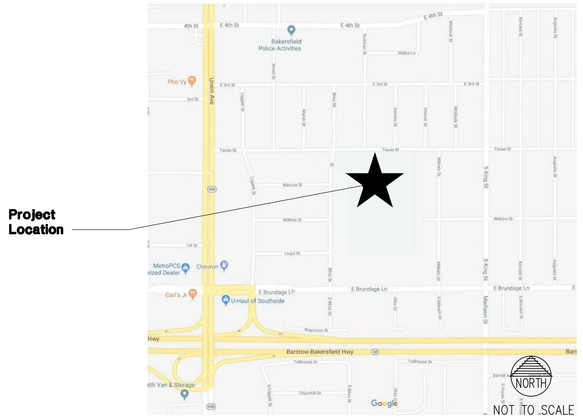
BAKERSFIELD CITY SCHOOL DISTRICT

CANOPY MOUNTED PV SYSTEM
FREMONT ELEMENTARY SCHOOL
PTN 63321-321



Client
Bakersfield City School District
1300 Baker Street
Bakersfield, CA 93305

Architect & Engineers of Record
ATI Architects and Engineers
4750 Willow Road
Pleasanton, California 94588
(925) 648-8800 Fax:(925) 648-8811
Project Manager: Mark Bello
Architect of Record: Mark Bello

Electrical Engineer
Collins Electric
Electrical Engineer:R.J. Hardin
1902 Channel Drive
West Sacramento CA. 95691
(916) 567-1100 Fax:(916) 567-1292

Structural Engineer
Timothy Jacquess, S.E.
TKJ Structural Engineering
9820 Willow Creek Road, Suite 455
San Diego, CA 92131
619-869-6234

Forefront Power
100 Montgomery Street #1400
San Francisco, CA 94104
(855)-204-5083

GENERAL NOTES

1. ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO THE CURRENT EDITION OF THE CALIFORNIA BUILDING CODE, CMC, CPC, CEC AND ALL APPLICABLE LOCAL CODES, ORDINANCES, AND STATE AMENDMENTS.

2. THE CONTRACTOR SHALL CHECK ALL DRAWINGS IMMEDIATELY UPON THEIR RECEIPT AND SHALL VERIFY ALL DIMENSIONS AND SITE CONDITIONS BEFORE STARTING WORK. ATI ARCHITECTS AND ENGINEERS SHALL BE NOTIFIED OF ANY DISCREPANCIES.

3. NO STRUCTURAL MEMBER SHALL BE CUT OR NOTCHED UNLESS SPECIFICALLY SHOWN, NOTED, OR APPROVED BY ATI. NOTCH DETAILS, IF PROVIDED ARE FOR GENERAL GUIDANCE ONLY. ATI SHALL BE CONTACTED TO APPROVE LOCATIONS OF PROPOSED NOTCHES.

4. CONNECTIONS AND IMPLIED CONSTRUCTION ASSEMBLIES THAT ARE NOT SPECIFICALLY DESCRIBED OR DETAILED SHALL BE CONSTRUCTED USING STANDARD CONSTRUCTION PRACTICES IN COMPLIANCE WITH THE GOVERNING CODES AND ORDINANCES.

5. WHEN DETAILS LABELED "TYPICAL" OR "SIMILAR" ARE GIVEN ON DRAWINGS, THE CONTRACTOR SHALL APPLY THE INTENT OF THE DETAIL TO THAT SPECIFIC CONDITION.

6. WRITTEN INFORMATION AND DIMENSIONS SHALL TAKE PRECEDENCE OVER GRAPHIC INFORMATION. DO NOT SCALE DRAWINGS.

7. DRAWINGS AND SPECIFICATIONS FOR THIS WORK HAVE BEEN PREPARED IN ACCORDANCE WITH GENERALLY ACCEPTED STANDARDS OF PRACTICE TO MEET THE MINIMUM REQUIREMENTS OF THE CURRENT EDITION OF THE CBC. ANY OMISSIONS OR DISCREPANCIES ON THE PLANS OR ANY DEVIATIONS FROM THE PLANS WHICH ARE NECESSITATED BY FIELD CONDITIONS OR ANY CONDITION DIFFERENT FROM THOSE INDICATED ON THE PLANS SHOULD BE BROUGHT TO THE ATTENTION OF ATI PRIOR TO CONTINUING CONSTRUCTION. ALL WORK IS TO BE COORDINATED SO THAT COOPERATION BETWEEN THE TRADES WHERE REQUIRED IS ACCOMPLISHED.

8. CONTRACTOR AND SUBCONTRACTORS ARE RESPONSIBLE FOR THE ORDER AND MEANS OF CONSTRUCTION AND ALL TEMPORARY BRACING AND ERECTION DURING CONSTRUCTION.

9. APPROVALS BY BUILDING INSPECTORS SHALL NOT CONSTITUTE AUTHORITY TO DEVIATE FROM THE PLANS AND SPECIFICATIONS.

10. ALL WORK TO CONFORM TO TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR)

PROJECT CODE SUMMARY & REGULATIONS

AS A FACILITY WHICH COMES UNDER THE APPROVAL AND AUTHORITY OF THE DIVISION OF THE STATE ARCHITECT (DSA), THIS PROJECT IS SUBJECT TO DRAWING AND JOB SITE REVIEW BY A REPRESENTATIVE OF DSA.

ADMINISTRATIVE REQUIREMENTS (PARTIAL LISTING ONLY FROM CHAPTER 4, PART 1, TITLE 24, C.C.R.):

1. A COPY OF PARTS 1 TO 5, TITLE 24, C.C.R. AND ALL SECTIONS OF THE CALIFORNIA BUILDING CODE (2 VOLUMES) SHALL BE KEPT ON THE SITE AT ALL TIMES.
2. ALL CONSTRUCTION CHANGE DOCUMENTS (CCD) PER DSA IR A-6 TO BE SIGNED BY THE ARCHITECT OF RECORD AND THE OWNER AND APPROVED BY DSA AND ARE NOT VALID UNTIL APPROVED BY DSA PER SECTION 4-338, PART 1, TITLE 24.
3. DSA SHALL BE NOTIFIED AT THE START OF CONSTRUCTION AND PRIOR TO THE PLACEMENT OF CONCRETE PER SECTION 4-331, PART 1, TITLE 24.
4. A DSA CERTIFIED PROJECT INSPECTOR EMPLOYED BY THE DISTRICT (OWNER) AND APPROVED BY THE DIVISION OF THE STATE ARCHITECT SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN SECTION 4-342, (PART 1, TITLE 24, CCR). INSPECTION SHALL BE IN ACCRODANCE WITH SECTION 4-333(b), PART 1, TITLE 24. THIS PROJECT REQUIRES A CLASS 2 INSPECTOR IN ACCORDANCE WITH CBC.
5. SUPERVISION OF CONSTRUCTION BY DSA SHALL BE IN ACCORDANCE WITH SECTION 4-334, PART 1, TITLE 24.
6. CONTRACTOR, INSPECTOR, ARCHITECT OF RECORD AND ENGINEERS SHALL SUBMIT VERIFIED REPORTS (FORM DSA-6) IN ACCORDANCE WITH SECTION 4-336 AND 4-343, PART 1, TITLE 24.
7. THE ARCHITECT OF RECORD AND THE STRUCTURAL ENGINEER SHALL PERFORM THEIR DUTIES IN ACCORDANCE WITH SECTION 4-333(a) AND 4-341, PART 1, TITLE 24.
8. 8. THE CONTRACTOR SHALL PERFORM HIS DUTIES IN ACCORDANCE WITH SECTION 4-343, PART 1, TITLE 24.
9. THE INTENT OF THESE DRAWINGS AND PROJECT MANUAL IS THAT THE WORK OF THE ALTERATION, REHABILITATION OR RECONSTRUCTION IS TO BE IN ACCORDANCE WITH TITLE 24, CALIFORNIA CODE OF REGULATIONS. UPON DISCOVERY OF NON-COMPLYING EXISTING CONDITIONS NOT ADDRESSED BY THE CONTRACT DOCUMENTS AND AFFECTING COMPLIANCE OF FINISHED WORK, A C.C.D. OR SEPARATE SET OF CONSTRUCTION DOCUMENTS ADDRESSING THE NECESSARY REMEDIAL SCOPE OF WORK SHALL BE SUBMITTED TO AND APPROVED BY THE OWNER, CLIENT, ARCHITECT, AND DSA BEFORE PROCEEDING WITH THE WORK.
10. ALL TESTS TO CONFORM TO THE REQUIREMENTS OF SECTION 4-335, PART 1, TITLE 24 AND APPROVED T & I.
11. TEST OF MATERIALS AND TEST LABORATORY SHALL BE IN ACCORDANCE WITH SECTION 4-335, PART 1, TITLE 24. THE SCHOOL DISTRICT SHALL EMPLOY AND PAY THE LABORATORY.
11. COMPLIANCE WITH CFC CHAPTER 33, FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION AND CBC CHAPTER 33, SAFETY DURING CONSTRUCTION WILL BE ENFORCED.

APPLICABLE CODES

CALIFORNIA BUILDING STANDARD, ADMINISTRATION CODE, TITLE 24, PART 1, 2016 EDITION W/CA AMENDMENTS
CALIFORNIA BUILDING CODE, TITLE 24, PART 2, VOLUME 1, 2016 EDITION W/CA AMENDMENTS
CALIFORNIA BUILDING CODE, TITLE 24, PART 2, VOLUME 2, 2016 EDITION W/CA AMENDMENTS
CALIFORNIA ELECTRICAL CODE, TITLE 24, PART 3, 2016 EDITION W/CA AMENDMENTS
CALIFORNIA MECHANICAL CODE, TITLE 24, PART 4, 2016 EDITION W/CA AMENDMENTS
CALIFORNIA PLUMBING CODE, TITLE 24, PART 5, 2016 EDITION W/CA AMENDMENTS
CALIFORNIA ENERGY CODE, TITLE 24, PART 6, 2016 EDITION W/CA AMENDMENTS
CALIFORNIA FIRE CODE, TITLE 24, PART 9, 2016 EDITION W/CA AMENDMENTS
CALIFORNIA REFERENCED STANDARD CODE, TITLE 24, PART 12, 2016 EDITION
TITLE 19, CCR, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS
CSFM SOLAR PHOTOVOLTAIC INSTALLATION GUIDE
DSA IR 16-8
DSA 11B-9
GROUNDING PER CEC ARTICLE 250
CEC ARTICLE 690
2016 ADA STANDARDS FOR ACCESSIBLE DESIGN

APPLICABLE STANDARDS/REGULATIONS
REF. CODE SECTION: NFPA STANDARDS-2016 CBC (SFM) CHAPTER 35, 3504.1
CONSTRUCTION SAFETY (CAL-OSHA): CCR TITLE 8
RULES AND REGULATIONS OF THE LOCAL TELEPHONE COMPANY
RULES AND REGULATIONS OF THE LOCAL UTILITY COMPANIES:
SOUTHERN CALIFORNIA EDISON

STATEMENT OF GENERAL CONFORMANCE

☑ THE DRAWINGS OR SHEETS LISTED ON THE COVER OR INDEX SHEET ◇

☐ THIS DRAWING, PAGE OF SPECIFICATIONS/ CALCULATIONS

HAVE BEEN PREPARED BY OTHER DESIGN PROFESSIONALS OR CONSULTANTS WHO ARE LICENSED AND/ OR AUTHORIZED TO PREPARE SUCH DRAWINGS IN THIS STATE. IT HAS BEEN EXAMINED BY ME FOR:

1, DESIGN INTENT AND APPEARS TO MEET THE APPROPRIATE REQUIREMENTS OF TITLE 24, CALIFORNIA CODE OF REGULATIONS AND PROJECT SPECIFICATIONS PRPEARED BY ME, AND

2. COORDINATION WITH MY PLANS AND SPECIFICATIONS AND IS ACCEPTABLE FOR INCORPORATION INTO THE CONSTRUCTION OF THIS PROJECT.

THE STATEMENT OF GENERAL CONFORMANCE "SHALL NOT BE CONSTRUED AS RELIEVING ME OF MY RIGHTS, DUTIES, AND RESPONSIBILITIES UNDER SECTIONS 17302 AND 81138 OF THE EDUCATION CODE AND SECTIONS 4-336, 4-341 AND 4-344" OF TITLE 24, PART 1. (TITLE 24, PART 1, SECTION 4-1317 (b)).

SIGNATURE — DATE

MARK S. BELLO
PRINT NAME

C 20677 — Mar. 31, 2019
LICENSE NUMBER — EXPIRATION DATE

SCOPE

INSTALLATION OF CANOPY MOUNTED PV PANELS
(4) CANOPY STRUCTURES AND ASSOCIATED GROUND MOUNTED EQUIPMENT

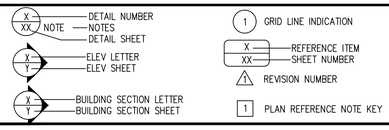
ESTIMATED CONSTRUCTION COST: $635,131.80

DEFERRED ITEMS: NONE

ABBREVIATIONS

@	AT	ELEV.	ELEVATION	PR.	PAIR
A.B.	ANCHOR BOLT	E.J.	EXPANSION JOINT	PSI	POUNDS PER SQUARE INCH
ADD'L	ADDITIONAL	EMBED.	EMBEDMENT	P.T.	PRESSURE TREATED
AGG.	AGGREGATE	EXT.	EXTERIOR	RECOM.	RECOMMENDATIONS
ALT.	ALTERNATE	FDN./FOUND.	FOUNDATION	REINF.	REINFORCING
ALUM.	ALUMINUM	FLUOR.	FLUORESCENT	S.A.D.	SEE ARCHITECTURAL DRAWINGS
AMP.	AMPERAGE	FTG.	FOOTING	S.C.	SOLID CORE
APPROX.	APPROXIMATE	GA.	GAUGE	S.C.D.	SEE CIVIL DRAWINGS
BLK'G/BLKNG	BLOCKING	GALV.	GALVANIZED	SCHED.	SCHEDULE
BM.	BEAM	G.F.C.I.	GROUND FAULT CIRCUIT INTERRUPTER	SD	SMOKE DETECTOR
BTM./BOTT.	BOTTOM	GIR.	GIRDER	S.E.D.	SEE ELECTRICAL DRAWINGS
BTWN	BETWEEN	G.S.M.	GALVANIZED SHEET METAL	S.F./SQ.FT.	SQUARE FOOT
CALCS.	CALCULATIONS	HORIZ.	HORIZONTAL	SHR.	SHEAR
C.I.	CAST IRON	HR.	HOUR	SIM.	SIMILAR
CJ	CONTROL JOINT	INFO.	INFORMATION	S.S.D.	SEE STRUCTURAL DRAWINGS
CLG.	CEILING	JST.	JOIST	SQ. IN.	SQUARE INCH
C.M.U.	CONCRETE MASONRY UNITS	LB. OR #	POUND OR NUMBER	SYM.	SYMBOL
COL.	COLUMN	LEV./LVL.	LEVEL	T.O.C.	TOP of CURB
CONC.	CONCRETE	LT.	LIGHT	T.O.S.	TOP of SLAB
CONT.	CONTINUOUS	LTWT.	LIGHTWEIGHT	TYP.	TYPICAL
CONTR.	CONTRACTOR	MAX.	MAXIMUM	U.N.O.	UNLESS NOTED OTHERWISE
C.P.	CONTROL POINT	MFR.	MANUFACTURER	UTL./UTIL.	UTILITY
DBL.	DOUBLE	MIN.	MINIMUM	VERT.	VERTICAL
DET.	DETAIL	(N)	NEW	V.I.F.	VERIFY IN FIELD
DEG.	DEGREE	NAT.	NATIONAL	WL.	WALL
DIA.	DIAMETER	N.I.C.	NOT IN CONTRACT	W.P.	WEATHER PROOF
DIAPH.	DIAPHRAGM	NOM.	NOMINAL	W.W.F.	WELDED WIRE FABRIC
DN.	DOWN	N.T.S.	NOT TO SCALE	W.W.M.	WELDED WIRE MESH
(E)	EXISTING	O.C.	ON CENTER	W.	WIDE
EA.	EACH	PL.	PLATE		
ELECT.	ELECTRICAL				

SYMBOLS



EQUIPMENT ANCHORAGE NOTES

ALL ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. WHERE NO DETAIL IS INDICATED, COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2016 CBC SECTIONS 1616A.1.18 THROUGH 1616A.1.26, AND ASCE 7-10 CHAPTER 13 AND 26-31.

ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-10 SECTION 13.3, AS DEFINED IN ASCE 7-10 SECTION 13.6.5.6, 13.6.7 AND 13.6.8, AND 2016 CBC SECTION 1616A.1.23,24,25,26.

THE ATTACHMENT OF THE FOLLOWNG ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE, BUT NEED NOT BE DETAILED ON THE PLANS. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED PIPING OR CONDUIT.

A. COMPONENTS WEIGHING LESS THAN 400 LBS. AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT
B. COMPONENTS WEIGHING LESS THAN 20 LBS. OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

FOR THOSE ELEMENTS THAT DO NOT REQUIRE DETAILS ON THE APPROVED DRAWINGS, THE INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD AND THE DSA DISTRICT STRUCTURAL ENGINEER. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH ABOVE REQUIREMENTS.

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-10 SECTION 13.3 AS DEFINED IN ASCE 7-10 SECTION 13.6.8, 13.6.7, 13.6.5.6, AND 2016 CBC, SECTIONS 1616A.1.23, 1616A.1.24, 1616A.1.25 AND 1616A.1.26.

THE BRACING AND ATTACHMENTS TO THE STRUCTURE SHALL BE DETAILED ON THE APPROVED DRAWINGS.

COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF HANGING AND BRACING OF THE PIPE, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS.
THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

SHEET INDEX

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A0.1	OVERALL SITE PLAN	S-2	COVER SHEET 2
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CLIENT
Bakersfield City School District
1300 BAKER STREET, BAKERSFIELD, CA 93305

PROJECT LOCATION
FREMONT ELEMENTARY SCHOOL
607 TEXAS STREET
BAKERSFIELD CA. 93306

DESIGNER
FOREFRONT POWER

ARCHITECT
ATI ARCHITECTS + ENGINEERS
4750 Willow Road Suite 250 Pleasanton, CA 94588 T 925.648.8800
2510 Douglas Boulevard Roseville, CA 95661 T 916.772.1800
3050 Fulman Street Costa Mesa, CA 92626 T 714.338.1600
www.atiae.com

PROFESSIONAL STAMP
LICENSED ARCHITECT MARK S. BELLO C 20677 Exp: Mar.31, 2019 STATE OF CALIFORNIA

AGENCY APPROVAL

ISSUE

MARK	DATE	DESCRIPTION
		DSA SUBMITTAL

PROJECT No : ATI PROJ. #CA4906-003
DRAWN BY:
CHECKED BY:
SCALE:
KEY MAP

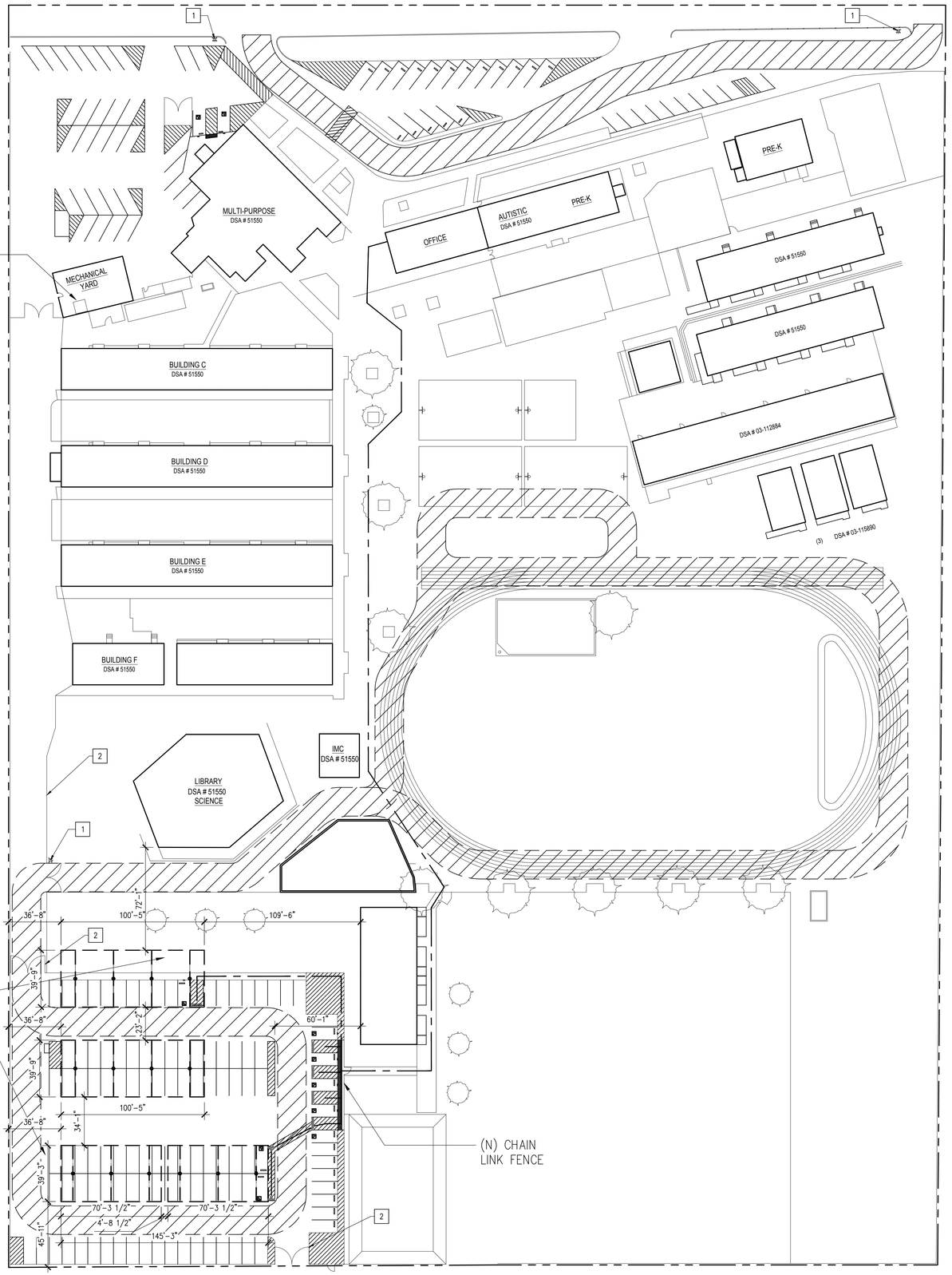
RECORD DRAWINGS

SHEET TITLE
COVER SHEET

SHEET NUMBER
G0.0

PROPOSED POCC AT 480V/1600A
METER # 1006713459 (OUTDOOR)
METER # 1006713712 (OUTDOOR)
METER # 1006713460 (OUTDOOR)
TRANSFORMER # T-8094

PROPOSED PV STRUCTURES (4)



1 FIRE ACCESS SITE PLAN

SCALE : 1"=60'-0"

NORTH

SITE PLAN LEGEND

- (E) FIRE LANE ACCESS, 20'-0" MIN. CLEAR
- ASSUMED PROPERTY LINE
- (E) FIRE HYDRANT
- (N) PV MODULAR STRUCTURE

GENERAL NOTES

1. (E) FIRE HYDRANT
2. (E) 20'-0" GATE WITH KNOX BOX

DSA **810**

LOCAL FIRE AUTHORITY REVIEW

To facilitate the Division of the State Architect's (DSA) approval of the Fire/Life Safety portion of a project, DSA requires Local Fire Authority (LFA) review of certain elements as identified in this form. Use of this form is mandatory for projects that add square footage to a campus or if any item on this form is relevant to the project. For additional information, see DSA 810 Instructions and DSA Policy 09-01.

PROJECT INFORMATION

School District/Owner: Bakersfield City School District
Project Name/School: Fremont Elementary School
Project Address: 607 Texas Street, Bakersfield, CA 93306

LOCAL FIRE AUTHORITY (LFA)

LFA Agency Name: Bakersfield Fire Department
LFA Reviewer Name: Ernie Medina | Title:
Work Email: emedina@bakersfieldfire.us | Work Telephone Number: (661) 326-3682

I have reviewed and responded to the applicable items for this project as listed below.
Note: *Only sign this form when it is imaged onto the site plan. A loose form is not acceptable to DSA.*

LFA Reviewer's Signature: _____ **Date:** _____

Review Key: **"Y"** = Complies with LFA requirements **"N"** = Not approved (complete Section 8) **"NA"** = Not applicable to the project **"NR"** = LFA elects not to review

	Description	Y	N	NA	NR
1	Where an elevator does not meet medical emergency service cab size, per the California Building Code (CBC), use of stairways for emergency rescue and patient transport is acceptable.			X	
2	Access roads, fire lane markings, pavers and gate entrances are in accordance with Title 19, California Code of Regulations and the California Fire Code, Chapter 5.	X			
3	Fire hydrant location and distribution complies with the California Fire Code (or see # 4).	X			
4	Fire hydrant location and distribution complies with NFPA 1142, "Alternate Means." If "NR" is checked, DSA can only approve on-site water storage as an alternate. The signature of the school district official is required to acknowledge the use of alternate means.			X	
	Signature of School District Official: _____ **Date:** _____ **Print the School District Official's Name:** _____				
5	The location(s) of the proposed post indicator valve and fire department connection meet the requirements of this jurisdiction.			X	
6	The location(s) of the detector check valve assembly meet the requirements of this jurisdiction.			X	
7	Is the project located in a hazard severity zone area? (CBC, Chapter 7A, Section 701A.) ☐ Yes ☒ No Check type if "Yes": ☐ Moderate ☐ High ☐ Very High ☐ WIFA (If one of these boxes is checked, the project design must meet the requirements of Chapter 7A.)				
8	COMMENTS (note deficiencies): PLEASE MAINTAIN 13.6 FT. MIN. ON LOW END HEIGHT FOR FIRE ACCESS.				

CLIENT

Bakersfield City School District
1300 BAKER STREET, BAKERSFIELD, CA 93305

PROJECT LOCATION

FREMONT ELEMENTARY SCHOOL
607 TEXAS STREET
BAKERSFIELD CA. 93306

DESIGNER

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PROFESSIONAL STAMP

LICENSED ARCHITECT MARK S. BELL C 20677 Exp: Mar.31, 2019 STATE OF CALIFORNIA

AGENCY APPROVAL

ISSUE

MARK	DATE	DESCRIPTION
		DSA SUBMITTAL

PROJECT No : ATI PROJ. #CA4906-003
DRAWN BY:
CHECKED BY:
SCALE:

KEY MAP

RECORD DRAWINGS

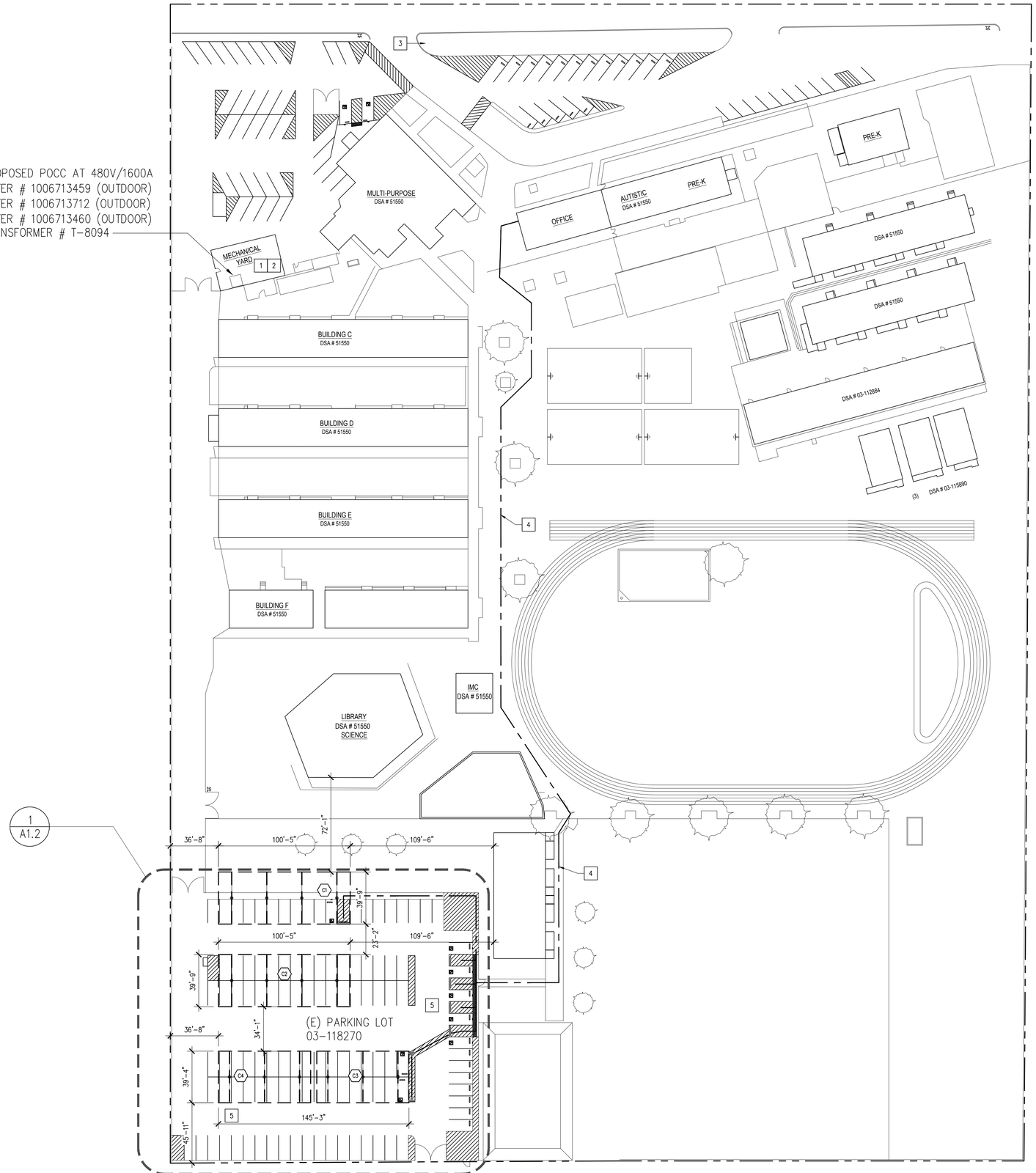
SHEET TITLE

FIRE ACCESS SITE PLAN

SHEET NUMBER

F0.1

PROPOSED POCC AT 480V/1600A
METER # 1006713459 (OUTDOOR)
METER # 1006713712 (OUTDOOR)
METER # 1006713460 (OUTDOOR)
TRANSFORMER # T-8094



1 SITE PLAN

SCALE : 1"=60'-0"

NORTH

SITE PLAN LEGEND

ACCESSIBLE PATH OF TRAVEL (P.O.T) AS INDICATED ON PLANS IS A BARRIER-FREE ACCESS ROUTE WITHOUT ANY ABRUPT LEVEL 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 SHALL VERIFY THAT THERE ARE NO BARRIERS IN THE PATH OF TRAVEL. ACCESSIBLE PATH OF TRAVEL AS SHOWN ON THE PLANS CAN BE NEGOTIATED BY A PERSON WITH DISABILITY USING A WHEELCHAIR, AND THAT IS ALSO SAFE FOR AND USABLE BY PERSONS WITH OTHER DISABILITIES.

ASSUMED PROPERTY LINE

(E) FIRE LANE ACCESS, 20'-0" MIN. CLEAR

(N) PV MODULAR STRUCTURE
IF THE PV STRUCTURE CROSSES THE FIRE LANE, THE STRUCTURE MUST BE 13'-0" HIGH MIN.

(#) ARRAY NUMBER

DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE STATEMENT

THE PATH OF TRAVEL (P.O.T.) IDENTIFIED IN THESE CONSTRUCTION DOCUMENTS IS COMPLIANT WITH THE CURRENT APPLICABLE CALIFORNIA BUILDING CODE ACCESSIBILITY PROVISIONS FOR PATH OF TRAVEL REQUIREMENTS FOR ALTERATIONS, ADDITIONS AND STRUCTURAL REPAIRS. AS PART OF THE DESIGN OF THIS PROJECT, THE P.O.T. WAS EXAMINED AND ANY ELEMENTS, COMPONENTS OR PORTIONS OF THE P.O.T. THAT WERE DETERMINED TO BE NONCOMPLIANT (1) HAVE BEEN IDENTIFIED AND (2) 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 P.O.T. THAT WILL NOT BE CORRECTED BY THIS PROJECT BASED ON VALUATION THRESHOLD LIMITATIONS OR A FINDING OF UNREASONABLE HARDSHIP ARE SO INDICATED IN THESE CONSTRUCTION DOCUMENTS.

DURING CONSTRUCTION, IF P.O.T. ITEMS WITHIN THE SCOPE OF THE PROJECT REPRESENTED AS CODE COMPLIANT ARE FOUND TO BE NONCONFORMING BEYOND REASONABLE CONSTRUCTION TOLERANCES, THEY SHALL BE BROUGHT INTO COMPLIANCE WITH THE CBC AS A PART OF THIS PROJECT BY MEANS OF A CONSTRUCTION CHANGE DOCUMENT.

GENERAL NOTES

SOLAR CANOPY DIMENSIONS ARE MEASURED FROM EDGE OF SOLAR PANELS, AND ARE SHOWN ONLY FOR GENERAL SITE REFERENCE. FOR ACTUAL CANOPY DIMENSIONS REFER TO STRUCTURAL DRAWINGS.

KEYNOTES

1. (N) ELECTRICAL DISCONNECT, S.E.D.
2. (E) ELECTRICAL METER / EQUIPMENT TIE IN, S.E.D.
3. (E) TOW AWAY SIGN. VERIFY COMPLIANCE WITH 5/A2.1 OR REPLACE
4. (E) PATH OF TRAVEL (P.O.T.) PER A#3-118270
5. (E) FIRE LANE ACCESS, MAINTAIN 20'-0" MIN. CLEAR
6. EXISTING LIGHT POLE, LIGHT, & OVERHEAD WIRING TO BE REMOVED BY SMUD. PROVIDE UNDER-CANOPY LIGHTING PER DISTRICT SPEC.

COVERED PARKING COUNT

	TOTAL STALLS	ACCESSIBLE STD.		ACCESSIBLE VAN		TOTAL ACCESSIBLE	
		REQUIRED	PROVIDED	REQUIRED	PROVIDED	REQUIRED	PROVIDED
PARKING LOT	110	4	6	1	2	5	8
COVERED	63 (57%)	2	2	1	1	3	3

ARRAY CODE ANALYSIS/SELECTION TABLE

ARRAY #	OCC. TYPE	CONSTR. TYPE	ACTUAL AREA (FT²)	SPRINKLERED	BASIC ALLOWABLE AREA-CBC TABLE 506.5.5	ARRAY DESIGN:	PIER DEPTH PER TABLE SHEET S-8
C1	S2	IIB	3393	N	26000 SF		SEE STRUCTURAL SHEET S-8
C2	S2	IIB	3393	N	26000 SF		
C3	S2	IIB	3993	N			
C4	S2	IIB	2742	N			
		TOTAL:	6,735 SF		26000 SF		

CLIENT

Bakersfield City School District
1300 BAKER STREET, BAKERSFIELD, CA 93305

PROJECT LOCATION

FREMONT ELEMENTARY SCHOOL
607 TEXAS STREET
BAKERSFIELD CA. 93306

DESIGNER

FOREFRONT POWER

ARCHITECT

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Roseville, CA 95661
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www.atiae.com

PROFESSIONAL STAMP

LICENSED ARCHITECT
MARK S. BLAKE
C 20677
Exp: Mar. 31, 2019
STATE OF CALIFORNIA

AGENCY APPROVAL

ISSUE

MARK	DATE	DESCRIPTION
		DSA SUBMITTAL

PROJECT No : ATI PROJ. #CA4906-003
DRAWN BY:
CHECKED BY:
SCALE:
KEY MAP

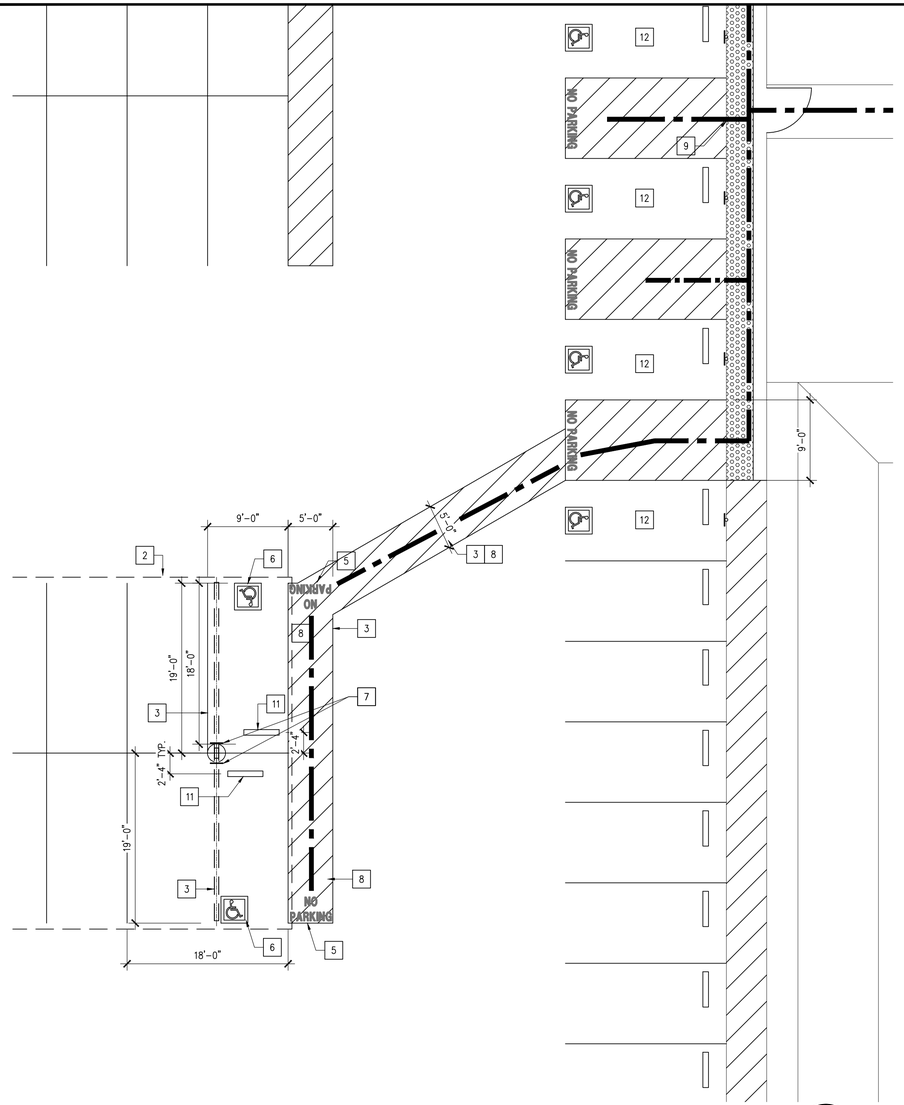
RECORD DRAWINGS

SHEET TITLE

OVERALL SITE PLAN

SHEET NUMBER

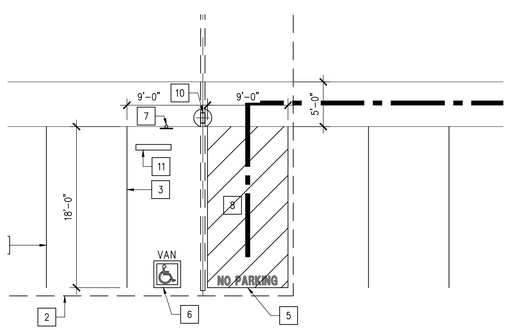
A0.1



1 PARTIAL SITE PLAN

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

NORTH



2 PARTIAL SITE PLAN

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

NORTH

KEYNOTES

1. (E) STRIPING TO REMAIN
2. (N) SOLAR PANEL STRUCTURE ABOVE
3. (N) 4" WIDE PAINTED BLUE STRIPING AND BORDERS, TYP. 15090 PER FED. STD. 595C
4. (N) STRIPING, MATCH EXISTING
5. (N) 12" PAINTED WHITE LETTERS – "NO PARKING"
6. (N) ACCESSIBLE PARKING SYMBOL, SEE DETAIL 2/-
7. (N) ACCESSIBLE SIGNAGE. VERIFY/INSTALL (MIN. FINE $250), SEE DETAIL 4/-
8. 2% SLOPE MAX. IN ANY DIRECTION AT PARKING SPACE AND LOADING ZONE, TYP.
9. (E) ZERO CURB AND TRUNCATED DOMES PER DSA APPROVAL #03-113549
10. (N) COLUMN SUPPORTING SOLAR PANEL STRUCTURE
11. (N) CONC. WHEEL STOP PER DTL. 5
12. (E) ACCESSIBLE PARKING PER 03-118270

ISA SYMBOL IMAGE TO BE PAINTED WITH WHITE TRAFFIC PAINT BACKGROUND TO BE BLUE TO MATCH FEDERAL BLUE #15090 PER FEDERAL STANDARDS 595C. CBC 11B-703.7.2.1

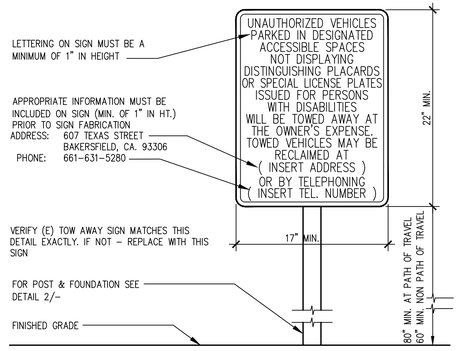
EMBLEM MUST BE LOCATED SO THAT IT IS VISIBLE BY A TRAFFIC ENFORCEMENT OFFICER WHEN A VEHICLE IS PROPERLY PARKED IN THE SPACE (CENTERED AT THE ENTRANCE TO THE STALL)

THERE IS NO WHITE BORDER

5 ISA PARKING STALL SYMBOL

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

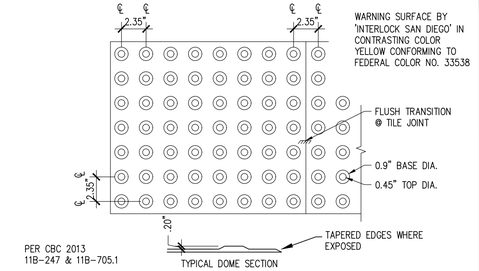
JOB# – DWGSCALE: 96
+A11– PARTIAL SITE PLAN.DWG



6 SIGN - TOW AWAY

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

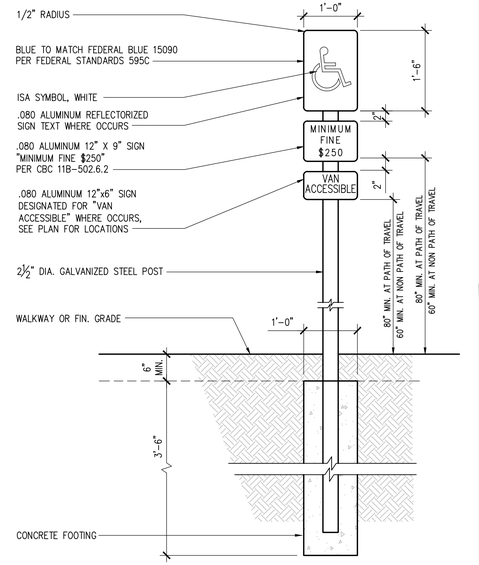
JOB# – DWGSCALE: 96
+A11– PARTIAL SITE PLAN.DWG



1 TRUNCATED DOMES WARNING SURFACE

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

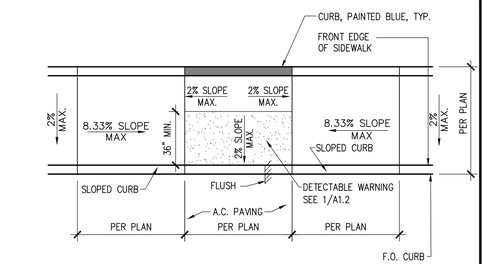
JOB# – DWGSCALE: 96
+A11– PARTIAL SITE PLAN.DWG



2 TYP. ACCESSIBLE PARKING SIGNAGE W/ VAN ACCESSIBLE OPTION

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

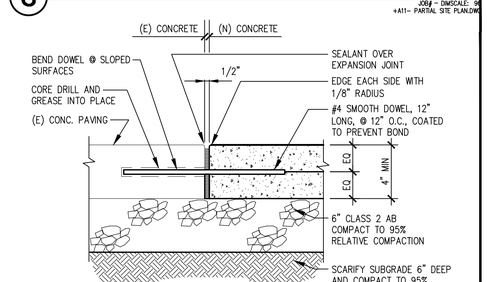
JOB# – DWGSCALE: 96
+A11– PARTIAL SITE PLAN.DWG



3 SIDE CURB CUT (SIM)

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

JOB# – DWGSCALE: 96
+A11– PARTIAL SITE PLAN.DWG



4 (E) CONC TO (N) CONC

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

JOB# – DWGSCALE: 96
+A11– PARTIAL SITE PLAN.DWG

CLIENT

Bakersfield City School District
1300 BAKER STREET, BAKERSFIELD, CA 93305

PROJECT LOCATION

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PROFESSIONAL STAMP

LICENSED ARCHITECT MARK S. BELL C 20677 Exp: Mar.31, 2019 STATE OF CALIFORNIA

AGENCY APPROVAL

ISSUE

MARK	DATE	DESCRIPTION
		DSA SUBMITTAL

PROJECT No : ATI PROJ. #CA4906-003
DRAWN BY:
CHECKED BY:
SCALE:
KEY MAP

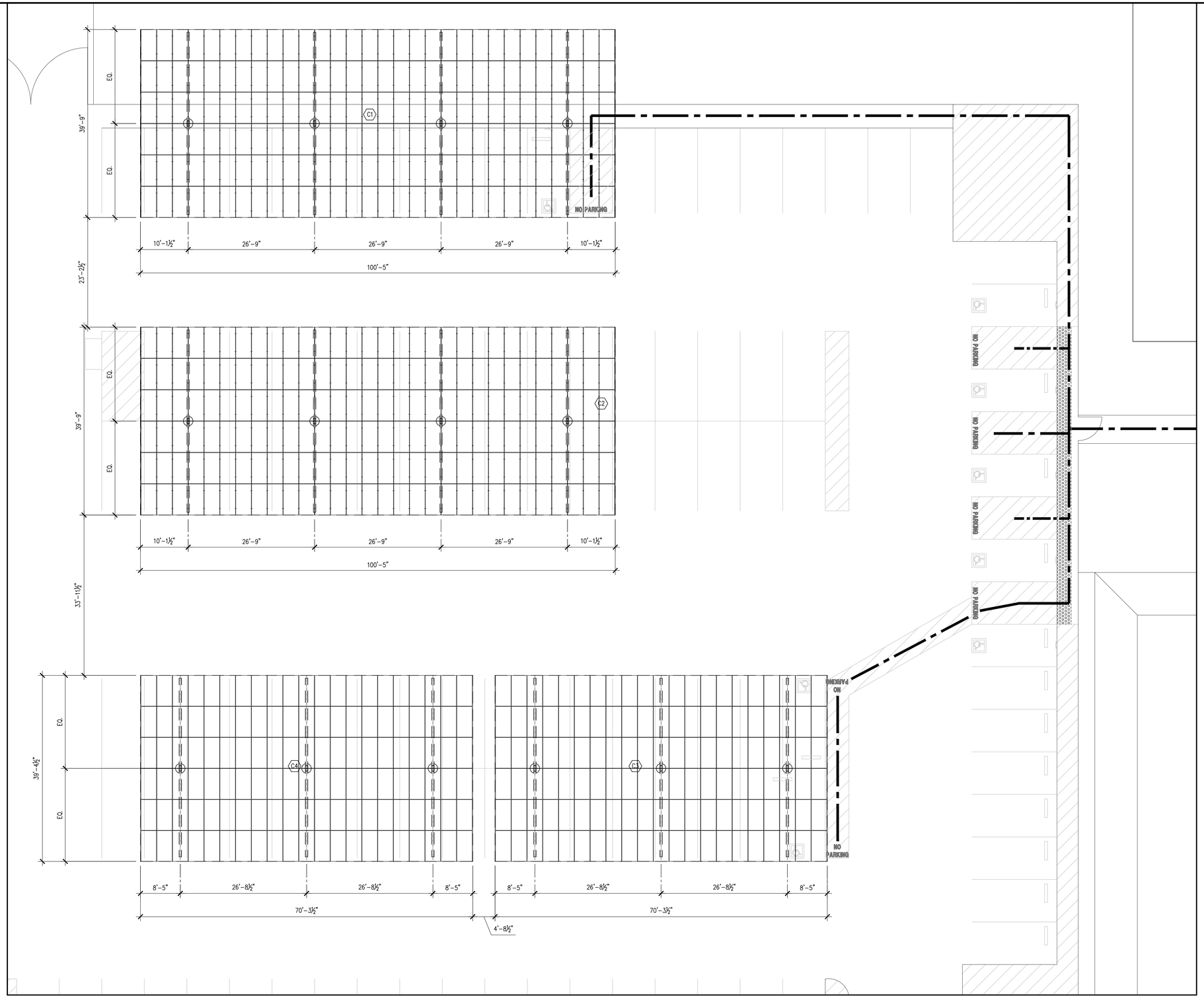
RECORD DRAWINGS

SHEET TITLE

PARTIAL SITE PLAN

SHEET NUMBER

A1.1



1 ARRAY PLAN

SCALE : 1"= 10'-0"

NORTH

CLIENT

Bakersfield City School District
1300 BAKER STREET, BAKERSFIELD, CA 93305

PROJECT LOCATION

FREMONT ELEMENTARY SCHOOL
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PROFESSIONAL STAMP

LICENSED ARCHITECT
MARK S. PETTY
C. 20647
Exp: Mar. 31, 2019
STATE OF CALIFORNIA

AGENCY APPROVAL

ISSUE

MARK	DATE	DESCRIPTION
		DSA SUBMITTAL

PROJECT No : ATI PROJ. #CA4906-003
DRAWN BY:
CHECKED BY:
SCALE:

KEY MAP

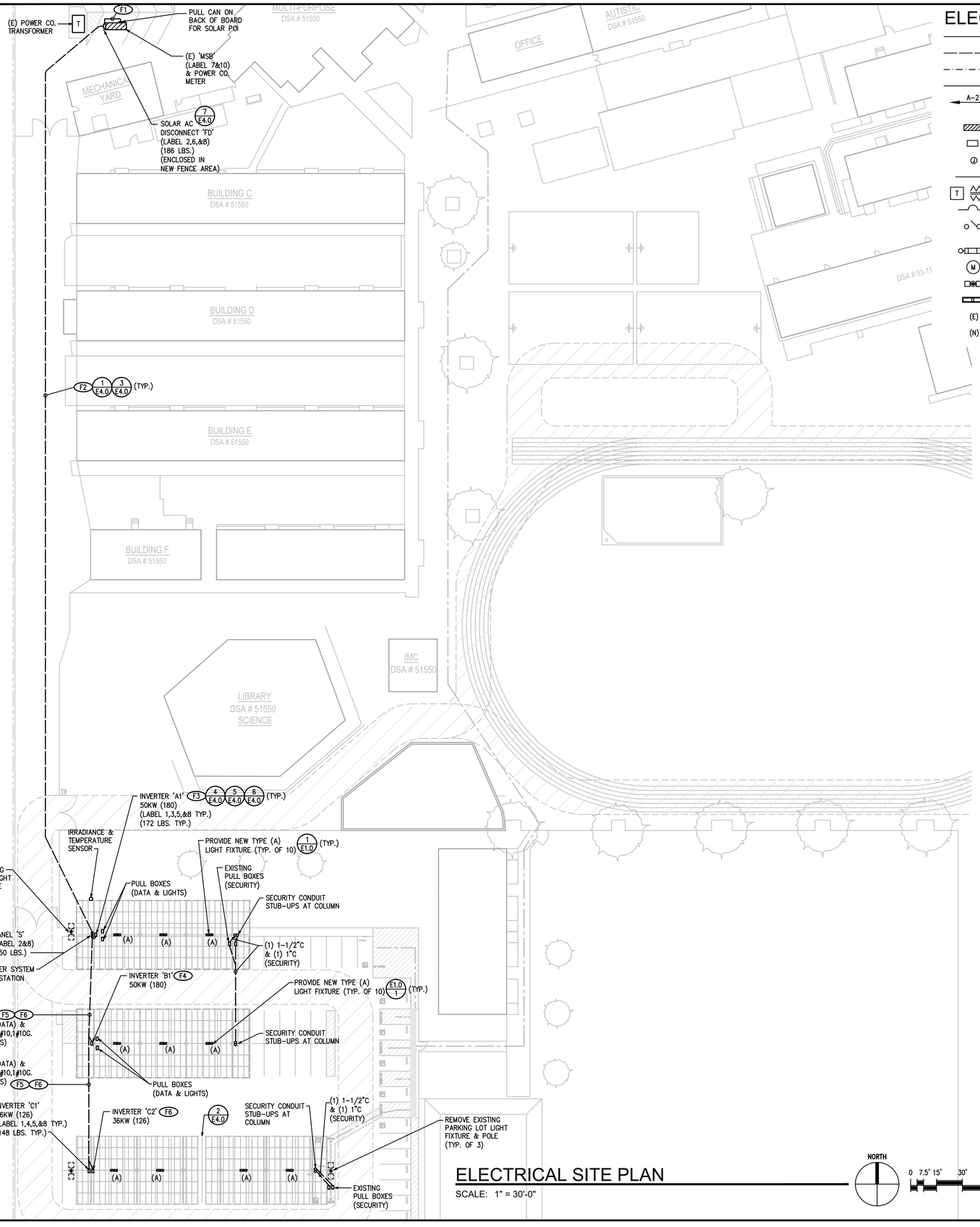
RECORD DRAWINGS

SHEET TITLE

DIMENSIONED ARRAYS

SHEET NUMBER

A1.2



ELECTRICAL SITE PLAN

SCALE: 1" = 30'-0"

NORTH

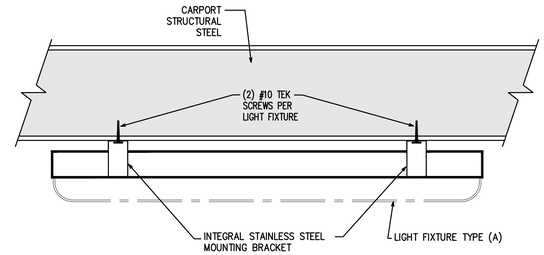
0 7.5' 15' 30' 60'

ELECTRICAL SYMBOLS:

- CONDUIT OR CABLE RUN ABOVE GRADE
- NEW CONDUIT OR CABLE RUN UNDERGROUND
- EXISTING CONDUIT RUN UNDERGROUND
- CONDUIT STUB OUT
- A-2 — HOMERUN OF CONDUIT AND WIRING, CIRCUIT NO. 2 TO PANEL 'A'
- POWER EQUIPMENT AS NOTED
- INVERTER AS NOTED
- J — JUNCTION BOX
- GROUND
- T — TRANSFORMER
- CIRCUIT BREAKER
- 600V 3 POLE LOCKABLE & VERIFIABLE AC DISCONNECT SWITCH
- FUSE
- M — METER
- PARKING LOT LIGHT, POLE, & CONCRETE BASE
- LED LIGHT FIXTURE, SURFACE MOUNTED
- (E) EXISTING
- (N) NEW

GENERAL ELECTRICAL NOTES:

1. ALL WORK AND MATERIAL SHALL CONFORM TO 2016 CBC, DSA IR 16-8, 2016 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.
2. ALL EQUIPMENT TO HAVE TESTING LABORATORY LABEL ATTACHED.
3. CONDUCTORS SHALL BE THWN COPPER (CU) UNLESS INDICATED AS ALUMINUM (AL).
4. ELECTRICAL ROUTING IS DIAGRAMMATIC ONLY. ACTUAL ROUTING & PHYSICAL CONDITION MAY VARY, CONTRACTOR TO DETERMINE ACTUAL ROUTING AND PROVIDE ALL RECONNECTIONS & ITEMS NECESSARY FOR COMPLETE & OPERATING SYSTEMS.
5. ALL SOLAR ELECTRICAL EQUIPMENT TO BE UL 1741 LISTED, IEEE 1547 RATED, & APPROVED BY THE CALIFORNIA ENERGY COMMISSION.
6. 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.
7. PROVIDE "CAUTION: SOLAR CIRCUITS" AFFIXED LABEL ON PV CONDUIT RUNS, BOXES, & CONDUIT BODIES INSIDE BUILDING.
8. STRING 1000V DC UL4703 (PV-WIRE) CABLING SHALL BE SUPPORTED TO MODULE & ARRAY STRUCTURE WITH WILEY ACME CABLE CLIPS.
9. ALL INVERTER DC STRING FUSES ARE 15 AMP UNLESS NOTED OTHERWISE.
10. HORIZONTAL DIRECTIONAL BORING OR TRENCHING FOR UNDERGROUND CONDUIT RUNS.
11. 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 #2, #6 GND. (AL)
12. NEW LIGHTING TO BE TIED INTO EXISTING EXTERIOR LIGHTING CIRCUIT(S) OR FROM AN EXISTING PANEL BOARD.



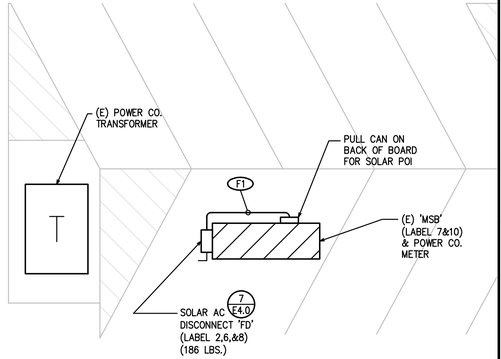
NOTE: LIGHT FIXTURE GROUNDED AT FACTORY GROUND TERMINAL WITH BRANCH CIRCUIT GROUNDING CONDUCTOR.

LIGHT FIXTURE MOUNTING DETAIL 1

SCALE: NONE

TYPE	MANUFACTURER	MODEL NO.	SOURCE	WATTS	VOLT	MOUNTING
A	ILP	WTZ-30WLED-UNIV-40-RAFL-BD50	LED	30	120-277	SURFACE, CARPORT STEEL

NOTE:
REMOVE (3) EXISTING PARKING LOT LIGHTS & POLES. PROVIDE (10) NEW TYPE (A) LIGHT FIXTURES & CONNECT NEW LIGHTS TO EXISTING CONTROLLED EXTERIOR LIGHTING CIRCUIT(S).



MAIN ELECTRICAL SERVICE PLAN

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

NORTH

CLIENT

Bakersfield City School District
1300 Baker St., Bakersfield, CA 93305

PROJECT LOCATION

FREMONT ELEMENTARY SCHOOL
607 TEXAS ST.
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PROFESSIONAL STAMP

LICENSED ARCHITECT MARK S. BELTO C 20677 Exp: Mar. 31, 2017 STATE OF CALIFORNIA
REGISTERED PROFESSIONAL ENGINEER R. J. HARDIN No. 9125 ELECTRICAL STATE OF CALIFORNIA

AGENCY APPROVAL

AS BUILT
07-29-19

ISSUE

MARK	DATE	DESCRIPTION
–	7/31/2018	DSA SUBMITTAL

PROJECT No : ATI PROJ. #
DRAWN BY: HDE
CHECKED BY: RJH
SCALE: AS NOTED

CONSULTANT

COLLINS ELECTRICAL COMPANY INC.
1962 Channel Drive
West Sacramento, CA 95691
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SHEET TITLE

ELECTRICAL SITE PLAN

SHEET NUMBER

E1.0

FEEDER SCHEDULE (F)

No.	Feeder Origin	Feeder Destination	Potential at Origin (Pi) (Volts)	Phase	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)	Conduit & Conductors
F1	MSB'	AC Disconnect 'FD'	480	Three	207	Steel	1	350 kCMIL	350000	CU	12.9	1.0627	20	0.28	479.72	0.06	0.06	3"C-3#350 KCMIL, 1#2 NEUT., 1#2 GND. (CU)
F2	AC Disconnect 'FD'	Panel 'S'	480	Three	207	PVC	1	500 kCMIL	500000	AL	21.2	1.0142	560	8.63	471.37	1.80	1.86	4"C-3#500 KCMIL, 1#1/0 NEUT., 1#2 GND. (AL)
F3	Panel 'S'	Inverter No. A1	480	Three	60.2	Steel	1	2	66360	AL	21.2	1.0031	10	0.33	479.67	0.07	1.93	1-1/2"C-3#2, 1#6 GND. (AL)
F4	Panel 'S'	Inverter No. B1	480	Three	60.2	PVC	1	2	66360	AL	21.2	1.0031	75	2.51	477.49	0.52	2.45	1-1/2"C-3#2, 1#6 GND. (AL)
F5	Panel 'S'	Inverter No. C1	480	Three	43.3	PVC	1	2	66360	AL	21.2	1.0031	155	3.73	476.27	0.78	2.70	1-1/2"C-3#2, 1#6 GND. (AL)
F6	Panel 'S'	Inverter No. C2	480	Three	43.3	PVC	1	1/0	105600	AL	21.2	0.9950	155	2.32	477.68	0.48	2.41	2"C-3#1/0, 1#6 GND. (AL)

STRING DC WIRE SIZE CALCULATION
Isc: 9.49 x 1.56 = 14.80A
#10 AWG = 40A (90°C)(PER TABLE CEC 310.16)

21-30 CURRENT CARRYING CONDUCTORS IN A RACEWAY (SHARED CONDUIT)
(PER TABLE CEC 310.15(B)(2)(a) = 0.45

40A x 0.45 = 18.0A > 14.80 A ALLOWABLE
#10 AWG CONDUCTOR IS ALLOWABLE

STRING VOLTAGE DROP CALCULATION
INVERTER NO. A1
Vmp: 682.2 VDC, Imp: 8.97 A @ 115 FT (WORST CASE FROM ARRAY TO INVERTER)
#10 AWG cir. mils. = 10380
2 x 12.9 x 115 x 8.97 / 10380 = 2.57 VDC lost
2.57 V / 682.2 VDC = 0.38% VOLTAGE DROP
INVERTER NO. B1 = 0.38% VOLTAGE DROP (115')
INVERTER NO. C1 = 0.28% VOLTAGE DROP (85')
INVERTER NO. C2 = 0.51% VOLTAGE DROP (155')

50 KW INVERTER AC Wire & OCPD CALCULATION:
INVERTER:
AC Output Power: 60.2A AC Output Current Max
60.2A x 1.25 = 75.3A
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: 43.3A AC OUTPUT CURRENT MAX
43.3A X 1.25 = 54.125A
60 AMP OCPD PER 50KW 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

60A X 1.0 = 60A = 60A TEMP. ADJUSTED
#4 CURRENT = 95A @ 75°C PER CEC 110.14(C)
#4 AWG CONDUCTOR IS MINIMUM ALLOWABLE (AL)

MAX/COLD TEMP PV VOLTAGE CALCULATION:
LONGI SOLAR LR6-72HV 340M
Voc: 46.5V
Temp. Coefficient: -0.33%V/C
Low Temp*: -2.0°C (27.0'Δ)
Modules in Series: 18

(46.5 V) x (0.0033 V/°C) x (27.0°) = 4.14 VΔ
46.5 Voc + 4.14 VΔ = 50.64 Voc(corr)
(50.64 V) x (18) = 911.6 VDC max (this is < 1000 VDC)

* = Per ASHRAE table

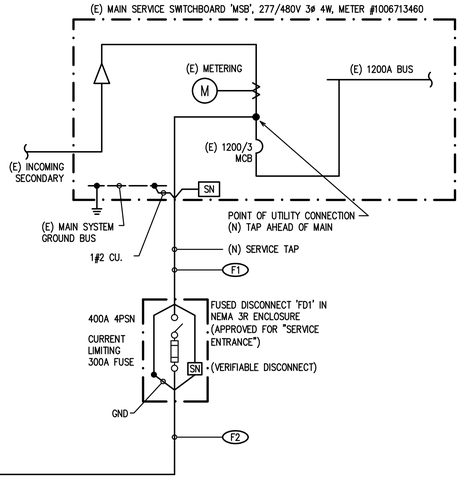
SYSTEM SUMMARY

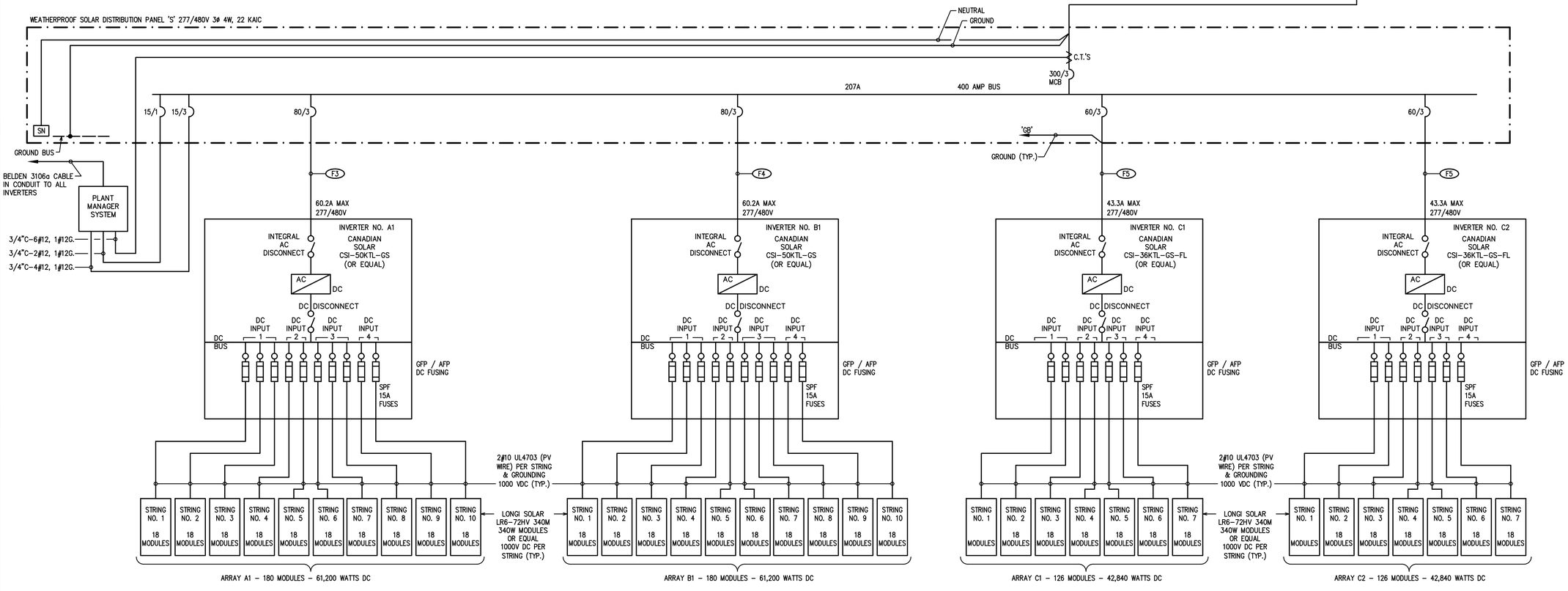
MODULE MODEL	LONGI SOLAR LR6-72HV 340M
MODULE STC DC RATING	340W
TOTAL MODULE COUNT	612
TOTAL STC DC SYSTEM SIZE	208.08kW
TOTAL AC SYSTEM SIZE	172.0kW
INVERTER MODLES	(2) CANADIAN SOLAR CSI-50KTL-GS
	(2) CANADIAN SOLAR CSI-36KTL-GS-FL
MODULE TILT	7°
ARRAY AZIMUTH	180°
POINT OF SERVICE FAULT CURRENT CONTRIBUTION	2,180 AIC
POINT OF SERVICE RATING	65,000 AIC

600V HEAVY DUTY AC VERIFIABLE DISCONNECT SCHEDULE

(WITH CLASS 'RK1 OR RK5' CURRENT LIMITING FUSING)

DISCONNECT SIZE (VERIFIABLE)	MANUFACTURER'S CAT NO.	AIC RATING
400A 4PSN 600VAC	SQUARE D #H365 NR	200,000 AIC





SINGLE LINE DIAGRAM 208.08 KW TOTAL

SCALE: NONE

CLIENT

Bakersfield City School District
1300 Baker St., Bakersfield, CA 93305

PROJECT LOCATION

FREMONT ELEMENTARY SCHOOL
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PROFESSIONAL STAMP

LICENSED ARCHITECT MARK S. BELO C 20677 Exp: Mar.31, 2017 STATE OF CALIFORNIA
REGISTERED PROFESSIONAL ENGINEER R.J.HARDIN No. 9125 ELECTRICAL STATE OF CALIFORNIA

AGENCY APPROVAL

AS BUILT
07-29-19

ISSUE

MARK	DATE	DESCRIPTION
-	7/31/2018	DSA SUBMITTAL

PROJECT No : ATI PROJ. #
DRAWN BY: HDE
CHECKED BY: RJH
SCALE: AS NOTED

CONSULTANT

COLLINS ELECTRICAL COMPANY INC.
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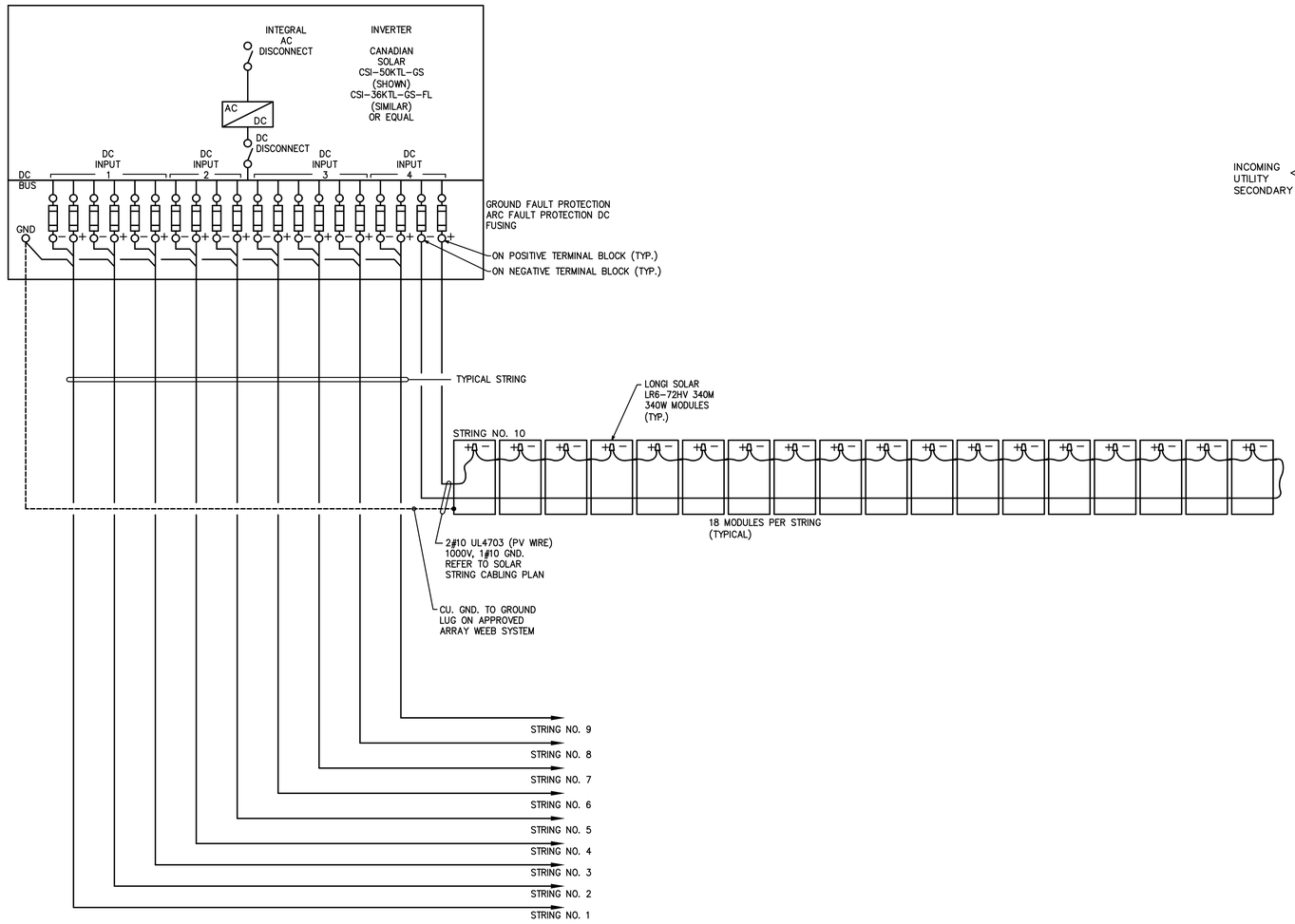
SHEET TITLE

ELECTRICAL SINGLE LINE DIAGRAM

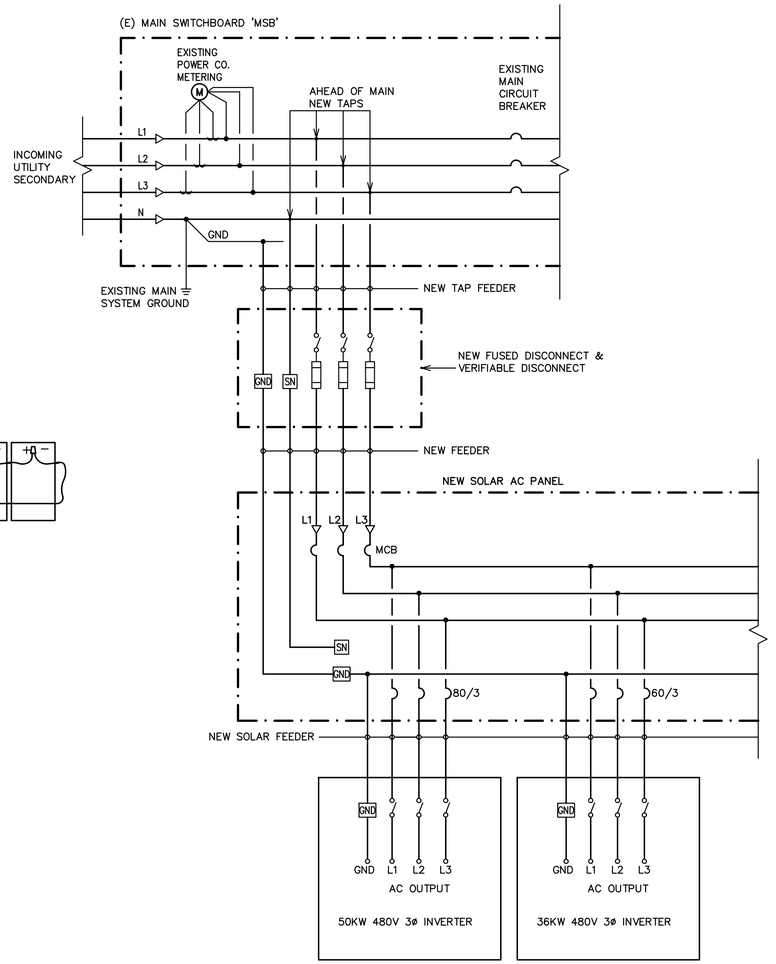
SHEET NUMBER

E2.0



TYPICAL DC LINE DIAGRAM

SCALE: NONE



TYPICAL THREE LINE DIAGRAM

SCALE: NONE

CLIENT

Bakersfield City School District
1300 Baker St., Bakersfield, CA 93305

PROJECT LOCATION

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DESIGNER

FOREFRONT POWER
100 Montgomery Street #1400
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ARCHITECT

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4750 Willow Road Suite 250
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PROFESSIONAL STAMP

LICENSED ARCHITECT MARK S. BELO C 20677 Exp: Mar.31, 2017 STATE OF CALIFORNIA
REGISTERED PROFESSIONAL ENGINEER R.J.HARDIN No. 9125 ELECTRICAL STATE OF CALIFORNIA

AGENCY APPROVAL

AS BUILT
07-29-19

ISSUE

MARK	DATE	DESCRIPTION
–	7/31/2018	DSA SUBMITTAL

PROJECT No : ATI PROJ. #
DRAWN BY: HDE
CHECKED BY: RJH
SCALE: AS NOTED

CONSULTANT

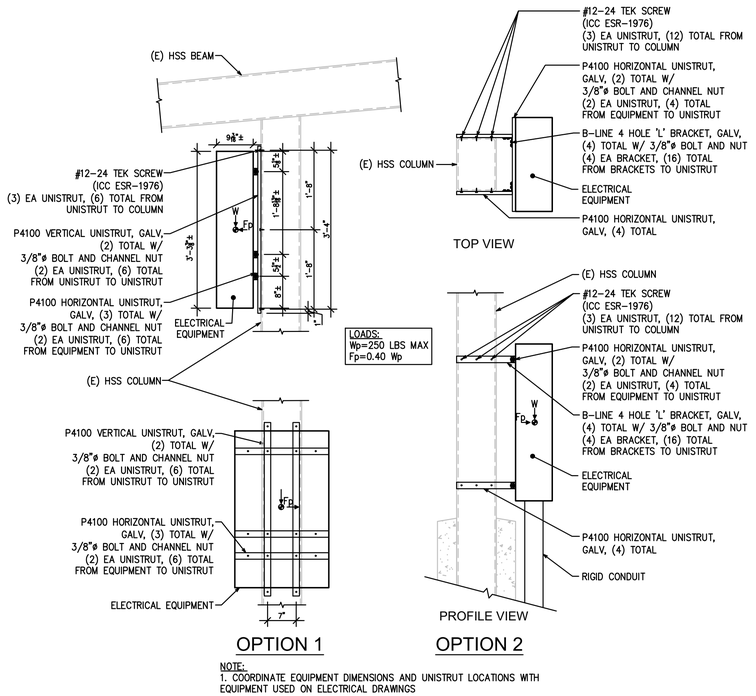
COLLINS ELECTRICAL COMPANY INC.
1902 Channel Drive
West Sacramento, CA 95691
T 916.567.1100

SHEET TITLE

TYPICAL ELECTRICAL THREE LINE DIAGRAM

SHEET NUMBER

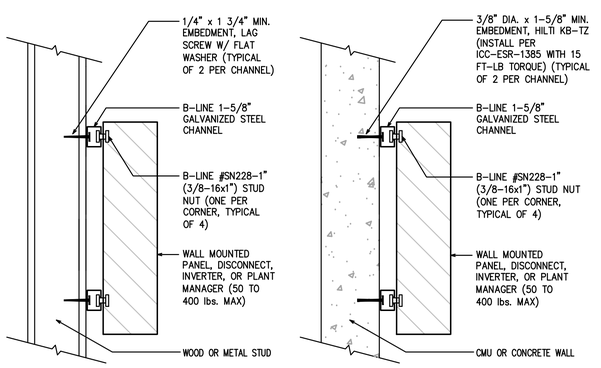
E3.0



NOTE:
1. COORDINATE EQUIPMENT DIMENSIONS AND UNISTRUT LOCATIONS WITH EQUIPMENT USED ON ELECTRICAL DRAWINGS

COLUMN MOUNTED EQUIPMENT ANCHORAGE DETAIL 6

NO SCALE

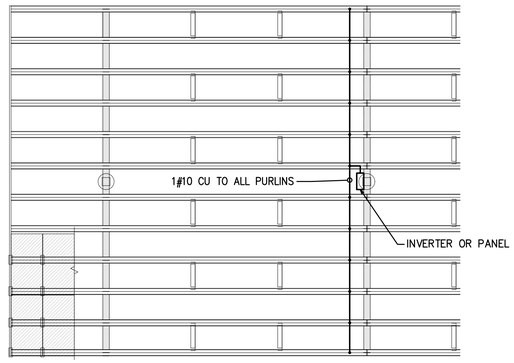


WOOD OR METAL STUD

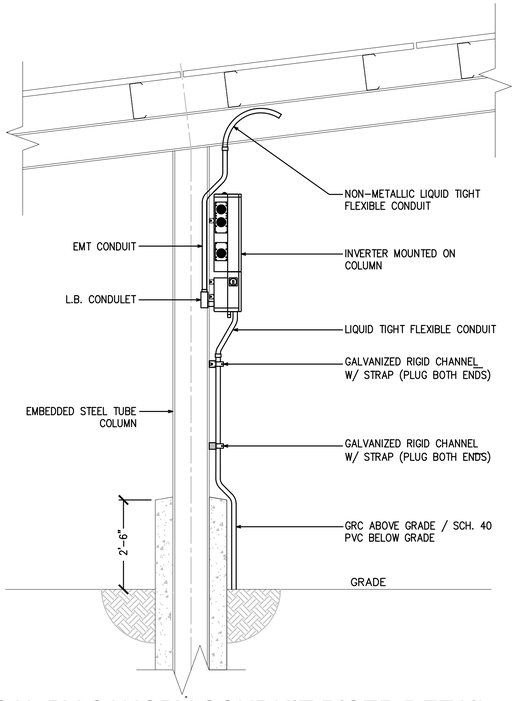
CMU OR CONCRETE

WALL MOUNTED EQUIPMENT DETAIL 7

NO SCALE



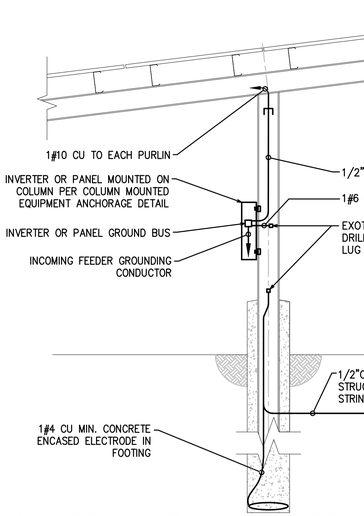
ARRAY GROUNDING DETAIL



TYPICAL PV CANOPY CONDUIT RISER DETAIL 4

NO SCALE

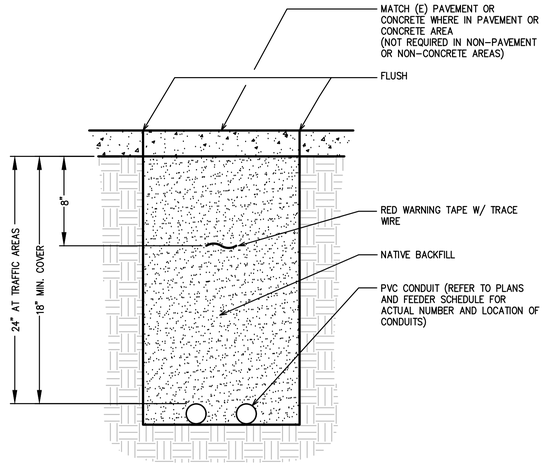
NOTE: ONE REQUIRED PER ARRAY STRUCTURE



PV CANOPY GROUNDING DETAIL 5

NO SCALE

NOTE: ONE REQUIRED PER ARRAY STRUCTURE

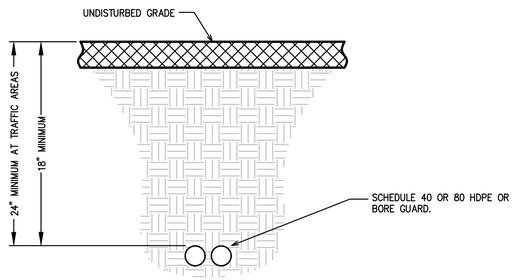


TRENCH THROUGH PAVEMENT TRAFFIC DETAIL 3

NO SCALE

UP TO 3' GAP

3' TO 5' GAP



HORIZONTAL BORE DETAIL 1

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

WIRING BRIDGE DETAIL 2

NO SCALE

CLIENT

Bakersfield City School District
1300 Baker St., Bakersfield, CA 93305

PROJECT LOCATION

FREMONT ELEMENTARY SCHOOL
607 TEXAS ST.
BAKERSFIELD, CA 93307

DESIGNER

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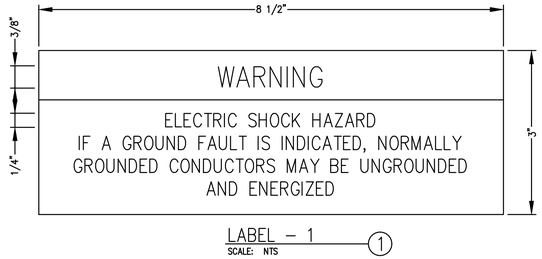
SHEET TITLE

ELECTRICAL DETAILS

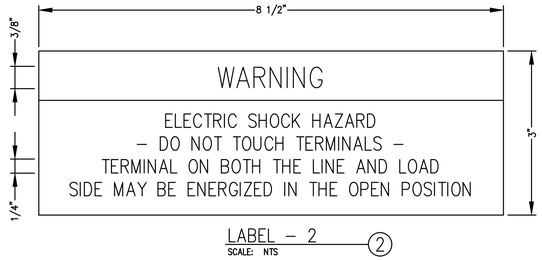
SHEET NUMBER

E4.0



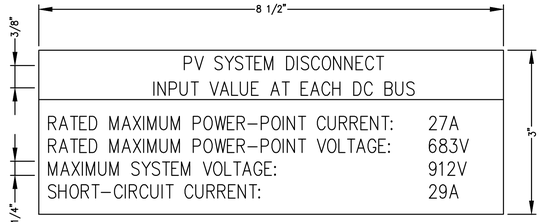
LABEL – 1 ①
SCALE: NTS

LOCATION:	INVERTERS
BACKGROUND	RED
LETTERING	WHITE
NOTES:	



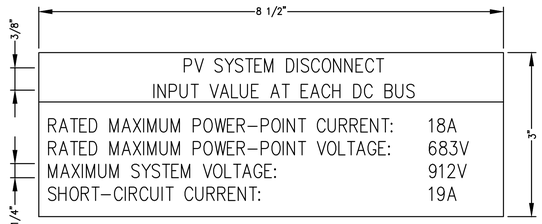
LABEL – 2 ②
SCALE: NTS

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



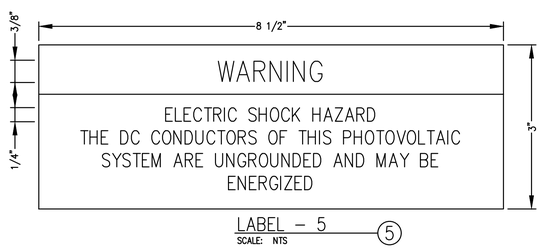
LABEL – 3 ③
SCALE: NTS

LOCATION:	50kW INVERTERS
BACKGROUND	RED
LETTERING	WHITE
NOTES:	



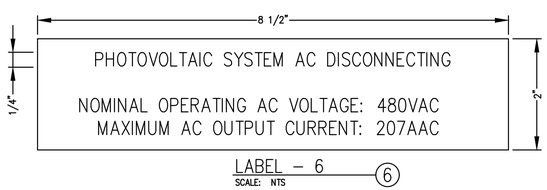
LABEL – 4 ④
SCALE: NTS

LOCATION:	36kW INVERTERS
BACKGROUND	RED
LETTERING	WHITE
NOTES:	



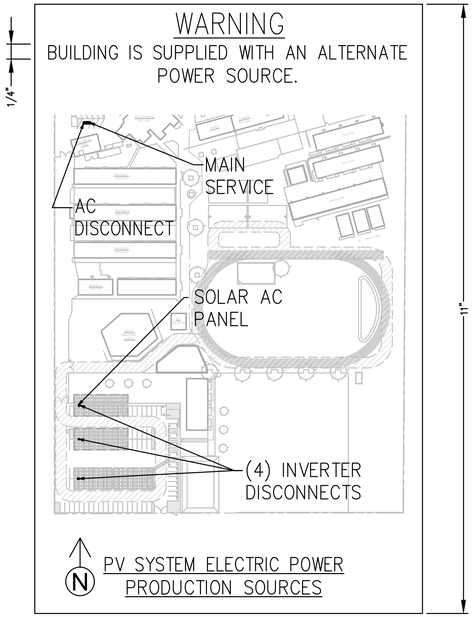
LABEL – 5 ⑤
SCALE: NTS

LOCATION:	INVERTERS
BACKGROUND	RED
LETTERING	WHITE
NOTES:	



LABEL – 6 ⑥
SCALE: NTS

LOCATION:	AC DISCONNECT
BACKGROUND	RED
LETTERING	WHITE
NOTES:	



LABEL – 7 ⑦
SCALE: NTS

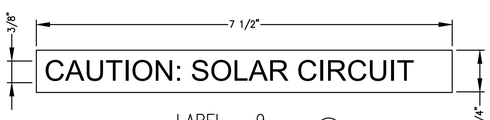
LOCATION:	MAIN SERVICE DSCONNECT
BACKGROUND	RED
LETTERING	WHITE
NOTES:	1 SIGN AT (E) SERVICE METER. PLACE ADDITIONAL SIGN AT SOLAR AC SYSTEM DISCONNECT WHERE NOT LOCATED WITHIN 25' & IN VIEW OF (E) SERVICE METER.

WARNING LABELS & MARKING NOTES:

1. MARKING IS REQUIRED ON INTERIOR AND EXTERIOR DIRECT–CURRENT (DC) CONDUIT, ENCLOSURES, RACEWAYS, CABLE ASSEMBLIES, JUNCTION BOXES, COMBINER BOXES AND DISCONNECTS.
2. 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.
3. THE MARKING SHALL CONTAIN THE WORDS "WARNING: PHOTOVOLTAIC POWER SOURCE."
4. THE MARKING SHALL BE PLACED ADJACENT TO THE MAIN SERVICE DISCONNECT IN A LOCATION CLEARLY VISIBLE FROM THE LOCATION WHERE THE DISCONNECT IS OPERATED.
5. 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.

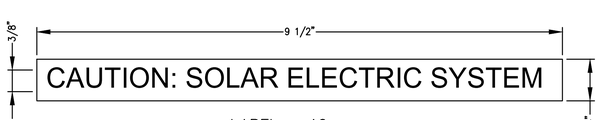
ARC FLASH WITH EXAMPLE TEXT AND DIMENSIONS
LABEL – 8 ⑧
SCALE: NTS

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



LABEL – 9 ⑨
SCALE: NTS

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



LABEL – 10 ⑩
SCALE: NTS

LOCATION:	MAIN SERVICE DISCONNECT
BACKGROUND	RED
LETTERING	WHITE
NOTES:	

CLIENT

Bakersfield City School District
1300 Baker St., Bakersfield, CA 93305

PROJECT LOCATION

FREMONT ELEMENTARY SCHOOL
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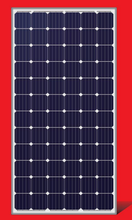
SHEET TITLE

TYPICAL ELECTRICAL SOLAR WARNING LABELS

SHEET NUMBER

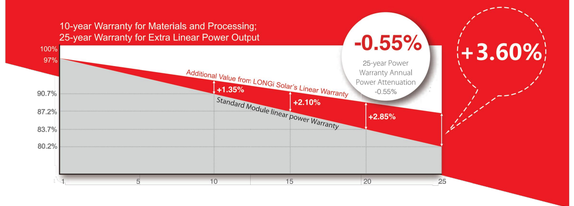
E5.0



LR6-72HV
330~350M

High Efficiency Mono Technology (1500V Compatible)

with advanced 5BB design to improve power output



Complete System and Product Certifications

IEC 61215, IEC61730, UL1703

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 18.1%)

Better energy yield with excellent low irradiance performance and temperature coefficient

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

Adaptable to harsh environment: passed rigorous salt mist and ammonia tests

Robust frame (40mm) withstands mechanical loading of 5400Pa for snow load on front and 2400Pa for wind load on rear side

LONGi Solar

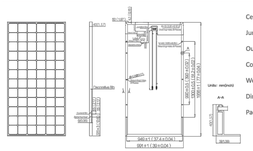
Room 201, Building 8, Sandhill Plaza, Lane 2290, Zuchongzhi Road, Pudong District, Shanghai, 201203
Tel: + 86-21-61047332 Fax: +86 21- 61047377 E-mail: module@longi-silicon.com
Facebook: www.facebook.com/LONGi Solar

Note: Due to continuous technical innovation, R&D and improvement, technical data above mentioned may be of modification accordingly. LONGi Solar 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.

20170808

LR6-72HV 330~350M

Design（mm）



Cell Orientation: 72（6×12）

Junction Box: IP67, three diodes

Output Cable: 4mm², 1200mm in length

Connector: MC4 or MC4 compatible

Weight: 22.2kg

Dimension: 1956×991×40mm

Packaging: 26pcs per pallet

Mechanical Parameters

Operational Temperature: -40℃ ~ +85℃

Power Output Tolerance: 0 ~ +5 W

Maximum System Voltage: DC1500V (IEC)

Maximum Series Fuse Rating: 15A

Nominal Operating Cell Temperature: 45±2℃

Application Class: Class A

Electrical Characteristics

Model Number	LR6-72HV-330M		LR6-72HV-335M		LR6-72HV-340M		LR6-72HV-345M		LR6-72HV-350M	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax/W)	330	238.6	335	242.2	340	245.8	345	249.4	350	253.0
Open Circuit Voltage (Voc/V)	46.1	42.4	46.3	42.6	46.5	42.8	46.7	43	46.9	43.1
Short Circuit Current (Isc/A)	9.30	7.50	9.40	7.58	9.49	7.65	9.58	7.72	9.68	7.80
Voltage at Maximum Power (Vmp/V)	37.6	34.0	37.7	34.1	37.9	34.2	38.1	34.5	38.2	34.6
Current at Maximum Power (Imp/A)	8.78	7.02	8.89	7.11	8.97	7.18	9.05	7.24	9.16	7.32
Module Efficiency(%)	17.0		17.3		17.5		17.8		18.1	

STC (Standard Testing Conditions): Irradiance 1000W/m², Cell Temperature 25℃, Spectra at AM1.5

NOCT (Nominal Operating Cell Temperature): Irradiance 800W/m², Ambient Temperature 20℃, Spectra at AM1.5, Wind at 1m/S

Temperature Ratings（STC）

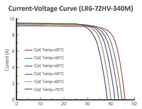
Temperature Coefficient of Isc	+0.059%/℃
Temperature Coefficient of Voc	-0.330%/℃
Temperature Coefficient of Pmax	-0.410%/℃

Mechanical Loading

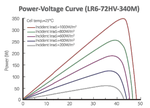
Front Side Maximum Static Loading	5400Pa
Rear Side Maximum Static Loading	2400Pa
Hailstone Test	25mm Hailstone at the speed of 23m/s

I-V Curve

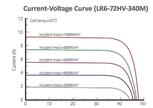
Current-Voltage Curve (LR6-72HV-340M)



Power-Voltage Curve (LR6-72HV-340M)



Current-Voltage Curve (LR6-72HV-340M)



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Tel: + 86-21-61047332 Fax: +86 21- 61047377 E-mail: module@longi-silicon.com
Facebook: www.facebook.com/LONGi Solar

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20170808

NEW

CanadianSolar

THREE PHASE STRING INVERTER 25-40 KW

CSI-25KTL-GS-FL | CSI-30KTL-GS-FL | CSI-36KTL-GS-FL | CSI-40KTL-GS-FL

Canadian Solar's grid-tied, transformer-less string inverters help accelerate the use of three-phase string architecture for commercial rooftop and small ground-mount applications. An NRTL approved, cost-effective alternative to central inverters, these inverters are modular design building blocks that provide high yield and enable significant BoS cost savings. They provide up to 98.6% conversion efficiency, a wide operating range of 200-800 V_{dc}, and four MPPTs for maximum energy harvest.

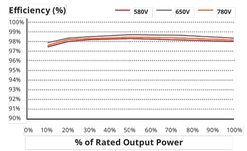
10 years **Standard warranty, extension up to 20 years**

KEY FEATURES

- Maximum efficiency of 98.6%, CEC efficiency of 98.3%
- 4 MPPTs to achieve higher system efficiency
- Transformerless design
- High switching frequency and ultra fast MPPT (<5 sec.) for maximum efficiency over a wide load range

EFFICIENCY CURVE

CSI-40KTL-GS-FL@480 V



*For detailed information, please refer to the Installation Manual.

HIGH RELIABILITY

- Advanced thermal design
- Ground-fault detection and interruption circuit
- AFCI Integrated (per UL1699B, factory enabled option)

BROAD ADAPTIBILITY

- NEMA 4X (IP65), outdoor application
- Utility interactive controls: active power derating, reactive power control and over frequency derating
- Integrated wiring box design
- Integrated DC and AC load rated disconnects
- Wide MPPT range for flexible string sizing
- 90 degree installation angle
- AC terminals compatible with copper and aluminum conductors (Al with bimetallic terminal)
- Supports up to 8 DC string inputs (2 per MPPT)

CANADIAN SOLAR (USA), INC. is committed to providing high quality solar products, solar system solutions and services to customers around the world. As a leading PV project developer and manufacturer of solar modules with over 25 GW deployed around the world since 2001, Canadian Solar Inc. (NASDAQ: CSIQ) is one of the most bankable solar companies worldwide.

CANADIAN SOLAR (USA), INC.
3000 Oak Road, Suite 400, Walnut Creek, CA 94597, USA | www.canadiansolar.com/na | sales.us@canadiansolar.com

SYSTEM/TECHNICAL DATA				
MODEL NAME	**CSI-25KTL-GS-FL**	**CSI-30KTL-GS-FL**	**CSI-36KTL-GS-FL**	**CSI-40KTL-GS-FL**
DC INPUT				
Max. PV Power	37.5 kW (13.5 kW/MPPT)	45 kW (13.5 kW/MPPT)	54 kW (13.5 kW/MPPT)	54 kW (13.5 kW/MPPT)
Max. DC Input Voltage	1000 V_{dc}			
Operating DC Input Voltage Range	200-800 V_{dc}			
Start-up DC Input Voltage/Power	350 V			
Number of MPP Trackers	4			
MPPT Voltage Range	347-800 V_{dc}	417-800 V_{dc}	500-800 V_{dc}	556-800 V_{dc}
Operating Current (Imp)	72 A (18 A per MPPT)			
Max. Input Current (Isc)	112.4 A (28.1 A per MPPT)			
Number of DC Imputs	8 (2 per MPPT)			
DC Disconnection Type	Load rated DC switch			
AC OUTPUT				
Rated AC Output Power	25 kW	30 kW	36 kW	40 kW
Max. AC Output Power	27.5 kW	33 kW	40 kW	44 kW
Rated Output Voltage	480 V_{ac}			
Output Voltage Range*	422.4 - 528 V_{ac}			
Grid Connection Type	3 Φ/PE			
Nominal AC Output Current @480 Vac	30.1 A	36.1 A	43.3 A	48.1 A
Rated Output Frequency	60 Hz			
Output Frequency Range*	59.5 - 60.5 Hz			
Power Factor	1 default (±0.8 adjustable)			
Current THD	< 3 %			
AC Disconnection Type	Load rated AC switch			
SYSTEM				
Topology	Transformerless			
Max. Efficiency	98.6 %			
CEC Efficiency	98.3 %			
Night Consumption	< 1 W			
ENVIRONMENT				
Protection Degree	NEMA 4X			
Cooling	Natural Convection Cooling			
Operating Temperature Range	-13 ° F to + 140 ° F / -25 ° C to +60 ° C			
Storage Temperature Range	-40 ° F to + 158 ° F / -40 ° C to +70 ° C			
Operating Humidity	0 - 100 % condensing			
Operating Altitude	13,123.4 ft / 4000 m			
Audible Noise	<30 dBA @ 1 m			
DISPLAY AND COMMUNICATION				
Display	LCD + LED			
Communication	Standard: RS485 (Modbus)			
MECHANICAL DATA				
Dimensions (W / H / D)	23.4 x 37.2 x 14.4 in / 595 x 945 x 356.5 mm			
Weight	147.7 lb / 67 kg			
Installation Angle	90 degrees from horizontal			
DC Inputs	15 A standard			
SAFETY				
Safety and EMC Standard	UL1741-SA, UL1699B, CSA-C22.2 No. 107.1-01, IEEE1547; FCC PART 15			
Grid Standard	IEEE1547, Rule 21			
Smart-Grid Features	Voltage-Ride Thru, Frequency-Ride Thru, Soft-Start, Volt-Var, Frequency-Watt, Volt-Watt			

*The "Output Voltage Range" and "Output Frequency Range" may differ according to specific grid standard.

The specification and key features described in this datasheet may deviate slightly and are not guaranteed. Due to on-going innovation, research and product enhancement, Canadian Solar Inc. reserves the right to make any adjustment to the information described herein at any time without notice. Please always obtain the most recent version of the datasheet which shall be duly incorporated into the binding contract made by the parties governing all transactions related to the purchase and sale of the products described herein.

Caution: For professional use only. The installation and handling of PV equipment requires professional skills and should only be performed by qualified professionals. Please read the safety and installation instructions before using the product.

NEW

CanadianSolar

THREE PHASE STRING INVERTER 50-66 KW

CSI-50KTL-GS-FL | CSI-50KTL-GS | CSI-60KTL-GS | CSI-66KTL-GS

Canadian Solar's grid-tied, transformer-less string inverters help accelerate the use of three-phase string architecture for commercial rooftop and small ground-mount applications. An NRTL approved, cost-effective alternative to central inverters, these inverters are modular design building blocks that provide high yield and enable significant BoS cost savings. They provide up to 98.8% conversion efficiency, a wide operating range of 200-850 V_{dc}, and four MPPTs for maximum energy harvest.

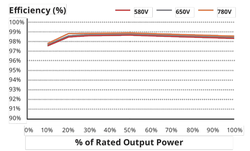
10 years **Standard warranty, extension up to 20 years**

KEY FEATURES

- Maximum efficiency of 98.8%, CEC efficiency of 98.4%
- 4 MPPTs to achieve higher system efficiency
- Transformerless design
- High switching frequency and ultra fast MPPT (<5 sec.) for maximum efficiency over a wide load range

EFFICIENCY CURVE

CSI-66KTL-GS@480 V



*For detailed information, please refer to the Installation Manual.

HIGH RELIABILITY

- Advanced thermal design with fan assisted cooling
- Ground-fault detection and interruption circuit
- AFCI Integrated (per UL1699B, factory enabled option)

BROAD ADAPTIBILITY

- NEMA 4X (IP65), outdoor application
- Utility interactive controls: active power derating, reactive power control and over frequency derating
- Integrated wiring box design
- Integrated DC and AC load rated disconnects
- Wide MPPT range for flexible string sizing
- 15-90 degree installation angle
- AC terminals compatible with copper and aluminum conductors (Al with bimetallic terminal)
- Supports up to 12 or 16 DC string inputs (3 or 4 per MPPT)

CANADIAN SOLAR (USA), INC. is committed to providing high quality solar products, solar system solutions and services to customers around the world. As a leading PV project developer and manufacturer of solar modules with over 25 GW deployed around the world since 2001, Canadian Solar Inc. (NASDAQ: CSIQ) is one of the most bankable solar companies worldwide.

CANADIAN SOLAR (USA), INC.
3000 Oak Road, Suite 400, Walnut Creek, CA 94597, USA | www.canadiansolar.com/na | sales.us@canadiansolar.com

SYSTEM/TECHNICAL DATA				
MODEL NAME	**CSI-50KTL-GS-FL**	**CSI-50KTL-GS**	**CSI-60KTL-GS**	**CSI-66KTL-GS**
DC INPUT				
Max. PV Power	64 kW (16 kW/MPPT)	75 kW (22.5 kW/MPPT)	90 kW (22.5 kW/MPPT)	90 kW (22.5 kW/MPPT)
Max. DC Input Voltage	1000 V_{dc}			
Operating DC Input Voltage Range	200-850 V_{dc}			
Start-up DC Input Voltage/Power	200 V			
Number of MPP Trackers	4			
MPPT Voltage Range	568-850 V_{dc}		526-850 V_{dc}	579-850 V_{dc}
Operating Current (Imp)	88 A (22 A per MPPT)	114 A (28.5 A per MPPT)		
Max. Input Current (Isc)	137.2 A (34.3 A per MPPT)	178 A (44.5 A per MPPT)		
Number of DC Imputs	12 (3 per MPPT)	16 (4 per MPPT)		
DC Disconnection Type	Load rated DC switch			
AC OUTPUT				
Rated AC Output Power	50 kW	50 kW	60 kW	66 kW
Max. AC Output Power	50 kW	50 kW	60 kW	66 kW
Rated Output Voltage	480 V_{ac}			
Output Voltage Range*	422.4 - 528 V_{ac}			
Grid Connection Type	3 Φ/PE			
Nominal AC Output Current @480 Vac	60.2 A		72.2 A	79.4 A
Rated Output Frequency	60 Hz			
Output Frequency Range*	59.5 - 60.5 Hz			
Power Factor	1 default (±0.8 adjustable)			
Current THD	< 3 %			
AC Disconnection Type	Load rated AC switch			
SYSTEM				
Topology	Transformerless			
Max. Efficiency	98.8 %	98.8 %	98.7 %	98.8 %
CEC Efficiency	98.4 %			
Night Consumption	< 1 W			
ENVIRONMENT				
Protection Degree	NEMA 4X			
Cooling	Natural Convection Cooling	Intelligent Redundant Cooling		
Operating Temperature Range	-13 ° F to + 140 ° F / -25 ° C to +60 ° C			
Storage Temperature Range	-40 ° F to + 158 ° F / -40 ° C to +70 ° C			
Operating Humidity	0 - 100 %			
Operating Altitude	13,123.4 ft / 4000 m			
Audible Noise	<60 dBA @ 1 m			
DISPLAY AND COMMUNICATION				
Display	LCD + LED			
Communication	Standard: RS485 (Modbus)			
MECHANICAL DATA				
Dimensions (W / H / D)	24.8 x 40.7 x 13.9 in / 630 x 1034 x 354 mm			
Weight	165 lb / 74.8 kg	172 lb / 78 kg		
Installation Angle	90 degrees from horizontal	15-90 degrees from horizontal		
DC Inputs	15 A standard			
SAFETY				
Safety and EMC Standard	UL1741-SA, UL1699B, CSA-C22.2 No. 107.1-01, IEEE1547; FCC PART 15			
Grid Standard	IEEE1547, Rule 21			
Smart-Grid Features	Voltage-Ride Thru, Frequency-Ride Thru, Soft-Start, Volt-Var, Frequency-Watt, Volt-Watt			

*The "Output Voltage Range" and "Output Frequency Range" may differ according to specific grid standard.

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CLIENT

Bakersfield City School District
1300 Baker St., Bakersfield, CA 93305

PROJECT LOCATION

FREMONT ELEMENTARY SCHOOL
607 TEXAS ST.
BAKERSFIELD, CA 93307

DESIGNER

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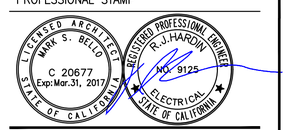

AGENCY APPROVAL

AS BUILT
07-29-19

ISSUE

MARK	DATE	DESCRIPTION
–	7/31/2018	DSA SUBMITTAL

PROJECT No : ATI PROJ. #

DRAWN BY: HDE

CHECKED BY: RJH

SCALE: AS NOTED

CONSULTANT

COLLINS ELECTRICAL COMPANY INC.
1902 Channel Drive
West Sacramento, CA 95691
T 916.567.1100

SHEET TITLE

ELECTRICAL SOLAR EQUIPMENT CUT SHEETS

SHEET NUMBER

E6.0

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E (Created 9/17) CALIFORNIA ENERGY COMMISSION

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)2L for outdoor lighting scopes using the prescriptive path.		
Project Name: Fremont Elementary School	Report Page:	Page 1 of 6
Project Address: 607 Texas St.	Date Prepared:	7/6/2018

A. GENERAL INFORMATION

01	Project Location (city)	Bakersfield	04	Total Illuminated Hardscape Area (ft²)	17,298
02	Climate Zone	13			
03	Outdoor Lighting Zone per Title 24, Part 1 §10-114 or as designated by Authority Having Jurisdiction (AHJ):				
☐	LZ-0: Very Low - Undeveloped Parkland	☐ LZ-2: Moderate - Rural Areas	☐ LZ-4: High - Must be reviewed by CA Energy Commission for Approval		
☐	LZ-1: Low - Developed Parkland	☑ LZ-3: Moderately High - Urban Areas			

B. PROJECT SCOPE

Table Instructions: Include any outdoor lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §140.7 or §141.0(b)2L for alterations.

My project consists of:

01	02
☑ New Lighting System	Must Comply with Allowances from §140.7.
☐ Altered Lighting System	Is your alteration increasing the connected lighting load (Watts)? ◯ Yes ◯ No

[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*

C. COMPLIANCE RESULTS

Table Instructions: If any cell on this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D. for guidance.

Calculation of Total Allowed Lighting Power (Watts) §140.7 or §141.0(b)2L | **Compliance Results**

01		02		03		04		05	OR	06	=	07	≥	08	09
General Hardscape Allowance §140.7(d)1	+	Per Application §140.7(d)2	+	Sales Frontage §140.7(d)2	+	Ornamental §140.7(d)2	+	Per Specific Area §140.7(d)2	OR	Existing Power §141.0(b)2L	=	**Total Allowed** (Watts)	≥	**Total Actual** (Watts)	**07 Must be ≥ 08**
(See Table I)		(See Table J)		(See Table K)		(See Table L)		(See Table M)		(See Table N)				(See Table F)	
1,420.52	+		+		+		+		OR		=	1,420.52	≥	300	**COMPLIES**

Cutoff Compliance (See Table G for Details)	**Not Applicable**
Controls Compliance (See Table H for Details)	**COMPLIES**

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E (Created 9/17) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name: Fremont Elementary School	Report Page:	Page 2 of 6
Project Address: 607 Texas St.	Date Prepared:	7/6/2018

D. EXCEPTIONAL CONDITIONS

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

No exceptional conditions apply to this project.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

F. OUTDOOR LIGHTING FIXTURE SCHEDULE

This Section Does Not Apply

F. OUTDOOR LIGHTING FIXTURE SCHEDULE

Table Instructions: For new or altered lighting systems demonstrating compliance with §140.7 (ie Table I has expanded for input), include all luminaires being installed and any existing luminaires remaining or being moved within the spaces covered by the permit application in the Table below. For altered lighting systems using the Existing Power method per §141.0(b)2L (ie Table N has expanded for input), include only new luminaires being installed and replacement luminaires being installed as part of the project scope (ie, do not include existing luminaires remaining or existing luminaires being moved).

Designed Wattage:

01	02	03	04	05	06	07	08	09	10	
Name or Item Tag	Complete Luminaire Description	Watts per luminaire[1]	How Wattage is determined	Total number luminaires	Luminaire Status[2]	Excluded per §140.7(a)	Design Watts	Cutoff Req. > 150W §130.2(b)[3]	Field Inspector	
									Pass	Fail
A	30W LED	30	Mfr. Spec[1]	10	New	☐	300		☐	☐
						Total Designed Watts:	**300**			

* NOTES: Selections with a * require a note in the space below explaining how compliance is achieved.
EX: Luminaire is lighting a statue; EXCEPTION 2 to §130.2(b).

G. CUTOFF REQUIREMENTS (BUG)

This Section Does Not Apply

H. OUTDOOR LIGHTING CONTROLS

This Section Does Not Apply

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E (Created 9/17) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name: Fremont Elementary School	Report Page:	Page 3 of 6
Project Address: 607 Texas St.	Date Prepared:	7/6/2018

H. OUTDOOR LIGHTING CONTROLS

Table Instructions: Complete this table demonstrating 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.
*When an option having a * is selected, the notes section of this table must be completed. The lighting controls section of the Compliance Summary Table on the first page will show "DOES NOT COMPLY" if the notes are left blank. For each requirement in columns 02 through 07, do not leave the field blank, instead select NA or Exempt* from the dropdown list to indicate not applicable or an exemption.*

Mandatory Controls

01	02	03	04	05	06	07	08	
Area Description	Motion Sensor: Incandescent>100W §130.2(a)	Shut-Off §130.2(c)1	Auto-Schedule §130.2(c)2	Motion Sensor §130.2(c)3	Sales Frontage §130.2(c)4	Façade, Ornament, Outdoor Dining §130.2(c)5	Field Inspector	
							Pass	Fail
Exterior Lights	NA: No Incand>100W	Photocontrol	Yes	Yes	NA: No Sales Front Ltg	No Applicable Lt	☐	☐

*NOTES: Controls with a * require a note in the space below explaining how compliance is achieved.
EX: Not permitted by health & safety to be turned off; EXCEPTION 1 to §130.2(c).

I. LIGHTING POWER ALLOWANCE (per §140.7)

Table Instructions: Please complete this table for areas using the allowance calculations per §140.7. General Hardscape Allowance is per Table 140.7-A while "Use it or lost it" Allowances are per Table 140.7-B. 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.

	01				
		"Use it or lose it" Allowance (Watts)			
☑ General Hardscape Allowance	☐ Per Application	☐ Sales Frontage	☐ Ornamental	☐ Per Specific Area	
Table I (below)	Table J	Table K	Table L	Table M	

Calculated General Hardscape Lighting Power Allowance per Table 140.7-A

02	03	04	05	06	07	08	09
Area Description	Area Wattage Allowance (AWA)			Linear Wattage Allowance (LWA)			Total General AWA + LWA (Watts)
	Illuminated Area (ft²)	Allowed Density (W/ft²)	Area Allowance (Watts)	Perimeter Length (lf)	Allowed Density (W/lf)	Linear Allowance (Watts)	
Solar Canopies	17,298	0.04	691.92	596	0.35	208.6	900.52
					Initial Wattage Allowance for Entire Site (Watts):		**520**
					Total General Hardscape Allowance (Watts):		**1,420.52**

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E (Created 9/17) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name: Fremont Elementary School	Report Page:	Page 4 of 6
Project Address: 607 Texas St.	Date Prepared:	7/6/2018

J. LIGHTING ALLOWANCE: PER APPLICATION

This Section Does Not Apply

K. LIGHTING ALLOWANCE: SALES FRONTAGE

This Section Does Not Apply

L. LIGHTING ALLOWANCE: ORNAMENTAL

This Section Does Not Apply

M. LIGHTING ALLOWANCE: PER SPECIFIC AREA

This Section Does Not Apply

N. EXISTING CONDITIONS POWER ALLOWANCE (alterations only)

This Section Does Not Apply

O. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Table Instructions: Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at http://www.energy.ca.gov/2015publications/CEC-400-2015-033/appendices/forms/NRCI

YES	NO	Form/Title	Field Inspector	
			Pass	Fail
◉	◯	NRCI-LTO-01-E - Must be submitted for all buildings.	☐	☐
◉	◯	NRCI-LTO-02-E - Must be submitted for a lighting control system; or for an Energy Management Control System (EMCS), to be recognized for compliance.	☐	☐

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E (Created 9/17) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name: Fremont Elementary School	Report Page:	Page 5 of 6
Project Address: 607 Texas St.	Date Prepared:	7/6/2018

P. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Table Instructions: Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: http://www.energy.ca.gov/title24/attcp/providers.html

YES	NO	Form/Title	Field Inspector	
			Pass	Fail
◉	◯	NRCA-LTO-02-A - Must be submitted for all outdoor lighting controls except for alterations where controls area added to ≤ 20 luminaires.	☐	☐

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E (Created 9/17) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name: Fremont Elementary School	Report Page:	Page 6 of 6
Project Address: 607 Texas St.	Date Prepared:	7/6/2018

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

Documentation Author Name:	Richard J. Hardin	Documentation Author Signature:	
Company:	Hardin-Davidson Engineering	Signature Date:	07/06/2018
Address:	356 Pollasky Ave. Suite 200	CEA/ HERS Certification Identification (if applicable):	E9125
City/State/Zip:	Clovis, CA 93612	Phone:	(559) 323-4955

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	Responsible Designer Signature:	
Company :	Hardin Davidson Engineering	Date Signed:	07/06/2018
Address:	356 Pollasky Ave, Suite 200	License:	E9125
City/State/Zip:	Clovis, CA 93612	Phone:	559.323.4995

CLIENT

Bakersfield City School District
1300 Baker St., Bakersfield, CA 93305

PROJECT LOCATION

FREMONT ELEMENTARY SCHOOL
607 TEXAS ST.
BAKERSFIELD, CA 93307

DESIGNER

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100 Montgomery Street #1400
San Francisco, CA 94104
(855) 204-5083
www.ForeFrontPower.com

ARCHITECT

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Roseville, CA 95661
T 916.772.1600
3050 Pullman Street
Costa Mesa, CA 92626
T 714.338.1600
www.atiae.com

PROFESSIONAL STAMP

LICENSED ARCHITECT MARK S. BELO C 20677 Exp: Mar.31, 2017 STATE OF CALIFORNIA
REGISTERED PROFESSIONAL ENGINEER R.J.HARDIN No. 9125 ELECTRICAL STATE OF CALIFORNIA

AGENCY APPROVAL

AS BUILT
07-29-19

ISSUE

MARK	DATE	DESCRIPTION
–	7/31/2018	DSA SUBMITTAL

PROJECT No : ATI PROJ. #
DRAWN BY: HDE
CHECKED BY: RJH
SCALE: AS NOTED

CONSULTANT

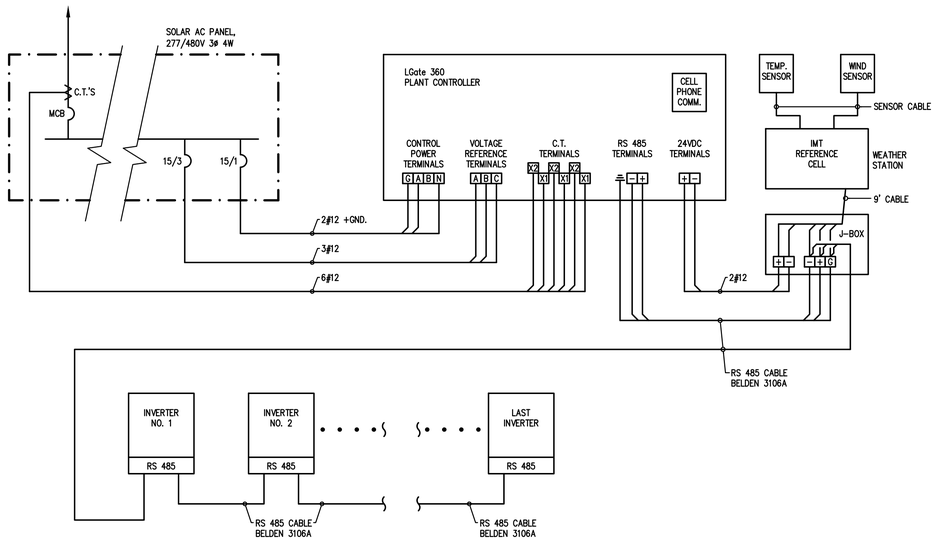
COLLINS ELECTRICAL COMPANY INC.
1902 Channel Drive
West Sacramento, CA 95691
T 916.567.1100

SHEET TITLE

LIGHTING TITLE 24 COMPLIANCE FORMS

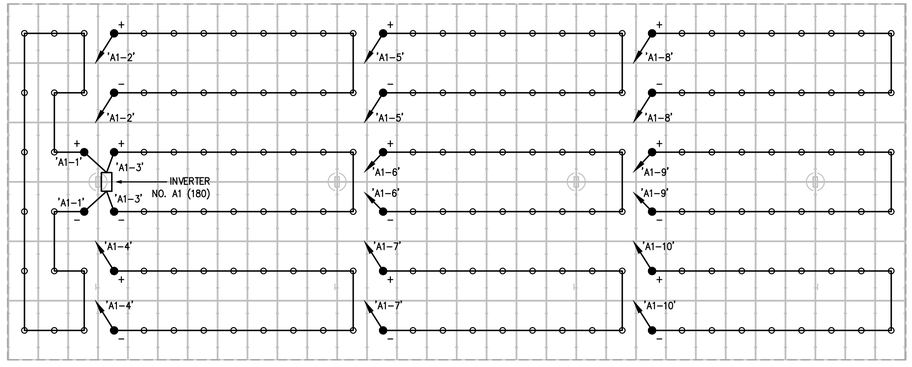
SHEET NUMBER

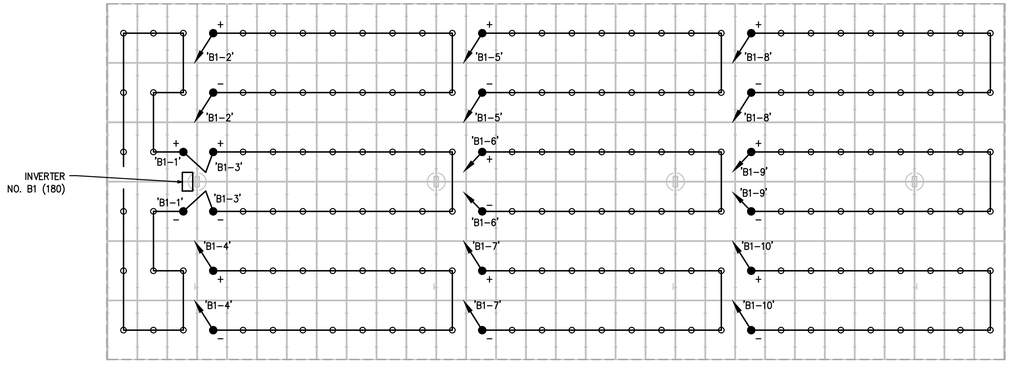
E7.0



TYPICAL MONITORING DATA WIRING DIAGRAM

SCALE: NONE





SOLAR STRING CABLING PLAN

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

NORTH

CLIENT

Bakersfield City School District
1300 Baker St., Bakersfield, CA 93305

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SCALE:	AS NOTED

CONSULTANT

COLLINS ELECTRICAL COMPANY INC.
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West Sacramento, CA 95691
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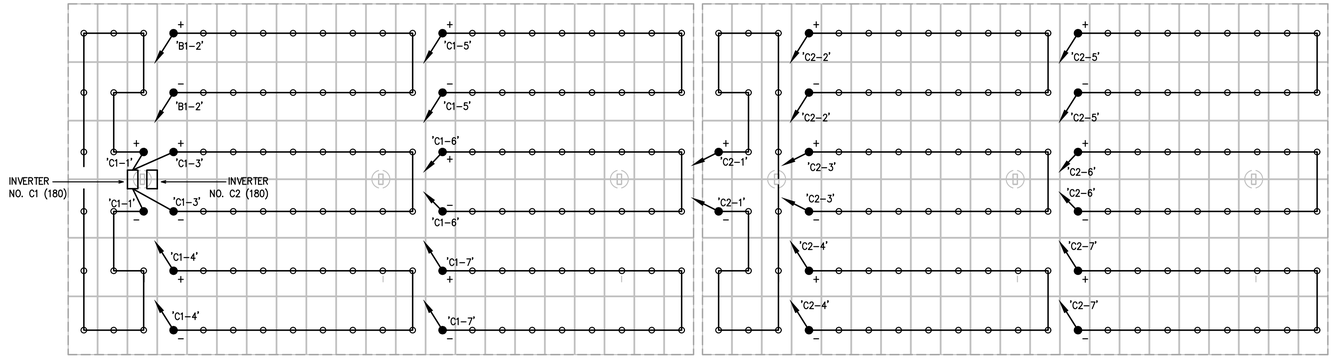
SHEET TITLE

SOLAR ARRAY ELECTRICAL STRING CABLING PLAN

SHEET NUMBER

ES1.0



SOLAR STRING CABLING PLAN

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

NORTH

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1962 Channel Drive
West Sacramento, CA 95691
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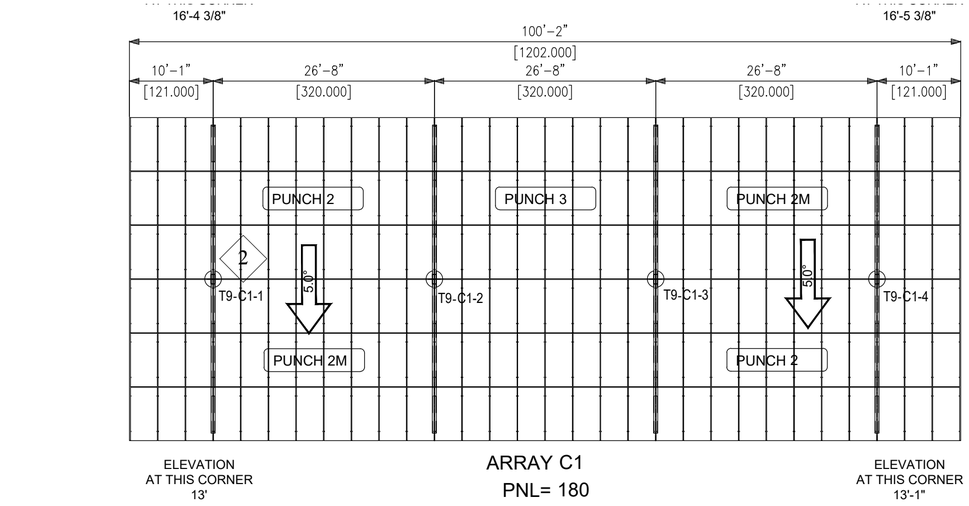
SHEET TITLE

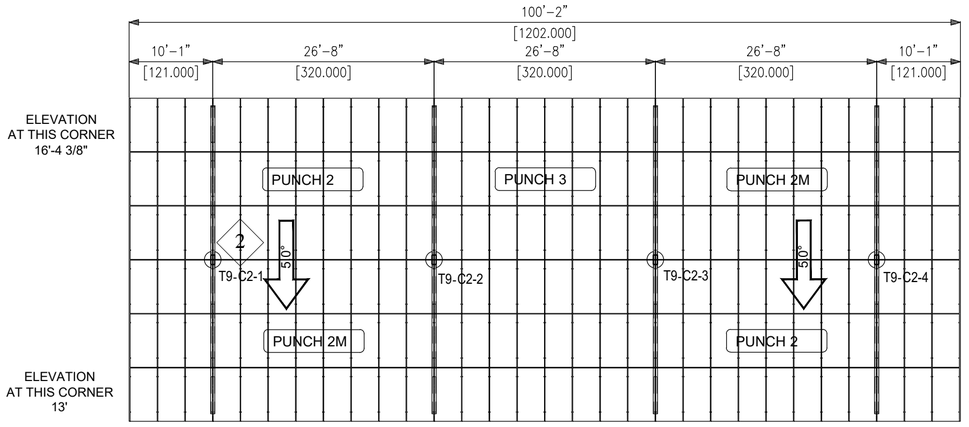
SOLAR ARRAY ELECTRICAL STRING CABLING PLAN

SHEET NUMBER

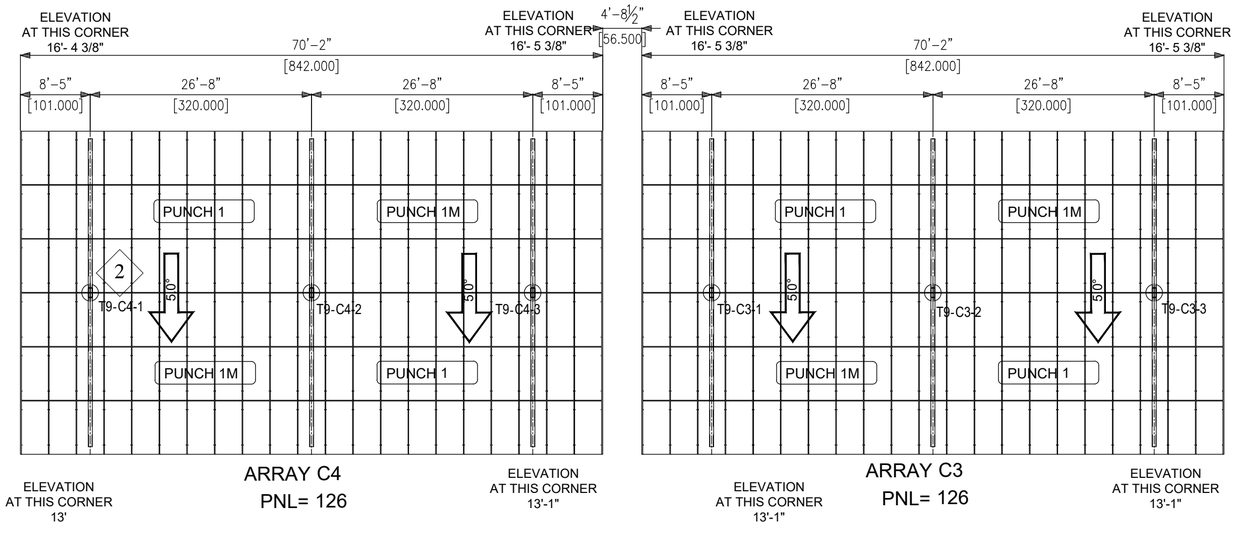
ES1.1



ARRAY C1
PNL= 180



ARRAY C2
PNL= 180



ARRAY C4
PNL= 126

ARRAY C3
PNL= 126

COLUMN & PV PANEL PLAN

SCALE: NTS

BAKERSFIELD CSD - FREMONT ELEMENTARY SCHOOL

LONGI SOLAR LR6-72PH 360M-380M

Modules dimensions as follows:

a. Length: 79.69 in

b. Width: 40.31 in

c. Thickness: 1.57 in

Designed for "Direct Bolt" System attachment

Gap between panels is 1" all around

End gap used is 1.5"

BOLLARD LOCATION ◇2

REVISIONS			
REV. NO.	DESCRIPTION	DATE	DRAWN BY
3	-	-	-
2			
1			
0	INITIAL COLUMN LAYOUT	3-25-2019	TR

BAKERSFIELD CSD
FREMONT E.S.
AS-BUILTS

M BAR C CONSTRUCTION INC.
674 RANCHEROS DR. SAN MARCOS, CA 92069
PHONE: (760) 744-4131 FAX: (760) 744-4449
LIC # 869960 B AND C51

PHOTOVOLTAIC STRUCTURES

DRAWN CMS
CHECKED ---
DATE 7/12/2019
M BAR C JOB NO. ---
SHEET S-1