

COMMERCIAL EVCS INSTALLATION

SAN JOAQUIN VALLEY APCD

34946 FLYOVER CT
BAKERSFIELD, CA 93308

(661)392-5500

SHEET INDEX

PV 1.0	COVER SHEET
PV 2.0	SINGLE LINE DIAGRAM
PV 3.0	SITE PLAN
PV 4.0	SYSTEM LAYOUT
PV 5.0	SPECIFICATION SHEETS
PV 6.0-6.1	STRUCTURAL SPECIFICATIONS
ATTACHED	EDITED PRECISE DEVELOPMENT PLAN(SUBMITTED TO PLANNING)

INSTALLATION DETAILS

INSTALL TYPE:	ELECTRIC VEHICLE CHARGING STATIONS
MANUFACTURER:	CHARGEPOINT
EVCS TYPE:	DUAL PORT/ BALLARD
MODEL NUMBER:	CT4021
TOTAL COUNT:	(3) DUAL PORT
ELECTICAL TYPE AT LOCATION:	THREE PHASE
JURISDICTION:	KERN COUNTY BUILDING DEPARTMENT 2700 M ST BAKERSFIELD, CA 93301

GENERAL NOTES

- 1) THE APPROVAL OF THESE PLANS AND SPECIFICATIONS DOES NOT PERMIT THE VIOLATION OF ANY SECTION OF THE BUILDING CODE, MUNICIPAL ORDINANCES, OR STATE LAWS.
- 2) THESE PLANS AND RELATED DOCUMENTS MUST BE AT THE JOB SITE DURING INSPECTION ACTIVITY.
- 3) ELECTRICIANS MUST BE CERTIFIED BY THE STATE OF CALIFORNIA. NON-COMPLIANT VIOLATIONS OF THIS REQUIREMENT BY EITHER ELECTRICIANS OR WORKING CONTRACTORS SHALL BE REPORTED TO THE LICENSE BOARD AS REQUIRED UNDER THE EXISTING LABOR CODE SECTION 108.2 AN INDENTURED APPRENTICE OR STATE REGISTERED ELECTRICIAN (AKA TRAINEE) MAY ALSO PERFORM ELECTRICAL WORK IF UNDER DIRECT SUPERVISION OF A "STATE CERTIFIED ELECTRICIAN.
- 4) ANY SURVEY MONUMENTS IN THE AREA OF CONSTRUCTION SHALL BE PRESERVED OR RESET BY A PERSON LICENSED TO PRACTICE LAND SURVEYING IN THE STATE OF CALIFORNIA.
- 5) REPAIR ALL DAMAGED AND/OR OFF-GRADE CONCRETE STREET IMPROVEMENTS AS DETERMINED BY THE CONSTRUCTION MANAGEMENT ENGINEER PRIOR TO OCCUPANCY.
- 6) EACH EVCS SPACE WILL BE DESIGNATED FOR FLEET VEHICLE EV CHARGING ONLY AND SIGNAGE WILL BE PROVIDED INDICATING THE SPACES ARE NOT FOR USE BY THE GENERAL PUBLIC. CBC11B-228.3.2 EXCEPTION 1

APPLICABLE CODES:

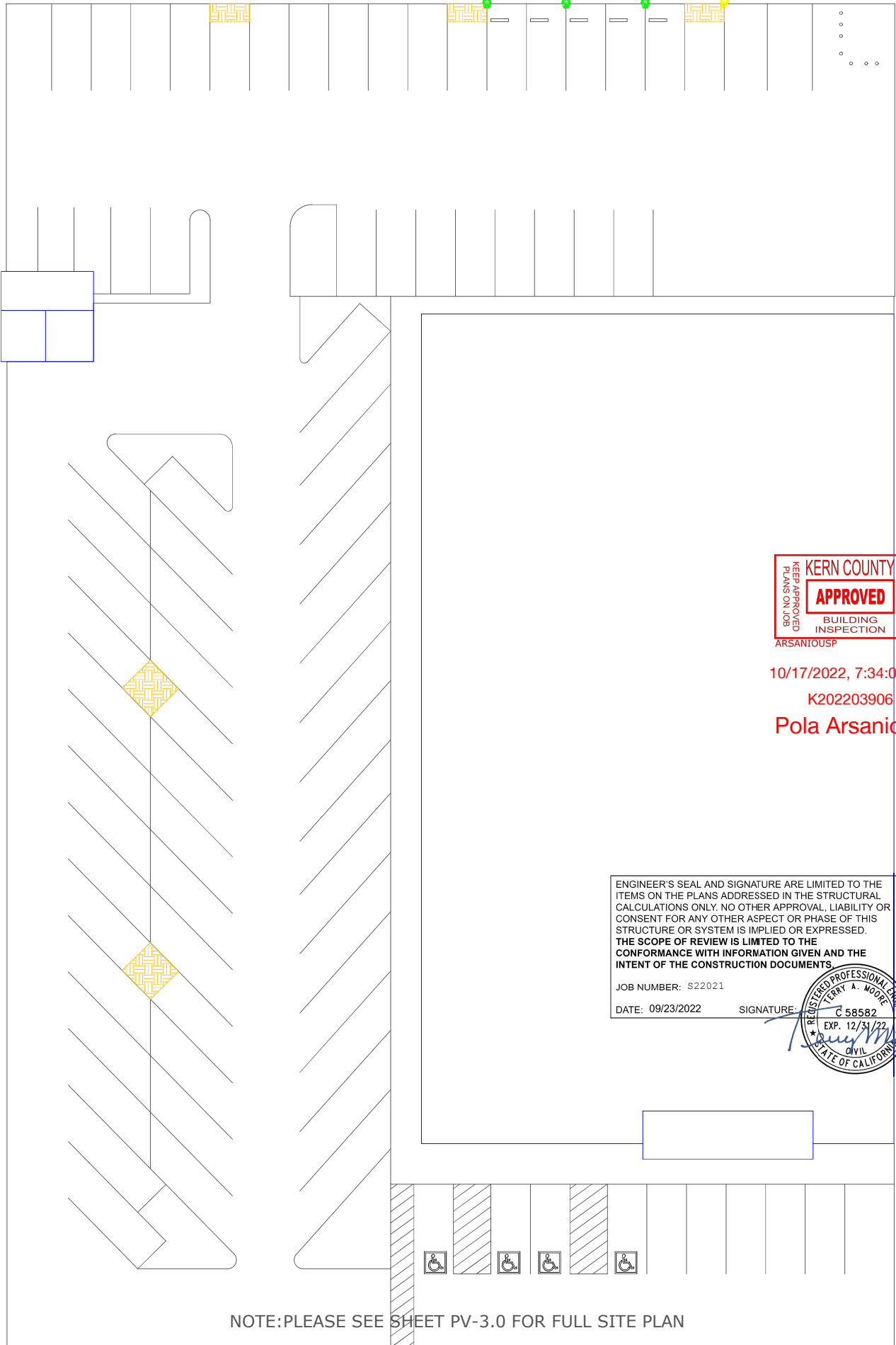
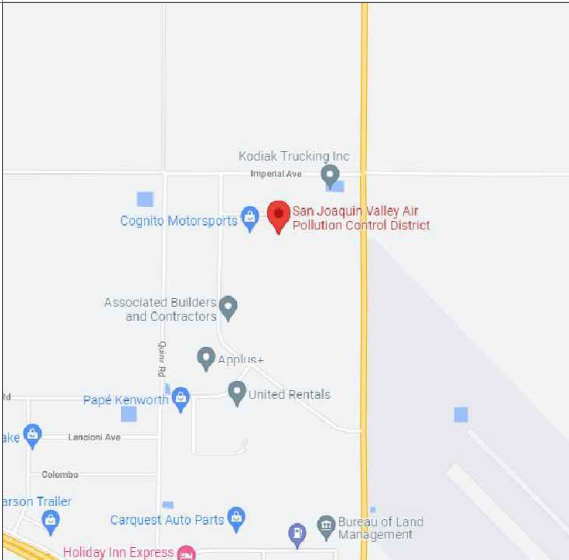
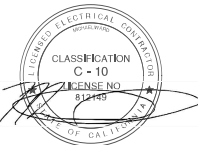
2019 BUILDING CODE
2019 CALIFORNIA MECHANICAL CODE
2019 CALIFORNIA ELECTRICAL CODE
2019 CALIFORNIA PLUMBING CODE
2019 CALIFORNIA FIRE CODE
2019 CALIFORNIA ENERGY CODE
2019 CALIFORNIA GREEN BUILDING STANDARDS CODE
AISC 14TH EDITION
ASCE-7 2010

OWNERSHIP

SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT
APN:482-170-09-00-1

ZONE:

M-1 PD H
TYPE:COMMERCIAL/TAX EXEMPT



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JOB NUMBER: S22021

DATE: 09/23/2022

SIGNATURE:



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Fax: (559) 251-5595

Contractor License # 812149



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34946 FLYOVER CT

BAKERSFIELD, CA 93308

Sheet Name

COVER SHEET

Drawn by: BRITANY BURKS

Job No.: ----

Scale: N/A

Sheet No.

PV-1.0

Date: 9/22/2022

NOTE:PLEASE SEE SHEET PV-3.0 FOR FULL SITE PLAN

CONDUIT SCHEDULE/ VOLTAGE DROP CALCULATION																										
	AC Conduit Run	Conductors and Conduit	Conduit	Output Amps	OCED REQUIRED (AMPS)	TRADE SIZE OCED (AMPS)	Voltage	Run Length	Wire Type	Phase Type	Allowable Voltage Drop	Result /1000ft	Conductor Size Voltage Drop (Vd)	Conductor Size Ampacity (I)	Conductor Size Recommended > of Vd & I	Conductor Size	Current Carrying Conductor	GEC	Current Carrying Conductor	GEC	Total Conductor	Conduit Size (E465 (ft))	Current Carrying Conductor	Voltage Drop	Voltage Drop	
	Locations		Type	Current (I)	Current (I)	Current (I)	Voltage (V)	FT (L)	Cable Size	Length (ft)	Vd (%)	Result /1000ft	Size (AWG)	Size (AWG)	Size (AWG)	Size (AWG)	# of	Size (AWG)	Size (mm²)	Size (mm²)	Size (mm²)	Size (mm²)	Size (mm²)	Vd (%)	Vd (%)	
A	Charging Station to SubPanel	1" PVC w/ (16) #6 THWN-2 & (1) #6 gr.	PVC	32	40	40	208	120	Copper	Single	3%	0.8125	8	8	8	8	8	8	141.66	23.61	165.27	1"	16512	5.9998	2.9%	
B	AC Combiner Panel to MSP	1 1/2" PVC w/ (4) #1/0 THWN-2 & (1) #6 gr.	PVC	110.84	139	150	208	160	Copper	Three	2%	0.135591	1/0	1/0	1/0	1/0	4	6	478.8	32.71	511.51	1 1/2"	105564	3.7492	1.8%	

LOAD CALCULATION

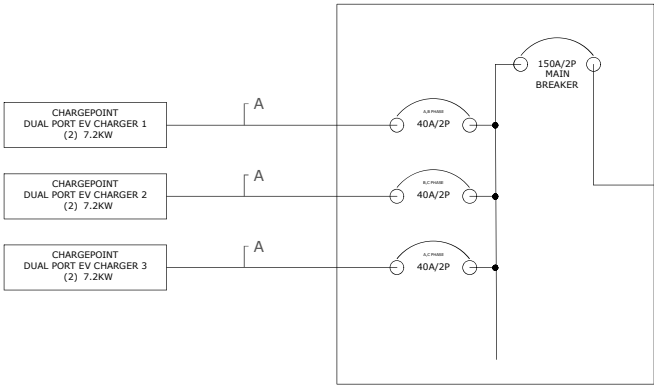
NEC 220.12	General Load					18250	sq ft.	x	3va	=	54,750	Watts					
	(4)Existing Charging Ports(32A continuous)	6656	Watts	x	4	Ports	x	1.25	=		33,280	Watts					
	AC Load(continuous)	250	Amps	x	208	Volts	x	1.732	x	1.25	=	112,580	Watts				
											200,610	Watts					
	(6)Proposed New Charging Ports (32A continuous)	6656	Watts	x	6	ports	x	1.25	=		49,920	Watts					
											250,530	Watts					
											250530	Watts /	208	Volts /	1.732	695	Amps
											Existing Service (1600 Amps 208Y/120)					1,600	Amps
											Remaining Available Load After New Installation					905	Amps

(EXISTING)PANEL SCHEDULE
1600A/208V SWITCHGEAR

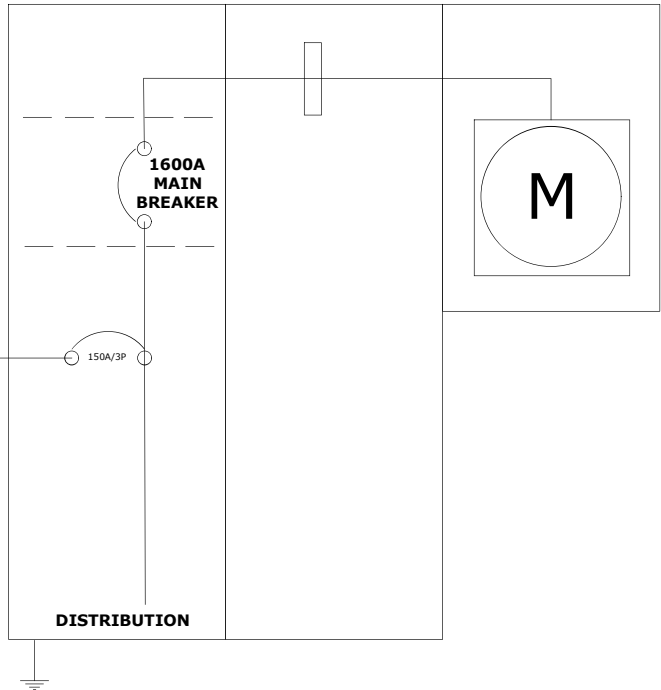
SUB PANEL LOADS			
	MAIN BREAKER	MAX LOAD	
PANEL C	3P200A	160A	UPS
PANEL M	3P600A	262A	AC
PANEL PA	3P100A	80A	LIGHTS & RECEPTACLES
PANEL G	3P200A	160A	TEST FANS/HEATER & AC
PANEL L	3P200A	160A	INDOOR/OUTDOOR LIGHTING/GATE
PANEL P	3P200A	160A	LIGHTS & RECEPTACLES
(NEW) PANEL AC-PV	3P200A	160A	EV CHARGERS
TOTAL		1,142A	

(NEW)
ELECTRIC
VEHICLE
CHARGING
STATIONS

(NEW) 200A
AC COMBINER PANEL
"PANEL AC-PV"
(NEMA 3R)



(EXISTING)
1600A
208V SWITCHGEAR



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Michael Jackson



PROJECT NOTES:

- 1) 3 NEW CHARGEPOINT DUAL PORT CHARGING STATIONS WILL BE INSTALLED IN THE EXISTING PLANTER BOX AT THE TOP END OF 6 PARKING STALLS OUTLINED ON SITE PLAN (IN LINE WITH PARKING LINES BEHIND CURB TO BE SHARED BY EITHER 2 ADJACENT STALLS).
- 2) A NEW 200A AC COMBINER PANEL WILL BE INSTALLED ON THE EXTERIOR WALL OF THE EXISTING BUILDING ADJACENT TO THE EXISTING TRANSFORMER (INSTALLED FOR THE EXISTING EV CHARGING STATIONS).
- 4) CHARGING STATIONS WILL BE INSTALLED ON NEW CONCRETE PADS TO BE POURED BEHIND THE EXISTING CURB.
- 5) A150A BREAKER WILL BE INSTALLED IN THE EXISTING 1600A SWITCHGEAR.
- 6) PLEASE SEE ELECTRICAL CALCULATIONS ABOVE FOR CONDUIT SCHEDULE.

NOTE: ELECTRIC VEHICLE CHARGING STATIONS WELL BE ELECTRICALLY FED EXCLUSIVELY BY THE GRID CONNECTING AT THE EXISTING 1600A SWITCHGEAR.

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DATE: 09/23/2022
SIGNATURE: *Terry A. Moore*
EXP. 12/31/22
C 58582
STATE OF CALIFORNIA
CIVIL



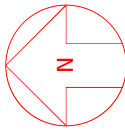
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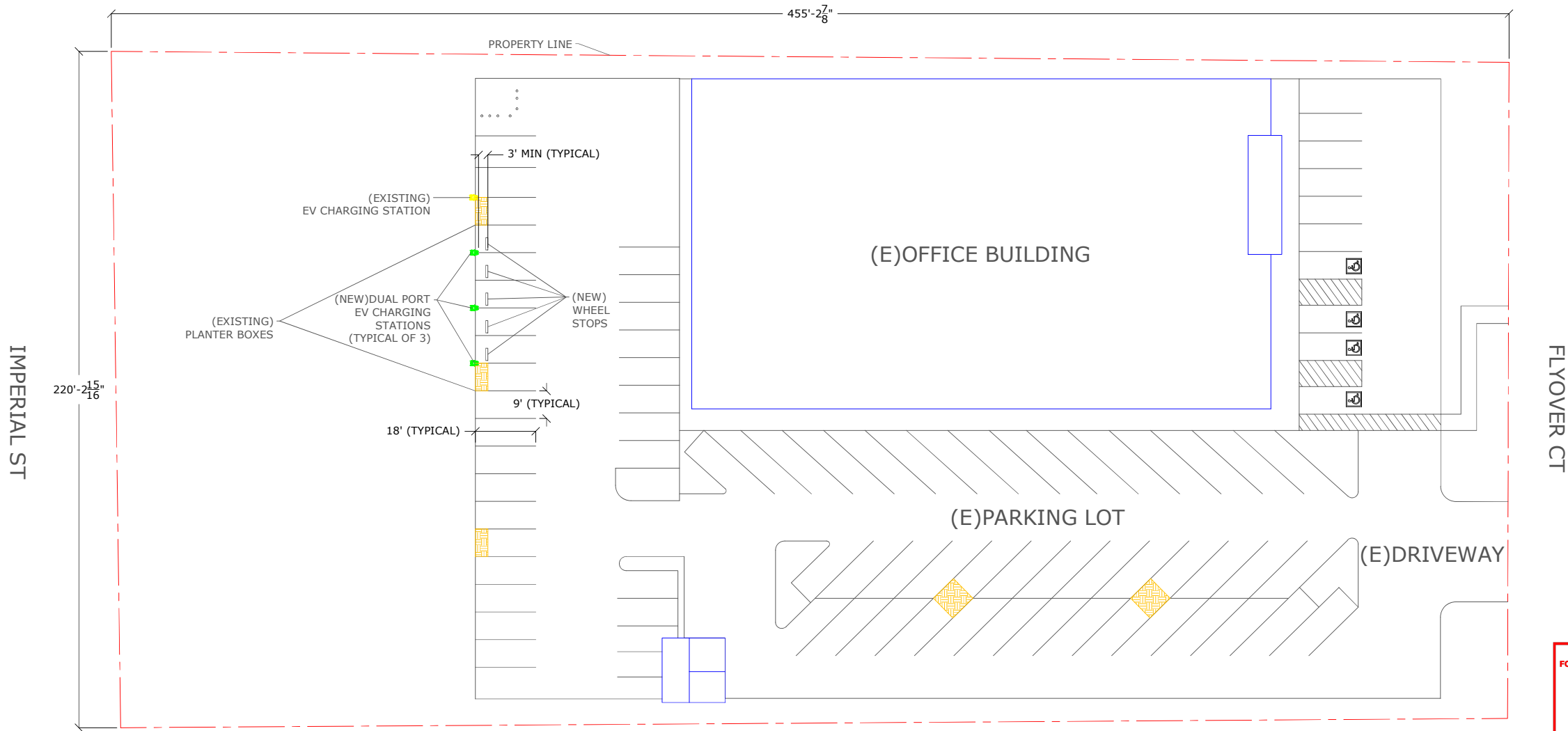
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BAKERSFIELD, CA 93308

Sheet Name
SINGLE
LINE DIAGRAM
Drawn by: BRITANY BURKS
Job No.: ----
Scale: N/A
Sheet No.
PV-2.0
Date: 9/22/2022

SCALE : 1" = 20'



APN:482-170-09-00-1



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Roque Nino



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K202203906

Pola Arsanious



- NOTES:
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3)PRECISE DEVELOPMENT MODIFICATION #1C SUBMITTED TO PLANNING 9/16/22.

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Sheet Name

SITE PLAN

Drawn by: BRITANY BURKS

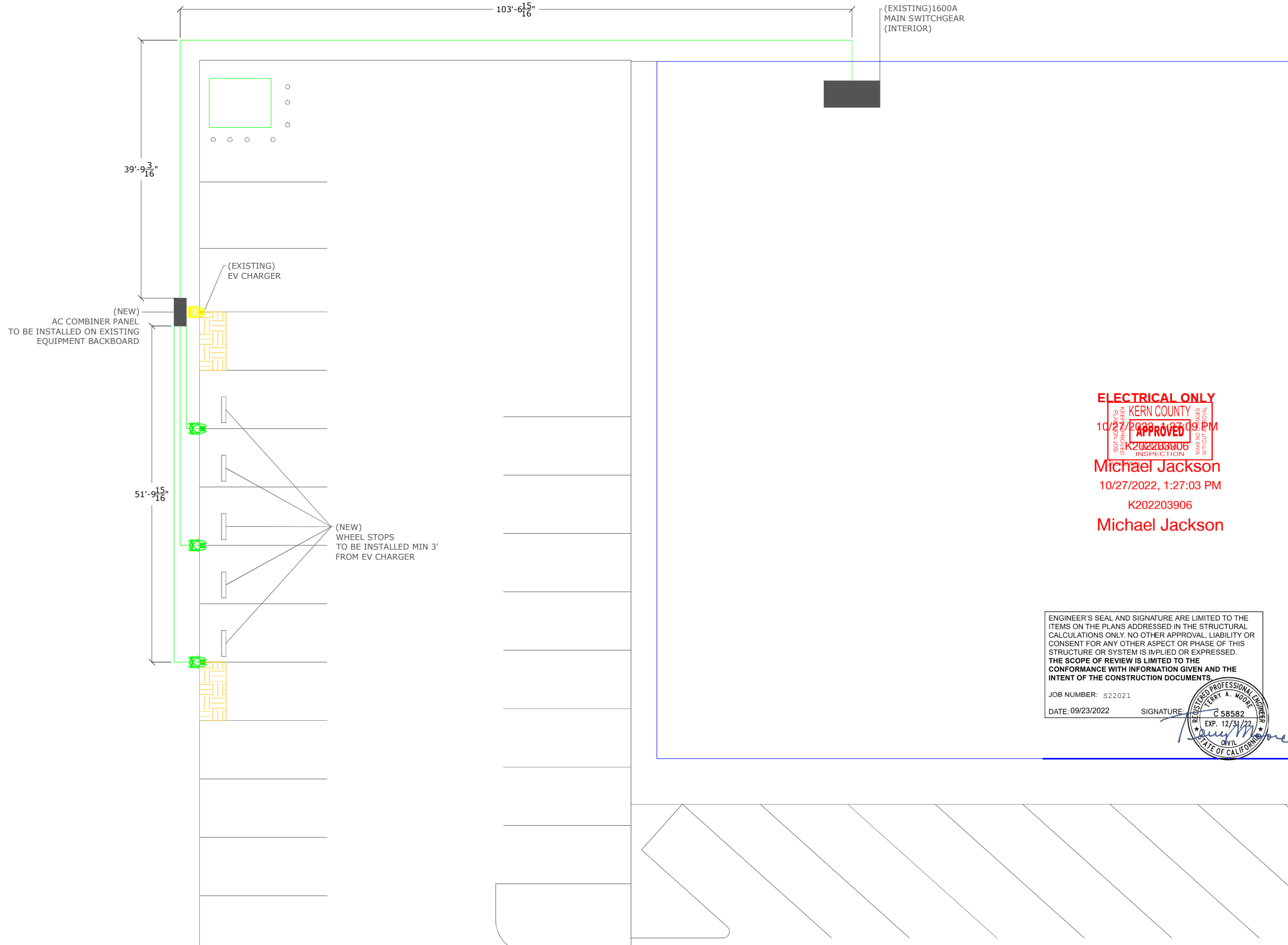
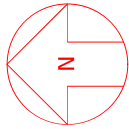
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PV-3.0

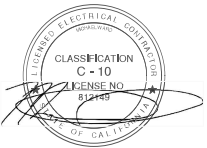
Date: 9/22/2022



ELECTRICAL ONLY
KERN COUNTY
10/27/2022
APPROVED
K202203906
INSPECTION
Michael Jackson
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K202203906
Michael Jackson

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C 58582
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STATE OF CALIFORNIA



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Sheet Name

SYSTEM LAYOUT

Drawn by: BRITANY BURKS

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Sheet No.

PV-4.0

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ELECTRIC VEHICLE CHARGING STATIONS SPECIFICATIONS



CT4000 Level 2 Commercial Charging Station

Specifications and Ordering Information



CT4021

CT4000 Datasheet

Ordering Information

The order codes below represent specific product configurations. Other product options are available. Please contact ChargePoint Sales for information and order codes.

Specify model number followed by the applicable code(s). The order code sequence is: **Model-Options, Software, Services** and **Misc** are ordered as separate line items.

Hardware

Description		Order Code
Model	1830 mm (6 ft) Single Port Bollard Mount	CT4011-GW1
	1830 mm (6 ft) Dual Port Bollard Mount	CT4021-GW1
	1830 mm (6 ft) Single Port Wall Mount	CT4013-GW1
	1830 mm (6 ft) Dual Port Wall Mount	CT4023-GW1
	2440 mm (8 ft) Dual Port Bollard Mount	CT4025-GW1
	2440 mm (8 ft) Dual Port Wall Mount	CT4027-GW1
Included	Integral Modem – North America	-GW1
Misc	Power Management Kit Bollard Concrete Mounting Kit	CT4000-PMGMT
	Bollard Concrete Mounting Kit	CT4001-CCM

*Note: ALL CT-000 stations include Integral Modem -GW1.

Software & Services

Description	Order Code
ChargePoint Commercial Service Plan	CPCLD-COMMERCIAL-n*
ChargePoint Enterprise Plan	CPCLD-ENTERPRISE-n*
ChargePoint Assure	CT4000-ASSUREn*
Station Activation and Configuration	CPSUPPORT-ACTIVE
ChargePoint Station Installation and Validation	CT4000-INSTALLVALID

Note: All CT4000 stations require a network service plan per port.

*Substitute n for desired years (1, 2, 3, 4 or 5 years)

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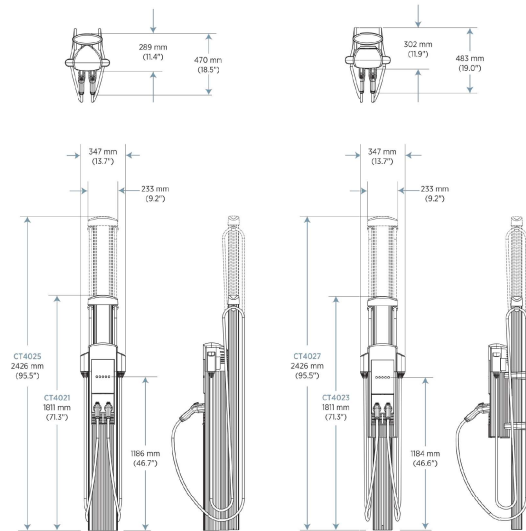
2 of 7

CT4000 Datasheet

Architectural Drawings (Dimensions)

CT4021 1830 mm (6')
CT4025 2440 mm (8')
Bollard

CT4023 1830 mm (6')
CT4027 2440 mm (8')
Wall Mount



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CT4000 Datasheet

General Specifications

Electrical Input

Electrical Input	Single Port (AC Voltage 208 / 240V AC)			Dual Port (AC Voltage 208 / 240V AC)		
	Input Current	Input Power Connection	Required Service Panel Breaker	Input Current	Input Power Connection	Required Service Panel Breaker
Standard	30A	One 40A branch circuit	40A dual pole (non-GFCI type)	30A x 2	Two independent 40A branch circuits	40A dual pole (non-GFCI type) x 2
Standard Power Share	n/a	n/a	n/a	32A	One 40A branch circuit	40A dual pole (non-GFCI type)
Power Select 24A	24A	One 30A branch circuit	30A dual pole (non-GFCI type)	24A x 2	Two independent 30A branch circuits	30A dual pole (non-GFCI type) x 2
Power Select 24A Power Share	n/a	n/a	n/a	24A	One 30A branch circuit	30A dual pole (non-GFCI type)
Power Select 16A	16A	One 20A branch circuit	20A dual pole (non-GFCI type)	16A x 2	Two independent 20A branch circuits	20A dual pole (non-GFCI type) x 2
Power Select 16A Power Share	n/a	n/a	n/a	16A	One 20A branch circuit	20A dual pole (non-GFCI type)
Service Panel GFCI	Do not provide external GFCI as it may conflict with internal GFC (CCID)					
Wiring – Standard	3-wire (L1, L2, Earth)			5-wire (L1, L1, L2, L2, Earth)		
Wiring – Power Share	n/a			3-wire (L1, L2, Earth)		
Station Power	8 W typical (standby), 15 W maximum (operation)					

Electrical Output

Electrical Output	Single Port (AC Voltage 208 / 240V AC)	Dual Port (AC Voltage 208 / 240V AC)
Standard	7.2 kW (240V AC @ 30A)	7.2 kW (240V AC @ 30A) x 2
Standard Power Share	n/a	7.2 kW (240V AC @ 30A) x 1 or 3.8 kW (240V AC @ 16A) x 2

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Sheet Name

SPECIFICATION SHEETS

Drawn by: BRITANY BURKS

Job No.: ----

Scale: N/A

Sheet No.

PV-5.0

Date: 9/22/2022

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Michael Jackson



architecture engineering forensic sciences
ASSOCIATED DESIGN AND ENGINEERING INC.
351 West Cromwell Ave. Suite #108 Fresno, CA 93711-6115
Office: 559.431.2389 Fax: 559.431.2074 Email: office@adeinc.biz

STRUCTURAL CALCULATIONS
FOR
Pacific Solar
Anchorage and Foundation for Vehicle Charging Station
San Joaquin Valley APCD, 34946 Flyover Ct., Bakersfield, CA 93308

DESIGN DATA

GOVERNING CODE 2019 California Building Code

BASIC STRESSES
CONCRETE F'_c = 3000 PSI for design
MASONRY F'_m = no PSI
REINFORCING F_y = 40 KSI
STRUCT. STL. F_y = no KSI
LUMBER F_y = no

ALLOWABLE SOIL PRESSURE
DL+LL = 1500 PSF
eg. Act. Fluid Pres. = PCF
eg. Pas. Fluid Pres. = 100 PCF

DESIGN LOADS
SEISMIC: DESIGN CATEGORY D
SITE CLASS D
RISK CATEGORY I
 $L = 1.00$ $S_{DS} = 0.589$
 $S_L = 0.362$ $S_F = 0.315$
 $R = 2.50$ $CS = 0.2067$

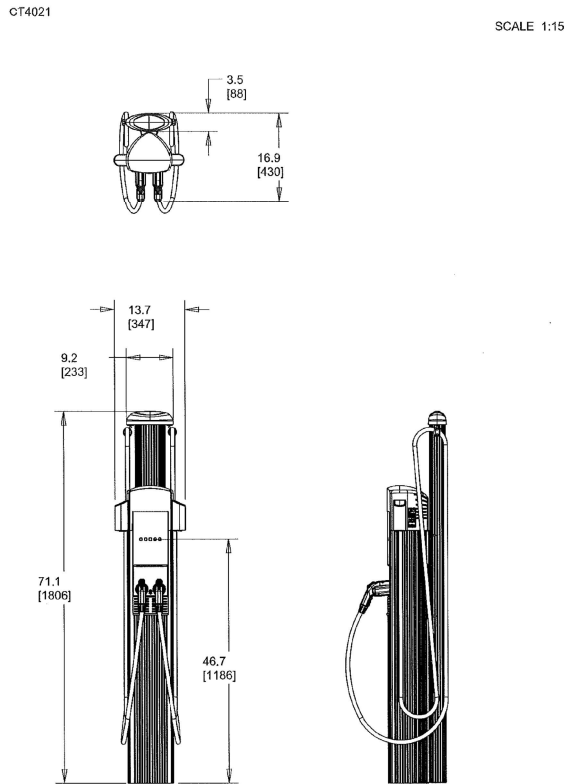
WIND: EXP. C RISK CATEGORY I 88 MPH

ROOF LIVE LOAD no PSF
FLOOR LIVE LOAD no PSF

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JOE S22-021



Weight 135 lbs

Cable Length 18 FT

Series CT4000 NETWORKED SYSTEMS

Jul 19 2022

ChargePoint CT4021-GW1 Dual Port Bollard Charging Station



10/17/2022, 7:37:15 PM
K202203906
Pola Arsanious

ATC Hazards by Location

Search Information

Address: 34946 Flyover Ct, Bakersfield, CA 93308, USA
Coordinates: 35.45497530000001, -119.0783006
Elevation: 539 ft
Timestamp: 2022-07-21T23:15:46.81Z
Hazard Type: Wind



ASCE 7-16	ASCE 7-10	ASCE 7-05
MRI 10-Year 65 mph	MRI 10-Year 72 mph	ASCE 7-05 Wind Speed 85 mph
MRI 25-Year 71 mph	MRI 25-Year 79 mph	
MRI 50-Year 76 mph	MRI 50-Year 85 mph	
MRI 100-Year 81 mph	MRI 100-Year 91 mph	
Risk Category I 88 mph	Risk Category I 100 mph	
Risk Category II 94 mph	Risk Category II 110 mph	
Risk Category III 101 mph	Risk Category III-IV 115 mph	
Risk Category IV 105 mph		

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Disclaimer

Hazard loads are interpolated from data provided in ASCE 7 and rounded up to the nearest whole integer. For ASCE 7, islands and coastal areas outside the last contour should use the last wind speed contour of the coastal area - in some cases, this website will extrapolate past the last wind speed contour and therefore, provide a wind speed that is slightly higher. NOTE: For queries near wind-borne debris region boundaries, the resulting determination is sensitive to rounding which may affect whether or not it is considered to be within a wind-borne debris region.

Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.

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Preparing the Installation Site for a Bollard Mount

Before You Start

The ChargePoint® Charging Station bollard mount can be installed either:

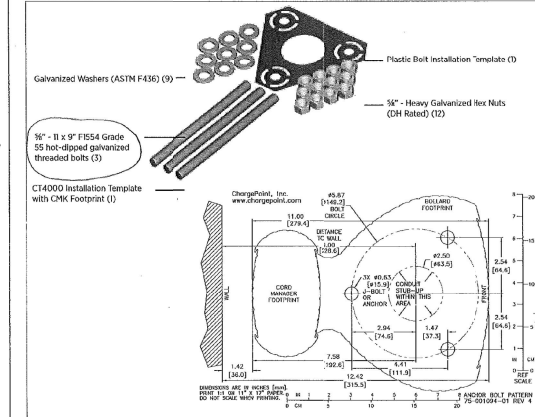
- into the ground
- onto an existing concrete surface (on an intermediate floor only)

The kit components you need to use, the tools required, and the installation steps vary depending on the type of installation. This appendix provides basic guidelines for both types of installations.

IMPORTANT: Always check local codes to ensure compliance. You may need to adjust the guidelines provided in this appendix to comply with codes that apply at your installation location.

Installation Overview

To install the CT4000 bollard mount into the ground, you will need the components shown below. These components can be purchased from ChargePoint or ordering a CT4000 Concrete Mount Kit.



ChargePoint® Charging Stations

Follow These Steps

1. Install two nuts with two washers captured between them. Lock them together so the lower end of the nut is located 6" from the bottom of the bolt. This sets the length of the exposed threads.
2. Use the Plastic Concrete Bolt Installation Template to mark the hole locations.
3. Remove the template and drill three 3/4" diameter holes 6" deep into the concrete. When locating the template, consider the charging station's total footprint. For reference, a template for the CT4000 charging station with CMK is included in this kit.

NOTE:

- It is important that the bolts are parallel after installation. Therefore, ensure the drill holes are plumb by using a bubble level to check the angle of the drill after drilling 1 to 1 1/2".
 - If installing over existing buried conduit, position the center of the template around the conduit stub-up.
 - You may need two drill bits - one for the concrete (with the pilot) and another for the rebar (without the pilot). Always start the hole using the standard drill bit, then switch to the rebar drill bit only if drilling through rebar.
4. Remove all dust from inside the drilled holes using compressed air, or a vacuum and/or a brush.
 5. If the concrete slab is only 6" deep, insert a plug (McMaster Product #9753K56) in each hole to keep the epoxy in place until it hardens. Place the plug over the long end of a bolt and then use the bolt to push the plug to the bottom of the hole.
 6. Fill each hole with epoxy to about 2 1/2" to 3" below the top. Continue immediately to the next step because the epoxy sets within about eight minutes.

NOTE: Inserting the threaded bolts displaces the epoxy, causing it to fill the holes to grade level. If the epoxy is below grade level, you can add more after the next step.

7. Place the Plastic Concrete Bolt Installation Template over the holes. This ensures the relative position of the bolts and that the flange of the sole fits over the bolts.
8. Insert the bolts through the template into the holes. Rotate the bolts as you insert them to draw epoxy into the threads.

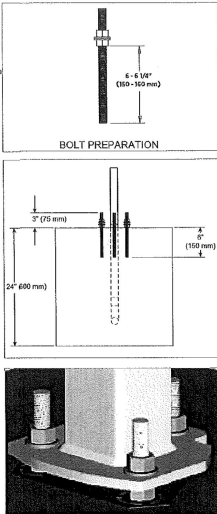
IMPORTANT: The epoxy is very thick. Therefore, it is important to rotate the bolts as you insert them. This allows the epoxy to fully coat the threads of the bolts, reducing the amount of trapped air.

NOTE: The installation template can be left in place.

9. If needed, top up the holes with epoxy to grade level.
10. Allow the epoxy to cure for at least 15 minutes* before removing the top nuts and washers.
11. Allow the epoxy to cure for 45 minutes* before applying torque to the nuts.

*Epoxy cure times assume you are using epoxy ordered from McMaster (Product # 750A455). If using a different type of epoxy, you may need to adjust these times. Refer to the cure times provided with the epoxy.

You are now ready to install the CT4000's bollard mount (see Chapter 2).



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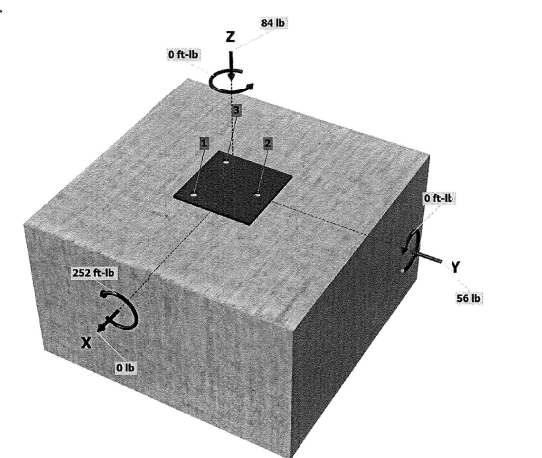
Company:		Date:	7/21/2022
Engineer:		Page:	6
Project:	S22-021 VEHICLE CHARGING STATION ANCHORAGE		
Address:	SEISMIC		
Phone:			
E-mail:			

Load and Geometry
Load factor source: ACI 318 Section 5.3
Load combination: not set
Seismic design: Yes
Anchors subjected to sustained tension: Not applicable
Durability section for tension: 17.2.3.4.2 not applicable
Durability section for shear: 17.2.3.5.2 not applicable
On factor: not set
Apply entire shear load at front row: No
Anchors rely resisting wind and/or seismic loads: Yes

Strength level loads:

N_u [lb]: -44
 V_u [lb]: 0
 V_{u2} [lb]: 56
 M_u [ft-lb]: 252
 M_u [ft-lb]: 0
 M_u [ft-lb]: 0

<Figure 1>

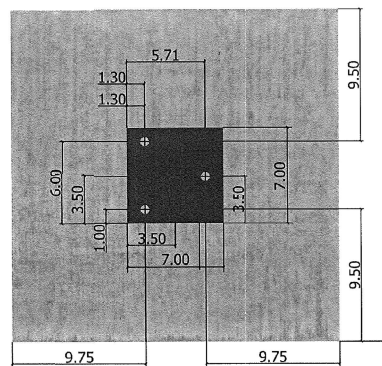


Input data and results must be checked for agreement with the existing circumstances, the standards and guidelines must be checked for plausibility.
Simpson Strong-Tie Company Inc. 5956 W. Las Posas Boulevard Pleasanton, CA 94588 Phone: 925.560.9000 Fax: 925.947.3171 www.strongtie.com

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Company:		Date:	7/21/2022
Engineer:		Page:	7
Project:	S22-021 VEHICLE CHARGING STATION ANCHORAGE		
Address:	SEISMIC		
Phone:			
E-mail:			

<Figure 2>

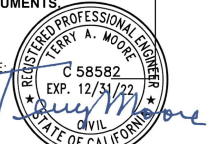


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JOB NUMBER: S22021

DATE: 09/23/2022

SIGNATURE:



SAN JOAQUIN VALLEY APCD

34946 FLYOVER CT

BAKERSFIELD, CA 93308

Sheet Name

STRUCTURAL SPECIFICATIONS

Drawn by: BRITANY BURKS

Job No.: ----

Scale: N/A

Sheet No.

PV-6.0

Date: 9/22/2022

