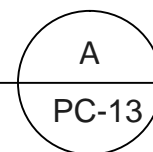
REVISION: 1 SHEET: PC-12

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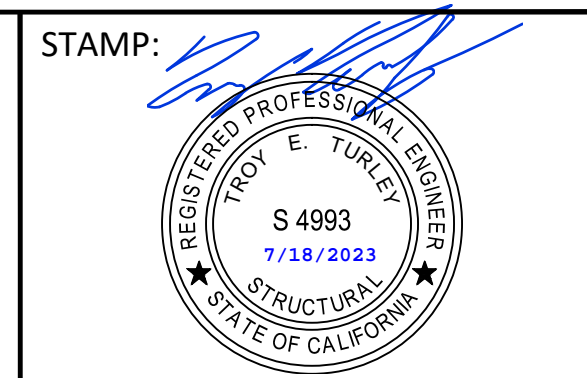
**BALLAST LAYOUT - 6**

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



ARRAY 6	
ROOF INFORMATION	
ROOF HEIGHT (FT)	32.00
PARAPET HEIGHT (FT)	4.0
ROOF TILT (DEG)	3
ROOF TYPE	TBD
SPECIFICATIONS	
NUMBER OF MODULES	60
MODULE POWER (W)	375
ARRAY OUTPUT (Kw)	22.5
ARRAY AZIMUTH	196
PART QUANTITIES	
ITEM	QTY
Base	144
Module Connector	120
Rail	195
Cam	120
Cam Claw	120
Deflector	60
Base Pad	0
Ballast Block	140
LOADING DETAILS	
SINGLE MODULE WT (LB)	50.7
SINGLE CMU WT (LB)	32.6
TOTAL ARRAY WT (LB)	8530
ARRAY AREA (SQ. FT)	1719
ARRAY LOAD (PSF)	4.96
REQUIRED CLEARANCES PER ASCE 7-16	
CONDITION 1 (in.)	5
CONDITION 2 (in.)	9
CONDITION 3 (in.)	9
CONDITION 4 (in.)	48

ASSEMBLY QUANTITIES	
ASSEMBLY	QTY
NORTH ASSEMBLY	24
SOUTH ASSEMBLY	24
MIDDLE ASSEMBLY	72
NORTH SOUTH ASSEMBLY	0

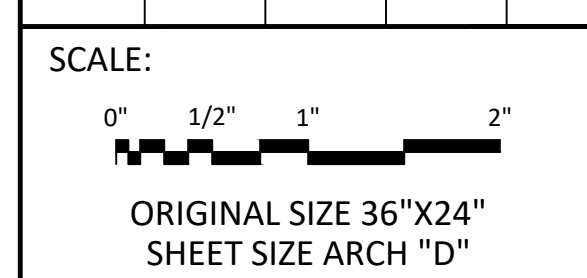


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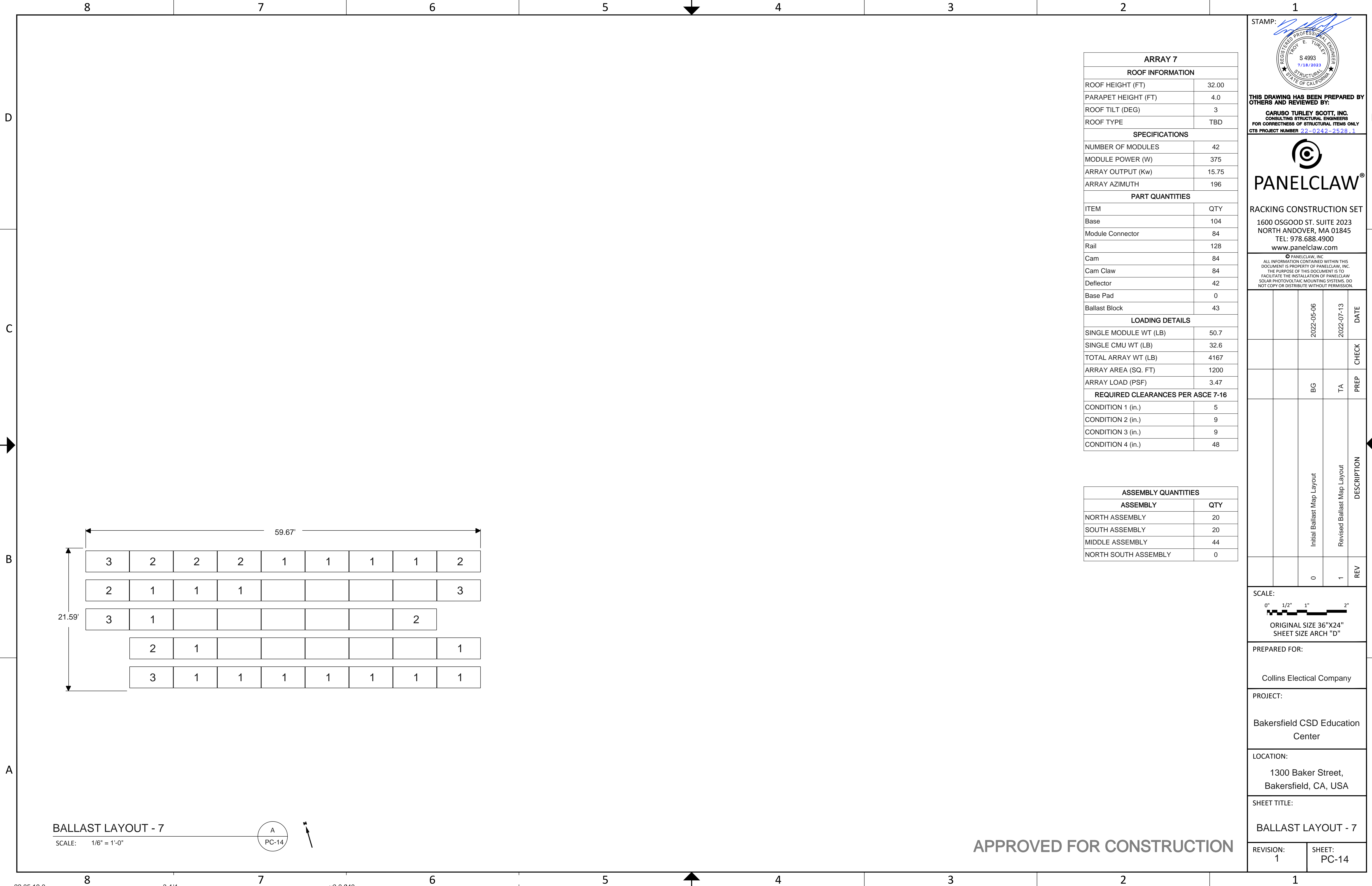
PROJECT:  
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LOCATION:  
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SHEET TITLE:  
 BALLAST LAYOUT - 6

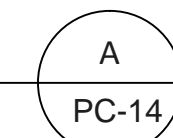
REVISION: 1 SHEET: PC-13

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**BALLAST LAYOUT - 7**

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



ARRAY 7	
ROOF INFORMATION	
ROOF HEIGHT (FT)	32.00
PARAPET HEIGHT (FT)	4.0
ROOF TILT (DEG)	3
ROOF TYPE	TBD
SPECIFICATIONS	
NUMBER OF MODULES	42
MODULE POWER (W)	375
ARRAY OUTPUT (Kw)	15.75
ARRAY AZIMUTH	196
PART QUANTITIES	
ITEM	QTY
Base	104
Module Connector	84
Rail	128
Cam	84
Cam Claw	84
Deflector	42
Base Pad	0
Ballast Block	43
LOADING DETAILS	
SINGLE MODULE WT (LB)	50.7
SINGLE CMU WT (LB)	32.6
TOTAL ARRAY WT (LB)	4167
ARRAY AREA (SQ. FT)	1200
ARRAY LOAD (PSF)	3.47
REQUIRED CLEARANCES PER ASCE 7-16	
CONDITION 1 (in.)	5
CONDITION 2 (in.)	9
CONDITION 3 (in.)	9
CONDITION 4 (in.)	48

ASSEMBLY QUANTITIES	
ASSEMBLY	QTY
NORTH ASSEMBLY	20
SOUTH ASSEMBLY	20
MIDDLE ASSEMBLY	44
NORTH SOUTH ASSEMBLY	0

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SCALE:  
  
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 SHEET SIZE ARCH "D"

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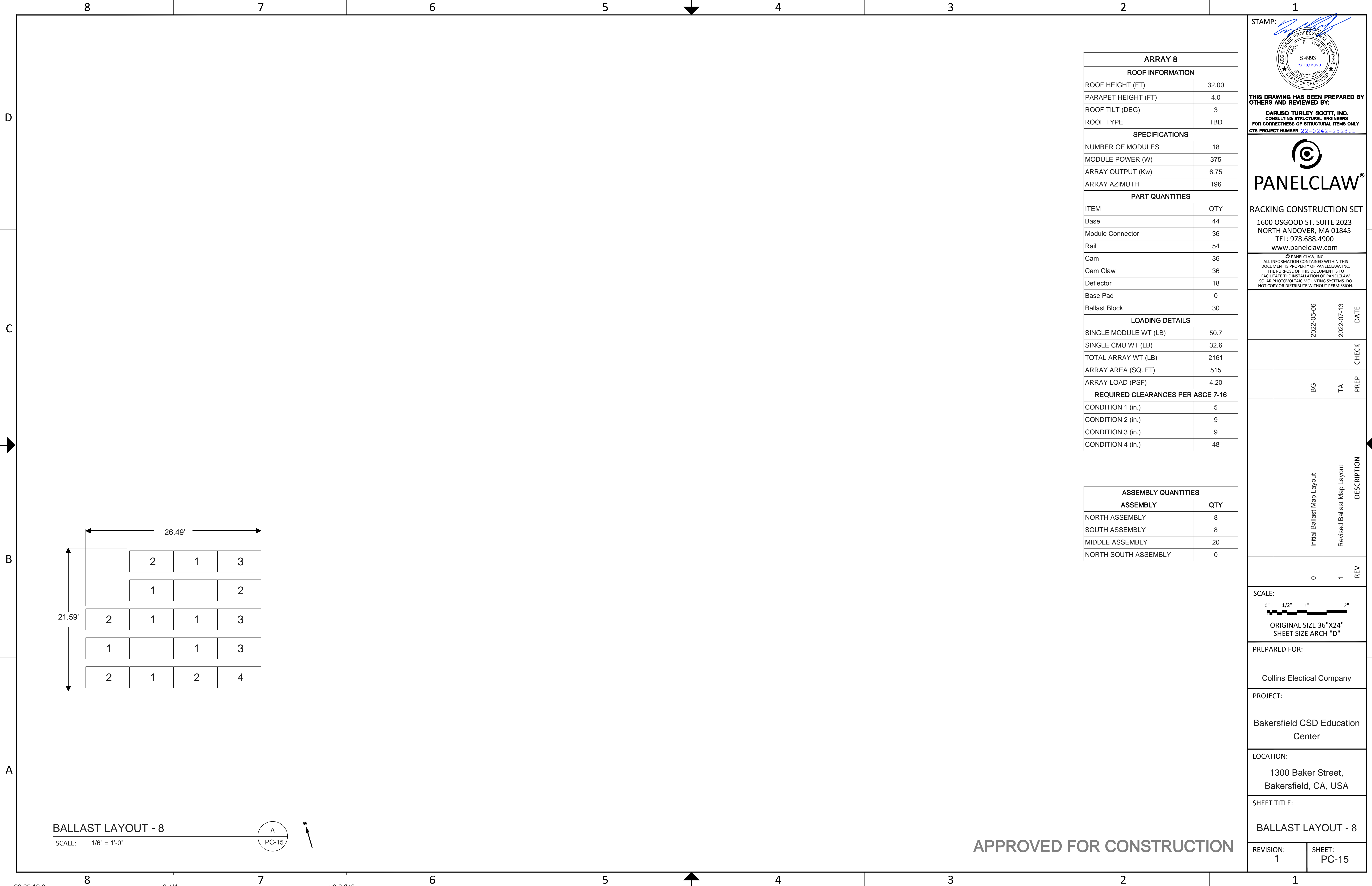
PROJECT:  
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LOCATION:  
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SHEET TITLE:  
 BALLAST LAYOUT - 7

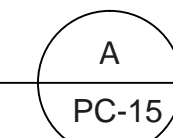
REVISION: 1 SHEET: PC-14

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**BALLAST LAYOUT - 8**

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



ARRAY 8	
ROOF INFORMATION	
ROOF HEIGHT (FT)	32.00
PARAPET HEIGHT (FT)	4.0
ROOF TILT (DEG)	3
ROOF TYPE	TBD
SPECIFICATIONS	
NUMBER OF MODULES	18
MODULE POWER (W)	375
ARRAY OUTPUT (Kw)	6.75
ARRAY AZIMUTH	196
PART QUANTITIES	
ITEM	QTY
Base	44
Module Connector	36
Rail	54
Cam	36
Cam Claw	36
Deflector	18
Base Pad	0
Ballast Block	30
LOADING DETAILS	
SINGLE MODULE WT (LB)	50.7
SINGLE CMU WT (LB)	32.6
TOTAL ARRAY WT (LB)	2161
ARRAY AREA (SQ. FT)	515
ARRAY LOAD (PSF)	4.20
REQUIRED CLEARANCES PER ASCE 7-16	
CONDITION 1 (in.)	5
CONDITION 2 (in.)	9
CONDITION 3 (in.)	9
CONDITION 4 (in.)	48

ASSEMBLY QUANTITIES	
ASSEMBLY	QTY
NORTH ASSEMBLY	8
SOUTH ASSEMBLY	8
MIDDLE ASSEMBLY	20
NORTH SOUTH ASSEMBLY	0

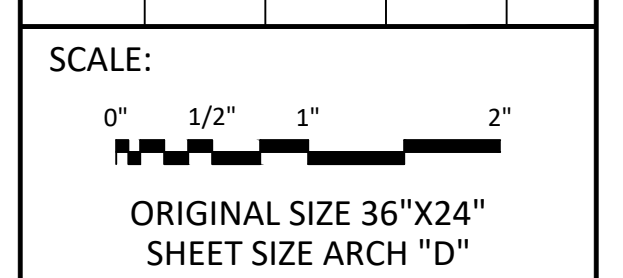


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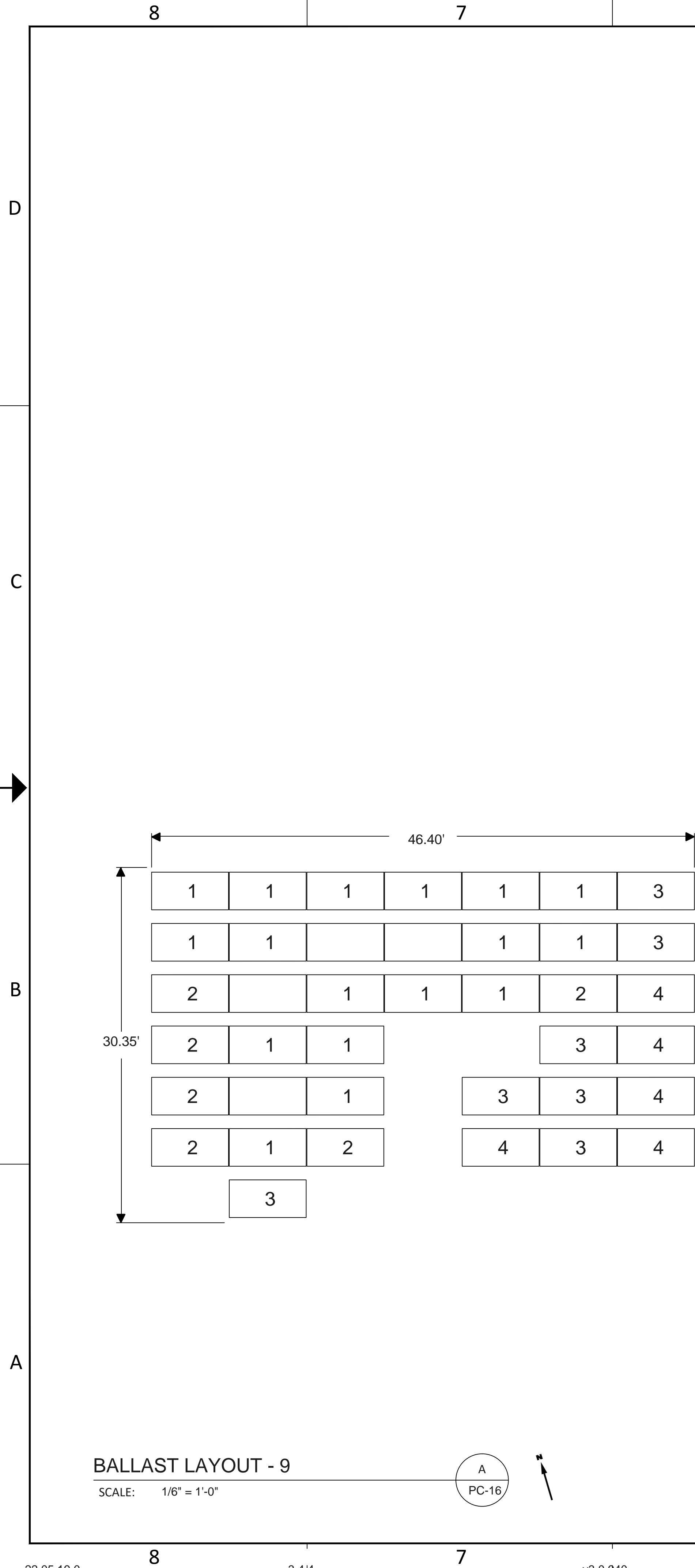
PROJECT:  
 Bakersfield CSD Education Center

LOCATION:  
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 Bakersfield, CA, USA

SHEET TITLE:  
 BALLAST LAYOUT - 8

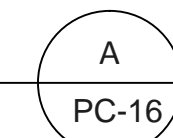
REVISION: 1 SHEET: PC-15

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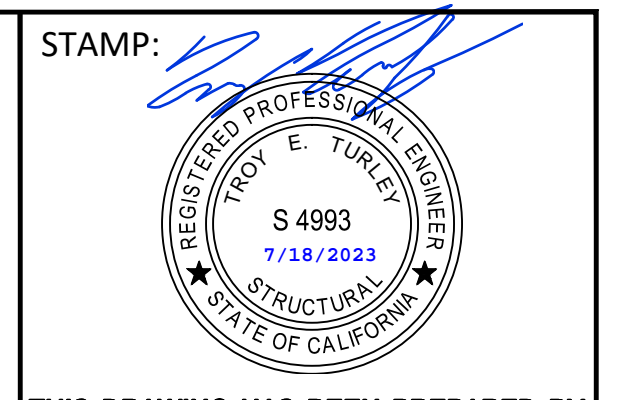
**BALLAST LAYOUT - 9**

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



ARRAY 9	
ROOF INFORMATION	
ROOF HEIGHT (FT)	32.00
PARAPET HEIGHT (FT)	4.0
ROOF TILT (DEG)	3
ROOF TYPE	TBD
SPECIFICATIONS	
NUMBER OF MODULES	39
MODULE POWER (W)	375
ARRAY OUTPUT (Kw)	14.625
ARRAY AZIMUTH	196
PART QUANTITIES	
ITEM	QTY
Base	94
Module Connector	78
Rail	122
Cam	78
Cam Claw	78
Deflector	39
Base Pad	0
Ballast Block	70
LOADING DETAILS	
SINGLE MODULE WT (LB)	50.7
SINGLE CMU WT (LB)	32.6
TOTAL ARRAY WT (LB)	4852
ARRAY AREA (SQ. FT)	1117
ARRAY LOAD (PSF)	4.34
REQUIRED CLEARANCES PER ASCE 7-16	
CONDITION 1 (in.)	5
CONDITION 2 (in.)	9
CONDITION 3 (in.)	9
CONDITION 4 (in.)	48

ASSEMBLY QUANTITIES	
ASSEMBLY	QTY
NORTH ASSEMBLY	16
SOUTH ASSEMBLY	16
MIDDLE ASSEMBLY	46
NORTH SOUTH ASSEMBLY	0



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 CTS PROJECT NUMBER 22-0242-2528.1

**PANELCLAW®**  
 RACKING CONSTRUCTION SET  
 1600 OSGOOD ST. SUITE 2023  
 NORTH ANDOVER, MA 01845  
 TEL: 978.688.4900  
 www.panelclaw.com

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REV	DESCRIPTION	DATE	CHECK
0	Initial Ballast Map Layout	2022-05-06	BG
1	Revised Ballast Map Layout	2022-07-13	TA

SCALE:  
 0" 1/2" 1" 2"  
 ORIGINAL SIZE 36"X24"  
 SHEET SIZE ARCH "D"

PREPARED FOR:  
 Collins Electrical Company

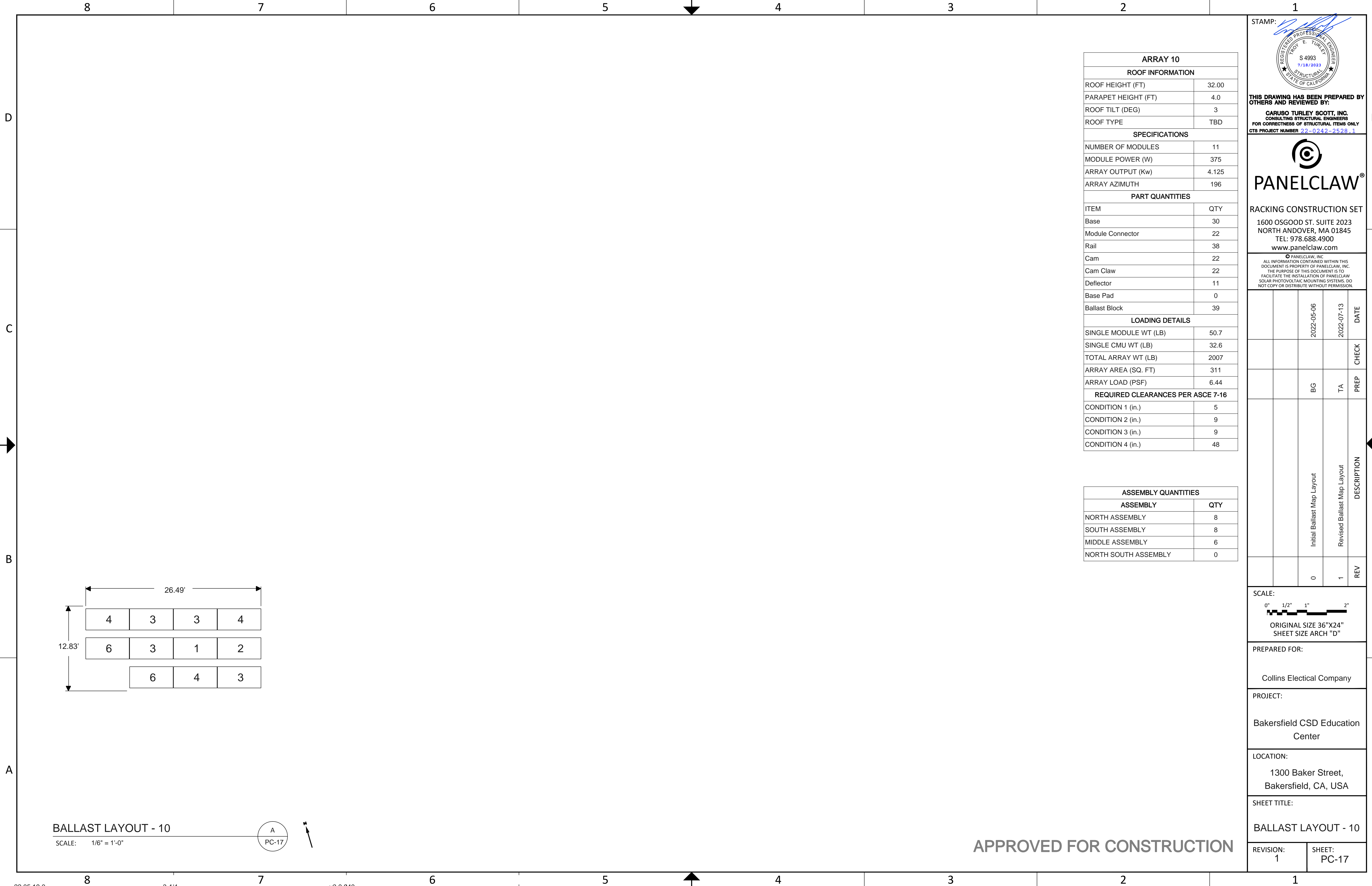
PROJECT:  
 Bakersfield CSD Education Center

LOCATION:  
 1300 Baker Street,  
 Bakersfield, CA, USA

SHEET TITLE:  
 BALLAST LAYOUT - 9

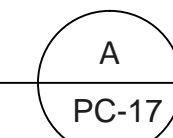
REVISION: 1 SHEET: PC-16

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**BALLAST LAYOUT - 10**

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



ARRAY 10	
ROOF INFORMATION	
ROOF HEIGHT (FT)	32.00
PARAPET HEIGHT (FT)	4.0
ROOF TILT (DEG)	3
ROOF TYPE	TBD
SPECIFICATIONS	
NUMBER OF MODULES	11
MODULE POWER (W)	375
ARRAY OUTPUT (Kw)	4.125
ARRAY AZIMUTH	196
PART QUANTITIES	
ITEM	QTY
Base	30
Module Connector	22
Rail	38
Cam	22
Cam Claw	22
Deflector	11
Base Pad	0
Ballast Block	39
LOADING DETAILS	
SINGLE MODULE WT (LB)	50.7
SINGLE CMU WT (LB)	32.6
TOTAL ARRAY WT (LB)	2007
ARRAY AREA (SQ. FT)	311
ARRAY LOAD (PSF)	6.44
REQUIRED CLEARANCES PER ASCE 7-16	
CONDITION 1 (in.)	5
CONDITION 2 (in.)	9
CONDITION 3 (in.)	9
CONDITION 4 (in.)	48

ASSEMBLY QUANTITIES	
ASSEMBLY	QTY
NORTH ASSEMBLY	8
SOUTH ASSEMBLY	8
MIDDLE ASSEMBLY	6
NORTH SOUTH ASSEMBLY	0



THIS DRAWING HAS BEEN PREPARED BY OTHERS AND REVIEWED BY:  
**CARUSO TURLEY SCOTT, INC.**  
 CONSULTING STRUCTURAL ENGINEERS  
 FOR CORRECTNESS OF STRUCTURAL ITEMS ONLY  
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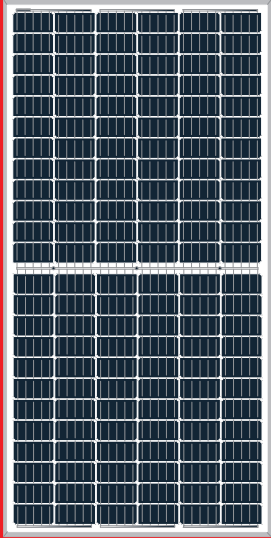
LOCATION:  
 1300 Baker Street,  
 Bakersfield, CA, USA

SHEET TITLE:  
 BALLAST LAYOUT - 10

REVISION: 1 SHEET: PC-17

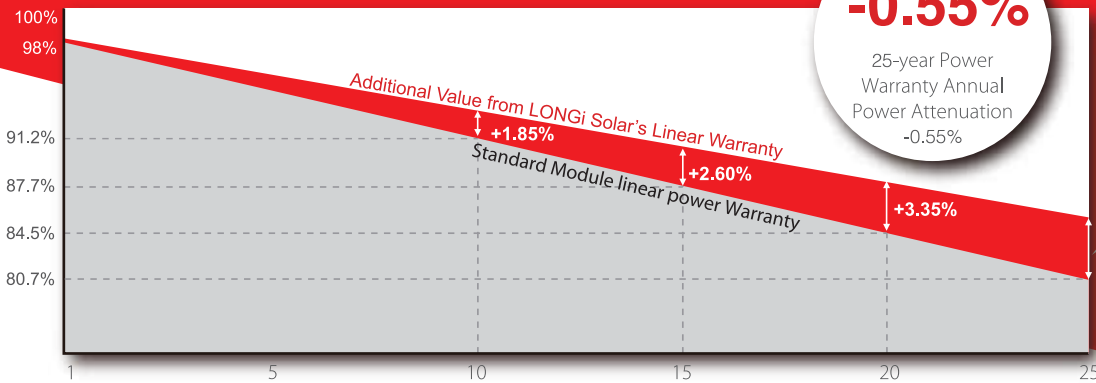
**APPROVED FOR CONSTRUCTION**

# LR6-72HPH 370~390M



**High Efficiency  
Low LID Mono PERC with  
Half-cut Technology**

12-year Warranty for Materials and Processing;  
25-year Warranty for Extra Linear Power Output



**-0.55%**

25-year Power  
Warranty Annual  
Power Attenuation  
-0.55%

**+4.10%**

## Complete System and Product Certifications

- IEC 61215, IEC 61730, UL 1703
- ISO 9001:2008: ISO Quality Management System
- ISO 14001: 2004: ISO Environment Management System
- TS62941: Guideline for module design qualification and type approval
- OHSAS 18001: 2007 Occupational Health and Safety



\* Specifications subject to technical changes and tests.  
LONGi Solar reserves the right of interpretation.

**Positive power tolerance** (0 ~ +5W) guaranteed

**High module conversion efficiency** (up to 19.5%)

**Slower power degradation** enabled by Low LID Mono PERC technology: first year <2%, 0.55% year 2-25

**Solid PID resistance** ensured by solar cell process optimization and careful module BOM selection

**Reduced resistive loss** with lower operating current

**Higher energy yield** with lower operating temperature

**Reduced hot spot risk** with optimized electrical design and lower operating current

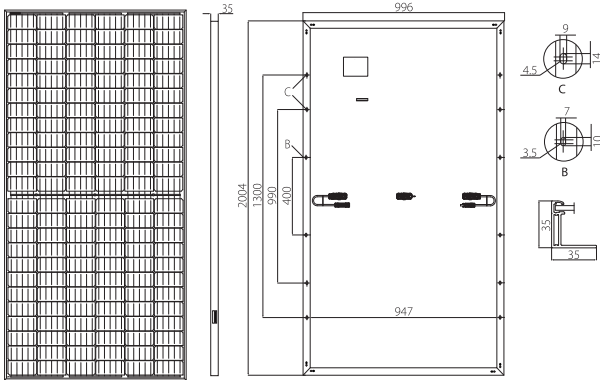


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Tel: +86-21-80162606 E-mail: module@longi-silicon.com Facebook: www.facebook.com/LONGi Solar

Note: Due to continuous technical innovation, R&D and improvement, technical data above mentioned may be of modification accordingly. LONGi have the sole right to make such modification at anytime without further notice; Demanding party shall request for the latest datasheet for such as contract need, and make it a consisting and binding part of lawful documentation duly signed by both parties.

# LR6-72HPH 370~390M

## Design (mm)



## Mechanical Parameters

Cell Orientation: 144 (6x24)  
 Junction Box: IP67, three diodes  
 Output Cable: 4mm<sup>2</sup>, 300mm in length,  
 length can be customized  
 Glass: Single glass  
 3.2mm coated tempered glass  
 Frame: Anodized aluminum alloy frame  
 Weight: 23.0kg  
 Dimension: 2004x996x35mm  
 Packaging: 30pcs per pallet  
 150pcs per 20'GP  
 660pcs per 40'HC

## Operating Parameters

Operational Temperature: -40 C ~ +85 C  
 Power Output Tolerance: 0 ~ +5 W  
 Voc and Isc Tolerance: ±3%  
 Maximum System Voltage: DC1500V (IEC/UL)  
 Maximum Series Fuse Rating: 20A  
 Nominal Operating Cell Temperature: 45±2 C  
 Safety Class: Class II  
 Fire Rating: UL type 1 or 2

## Electrical Characteristics

Test uncertainty for Pmax: ±3%

Model Number	LR6-72HPH-370M		LR6-72HPH-375M		LR6-72HPH-380M		LR6-72HPH-385M		LR6-72HPH-390M	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax/W)	370	274.1	375	277.8	380	281.5	385	285.2	390	288.9
Open Circuit Voltage (Voc/V)	48.6	45.4	48.8	45.6	49.0	45.7	49.2	46.0	49.5	46.2
Short Circuit Current (Isc/A)	9.79	7.89	9.87	7.95	9.96	8.02	10.03	8.09	10.12	8.16
Voltage at Maximum Power (Vmp/V)	40.2	37.1	40.4	37.3	40.6	37.5	40.8	37.7	41.0	37.9
Current at Maximum Power (Imp/A)	9.21	7.38	9.28	7.44	9.36	7.50	9.43	7.57	9.51	7.62
Module Efficiency(%)	18.5		18.8		19.0		19.3		19.5	

STC (Standard Testing Conditions): Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25 C, Spectra at AM1.5

NOCT (Nominal Operating Cell Temperature): Irradiance 800W/m<sup>2</sup>, Ambient Temperature 20 C, Spectra at AM1.5, Wind at 1m/s

## Temperature Ratings (STC)

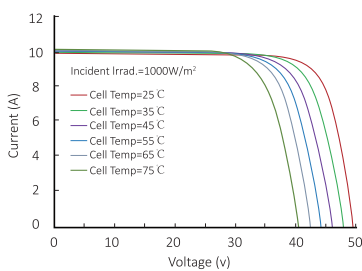
Temperature Coefficient of Isc: +0.057%/C  
 Temperature Coefficient of Voc: -0.286%/C  
 Temperature Coefficient of Pmax: -0.370%/C

## Mechanical Loading

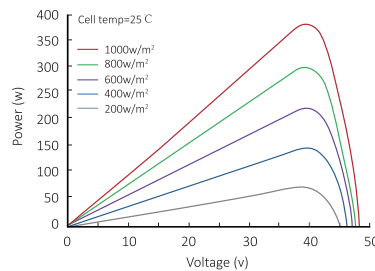
Front Side Maximum Static Loading: 5400Pa  
 Rear Side Maximum Static Loading: 2400Pa  
 Hailstone Test: 25mm Hailstone at the speed of 23m/s

## I-V Curve

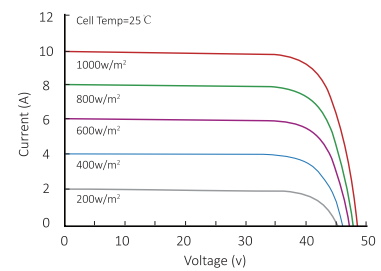
Current-Voltage Curve (LR6-72HPH-380M)



Power-Voltage Curve (LR6-72HPH-380M)



Current-Voltage Curve (LR6-72HPH-380M)



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