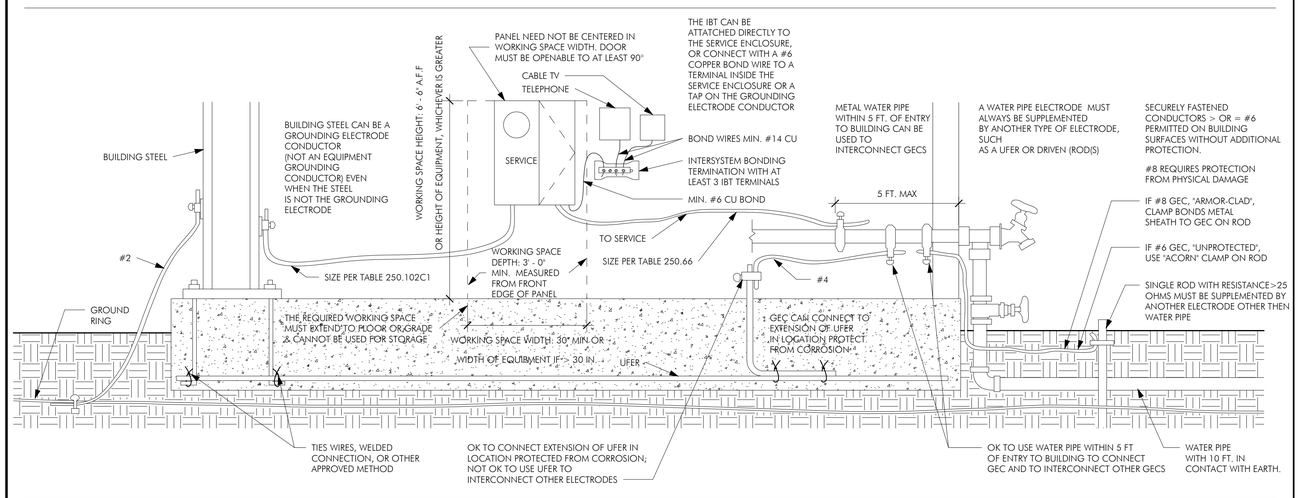
SINGLE LINE DIAGRAM:

NOTE:
IF CHARGING EQUIPMENT PROPOSED IS A LEVEL 2 – 9.6 KW STATION WITH A CIRCUIT RATING OF 50 AMPS OR HIGHER, INCLUDE A COMPLETED CIRCUIT CARD WITH ELECTRICAL CALCULATIONS INCLUDED WITH THIS SINGLE LINE DIAGRAM

BONDING JUMPER DETAIL:



WARNINGS & DISCLOSURES:

THE CITY OF COSTA MESA PROVIDES THESE STANDARD PLANS FOR A LIMITED NUMBER OF PERMITS AND A NARROWLY DEFINED SCOPE OF WORK. BY USING THESE STANDARDS, THE PERMIT HOLDER AGREES TO THE FOLLOWING TERMS:

- THE PLANS MUST BE SUBMITTED EXACTLY AS PROVIDED BY THE CITY, WITHOUT ALTERATION OR MODIFICATION. ANY UNAUTHORIZED CHANGES, INCOMPLETE SECTIONS, OR DOCTORED INFORMATION INVALIDATE THE PLANS & PERMIT.
- THESE PLANS MAY ONLY BE USED FOR THE SPECIFIC PROJECT AND SCOPE ASSOCIATED WITH THE CURRENT PERMIT APPLICATION. USE FOR ANY OTHER PURPOSE, INCLUDING PROJECTS OUTSIDE OF COSTA MESA, IS PROHIBITED.
- ALL INTELLECTUAL PROPERTY RELATED TO THESE PLANS REMAINS THE PROPERTY OF THE CITY OF COSTA MESA.
- FAILURE TO ADHERE TO THE PROVIDED STANDARDS, OR SUBMISSION OF INCOMPLETE OR INCORRECT INFORMATION, WILL RESULT IN DELAYS; AND MAY: REQUIRE ADDITIONAL DOCUMENTATION, SUBMITTAL OF NEW APPLICATION(S), VOIDING OF THE PERMIT, AND/OR LEAD TO CODE ENFORCEMENT ACTIONS, INCLUDING CITATIONS AND FINES.

BY PROCEEDING, THE APPLICANT ACKNOWLEDGES THESE TERMS AND AGREES TO COMPLY FULLY WITH THE CITY OF COSTA MESA'S RESIDENTIAL RE-ROOF STANDARD DETAILS, SPECIFICATIONS, LIMITATIONS, AND REQUIREMENTS.

SIGNATURE: _____

SPECIFIC PROJECT INFORMATION:

ALL MATERIALS, EQUIPMENT, INSTALLATION, AND WORK SHALL COMPLY WITH THE LATEST VERSION OF THE:

- 2022 CALIFORNIA BUILDING CODE (CBC)
- 2022 CALIFORNIA RESIDENTIAL CODE (CRC)
- 2022 CALIFORNIA MECHANICAL CODE (CMC)
- 2022 CALIFORNIA ELECTRICAL CODE (CEC)
- 2022 CALIFORNIA PLUMBING CODE (CPC)
- CALIFORNIA FIRE CODE (CFC),
- CALIFORNIA ENERGY CODE (T24),
- CALIFORNIA GREEN CODE (CALGREEN),
- CITY OF COSTA MESA MUNICIPAL CODE.

SCOPE OF WORK:

1.

CHECK ONE	TYPE OF CHARGING STATION(S)	POWER LEVELS (PROPOSED CIRCUIT RATING)
	LEVEL 1	110/120 VOLT ALTERNATING CURRENT (VAC) AT 15 OR 20 AMPS
	LEVEL 2 - 3.3 KILOWATT (kW) (LOW)	208/240 VAC AT 20 OR 30 AMPS
	LEVEL 2 - 6.6 KILOWATT (kW) (MEDIUM)	208/240 VAC AT 40 AMPS
	LEVEL 2 - 9.6 KILOWATT (kW) (HIGH)	208/240 VAC AT 50 AMPS
	LEVEL 2 -19.2 KILOWATT (kW) (HIGHEST)	208/240 VAC AT 100 AMPS
	OTHER (PROVIDE DETAIL):	OTHER (PROVIDE RATING):

2. ELECTRICAL PANEL SIZE: _____ AMPS

3. INSTALLATION LOCATION IS (CHECK ONE):

____ INSIDE GARAGE ____ EXTERIOR WALL ____ OTHER: _____

GENERAL REQUIREMENTS:

A. GENERAL REQUIREMENTS FOR EV CHARGER INSTALLATIONS (CFC SECTION 1206.10 AND CEC 625):
- A.1. INSTALLATION OF RESIDENTIAL EV CHARGERS SHALL REQUIRE PERMITS FROM THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ). THE INSTALLATION MUST BE PERFORMED BY A QUALIFIED ELECTRICIAN AND INSPECTED FOR COMPLIANCE WITH ALL RELEVANT CODES. (CEC 625.4)
- A.2. ALL EV CHARGERS SHALL BE INSTALLED IN ACCORDANCE WITH THE CALIFORNIA ELECTRICAL CODE (CEC) AND THE NATIONAL ELECTRICAL CODE (NEC). INSTALLATIONS MUST COMPLY WITH MANUFACTURER SPECIFICATIONS, INCLUDING WIRING, GROUNDING, CIRCUIT PROTECTION, AND VENTILATION REQUIREMENTS. (CEC 625.5)

B. ELECTRICAL CIRCUIT REQUIREMENTS FOR EV CHARGERS (CEC 625.41):
- B.1. EACH EV CHARGER MUST BE SUPPLIED BY A DEDICATED BRANCH CIRCUIT THAT IS SIZED FOR THE CHARGER'S MAXIMUM CONTINUOUS LOAD. THE CIRCUIT SHALL HAVE OVERCURRENT PROTECTION SIZED ACCORDING TO THE CHARGER'S SPECIFICATIONS AND THE CEC. (CEC 625.41)
- B.2. OVERCURRENT PROTECTION DEVICES (CIRCUIT BREAKERS OR FUSES) SHALL BE INSTALLED TO PROTECT THE ELECTRICAL WIRING AND EV CHARGER FROM OVERLOAD CONDITIONS. THE RATING OF THE OVERCURRENT PROTECTION SHALL BE BASED ON THE EV CHARGER'S LOAD AND CONTINUOUS DUTY CYCLE REQUIREMENTS. (CEC 625.42)
- B.3. ALL EV CHARGING EQUIPMENT MUST BE INSTALLED WITH GROUND-FAULT CIRCUIT INTERRUPTER (GFCI) PROTECTION FOR PERSONNEL TO PREVENT ELECTRICAL SHOCK. THIS APPLIES TO BOTH HARDWIRED AND PLUG-IN CHARGER INSTALLATIONS. (CEC 625.54)

C. LOCATION AND ACCESSIBILITY REQUIREMENTS (CEC 625.29):
- C.1. EV CHARGERS SHALL BE MOUNTED AT A HEIGHT THAT COMPLIES WITH ACCESSIBILITY STANDARDS, TYPICALLY BETWEEN 18 INCHES (457 MM) AND 48 INCHES (1219 MM) ABOVE THE FLOOR OR GRADE. THIS ENSURES EASE OF USE AND ACCESSIBILITY FOR ALL USERS. (CEC 625.29)
- C.2. CLEAR WORKING SPACE OF AT LEAST 30 INCHES (762 MM) WIDE AND 36 INCHES (914 MM) DEEP SHALL BE MAINTAINED AROUND EV CHARGERS. THIS SPACE MUST BE KEPT FREE OF OBSTRUCTIONS TO ALLOW SAFE OPERATION, MAINTENANCE, AND EMERGENCY ACCESS. (CEC 625.30)
- C.3. CHARGING EQUIPMENT INSTALLED IN LOCATIONS SUBJECT TO PHYSICAL DAMAGE (SUCH AS GARAGES OR DRIVEWAYS) SHALL BE PROTECTED BY BOLLARDS, GUARDS, OR OTHER BARRIERS TO PREVENT ACCIDENTAL IMPACT BY VEHICLES. (CEC 625.30)

D. VENTILATION REQUIREMENTS FOR EV CHARGERS (CEC 625.52):
- D.1. EV CHARGERS THAT REQUIRE VENTILATION, AS SPECIFIED BY THE MANUFACTURER, SHALL BE INSTALLED IN WELL-VENTILATED AREAS. THIS IS PARTICULARLY IMPORTANT FOR OLDER BATTERY TYPES THAT MAY PRODUCE HYDROGEN GAS DURING CHARGING. (CEC 625.52)
- D.2. WHERE REQUIRED, VENTILATION CAN BE PROVIDED BY NATURAL MEANS (WINDOWS, LOUVERS) OR MECHANICAL MEANS (FANS, EXHAUST SYSTEMS). THE VENTILATION RATE MUST COMPLY WITH THE MANUFACTURER'S SPECIFICATIONS AND CEC REQUIREMENTS. (CEC 625.52.2)

E. LABELING AND SIGNAGE REQUIREMENTS (CEC 625.15):
- E.1. EV CHARGERS SHALL BE CLEARLY LABELED WITH THEIR VOLTAGE, CURRENT, AND POWER RATINGS, ALONG WITH ANY SPECIFIC USE INSTRUCTIONS. LABELS MUST BE DURABLE, WEATHER-RESISTANT, AND VISIBLE TO USERS. (CEC 625.15)
- E.2. WHERE A DISCONNECTING MEANS IS REQUIRED (SUCH AS FOR LEVEL 2 OR HIGHER CHARGERS), THE DISCONNECT SWITCH MUST BE CLEARLY LABELED WITH "EMERGENCY DISCONNECT FOR EV CHARGER" OR SIMILAR WORDING TO GUIDE EMERGENCY RESPONDERS. (CEC 625.23)

F. ELECTRIC VEHICLE POWER TRANSFER SYSTEM
- F.1. ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE) AND WIRELESS POWER TRANSFER EQUIPMENT SHALL BE LISTED. (CEC 625.5)
- F.2. EV OUTLETS SHALL BE ON AN INDIVIDUAL BRANCH CIRCUIT WITH NO OTHER OUTLETS. (CEC 625.40)
- F.3. ELECTRIC VEHICLE CHARGING LOADS ARE CONSIDERED CONTINUOUS; BRANCH CIRCUITS SHALL BE SIZED TO 125% OF THE MAXIMUM LOAD OF THE EQUIPMENT. (CEC 625.41 AND 625.14)
- F.4. RECEPTACLES INSTALLED FOR EV CHARGING SHALL HAVE GROUND-FAULT CIRCUIT INTERRUPTER (GFCI) PROTECTION. (CEC 625.54)
- F.5. RECEPTACLES INSTALLED IN WET LOCATIONS FOR EV CHARGING SHALL PROVIDE WEATHERPROOF PROTECTION. (CEC 625.56(B))
- F.6. INDOOR COUPLERS SHALL BE INSTALLED AT LEAST 18 INCHES ABOVE THE FLOOR, AND OUTDOOR COUPLERS SHALL BE AT LEAST 24 INCHES ABOVE GRADE. (CEC 625.50)
- F.7. EQUIPMENT RATED MORE THAN 60A OR OVER 150V TO GROUND SHALL HAVE A READILY ACCESSIBLE DISCONNECTING MEANS THAT CAN BE LOCKED IN THE OPEN POSITION. (CEC 625.43)
- F.8. PORTABLE EVSE EQUIPMENT CAN CONNECT TO A PREMISES WIRING RECEPTACLE. (CEC 625.44(A))
- F.9. FASTENED-IN-PLACE EQUIPMENT, WHICH IS MOUNTED BUT CAN BE REMOVED WITHOUT A TOOL, MAY ALSO CONNECT TO A PREMISES WIRING RECEPTACLE. (CEC 625.44(B))
- F.10 FIXED EVSE EQUIPMENT REQUIRES PERMANENT WIRING. (CEC 625.44(C))
- F.11. VENTILATION IS NOT REQUIRED IF THE EQUIPMENT IS LISTED AS NOT REQUIRING VENTILATION. (CEC 625.51(A))
- F.12. AN EV USED AS A STANDBY POWER SOURCE REQUIRES LISTING AND LABELING AS UTILITY INTERACTIVE FOR THE SPECIFIC VEHICLE INSTALLED. (CEC 625.48)
- F.13. AN EV STANDBY POWER SOURCE OPERATES PER THE REQUIREMENTS FOR STANDBY POWER UNDER SECTION 702 OR AS AN INTERCONNECTED POWER PRODUCTION SOURCE UNDER SECTION 705. (CEC 625.48)
- F.14. ALTERNATING CURRENT (AC) RECEPTACLES IN EVS INTENDED FOR OFF-BOARD UTILIZATION EQUIPMENT SHALL BE LISTED AND HAVE OVERCURRENT AND GFCI PROTECTION. (CEC 625.60)

G. DISCONNECTING MEANS AND EMERGENCY SHUTOFF (CEC 625.43):
- G.1. AN ACCESSIBLE DISCONNECTING MEANS SHALL BE PROVIDED FOR EV CHARGERS TO ALLOW FOR SAFE DISCONNECTION OF POWER DURING EMERGENCIES OR MAINTENANCE. THE DISCONNECT SWITCH MUST BE INSTALLED IN A LOCATION THAT IS EASILY ACCESSIBLE FROM THE CHARGER. (CEC 625.43)
- G.2. FOR EV CHARGERS INSTALLED IN ATTACHED GARAGES OR INSIDE BUILDINGS, AN EMERGENCY SHUTDOWN FEATURE MAY BE REQUIRED, ALLOWING IMMEDIATE DE-ENERGIZATION OF THE CHARGER TO PREVENT FIRE OR ELECTRICAL HAZARDS. (CEC 625.44)
- G.3. ALL WIRING METHODS FOR EV CHARGERS MUST BE APPROVED BY THE CEC, INCLUDING THE USE OF PROPER CONDUIT, RACEWAYS, AND CONNECTORS. WIRING MUST BE INSTALLED IN A MANNER THAT PREVENTS DAMAGE AND ENSURES ELECTRICAL SAFETY. (CEC 625.19)

H. WEATHERPROOF AND OUTDOOR INSTALLATIONS:
- H.1. FOR OUTDOOR INSTALLATIONS, EV CHARGERS AND ASSOCIATED ELECTRICAL EQUIPMENT SHALL BE RATED FOR OUTDOOR USE, WEATHERPROOF, AND SUITABLE FOR EXPOSURE TO THE ELEMENTS. THE EQUIPMENT MUST BE INSTALLED IN A WAY THAT PREVENTS WATER INGRESS AND CORROSION. (CEC 625.44)

I. INSPECTION AND MAINTENANCE REQUIREMENTS (CFC SECTION 1206.12):
- I.1. RESIDENTIAL EV CHARGERS SHALL BE REGULARLY INSPECTED AND MAINTAINED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS AND LOCAL FIRE CODE REQUIREMENTS. THIS ENSURES THAT THE EQUIPMENT REMAINS IN SAFE OPERATING CONDITION. (CFC 1206.12)
- I.2. FIRE EXTINGUISHERS OR OTHER EMERGENCY EQUIPMENT SHALL BE ACCESSIBLE NEAR EV CHARGERS, AND USERS MUST BE TRAINED IN THE USE OF EXTINGUISHERS AND EMERGENCY PROCEDURES IN THE EVENT OF AN ELECTRICAL FIRE. (CFC 1206.12.1)

J. FIRE SAFETY AND PREVENTION (CFC SECTION 1206.13):
- J.1. ALL INSTALLATIONS SHALL CONSIDER FIRE PREVENTION MEASURES, INCLUDING AVOIDING OVERLOADING OF ELECTRICAL CIRCUITS, USING PROPER MATERIALS FOR WIRING, AND ENSURING THAT EV CHARGERS ARE INSTALLED ACCORDING TO MANUFACTURER SPECIFICATIONS. (CFC 1206.13)
- J.2. EMERGENCY RESPONDERS SHALL BE INFORMED OF THE PRESENCE OF EV CHARGING EQUIPMENT, AND RESIDENCES WITH CHARGERS SHOULD CONSIDER INCLUDING INFORMATION ABOUT SHUT-OFF PROCEDURES AND THE LOCATION OF DISCONNECTS IN EMERGENCY RESPONSE PLANS. (CFC 1206.13.1)

TABLES:

THHN COPPER: (2) CURRENT CARRYING CONDUCTORS, (1) NEUTRAL, (1) GROUND			CONDUIT TYPE AND SIZE		
SIZE OF CIRCUIT BREAKER (AMPS)	REQUIRED MINIMUM RATING OF COINDUCTORS (AWG)	REQUIRED MINIMUM RATING OF EQUIPMENT GROUNDING CONDUCTOR (AWG)	ELECTRIAL MECHANICAL TUBING (EMT)	RIGID NON-METALLIC CONDUIT (PVC)	FLEXIBLE METAL CONDUIT (FMC)
20	#12	#12	1/2"	1/2"	1/2"
30	#10	#10	1/2"	1/2"	1/2"
40	#8	#10	3/4"	3/4"	3/4"
50	#8	#10	3/4"	3/4"	3/4"
60	#6	#10	3/4"	3/4"	3/4"

CITY OF

COSTA MESA

RESIDENTIAL EV CHARGER STANDARD

PERMIT LIMITATIONS:

1. THIS PERMIT IS FOR THE INSTALLATION OF AN ELECTRIC VEHICLE CHARGING STATION (EVCS) IN A SINGLE-FAMILY DWELLING WITH A DEDICATED ELECTRICAL SERVICE .
2. THE CHARGER MUST BE LOCATED WITHIN A PRIVATELY OWNED LOCATION; EITHER IN ATTACHED GARAGE(S) OR ON THE EXTERIOR SIDE/REAR FAÇADE(S) OF THE BUILDING.
3. THE CHARGER SHALL NOT BE VISIBLE TO THE PUBLIC.
4. THIS PERMIT IS ONLY FOR A SINGLE ELECTRICAL VEHICLE CHARGER AND ITS ASSOCIATED ELECTRICAL CONDUIT AND WIRING.
5. NO OTHER IMPROVEMENTS ARE ALLOWED WITH THIS PERMIT (E.G. ELECTRICAL PANEL UPGRADES, ADDITIONAL OUTLETS, ENERGY STORAGE SYSTEMS, ETC).
6. THIS PERMIT AND CITY STANDARD PLANS SHALL NOT BE USED FOR WORK BEYOND THE SCOPE OF THE RESIDENTIAL EV CHARGER INSTALLATION. (ANY ADDITIONAL WORK WILL REQUIRE A SEPARATE APPLICATION AND PERMIT TO BE SUBMITTED).

CITY REQUIREMENTS:

1. JOB PLACARD SHALL BE POSTED ON THE SITE, IN A LOCATION READILY VISIBLE FROM THE STREET.
2. ALL COMPANIES & CONTRACTORS WORKING OR OPERATING WITHIN THE CITY OF COSTA MESA MUST HAVE A VALID CITY OF COSTA MESA BUSINESS LICENSE. (BUSINESS LICENSES CAN BE APPLIED FOR ONLINE WITH TESSA)
3. OVERSIZED LOAD PERMITS ARE REQUIRED FOR:
   - SINGLE TRUCKS EXCEEDING 8'-6" W X 40' L X 14.
   - COMBINATION TRUCKS EXCEEDING 8'-6" W X 75' L X 14'.
4. (OVERSIZED LOAD PERMITS CAN BE APPLIED FOR ONLINE WITH TESSA)
5. A PRELIMINARY PUBLIC WORKS INSPECTION IS REQUIRED PRIOR TO THE COMMENCEMENT OF ANY WORK.
6. A FINAL PUBLIC WORKS INSPECTION IS REQUIRED IMMEDIATELY PRIOR TO THE FINAL BUILDING INSPECTION.
7. ANY DAMAGE TO THE EXISTING PUBLIC IMPROVEMENTS (E.G. SIDEWALKS, CURB & GUTTER, STREET PAVING, LANDSCAPING, ETC.) THAT OCCURRED TO THE AREA SURROUNDING THE SITE DURING THE COURSE OF CONSTRUCTION SHALL BE REPAIRED PER THE CITY STANDARDS AT THE PROPERTY OWNERS EXPENSE.
8. AN ENCROACHMENT PERMIT IS REQUIRED FOR ANY AND ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY (SEPARATE APPLICATION REQUIRED)

CONSTRUCTION WORKING HOURS:
- MONDAY THROUGH FRIDAY, 7AM TO 7PM
- SATURDAYS, 9AM THROUGH 6PM
- CONSTRUCTION WORK IS NOT ALLOWED ON SUNDAYS OR THE FOLLOWING SPECIFIED FEDERAL HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, INDEPENDENCE DAY, LABOR DAY, THANKSGIVING DAY, AND CHRISTMAS DAY.
- VIOLATORS WILL BE CITED AND POTENTIALLY FINED.

INSPECTIONS:

- ☐ 102 - ELEC - UNDERGROUND CONDUIT
- ☐ 108 - ELEC - ROUGH CONDUIT
- ☐ 110 - ELEC - ROUGH WIRING
- ☐ 414 - ELEC - FINAL ELECTRICAL

* AFTER BOOKING THIS INSPECTION, LOG INTO TESSA TO UPLOAD THE SUPPORTING DOCUMENTATION TO THIS INSPECTION ITEM BEFORE THE INSPECTOR ARRIVES.

TO BOOK AND INSPECTION, VIEW THE INSPECTION SCHEDULE, OR SEE INSPECTION RESULTS, VISIT TESSA

FOR OFFICE USE ONLY:

PERMIT #:
____-____-____

ISSUED:
____-____-____

PROJECT NAME:
PROJECT ADDRESS: COSTA MESA, CA

OWNER INFO
NAME:
PHONE:
EMAIL:

CONTRACTOR INFO
NAME:
PHONE:
EMAIL:
LICENSE: EXPIRATION:

PLAN PREPARER INFO
NAME:
PHONE:
EMAIL:

EMERGENCY CONTACT INFO
NAME:
PHONE:
ROLE/RELATION TO PROPERTY:

TENANT INFO (IF APPLICABLE)
NAME:
PHONE:
EMAIL:

FORM NUMBER:
CBEV-1

(RELEASE: 09-2024)

FLOOR PLAN AND SITE PLAN:

MANUFACTURER'S INFORMATION:

MANUFACTURER'S INFORMATION:

RESIDENTIAL EV CHARGER STANDARD

FOR OFFICE USE ONLY:

PERMIT #:

____-____-____

ISSUED:

____-____-____

PROJECT NAME:

PROJECT ADDRESS: COSTA MESA, CA

OWNER INFO

NAME:

PHONE:

EMAIL:

CONTRACTOR INFO

NAME:

PHONE:

EMAIL:

LICENSE: EXPIRATION:

PLAN PREPARER INFO

NAME:

PHONE:

EMAIL:

EMERGENCY CONTACT INFO

NAME:

PHONE:

ROLE/RELATION TO PROPERTY:

TENANT INFO (IF APPLICABLE)

NAME:

PHONE:

EMAIL:

FORM NUMBER:

CBEV-2

(RELEASE: 09-2024)

SITE PLAN CHECKLIST:

A DIMENSIONED (OR SCALED) DRAWING THAT INCLUDES THE FOLLOWING:

- DRAW THE PROPERTY LINES WITH DIMENSIONS (LOT WIDTH X DEPTH)
- SHOW ALL BUILDINGS ON THE PROPERTY. THIS INCLUDES THE HOUSE AND OTHER ABOVE GRADE STRUCTURES LIKE: PATIO COVERS, TRASH ENCLOSURES, BBQ, FIRE PITS, ETC.
- SHOW POOLS, SPAS, AND OTHER DECORATIVE WATER FEATURES.
- SHOW ALL EASEMENTS & SETBACKS FROM ULTIMATE PROPERTY LINES AND THE DISTANCES BETWEEN BUILDINGS AND OTHER STRUCTURES.
- SHOW DRIVEWAYS
- SHOW STREETS, WITH STREET NAMES, AND SIDEWALKS ADJACENT TO THE PROPERTY
- SHOW ORIENTATION WITH A NORTH ARROW
- SHOW FENCE LOCATIONS WITH HEIGHTS AND TYPE (WOOD, VINYL, BLOCK WALL)
- EXISTING MAIN PANEL LOCATION
- PROPOSED EV CHARGER LOCATION
- GARAGE OR CARPORT DIMENSIONS WITH 10' X 20' PARKING DIMENSIONS FOR EACH PARKING SPACE